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Acronyms

BBPFPU	Blue Bonds and Project for Finance Permanence Unit
BE	Blue Economy
BEI	Blue Economy Investments
BEKS	Blue Economy Knowledge System
BEDPS	Blue Economy Development Policy & Strategy
Beltraide	Belize Trade and Investment Development Service
BFD	Belize Fisheries Department
BG	Blue Growth
BMEP	Belize Maritime Economy Plan
CRFM	Caribbean Regional Fisheries Mechanism
CZMAI	Coastal Zone Management Authority and Institute
EEZ	Exclusive Economic Zone
GDP	Gross Domestic Product
GOAC	Global Ocean Accounts Partnership
IADB	Inter-American Development Bank
ICZMP	Integrated Coastal Zone Management Plan
IMMARBE	International Merchant Marine Registry of Belize
LAC	Latin America and the Caribbean
MBEDRM	Ministry of Blue Economy and Disaster Risk Management
MRV	Monitoring, Reporting, Verification
M&E	Monitoring & Evaluation
MSP	Marine Spatial Plan
NGO	Non-Government Organization
NLAI	NLA International
NOP	National Ocean Policy
OSPESCA	Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus
SDG	Sustainable Development Goal
SIP	Strategic Implementation Plan
SOBE	Sustainable Ocean Based Economy
TASA	Turneffe Atoll Sustainability Association
TOR	Terms of Reference
WP	Work Package

Executive Summary

From 2017, Belize's blue economy contribution to GDP was the highest recorded at US$1,374,406,670 in gross value but as a percentage of 49.6%. In 2022 the Belize blue economy contributed an estimated US$1,295,473,023.53 to GDP or 0.6% drop, recovering from the COVID19 pandemic or 75 % of GDP From 2009 to 2020. Fishing GDP formally decreased from 4.5 to 1% of GDP, whilst tourism increased to 43% of GDP. Logistics including maritime transport and shipping increased from 3 to 3.3%. In 2022 the total labour force was 191,728, of which 118,626 were male and 73,102 were female. A minimum of 13.91% depends on Belize's ocean/blue economy for employment directly and 22.8% indirectly in 2022. Of all Caribbean regional and global nations, Belize is among the first to pursue ocean accounting to reconfigure its entire government system of statistics. Dependency on the Mesoamerican Reef and Belize's blue economy, enhanced access to data and emerging stakeholder interest provides motivations to pursue ocean accounting under a revised legal mandate of the Ministry of Blue Economy and Disaster Risk Management (MBEDRM) with the Statistical Institute of Belize (SIB) and others as partners. This deliverable therefore establishes the first set of integrated ocean accounting, identifying GDP, employment, existing and future projects, and initiatives -environmental, economic, social, transparency/governance and risk related indicators. Of a sample of 100 stakeholder respondents, it identifies response insights into Belize's ocean accounting, blue economy risks, opportunities, and priorities from 26 surveys and 19 interviews. Belize's initial ocean account for the baseline of 2020 (given data constraints) is summarized in Table 3.9.1 below representing minimum economic contributions to GDP and estimated sector employment. In 2022, the Belize blue economy contributed an estimated US$2,590,946,047.05 to the national economy or 75% of Gross Domestic Product (GDP), implying a significant need to revise ocean accounts to stop undercounting its true valuation of ecosystem services. This report therefore identified the following main priorities.

Immediate/Short Term Priorities and Recommendations (1 Year or Less)

- **Leadership, Focal Points and Institutional Structure**: Designate a Central Authority/Committee i.e., MBEDRM/Statistics Institute of Belize to provide a coordinated mechanism and central leadership for ocean accounting.
- Ensure familiarisation and awareness training on defining ocean accounting and its value.
- **Awareness, Engagement and Consensus on Ocean Accounting:** To engage stakeholders and facilitate awareness to ensure agreement on a proposed common methodology and Clear Key Performance Indicators that can be used to monitor progress for ocean accounting. This includes Sustainable Development Goals indicators such as 14, the Sustainable Blue Economy Finance Principles, any commitments under the United Nations Framework Convention on Climate Change and Paris Agreement and any other international agreements. For example, certain indicators capturing not just the economic but environmental and social impacts, accountability, transparency, governance, progress against risks and finance/blue carbon have also been proposed within this report.
- **Provide Supporting Human, Technical and Financial Resources**: Allocate/Redirect sufficient resources, staff training, technology, and information systems.
- **Developing Pilot Systems (Actual System May Be a Medium-Term Objective**): Develop an integrated database capturing system including modify and realign others, create,

Measurement, Reporting and Verification or MRV systems, infrastructure, technology, staff, and analytical capacity along with prioritising monitoring and reporting to create a central clearinghouse mechanism for stakeholders to contribute data including adapting the climate change indicators.

- Communication, Data Sharing and Cooperation: Improve internal government communication and cooperation agreements towards sharing data.
- Further improve technical, financial and information sharing agreement with NGOs, academics, civil society, private sector, and other stakeholders.

Medium Term Priorities and Intermediate Recommendations

Whilst stakeholder engagement noted many priorities, these are summarised as additional recommendations below for implementation by the IDB or any other development partner.

- **Extended Communication, Awareness and Engagement:** More interest, support and awareness for ocean accounting and Monitoring, Reporting and Verification.
- **Development of a central database related to ocean and blue economy knowledge:** Provide support to the Fisheries Department/MBEDRM intention to develop a centralized Data and Information Management System. This system will integrate data collection, licensing database, e-catch data reporting, enforcement data, and a vessel monitoring system. This work aligns with the E-governance and Digital Transformation Framework and will strengthen ocean resources management. Similar initiatives are being created for BIOFIN or Biodiversity Financing Initiative or Biodiversity Impact Investment Tool.
- **Additional Training and Institutional Capacity Building:** Establishing local training and awareness on blue carbon, marine spatial planning, and ocean ecosystem/social valuation techniques, along with processes for improved capacity building, research, monitoring equipment and analytical capacity.
- **Assessing Natural Capital and Comprehensive Marine Ecosystem Survey:** Support an integrated ocean survey baseline assessment to gauge existing ecosystem health, overcome existing ecological, socioeconomical and risks/other data gaps.
- **Investing in Pilot Nature Based Solutions and Projects:** Consider support for nature-based solutions, blue economy livelihood development and ecosystem restoration approaches to enhance natural capital/ecosystem value.

Long Term Priorities and Recommendations (3-5 Years)

- Develop and implement monitoring processes to evaluate changes over time, including funding and support for updates.
- Develop finance and support mobilisation for additional stakeholders to contribute towards integrated ocean accounting, monitoring, and evaluation -including providing NGOs, community-based organisations and others, simplified access to funding such as stipends/grants to cover initial costs and implementing various financial methods.
- Basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training such as GIS and remote sensing.

- Support Marine Conservation and Education Awareness Initiatives such as stipends to volunteers and Youth Ambassadors. Communities could be trained to become rangers and data recorders and nominally compensated.
- **Technology:** In parallel, stakeholders identified the need to investigate technological solutions towards monitoring, reporting and verification, along with data analysis.
- **Improving Governance Systems:** More emphasis must be on improving governance systems given a high staff turnover and certain critical staff/equipment gaps that exist throughout various Belize government/ quasi-government entities.
- **Integration into Ocean Accounting:** Align other government institutional systems of accounting and statistics to capture ocean accounting and the blue economy.
- **Alignment With Other Laws and Policies:** It is recommended to support/implement and align existing and future data capturing systems and indicators to laws, regulations, and policies such as the current National Maritime Transport Policy.
- **Blue Carbon Trading**: Support the implementation of the Blue/Green Carbon Trading Bill to encourage monitoring and increases in the value of ecosystem goods and services.
- **Connect with International Collaborations:** Active collaboration in local, regional, and international initiatives to ensure opportunity costs and problems are minimised and success may be replicated and upscaled.
- **Further External Collaboration with Additional Partners for Information Input.** More support is needed for inter-agency collaboration including not just strengthening internal government Data Sharing Agreement Process and Public-Private-NGO Partnerships but co-management of marine protected areas.
- **Development of Blue Economy Opportunities.** Belize blue economy stakeholders also identified several sustainable blue economy livelihood opportunities for investment seeking IADB support including traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue biotechnology, ocean energy and data valorisation, cabotage, boatbuilding, ecotourism, adventure, nature, cruise, and other areas.

1: Introduction

This Work Package and Deliverable is the third of a series of five under a consultancy funded by the Inter-American Development Bank entitled 'Capacity Building to Advance the Blue Economy Development in Belize or BL-T1145'. This project is being jointly implemented by both the Inter-American Development Bank (IADB) and the Belize Government, spearheaded by the Ministry of the Blue Economy and Disaster Risk Management (MBEDRM). Work Package 3 specifically focuses on the emerging concept of Ocean Accounting and measuring Blue Economy Industries (and Ecosystem) contributions to Belize's GDP. To do so, it will define Ocean Accounting, its purpose and significance in this section. In Section 1.1 it will provide a desktop analysis of various approaches to ocean accounting, local, regional, and international best practises to provide guidelines for Belize's stakeholders to realign their statistics/data capturing and monitoring systems, legal, human, technological and financial/legal capacity towards this emerging area of global interest as a tool to indicate progress in the ocean and blue economy. In Section 2 it outlines the undertaken methodology as the basis for this initial effort at Belize's ocean accounting. Section 3 summarises initial efforts to measure the socioeconomic and environmental contribution of Belize's blue economy and ocean accounting contributions to employment, GDP and any other indicators for which data is available. This will focus on a sectoral approach for the 8 blue economy sectors classified by MBEDRM including: the following 8 priorities:

1. Aquaculture/Mariculture
2. Blue Carbon
3. Renewable Energy
4. Fisheries
5. Marine Protection and Management
6. Maritime Transport & Shipping Services
7. Ocean and Coastal Tourism
8. Marine Research and Development

Section 4 summarises other initial findings from prioritised stakeholder engagement via interviews and surveys. Section 5 highlights conclusions and initial findings and recommendations to assist Belize blue economy/ocean stakeholders to allocate and prioritise resources effectively, whilst developing autonomous capacity given constraints, stakeholder concerns and international best practises.

Ocean Accounting has no universal definition, but the Global Ocean Accounts Partnership on their website defines it simply as: "Ocean Account is a structured compilation—of consistent and comparable information: maps, data, statistics and indicators—concerning marine and coastal environments, including related social circumstances and economic activity." Such processes can be mainstreamed, developed, and displayed into traditional statistics reports, database, interactive dashboards, and visual graphics through adaptation. Or alternatively, new indicators and methods of portraying ocean accounting and associated information can be targeted by various interested stakeholders. It seeks to provide an alternate means of capturing the flows and services of activities and natural marine resources through various forms of data and statistics integrating all sectors of an ocean/blue economy and ecosystem for which data can be provided. Ocean Accounting moves beyond primary macroeconomic indicators such as employment and GDP as measures of economic progress and activity and

general Environmental Accounting focusing primarily on terrestrial environments, to encompass specifically the coastal and ocean sector.

1.1: Brief Background to Ocean Accounting and Best Practices

The recently established Ministry of Blue Economy and Disaster Risk Management (MBDRM) has as one of its primary mandates, to develop a sustainable Blue Economy for Belize that will contribute to the country's economic growth and recovery and the creation of opportunities for improved livelihoods through the responsible use and management of its ocean and aquatic resources. To deliver on this mandate, this report specifically focuses on the data, resource mobilisation and capacity building necessary to implement and monitor progress on the sustainable blue economy including legally, socially, economically, and environmentally. Global ocean accounting is only comparatively recent in the last 2-3 years, with very few examples of implemented success and thus lacking in demonstrated validation. By providing a brief desktop review of current theory, experiences, and case studies of current practice in other countries, this will enable Belize to be at the forefront of this rapidly, radically emerging, and evolving development, in alignment with a sustainable blue economy. Such examples are based on large ocean dependent states with ocean or blue economy strategies.

Conventional statistics for decades have focused on macro-economic indicators through a System of National Accounts to capture the value of goods, services, import and export trade flows, production, and employment. This is internationally agreed by the UN including Belize for economics, trade, statistics, and accounting comparison purposes between countries and at a national level. Such indicators most commonly include employment, Gross Domestic Product, Gross National Product, prices, inflation, purchasing power and others. In conscious recognition of the value of the environment (primarily terrestrial and freshwater) and need for greater attention for sustainability, the System of Environmental-Economic Accounting was adopted by the UN officially in 2012 and by a further 90 nations since to extend traditional economics/statistic/accounting towards capturing general ecosystem values, roles, their flows into to the economy (supply), their use in the economy (use), residuals produced from their use and expenditures to mitigate environment impacts. It has been directly defined as: "*a framework that integrates economic and environmental data to provide a more comprehensive and multipurpose view of the interrelationships between the economy and the environment and the stocks and changes in stocks of environmental assets, as they bring benefits to humanity. It contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics and accounts. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA). The framework uses concepts, definitions and classifications consistent with the SNA in order to facilitate the integration of environmental and economic statistics. The SEEA is a multi-purpose system that generates a wide range of statistics, accounts and indicators with many different potential analytical applications. It is a flexible system that can be adapted to countries' priorities and policy needs while at the same time providing a common framework, concepts, terms and definition*s.

In turn this has triggered an increase in environmental economics valuation methods, Marine Spatial Planning, GIS/other surveying/remote sensing and areas such as carbon and biodiversity offsets and capture. In growing recognition of the ocean's role as a pivotal sector and the accompanying "blue economy narrative," in 2021 the UN proposed separately

endorsing the concept of ocean accounting specifically more separate from general environmental accounting, traditionally more terrestrial focused in nature. This international system has also extended its focus to the separate question of valuation in terms of incorporated direct and indirect economic, social and environmental use and non-use values. However, the value and purpose of this report is in identifying existing data daps, stakeholder priorities and concerns towards completely realigning Belize's System of Economic and Environmental Accounts towards embracing the blue economy and marine ecosystems, along with social dimensions, as among the first in the world.

Among the most internationally recognised approach to ocean accounting is the Global Ocean Accounts Partnership (Milligan 2020). Elements of this approach will be adapted to this deliverable's methodology in consistent alignment with the comparatively few successful examples existing of global best practises and standards. However, it will be adapted to the specific characteristics of Belize including data availability, responses by local stakeholders, the 8 designated sectors for classification and the level of potential interest. A core objective is to coordinate and unite all sources of divergent, fragmented data, collection, and storage purposes, whilst updating existing information, for improved potential outcomes. This relies upon indicators and accounts to develop statistic. Globally the Partnership and UNESCAP or United Nations Economic and Social Commission for Asia and the Pacific are seeking to create a global ocean accounts database and network. Using Norway's efforts to develop its first Ocean Accounts as an example, it focuses initially on defining the extent of the blue economy, the reference year, and economic indicators such as changes in value added, income and asset values over time. It then proposed considering changes in ocean wealth extending to ecosystems as non-produced wealth but also socially seeking to measure alterations in people's income and welfare to see if they can be better off. The Global Ocean Accounts Partnership has also set a goal to publish and help support 25 countries towards developing ocean accounts by 2025. Currently those developed or in progress including Belize are identified in Table 1. Belize's approach to ocean accounting has been, through a separate project under GOAP since 2023 and the Belize government, to conduct initial capacity building and awareness training for the Coastal Zone Authority and Management Institute, as one blue economy stakeholder. It has also been working on developing a pilot ocean accounting project capturing reef fisheries, tourism and coastal protection values including CZAMI, Statistical Institute of Belize and Belize Tourism Board. However, it has not yet incorporated all blue economy sectors and stakeholders, nor yet been scaled to incorporate entire Belize nor integrated into the existing system, which would need funding, training and technology.

Table 1: Global Examples of National Ocean Accounting Initiatives

Australia	Bangladesh
Belize	China
Costa Rica	EU
Fiji	Indonesia
Jamaica	Japan
Kenya	Malaysia
Myanmar	Netherlands
Norway	Palau
Samoa	South Africa
Tanzania	Thailand
UK	United States
Vanuatu	Vietnam.

Source: This Study

In Australia one pilot study focused on Lake Illawarra in New South Wales developing area specific ocean accounting from 2010 to 2020 (Australian Bureau of Statistics 2022). It focused on measuring changes in ecosystem areas, services, and values such as mangroves and seagrass. As part of this process, it calculated the extent of coastal vegetation (mangrove, tidal marsh, and seagrass) and associated ecosystem services flows (climate change mitigation and eutrophication mitigation). For climate change mitigation it relied on the tonnes of carbon sequestration and burial focusing on carbon credit auction or market prices. To offset eutrophication release from pollution, it relied on pricing the burial of nitrogen and phosphorous as sequestration of associated emissions, whilst capturing both the fixed stock or assets but also any variations or flows/changes in service volumes and values over time. Economically it relied on changes in fishery catch values, water transport and tourism. It focused on capturing the extent and condition of the ecosystem, associated economic activity and employment within a pre-determined geographic and temporal radius. As a basis for ocean accounting, it relied on ecosystem valuation by including the following outlined stages and process for mangroves, tidal marshes, and seagrass.

- Scoping of use-cases to inform coastal management,
- Compilation of a data inventory, literature review and shortlist of key contacts for Lake Illawarra,
- Selection of relevant ecosystem services, constrained by data availability,
- Construction of an ecosystem extent account,
- Valuation of ecosystem services (use, in physical and monetary terms),
- Compilation of ocean economy satellite accounts related to employment within ocean-related economic sectors.

For the Caribbean, ocean accounting is nascent but gradually gaining attention. The first Jamaican effort at measuring the blue economy using a system of national accounts and use of blue economy satellite accounts was done by the Caribbean Development Bank in 2019 – which was published as a CDB Working Paper No. 2019/02. During January to September 2022, NLAI consultants supported a more comprehensive Jamaican effort at ocean accounting as part of a broader World Bank funded, blue economy baseline assessment. This approach employed a United Nations Economic Commission for Africa or UNECA developed Blue Economy Valuation Toolkit method, adapting traditional economic, social, and environmental data into a series of interactive dashboards, infographics, and performance indicators. Economically it incorporated indicators such as employment, Gross Domestic Product, Gross Value Added and wages divided into both males and females. Social data indicators included the inequality-adjusted and general Human Development Index (HDI), Literacy Index, Education Index, youth and general unemployment rate, years of schooling both male and female, quality of roads, ports and other infrastructure, electricity and water and availability of venture capital. Other indicators measure quality of education, intellectual property protection, burden costs of crime and government regulation, transparency, tourism and recreation, sense of place, artisanal rates, technological readiness, innovation, and quality of staff training.

Environmental data indicators extended to the ecological classification, area traits; extent of size and quality of service, estimated unit value of ecosystem service per unit of ecosystem in selected currency, the percentage attributable to the blue economy and the estimated total value of the ecosystem service attributable to the blue economy in US Dollars. This is then determined or estimated via approximate values for various ecosystem types including deep-water coastal inlets, permanently open riverine estuaries and bays, intermittently closed and open lakes, and lagoons, plus seagrass meadows. Others include photic coral reefs, photo-limited marine animal forests, subtidal sand beds and subtidal mud plains. There are also epipelagic, mesopelagic, bathypelagic, and abyssopelagic ocean waters. Additional ecosystem types include continental and island slopes, seamounts, ridges and plateaus, hadal trenches and troughs, submerged artificial structures, intertidal forests and shrublands, coastal shrublands and grasslands, alongside permanent lowland rivers. This excludes rocky, muddy, sandy and boulder or cobble shores.

The Organisation for Economic Cooperation and Development (OECD) is reprioritising ocean accounting to combine marine environmental data with the ocean economy as particularly necessary to identify and calculate the most optimal payoff benefits and information flows (Jolliffe, Jolly and Stevens 2021). In doing so it concedes the challenges of disaggregating existing statistics and data into ocean specific, individual economies, ecosystems, and societies. The process includes methods such as modelling direct and indirect contributions; conducting desktop reviews, interviews, and surveys to identify existing data along with associated gaps from various sources. It further works for standardisation of ocean accounting approaches to ensure consistency for international comparison purposes across various nations. such as the United Nations Statistical Commission (UNSC) are the International Standard Industrial Classification (ISIC) Rev.4 and the Central Product Classification (CPC) Version 2.1. This aims to capture activities plus ecosystems corresponding specifically to established criteria as a basis for capturing the stocks and flows of marine ecosystems and economies. The OECD definition ascertains that the ocean economy includes economic activities that:

- Take place on or in the ocean;
- Produce goods and services primarily for use on or in the ocean;
- Extract non-living resources from the marine environment;
- Harvest living resources from the marine environment;
- Use living resources harvested from the marine environment as intermediate inputs;
- Would likely not take place were they not located in proximity to the ocean; or,
- Gain a particular advantage by being in proximity to the ocean.

In Norway the research project MAREA (Marine Ecosystem Accounting) developed its first set of national ocean accounts based on the approach favoured by the Global Ocean Account Partnership and validated by spatial mapping, existing ocean surveys and stakeholder engagement (Heill T et al. 2022). It favoured environmental indicators such as sea temperatures, the state of sugar kelp forests, fish stocks, the stock of sea birds and marine mammals along with atmospheric and river pollution. It then focused on classifying various ocean economy sectors over time separately for the main uses of maritime industry, seafood, petroleum, shipping, and tourism from 2016 to 2019.

One article reviewing various approaches to ocean account development and implementation (Lubchenco and Haugan 2023) counselled undertaking ocean accounting to monitor changes in real levels of ocean related income, employment, and production over time or in response to various circumstances such as changes in inflation and interest rates. This helps in determining the stability of the Atlantic Ocean, Mesoamerican Reef health and wealth and as a baseline for encouraging certain policy ecological mitigation, conservation, restoration, and adaptation measures. It calls for standardisation efforts by governments via cooperating on realigning statistics to favour ocean accounting for adjusted GDP, net GDP, changes in the ocean balance sheet and ocean income. To convey the social impact more fairly, developing measures for equity can ensure such an economy does not remain elitist. In utilising aggregated data, aside from disaggregation challenges, there remain concerns that conveying such activity in terms of ocean sectors may lead to risks of undercounting or overcounting employment, production, GDP, and other values, unless adjusted for. Once these modified ocean accounting statistics are produced separately from traditional accounts, including natural capital accounts, the final stages may include devising supply and use tables, balance sheets, technical guidance, associated impact and awareness and monitoring and evaluation.

In South Africa, the South African Environmental Observation Network is looking to develop ocean accounting by mapping its own ecosystems following the International Union of Conservation of Nature, identification and classification of ecosystems and their services, revising its biodiversity assessment, including a more marine focus (Findlay K, 2019). It has identified 150 marine and coastal ecosystem types. It subsequently has been looking at a pilot project in Algoa Bay to capture all localised economic and ecosystem goods, services and values within a specified area and time, along with stakeholder engagement as critical precursors to investigating the feasibility of National Ocean Accounting. Additionally, Findlay (2019), implies that ocean accounting should be able to gain increasingly accurate and real time information not just annually given the 4th Industrial Revolution through cloud services and the Internet of Things, quantum and edge computing, improvements to satellites, remote sensing, sensors, drones and robotics, machine learning, automated and predictive analytics. This could receive input data from a range of abiotic, ocean, economic, social, and environmental sources, measuring ecosystem, abiotic and other services, and functions with more accurate valuation of the flows and services, along with associated values over time. Ocean accounting could be extended to capturing use, non-use, and option values both directly and indirectly expanding to production, consumption, income, expenditure, and trade. It would extend to ecosystem classification but also governance. However, governance would require additional measures and indicators capturing taxes, royalties, subsidies, research, technology, innovation, laws, regulations, corporate governance, general protection, and management.

In the United States initial ocean accounting efforts have been published by the Bureau of Economic Analysis in conjunction with the National Oceanographic and Atmospheric Administration (Nicolls et al. 2020) for a value of US $372.8 billion in 2018 or 1.8% of the national Gross Domestic Product. This included both economic and ecosystem functions of associated goods, and services, along with their value and production. However, this value is extremely low and limited due to a lack of comprehensive data and associated values in terms of conveying the direct and indirect values. In doing so this further elevate the true

contributions and worth of various sectors, systems and resources traditionally concealed by conventional measures. For example, the US ocean account system categories include living resources (marine); construction (coastal and marine); research and education (marine); transportation and warehousing (marine); professional and technical services (coastal and marine); minerals (offshore), utilities (coastal), ship and boat building (nonrecreational), tourism and recreation (coastal and offshore) and national defence and public administration. Challenges exist in deciding whether such measures are strictly ocean and the extent to which coastal, lakes and rivers may be associated given interdependent ecosystems and economies. In the future regional and local based ocean accounts could also be devised. The estimates are altered where possible to include value added direct contributions, compensation, and employment. Such measures can also be captured visually such as via pie charts and bar charts for greater emphasis.

A 2009 World Resources Institute paper on the economic contribution of Belize's coral reefs and mangroves estimates the value of using total economic values based on use and non-use economic, social and ecosystem services, following environmental economic principles (Cooper, et al. 2009). However, rather than focusing on extended ocean accounting, it was more limited in scope, focusing on a sample of the 18 MPA sites, indicating significant underinvestment in natural capital relative to their potential economic returns. For example, despite only US$100,000 budget per reserve, it supported 115,000 visitors in total and contributed an estimated US$4,900,000 to US$7,300,000 per year to the national economy - just for Glover's Reef alone. The value of reef- and mangrove-related fisheries, tourism, and shoreline protection services in Belize for 2009 was estimated to be US$395–US$559,000,000 per year. Mangroves provide an estimated US$174–US$249 million of this total.

In 2021 the IDB undertook an economic valuation of Mesoamerican Reef ecosystem services across the region including Environmental Economic accounting methods such as stated preference revealing preference methods via tools such as surveys (IDB 2021). This indicates the extent to which stakeholders are willing to indicate values and preferences, using the concept of Total Economic Value. Such a process can help with mobilising research data. It also included the extent to which stakeholders are willing to pay what they pay for various coral reef activities such as an entrance fee; payment for ecosystem services, project evaluation and budget justification; evaluation and policy design; and compensation and penalty fees. The study concluded site selection and awareness influenced the accuracy of ocean accounting.

1.2: The Significance of Belize's Blue/Ocean Economy and Ocean Accounting

Belize's blue economy is significant given the Global Ocean Account Partnership estimated local mangrove and coral reefs provide US$395,000,000 to US$559,000,000 per year in ecosystem services, especially the world's second largest coral reef. According to the Statistical Institute of Belize directly sourced from their current website and published reports, 85% of trade and 67% of the population is coastal. Imported cargo volumes were an average of 9,594.500 Total Equivalent Units or containers from Dec 2008 to 2019. An average of 12% of all exports were based on fisheries and aquaculture from 2015 to 2022. Cruise ship arrivals surged 47% in 2023 over 2022, with 904,189 visitors. Belize has been actively engaged with its blue bonds, institutional strengthening, and capacity building, developing various ocean/blue economy policies, and has established the Ministry of the Blue Economy and

Disaster Risk Management (MBEDRM) specifically tasked with coordinating blue economy development. It also has over 20 specialist nongovernmental organisations who have been very prominent in areas of the blue economy from conservation to research, sustainable fisheries, mariculture and tourism initiatives. Belize is also becoming increasingly sophisticated in its capacity to monitor risks and develop integrated ocean accounting based on increasing volumes of marine scientific research and other experience including scientific data and capacity building under the UK funded Ocean Country Partnership Programme.

The purpose and relevance of Ocean Accounting is therefore to measure the value of the ocean, its ecosystems, and associated social and economic activities as a baseline for measuring changes over time. It can assess how people value and respond to ocean challenges and threats such as illegal and overfishing, invasive species, ocean acidification, pollution and climate change. It can assist in determining how truly sustainable an ocean/blue economy is in the short and long term. It can help indicate progress to international commitments such as the UN Sustainable Blue Economy Finance Principles, the UN Ocean Decade and Sustainable Development Goal 14 on the ocean. It can unite various isolated, disjointed types of data to help inform and improve effective decision making towards more long- and short-term sustainable outcomes legally, politically, socially, economically, culturally, and environmentally. Ocean Accounting benefits for Belize and its blue economy include enhancing accuracy and support towards developing a monitoring, reporting and verification or valuation process for the country's domestic progress in truly committing towards a sustainable blue economy future. It can evaluate outcomes to minimise wasting resources; learn from issues or challenges/mistakes and realign new priorities more coherently across multiple stakeholders and sectors.

Adapting to this system overcomes the failures of traditional means of capturing national accounts of employment, GDP and other indicators which do not fully convey the value of the ocean/marine/coastal sectors; the associated ecosystem services, economic activity, social wellbeing, and health employed. Such traditional national accounting values do not capture changes in environment and other values over time. This can reduce issues arising from a lack of local and international standardisation, elevating the ocean in traditional mindsets and stakeholders as being essential to the future of socioeconomic activity, providing a basis for wider understanding and support. Nor does it permit natural ocean capital to be valued such that it can be leveraged for emerging opportunities such as climate, blue carbon, blended and biodiversity finance. Nor does it help in ascertaining marine protected areas and developing mechanisms such as blue bonds, which allow debt for nature swaps not just in Belize but in the Seychelles in 2015, China in 2022 and in Fiji 2023 according to their respective governments. Belize is an exemplary model for ocean accounting to be pursued for several reasons. First is the existence of its quality of public and private economic, environmental, and social data from NGOS, academia, public and private sectors. Second, pursuing ocean accounting can also help in monitoring the extent to which existing sustainable financing mechanisms, resources and promised commitments resulted in real change. For example, the 2021 Blue Bond (or the 'debt for nature swap' signed with The Nature Conservancy) includes 2 targets via a Blue Loan Agreement (BLA) and the Conservation Funding Agreement (CFA).: Spend USD $4 million per year on marine conservation until 2041 and Double marine protected areas (from 15.9% of its ocean to 30%) by 2026.

Third, it has been identified as a recurrent priority for the blue economy, especially given how much the Meso-American Reef, fisheries, aquaculture, tourism, and research contribute to GDP. Recently Belize have been looking to develop Ocean Accounting further not just through this consultancy but also via an initial workshop from 15-17 August 2023 hosted in conjunction with the Global Ocean Accounts Partnership. This included 20 stakeholders. MBEDRM has expressed that findings from this IADB consultancy and Work Package can guide a formal partnership to fully develop the first Ocean Accounts Partnership for Belize as a country. Ultimately, the workshop agreed on the following outcomes, though as of this report's original submission in February 2024, details still are to be determined and negotiated. In an initial workshop and website-based press release, the Global Ocean Accounts Partnership and MBEDRM jointly announced the following achievements and hopes:

- "A two-year roadmap to ocean accounts: participants collaboratively developed a strategic roadmap outlining key milestones, actions and stages for developing ocean accounts in Belize over the next two years."
- "Capacity development initiatives: Participants discussed methods to build capacity in Belize including academic programs and courses focussed on data collection and analysis."
- "A shared vision: Participants collectively envisioned a sustainable future for Belize, which will guide their efforts to making this a reality."
- "Public awareness: Live coverage of the workshop by Channel5 Belize gave the public a chance to learn about ocean accounting and the key outcomes of the workshop."

2: Method Approach

Following recommended best practises in a desktop review, previous experience, data availability and stakeholder initial engagement at the Inception Meeting with the clients, this section proposes the outlined methodology approach. This aims to deliver the Work Package 3 objective of an initial ocean accounting set of statistics indicators and associated stakeholder perceptions, as the baseline for any subsequent developments, proposed amendments to data collection types, processes and capacity building. As agreed in the proposal and specified in the Inception Report (Work Package 1), this assessment of Blue Economy related industries/ecosystem valuation and contribution to GDP, otherwise referred to for convenience as "ocean accounting", will target existing and emerging sectors. As indicated, these specifically refer to Aquaculture/Mariculture, Blue Carbon, Renewable Energy, Fisheries, Marine Protection and Management, Maritime Transport and Shipping Services, Ocean and Coastal Tourism and Marine Research and Development.

2.1: Measuring Blue Economy Related Industries Contribution to the GDP

In the process to determine contributions to GDP, data collection took place with the aim of gathering quantitative information on specific variables to provide reliable estimates and extracting actionable insights, usually from primary and secondary sources of information, public and non-public. The basis for Blue Economy accounting is summarised in Figure 1 and our proposed MRV and ocean accounting valuation method will consider the aspects detailed in the figure subject to data/resource availability. The classification of data by sectors, the macroeconomic indicators proposed and the proposal to link to existing methodologies, data capturing processes, institutional arrangements and methods is proposed to be compatible with the use of Belize's System National Accounts and Satellite Accounts, spearheaded by MBEDRM and Statistical Institute of Belize. However, such methods and data will be more ocean or marine focused. These could provide possible baseline assessments, propose indicators, implementation guidelines and associated training with awareness support for mobilising resources and capacity building for the advancement of Belize's BE.

This WP will be developed in four phases as outlined below.

Phase 1 - Identification of current Blue Economy and potential Blue Economy activities, will input into aspect (i) of the national accounts, various statistics and other sources and will be used to steer data collection. This consultancy recognizes the Ocean Accounting Training currently being provided by the Global Ocean Accounts Partnership (GOAP) and will make all efforts to engage with the GOAP coordinator, to avoid duplication and optimise the use of all analysis produced.

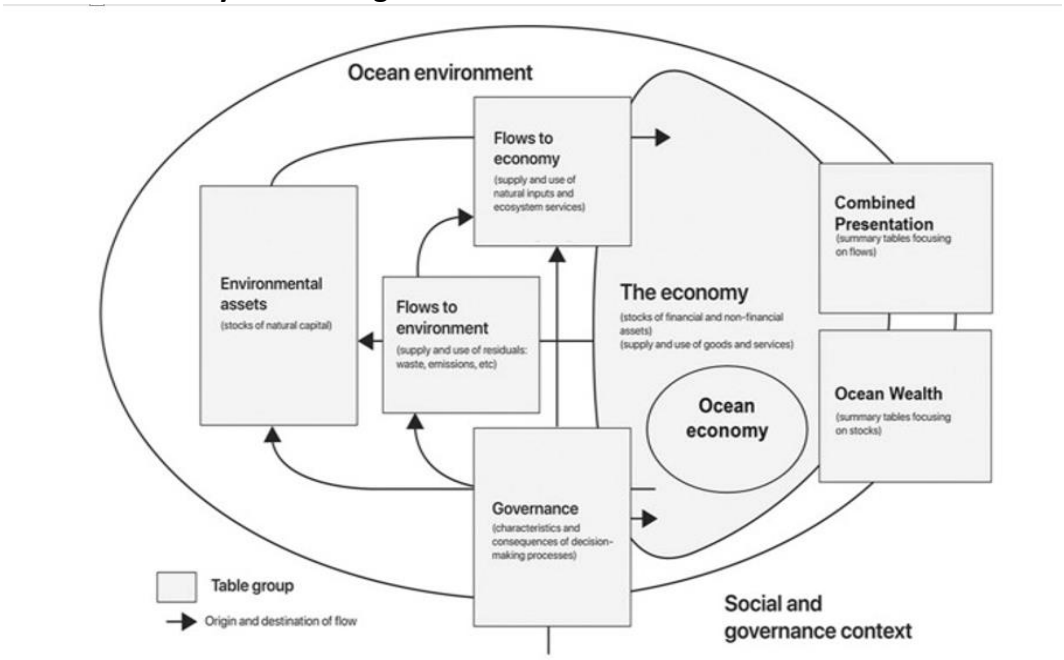
Phase 2 – Blue Economy data collection. Existing data related to the economic value of Blue Economy activities, social factors influencing (and influenced by) the Blue Economy and on environmental aspects will be collected. To supplement the institutional assessment activities of WP2 which is focused primarily on government and statutory institutions, we will undertake a mapping of institutional capacity to grow a sustainable Blue Economy in Belize from the perspective of science, NGOs, academia, etc. Stakeholder and existing data source mapping will be conducted, supplemented by interviews and surveys to determine gaps. Data

collection will focus on the sectors prioritized for BE development in Belize: Aquaculture and Mariculture, Blue Carbon, Renewable Energy, Fisheries, Marine Protection & Management, Maritime Transport & Shipping Services, Ocean & Coastal Tourism, and Marine Research & Development. To the extent possible within the scope of the Terms of Reference, and within the context of the purposes of this consultancy, NLAI will seek to define 'blue ecosystem services' and identify those relevant for estimating contributions of BE to Belize's GDP.

Phase 3 - Analysis and Measurement. Calculate and graphically illustrate along with developing actual economic, social, ecological baseline of national capital accounts including various ecosystems for the blue economy, assets, services, GDP, employment, from various stakeholders and classification, while capturing ecological, physical, and monetary flows. Associated uses and applications including background analysis, risks and opportunities will be determined.

Phase 4 - Develop Associated Institutional Capacity Building. Formulate conclusions and recommendations for integrating and improvements upon existing systems including policy and governance, while developing monitoring and evaluation indices, mainstreaming, and aligning to existing systems.

Figure 1 Blue Economy Accounting Framework Source Ocean Accounts.Com



2.2: Stakeholder Mapping and Engagement

Data was collected via desktop review, online publications, and semi-structured interviews via combination of networking, social media, referrals, and other sources. This is supplemented in Section 4 for interview and survey findings for stakeholders identified in Annex I using questions based on Annex II. In depth stakeholder insights are provided in Annex III, more expanded sections for ocean accounting/baseline measurement of Belize's socioeconomic and ecological contributions to GDP in Annex IV, whilst Additional Document I provide in depth interview transcripts and survey responses. Responses were classified thematically in ranking priority and other core salient points interpreted based on relevance and IADB, MBEDRM and other stakeholder priorities, methods, and resources.

3.Determining Ocean Accounts for the 8 Main Blue Economy Sectors and Contributions of the Blue Economy to Belize's GDP (All Dollar Values are US$ Converted at rate of $1US to 2BZ$)

3.1: Aquaculture/Mariculture

Most data contained within Section 3 was verified/ with the Statistical Institute of Belize, MBECA, CZAMI, the Fisheries Department or relevant authorities, except where specifically indicated including extensive consultation as provided in Appendices. Estimates are generally the most updated provided, most are publicly available via department, SIB, NGO and other stakeholder websites and reports, or obtained from internal interaction. Developing initial ocean accounts for Belize's aquaculture/mariculture sector; this challenge was initially complicated due to separation of land-based aquaculture under the Ministry of Agriculture, Food Security and Enterprise from data under the Ministry of Blue Economy and Disaster Risk Management, with separate data collection, report standards, governance, and capacity. Data challenges remain in completely compiling accurate values, volumes and contributions from official sources reported to the Food and Agricultural Organisation and others, merging aquaculture, mariculture, and fisheries together proposed by this set of ocean accounting. Belize's aquaculture/mariculture sector contribution to its blue economy includes potential production revenue as summarised in Table 3.11. Therefore, combined mariculture/aquaculture provided a total estimated direct contribution to GDP of US$1,165,000 for the year 2022. identified in Table 3.1.2. Marine products can be identified as conch, lobster, seaweed, shrimp, and other cultivated mariculture species though current statistics do not fully convey if such products entirely derive from fisheries, mariculture or are sustainable. White legged shrimp dominates with an estimated 95% of total production. However, an outbreak of Early Mortality Syndrome disease in 2015 devastated production from a peak 15,597.8 tons in 2015 down to 327.97 tons in 2022. From 2009 to 2020 this yielded a phenomenal 68% decline in output. Although the Ministry of Agriculture have not yet released their 2022 report, their 2021 report indicated 236,159 Nile tilapia fingerlings were sold valued at $19,204.50.

Table 3.1.1: Trade Revenue Gross Value Added or GVA/Gross Value Added Contribution of Aquaculture/Mariculture to Belize's Blue Economy

Commodities ($'000,000 US$)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Marine Products (incl 5% for dom. Consumption)	12,58	16,77	16,03	11,66	3,46	2,72	3,05	3,08	2,30	2,34	2,33
Quantity (Million Lbs)	57,45	112,34	113,26	88,02	41,95	40,12	42,39	48,77	39,17	53,13	53,67
Value	6,29	8.39	8.01	5.83	1,73	1,36	1.53	1.54	1,15	1,17	1,17

Source: Belize Ministry of Agriculture, Food Security and Enterprise 2023

Although no formal comprehensive survey has been undertaken for aquaculture/mariculture employment, interaction with stakeholders indicated direct employment ranged from **800 to 1200** down from a peak pre-COVID of 1543 in 2018 or 1% of total national employment. The 2021 Ministry of Agriculture annual report indicated 103 tilapia farmers were employed with farms covering 32.29 acres. Part of this includes the Belize Shrimp Grower's Association with an unknown number of members employed and the estimated 20 members of the Belize Women's Seaweed Farming Association in Placencia (founded in 2019), both to represent the sector but also to focus on processing/blue biotechnology for enhanced profits such as seaweed gel, powder, agar, alginate, and carrageenan products among others, whilst developing a Hatchet Caye seaweed farm. The Placencia Producer's Cooperative Society have been experimenting with seaweed farming as a more sustainable alternative to capture fisheries, its traditional focus (with a peak up to 125 employees and members). No direct estimates of its members exist. The alternative the Turneffe Seaweed Growers, is linked to the local protected area at Hatchett Caye. This has favoured the two species *Eucheuma isiforme* and *Gracilaria sp*. for commercialisation including other pilot project research experiments at Gladden Spit and Silk Caye Marine Reserve (GSSCMR) and the Turneffe Atoll Marine Reserve (TAMR).

In relation to improving the accuracy of existing ocean accounts and capacity building, desktop research and stakeholder engagement identified the following projects and initiatives identified in Table 3.1.3. Additional opportunities exist to develop more accurate income/revenue, production, gender composition, employment, and other indicators specifically for aquaculture combined with mariculture. Ocean Accounting also could indicate certain existing institutional and technical capacity building, resource mobilization and pilot projects, the level of participant interest/awareness, subsequent gaps, and demand as potential priorities. This approach will be highlighted for all 8 Belize blue economy sectors, including the other seven. Efforts for mariculture/aquaculture have focused on small scale shrimp and seaweed producers for individual entrepreneurs and communities. Yet historically, other species have been attempted such as Nile tilapia, cobia, the freshwater Australian red claw lobster, oysters, and redfish. Minor efforts to cultivate the Bay snook (*Cichlasoma uropthalmus*), Nile tilapia, and Tuba (*Cichlasoma synspilum*) have been reported in 2019 on a minor scale just over 15 acres. Previously stakeholders have expressed interest in crabs, octopus, snook and red snapper, but no actual production or experiments have been undertaken with physical investments. A government Department of the Environment survey in 2014 indicated that to become more viable and commercially well established, the following capacity gaps needed to be prioritized such as biodiversity monitoring techniques, water quality analysis, effluent and waste management, value added processing, marketing, business, data management and record keeping, management and supervisory skills, occupational safety and health, emergency planning, disease prevention, diagnosis and management, and the disposal of hazardous materials and waste.

Table 3.1.3: Belize Aquaculture Projects and Initiatives

Project	Timeframe	Funder
Seaweed Webinar Series	September 2023	Beltraide
Aquaculture health, disease, and technical training workshop	February 2023	UK Ocean Country Partnership Programme, DEFRA
Women in Seaweed Mariculture	2017-Present	The Nature Conservancy
"Integration of the Value Chain in Fisheries and Aquaculture	2019 to present	Taiwan Government funded
There is also an established seaweed working group This year in March the TNC in collaboration with Fisheries and Blue Economy organized a seaweed symposium to promote knowledge sharing on seaweed. There is also work in progress to update Belize's mariculture legislation with the seaweed working group being that coordinating mechanism.	Unknown March 2024	Led by the Fisheries in collaboration with MBECA and support from TNC.
Shrimp Mariculture Training Workshop	2022	CEFAS UK
Ocean Economy trade courses -shrimp, conch, red snapper, groupers	2018-?	UNCTAD

Source: This Report.

3.2: Blue Carbon

According to a 2009 study by the World Research Institute and the World Wildlife Fund (WWF), mangroves and coral reefs play a significant role in Belize's blue economy. They fuel the tourism sector, contributing around US$173 million annually, which makes up about 13.5% of the country's GDP. These ecosystems are integral to the local fishing industry, providing around US$15 million in economic benefits each year. Additionally, they function as natural coastal protection, saving approximately US$289 million per year in costs resulting from possible damage. Mangroves enjoy legal protection specifically under the Belize Forest Department which falls under the Ministry of Sustainable Development, and Climate Change and its2018 "Forests (Protection of Mangroves) Regulations." Whilst existing studies have not historically identified blue carbon valuation to provide a basis of comparison of changing values over time, coral reef and mangrove ecosystems contributed a minimum of US$477,000,000 in 2009; including $289,000,000 in coastal protection, $173,000,000 in tourism and $15,000,000 in fisheries based on a WWF/World Resource Institute Study undertaken in 2009.

Using physical sample including sediment cores, GIS imagery, stakeholder engagement and remote sensing from September 2021, the US Smithsonian Institution and 13 institutions undertook the first comprehensive assessment to estimate Belize mangroves and their total national blue carbon stocks from 58,000 hectares of mangroves. This is known as the Stanford Natural Capital Project. It identified the first national comprehensive mangrove carbon stock estimate of 25.7 Tg C but with a range of 0.6 Tg C underestimate and 16.5 Tg C overestimate. This derived

from a mean total ecosystem carbon stock (TECS) for the nation was 444.1 ± 21.0 Mg C ha−1, with 74.4 ± 6.2 Mg C ha−1 in biomass stocks, and 369.7 ± 17.7 Mg C ha−1 in sediment stocks. In current market price valuations average prices range from $20 to $35 per ton, this yields potential offset value of US$642,500,000 to $899,500,000 based on a total of 25.7 Tg C as a maximum income/value for Belize's first national ocean accounts. Additional revenue may also arise from climate finance and biodiversity finance credits. However, this must be caveated as the actual commercial value that can be diverted towards carbon market offsets is limited to the areas directly monitored, protected and available. Such monitoring would have to be ongoing and require collaboration of multiple parties such as the University of Belize Environmental Research Institute, the Pew Charitable Trusts, Belize Mangrove Alliance, World Wildlife Fund, Belize Fisheries Department, Belize Forest Department, National Climate Change Office, Coastal Zone Management Authority and Institute, Toledo Institute for Development and Environment, Sarteneja Alliance for Conservation and Development, the Corozal Sustainable Future Initiative, the Caye Caulker Strong Mangrove Project, and the Turneffe Atoll Sustainability Association.

Currently no one is directly employed in carbon offsets directly in Belize. Potential exists with the currently proposed and discussed Carbon Trading Bill being considered by the Ministry of Sustainable Development, Climate Change and Disaster Risk Management and the Blue Bond and Finance Permanence Unit. In determining future values, this could be influenced by an official pledge to replant 15 square miles by 2030, following Belize government research whilst working to protect more effectively an existing 46 square miles of mangroves. As additional benefits this was claimed by certain Smithsonian Institute research findings to boost lobster fisheries by as much as 66%, generate mangrove tourism worth several million dollars annually, and reduce the risk of coastal hazards for at least 30% more people, according to the researchers' models. Based on this, future valuation of blue carbon stocks derived from current prices could net yield an additional US$ 446,772.50 to $625,481.50 each year in value, if these additional 69 square miles or 17,870.9 hectares are fully protected. If 12,000 hectares were protected this would yield anticipated benefits to safeguard US $400,000 for tourism and 3,000 visitors on average US $1,250,000 for spiny lobster fisheries and ultimately total carbon stock of up to 7,700,000 metric tons. This excludes additional ecosystem values that have not been calculated in numerical values such as biodiversity, habitats and coastal protection from erosion, disasters and climate change. Initial estimates are summarized in Table 3.2.1 based on no direct published source but this consultant's valuation by merging estimates from NGOs, stakeholder engagement, NGOs, researchers and the Stamford Natural Capital Project. Globally and locally, the extent to which coral reefs including the Belize Barrier Reef System may be able to be converted and quantified in terms of blue carbon offset potential, is yet to be determined. An encouraging development was the recognition of Belize's 2021 Nationally Determined Contribution (NDC) needing to capture blue carbon officially in progressing upon climate change. Further, the Rio Bravo Conservation and Management Area provides evidence of some comparable experience and interest as one of the first 7 forest carbon offset projects officially accredited globally. The initiative has verified and certified 1.6 million tons of carbon dioxide equivalent since inception.

Table 3.2.1: Belize Blue Carbon Ocean Accounting Offsets, Area, Employment and Valuation 2022 in US$

Ecosystem type	Area in Hectares	Potential carbon sequestration	Ecosystem valuation assessment	Valuation -Gross Added Value
General Marine/MPAs	-	-	Oceana estimate in 2021 1,75 billion including $22,500-250,000,000 marine reef/beach/ocean tourism $55,100,000 game fishing $20,000,000 protecting lobster, conch, finfish ($27,500,000 -just lobster) Coastal protection -Turneffe Atoll 191,250,000 for Belize City. Turneffe Atoll $3,500,000 blue carbon -other areas unknown, seaweed/ mariculture unknown IDB 2021 use values estimates Mesoamerican Reef /Belize marine ecosystem -$109,400,000 in tourism $9,785,000 fisheries Coastal protection $36-168,000,000 Non-use $3,300,000 to 5,700,000.	-
Mangroves	58,000 or 18.4% cover	25.7 Tg C	2007 World Resource Institute study Mangroves provide an estimated US$174– $249,000,000 in fisheries, tourism and shoreline protection	US$642,500,000 to $899,500,000 (In carbon)
Seagrass	229.14	Estimate based on species equivalent for Caribbean 241 ± 118 TgC, specific local site sampling tests need development	Planned project -2022+ onwards for Belize by World Wildlife Fund Unknown	In progress via WWF partly estimated maximum of 28 184.22 x ($25 to $35 average maximum carbon price for October 2023) = for 123 Tg C = $704,605, to $986,447.70 minimum. Estimated maximum of 82,261.26 at same carbon price = US$2,056,531.50 to 2 879 144.10 for 359 TgC for Carbon
Tidal/Salt marshes	Unknown	Unknown Average Global sequestration 6-8 tons per hectare	Unknown	Unknown

Wetlands	Unknown. 5 legal wetlands but only 2 RAMSAR - 23.59 hectares	Unknown 81 to 216 tons per hectare	Unknown	Unknown
Coral reefs Belize 18% average coral cover 2022 - MAR Alliance	300 kilometres	NA	2007 World Resource Institute study $225-310,000,000 in fisheries, tourism and shoreline protection	Commercial fish biomass 310 g/100 m^2 -2022 MAR Alliance average
Living species - Dolphins whales Sharks Turtles -4 species types Manta/other rays	Unknown	Unknown for dolphin 33 tons per whale 1-1.5 tons per whale shark 6-9 kg per nurse shark 9.7-14.55 kg southern stingray 1.4-3.7 kg yellow ray	Unknown including whale population <100 Dolphin numbers unknown Whale sharks +-106 - 2016 Nurse sharks 3,858 to 14,375 in 2022 2694-TIDE Belize in 2022 47 -SEA Animal Welfare Institute 2023 survey -restricted 25-30 Antillean manatee	Unknown for whales/total +-106 tons per year whale sharks 23.148-129.375 tons nurse sharks

Table 3.2.2: In Depth Marine Ecosystem Environmental Accounting Knowledge Gaps

Ecosystem Functional Group IUCN/UNECA classification	**Ecosystem Size km^2** 2014 -5th Report to Convention on Biological Diversity	**Ecosystem valuation**
FM1.1 - Deepwater coastal inlets	No data	No data
FM1.2 - Permanently open riverine estuaries and bays	No data	No data
FM1.3 - Intermittently closed and open lakes and lagoons	No data	No data
M1.1 - Seagrass meadows	229.14 hectares -2022	No data
Mangroves	58,000 hectares 2022	No data
M1.3 - Photic coral reefs	300	No data
M1.5 - Photo-limited marine animal forests	No data	No data
M1.7 - Subtidal sand beds	No data	No data
M1.8 - Subtidal mud plains	7,644.78	No data
M2.1 - Epipelagic Ocean waters	No data	No data
M2.2 - Mesopelagic Ocean waters	59,886.41	No data

M2.3 - Bathypelagic Ocean waters	982.95	No data
M2.4 - Abyssopelagic Ocean waters	No data	No data
M3.1 - Continental and island slopes/shelf	9,585.56	No data
M3.4 - Seamounts, ridges and plateaus	No data	No data
M3.6 - Hadal trenches and troughs	No data	No data
M4.1 - Submerged artificial structures	No data	No data
MFT1.2 - Intertidal forests and shrublands	1,437.05	No data
MT1.1 - Rocky shorelines	No data	No data
MT1.2 - Muddy shorelines	No data	No data
MT1.3 - Sandy shorelines	No data	No data
MT1.4 - Boulder and cobble shores	No data	No data
MT2.1 - Coastal shrublands and grasslands	No data	No data
F1.2 - Permanent lowland rivers	No data	No data

Source: This Study.

Table 3.2.2: Belize Blue Carbon Projects and Initiatives

Project	Timeframe	Funder
Stanford Natural Capital Project	2023-	Stanford University
Blue Carbon Sharing Workshop	March 2023	Belize Government
Mangroves/ Global Mangrove Alliance	2023	Pew Charitable Trust/Smithsonian with partner support University of Belize Environmental Research Institute (UB ERI), the Pew Charitable Trusts, Silvestrum Climate Associates, World Wildlife Fund (WWF), the Smithsonian Institution, Belize Fisheries Department, Belize Forestry Department, National Climate Change Office (NCCO), Coastal Zone Management Authority & Institute (CZMAI), Toledo Institute for Development and Environment (TIDE), Southern Environmental Association (SEA), Sarteneja Alliance for Conservation and Development (SACD), the Corozal Sustainable Future Initiative (CSFI), and the Turneffe Atoll Sustainability Association (TASA)
Seagrass Protection and Conservation	2023	WWF
Small Island Developing States and Blue Carbon Market. Event at 2022 UN Conference	2022	Belize government
Resilient Reefs Initiative	2021-	UNESCO
Rio Bravo Conservation and Management Area	Area first launched in 1995	Programme for Belize

Turneffe Atoll		The company Blue Finance is working with the Belize government and The Nature Conservancy towards developing in Belize into a model pilot blue carbon, marine protected area. This focuses on approximately 1,400 km^2 of the greater Mesoamerican Reef. The 132,000-hectare reserve aims towards supporting 1000 fisherfolk households.

This section subsequentially recommends capacity building/specific courses in relation to developing blue carbon credits and related financing mechanisms, sampling, monitoring, reporting and verification or evaluation across various ecosystems including coral reefs, mangroves, seagrass, tidal marshes, wetlands, and potentially even other species over their possible lifespan. Such specific capacity is omitted from various current policies and plans related to coastal conservation management and the blue economy, as confirmed via stakeholder interaction. The Belize government highlighted the need for the following national targets identified as part of Belize's national contributions:

1. Protection of at least a further 6,000 hectares of mangroves by 2025, with an additional 6,000 hectares by 2030.
2. Restoration of at least 2,000 hectares of mangroves, including within local communities, by 2025, with an additional 2,000 hectares by 2030.
3. Halting and reversing net mangrove loss by 2025 through public measures and partnerships with private landowners, local communities, and other relevant stakeholders.
4. Completing an in-situ assessment of the below ground carbon stock of mangroves by 2022.

This is reinforced by the existence of the Belize Mangrove Alliance developed to unite various concerned stakeholders. Its 2022 plan further emphasizes the following to safeguard mangroves as blue carbon stocks:

1. Strengthened legislative and policy framework for protection of mangrove values.
2. Reduced illegal clearance of mangroves.
3. Engaged and informed general public.
4. Successful mangrove restoration and protection.
5. Reduced contamination in the watershed.

3.3: Renewable Energy

Renewable terrestrial and marine/ocean energy as a sector has not been previously integrated with national statistics or satellite accounting practises directly for Belize. As of 2022 according to the government Department of Energy and IRENA or International Renewable Energy Authority. Belize's installed electrical energy capacity is 7% from primarily imported fossil fuels and 93% renewable energy. It aims to supply

75% of national electricity demand by 2030. It includes peak power demand of 110.3 MW and 601.8 GWh. This directly supported 108,500 stakeholders as measured by separate accounts. The composition of installed overall capacity is illustrated in Figure 3.3.1. Whilst Figures depict 2021 this is valid for 2022 as there was no net additional increase in installed capacity during 2021 to 2022. The sector is dominated by bioenergy at 57% followed by hydro/marine energy at 33% of total energy produced. However, this is mostly hydropower with no currently installed floating solar, offshore wind, tidal, current, Ocean Thermal Energy Conversion, salinity gradient, wave and related true blue/marine/ocean energy. However, exploration of the technical and financial feasibility of these energy alternatives to hydropower/fossil fuels has been mentioned as a core government stakeholder identified blue economy sector in Belize's Maritime Economy Plan and as among the top blue economy priority feasibility studies for IDB to explore with the government. 51.5 MW derives from 4 main dams (the Mollejon Hydroelectric Plant (22.5 MW), the Vaca Hydroelectric Plant (19 MW) the Chalillo Hydro Dam (7.30 MW) Hydro Maya Limited (3.00 MW). Biomass comes from a diversity of producers, most notably the American Sugar Refinery, Belize Sugar Industry Ltd (ASR/BSI) and Santander Sugar Energy Ltd. Whilst indirect contribution to GVA and GDP is complicated to calculate directly for the blue economy and Belize, as virtually the entire economy is powered by renewable energy (93% of all energy is renewable), direct economic value of revenue and GVA from electricity sales from the sole main distributer and supplier, The Belize Electricity Limited reached U$ 124,758,000 and for revenue related to renewable sources but as gross or pre-tax. These figures exclude the substantial volumes that Belize imports from Mexico to supply the border regions. Based on IRENA, Belize Electricity Limited and the government provided figures, this report specifically calculated that 58% of this revenue as a proxy for contribution to GDP/blue economy was specifically derived from hydro/marine, indicating more directly applicable to the blue economy. It also contributed US$38,600,000 in investments primarily on improved energy infrastructure and efficiency measures. The direct cost of power cost 65% or $81,341,5,000. As calculated in Table 3.3.1 at least 431 people were employed in the renewable energy sector including related government unit, the main electricity company, several consultants, suppliers, and manufacturers -primarily solar and hydropower energy.

Table 3.3.1: Belize Renewable/Marine Energy Ocean Accounting Offsets Stakeholders, Employment and Valuation 2022

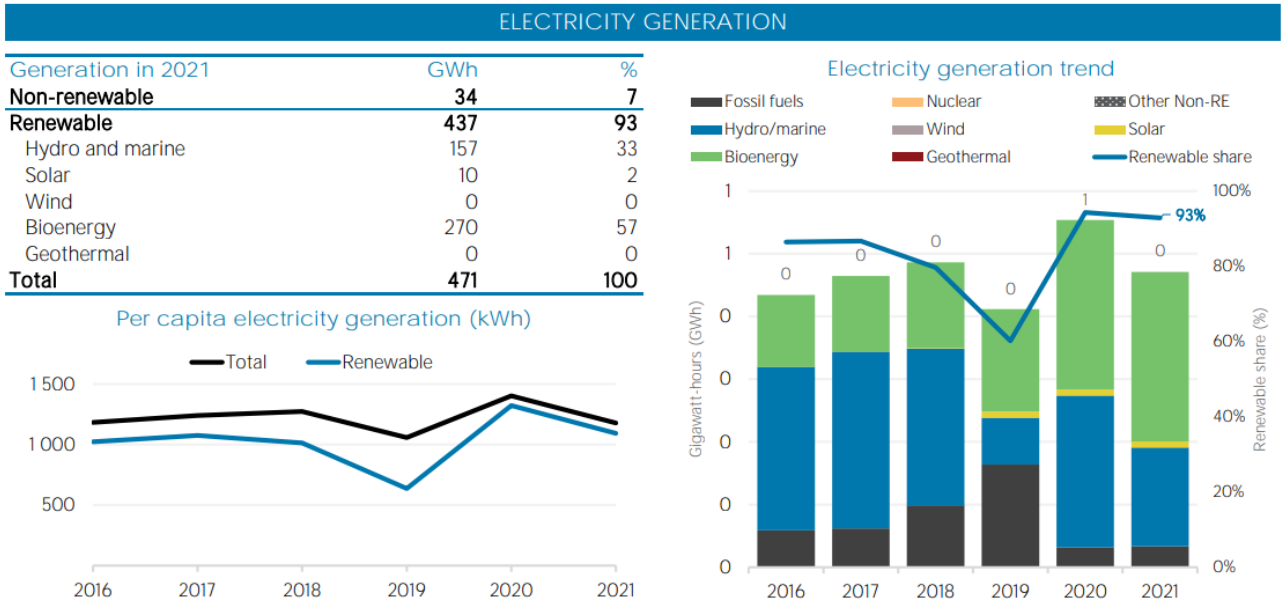
Stakeholders	No of Potential Employees	Gross Value-Added Output/Revenue
Belize Electricity Limited	315 employees (92 women)	US$ 124,758,000
Belize Energy Unit	9	Unknown
Go Green Ltd.	25	Unknown
Green Sun Ltd.	5	Unknown
Sun's Electric	20	Unknown
Pro Solar Engineering Ltd.	11	Unknown
Energy Management Ltd.	7	Unknown
Solar Energy Solutions Belize	12	Unknown
Southern Solar Solutions	5	Unknown

Solar Caribbean	5	Unknown
Sun Terra Energy Solutions	7	Unknown
VIVIDArch Energy Consulting	5	Unknown
SEOS Sustainable Solutions Ltd.	7	Unknown
Ministry of Public Utilities, Logistics and E-governance	NA	Unknown specific for energy
Ministry of Sustainable Development, Climate Change & Disaster Risk Assessment	NA	Unknown specific for energy
Total	431 direct	Unknown

Source: This Study.

IRENA noted that for 2020, industry utilised 21% and households 18% of the energy produced in the country. In 2021 87% of available bioenergy capacity of 5.5 tC per ha per year was being utilised, in contrast to 32% of available hydro, 20% of wind, 17% of solar and only 4% of available fossil fuels. According to IRENA and the Belize government has potential to generate1.4 to 1.6 MWh/kWp for solar energy and <260 wind power density in W/m2 at 100 metres height. Whilst no direct employment is directly attributable to ocean/marine energy at present, except for hydropower, indirectly BEL employ virtually all staff linked to renewable energy with only minority linked to fossil fuels. The private sector also has solar energy stakeholders. A review of ongoing and planned projects and initiatives, along with stakeholder interaction summarised in Table 3.3.2 and Section 4; identified general renewable initiatives such as solar but not marine specific, Belize's 2022 Maritime Economy Plan referred to possible benefits and risks of offshore wind, Ocean Thermal Energy Conversion, given coastal vulnerability to climate related events. However, Belize is also looking to save up to 100 GWh by 2030 from improvements in energy efficiency, 40 MW in solar energy by 2025, alongside biomass, hydropower, and wind to reach up to 75% renewable energy by 2030. However, it has a projected funding investment gap of US$ 229,518,205

Figure 3.3.1: Belize 2022 Electrical Energy Composition



Source: IRENA 2022

Table 3.3.2: Belize Sustainable/Renewable Projects and Initiatives

Project, Initiative	Timeframe	Funder/Creator
Energy Resilience for Climate Adaptation Project (ERCAP).	2023	Global Environment Facility's (GEF's) Special Climate Change Fund (SCCF)
Renewable Energy Programme	2023	Ministry of Tourism
Stakeholder Consultation for 2023-2040 National Energy Policy	2023	Belize government
Clean Energy Transition Fair	2023	Belize government/private sector
Investigating Belize's Geothermal Energy Prospects	2023	EGS (private company)
Construction of the Solar Energy Plant Project" in Belize,	August 2023	Saudi Fund for Development $77,000,000 loan to Belize government
Women in Renewable Energy Chapter	August 2023	Belize government

3.4: Fisheries

In developing initial ocean accounts for Belize's fisheries sector; data is not uniformly and consistently available from all stakeholders given the separation of CZMAI from MBECA, from the Fisheries Department, and the High Seas Fisheries Unit. Belize's fisheries sector contribution to its blue economy includes in potential production revenue as summarised in Table 3.4.1. According to MBECA fisheries and aquaculture combined contributed an average 12% of Belize's entire GDP from 2015 to 2021. Joint fisheries and aquaculture provided a total estimated direct contribution to GDP of US$13,485,835 for the year 2021. Belize produced 2,325,380 pounds of fisheries produce from a total value of 26,834,340.00 minus shrimp production of 327,970 pounds and value of $1,512,090 or total Gross Value Added/GVA of 1,997,410 pounds worth 26,078,295. Yet, Belize's fisheries are highly dependent on income/GVA from only lobster and conch. These make up 21% and 10% of catch compared to 7 species of snapper which collectively make up 26% (Yellowtail, Mutton, Lane, Red, Grey, Dog and Silk). 8% include mackerel species such as Crevalle jack, Horse-eye jack, and King mackerel. 2% of total catch included barracuda and another 2% snook, with Goliath, Nassau, and black grouper 1%. 67% of Belize's fisheries is artisanal, 22% subsistence and only 11% other. Monitored species primarily focus on mariculture, lobster, conch, shark, finfish, and sea cucumber, rather than others. The Belize High Seas Fisheries Unit and Cooperatives or Associations also do not provide publicly or collect certain information on production, value and associated sectoral employment.

Table 3.4.1: Trade Revenue Gross Value Added or GVA Contribution of Fisheries to Belize's Blue Economy

BZ $1000's	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Whole Fish Quantity (Thousand Lbs)	488,87	651,88	276,71	915,31	284,40	194,80	21,17	60,56	-	5,33	22,60
Value	74,463	138,226.5	279.1	426.24	200.56	124.65	21.36	33.86	-	28.88	47.09
Fish Fillet Quantity (Thousand Lbs)	-	0,63	-	22,48	0,03	-	0,68	-	-	-	0,85
Value	-	3.76	-	127,88	0,14	-	5.49	-	-	-	2.15
Lobster Tail Quantity (Thousand Lbs)	519,19	493,01	452,66	486,57	432,88	521,22	512,95	535,25	642,63	677,71	569,69
Value	7,496.71	7,035.30	6999.39	7,654.43	6,268.345	7,699.50	8,351.82	10,010.15	10,534,77	1490.23	12,071.82
Whole Lobster and Lobster Meat Quantity (Thousand Lbs)	205,67	3,49	122,35	255,83	390,31	522,63	441,23	412,09	274,04	296,35	445,43

Value	284.56	25.24	807.42	2017.79	2,861.35	3875,09	3581.23	3,548.49	238.33	6,168,45	10217,88
Conch Quantity (Thousand Lbs)	1119,05	986,84	758,47	696,93	889,44	595,19	882,95	1050,40	718,70	958,40	951,25
Value	11987,55	11 290,55	8 534,18	8,024,87	10,572,23	7 317,94	6548.61	37,610.68	2,424.20	7880.64	8,763.07
Crab Quantity (Thousand Lbs)	1,40	37,54	26,35	0,92	2,85	2,44	-	-	-	-	-
Value	1,82	45.14	43.39	4.19	16.10	23.64	-	-	-	-	-
Ornamental Fish Quantity (Thousand Lbs)	99,85	256,89	447,43	3,16	3,89	7,15	5,39	2,89	11,58	8,37	7,59
Value	565,61	310.36	236.11	14.06	14.83	135.70	117.90	51.31	80.99	97.99	85.54
TOTAL LBS	**6,292.48**	**8,385.58**	**8,012.72**	**5,830.93**	**1730.38**	**1,498.98**	**1525.13**	**1541.03**	**1,147.99**	**1154.15**	**1,162.69**
VALUE	**28,727.21**	**56,171.92**	**56,629.62**	**44,016.23**	**20,973.41**	**20,050.65**	**21,194.86**	**24,385.79**	**19,587.48**	**26,493.30**	**26,834.34**

From an ecological perspective, future ocean accounts could also incorporate indicators and measures to encourage more sustainable consumption of certain targeted species, whilst avoiding heavily overfished species. Existing data is collected separately among units with minimal coordination, which is highly advised to be synthesised. This includes monthly catch and effort fishing logs and vessel reports. Finfish, reef fish and ornamental fisheries often lack stock assessments. Future data could capture poverty, climate resilience, marine pollution, ghost fishing gear, Illegal, Unreported and Unregulated fisheries and prosecution rates, biodiversity, sustainable technology and practises, and certified fisheries. There is also a need for more specific poverty assessments. From a social perspective, females only occupied 2.7% of total employment of an estimated 20,000 of which 3,000 are direct fisherfolk and 17,000 indirectly involved in processing and related fishery supply chain activities. Yet in terms of developing a fully comprehensive ocean account for Belize's fisheries sector composition is projected to be a moderate underestimate as it does not capture many individual fisherfolk currently unregistered, communities, fishery cooperatives/associations and recreational fisheries. Of this total, a phenomenal 97.3% are estimated as male versus 60-70% of all immediate fishery processors/value adding being female. Yet this is estimated as there are no updated assessments of the composition of fisheries and other sectors. Calculating total employment, gender composition and socio-economic dimensions for fisheries is complicated between the lack of distinction between aquaculture/mariculture in the acquirement of reported statistics and for fishery related marine products. Given stakeholder reports of challenges in persuading fisherfolk to volunteer and register at cost, the Belize Fisheries Department identified only sixty-seven registered

women with twenty-seven in Stann Creek, twenty-six in Belize, nine in Toledo, three in Orange Walk, one in Corozal and one in the Cayo District. In determining total employment, consultation needs to consider non-artisanal fisheries, unregistered fisherfolk members of associations such as the Belize Federation of Fishers, National Fisheries Producers Cooperative, Northern Fishermen Cooperative Society Limited, and Wabafu Fishermen Association. Total fisheries employment is provided in Table 3.4.2 Socially, the last national poverty rate recorded was 35.7% in the Belize Multidimensional Poverty Index of 2021 conducted by SIB., however both national and fisheries/blue economy specific poverty/social/gender assessments would greatly improve accuracy.

Table 3.4.2: Belize Fisheries Employment Contribution to The Blue Economy

Type	Headquarters/Location	Employment	Export License/Species Targeted
Northern Fishermen Society Cooperative	Belize City	1,231 (611 active)	Lobster, Conch
National Fishermen Producer's Cooperative Society	Belize City	531 -all active	Lobster, Conch
Placencia Producers Cooperative Society	Placencia Stan Creek	41	Lobster
Rio Grande Fisherman Cooperative	Punta Gorda, Toledo	40	Lobster, Finfish, Sea Cucumber
47 registered vessels	Various	Unknown	Various
59 Shark permits	Various	59 +-	Various
80 sea cucumber permits	Various	80 +-	Various
Other	Various	Various	Various
Total	NA	+-3000	Various

Source: This Report, Adapted from Oceana 2021, Belize Fisheries Department

In terms of capacity building, data collection and institutional strengthening, it is highly recommended for Belize's government, aid donors and others to consider when planning and seeking any additional finance/resource support for the blue economy, the following Table 3.4.3 listed fisheries related projects and initiatives, supplemented by the recommended online database hosting these.

Table 3.4.3 Initiatives

Project	Timeframe	Funder
Enhancing Adaptation Planning and Increasing Climate Resilience in the Coastal Zone and Fisheries Sector of Belize	2023	GCF/FAO readiness project
Caribbean Regional Fisheries Mechanism Conference	2023	Various
Workshop for Belize's Fisheries Sector with Equipment and Training	September 2023	European Union

Coastal Zone and Fisheries Sector NAP Validation Consultation	August 22, 2023.	Belize Government
Mesoamerican Reef Fund Accelerator Incubator	March 2023	Mesoamerican Reef Fund
Fisheries/ Safety Satellite Monitoring Initiative	2023	Taiwan Government
Integration of the Value Chain in Fisheries and Aquaculture	2019 to present	Taiwan Government funded
Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus 2022 to 2027	2022-2027	Global Environmental Facility BE-CLME+
Ocean Economy trade courses -shrimp, conch, red snapper, groupers	2018-2023	UNCTAD

Source: This Report.

3.5: Marine Protection and Management

Whilst few examples exist globally in conveying the role of marine protection and management in forming ocean/blue economy accounting, Belize can be at the forefront in recognising the specific revenue/income/Gross Value Added and employment contributions of its Coastguard, government, NGOs, communities and others summarised in Table 3.5.1 below. Others include those physically employed by various marine reserves. These include the Northern Belize Coastal Complex including the Bacalar Chico Marine Reserve, Corozal Bay Wildlife Sanctuary and Hol Chan Marine Reserve, and Caye Caulker Marine Reserve. Central Belize and Atolls include Glovers Reef Marine Reserve, Turneffe Atoll Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument and Swallow Caye Wildlife Sanctuary. Southern Belize Reef Complex includes the South Water Caye Marine Reserve, Laughing Bird Caye National Park, Gladden Spit Marine Reserve, Sapodilla Cayes Marine Reserve and Port Honduras Marine Reserve. There are other spawning aggregation sites for conservation and monitoring purposes though not enforced, according to various stakeholders from the Fisheries Department, Federation of Fishers and NGOs, among others. Though there are no released annual reports nor publicly available information to incorporate in this report by the time of submission, this assignment identified, through received feedback the existence of the Turneffe Atoll Marine Reserve system/program as a potential proxy for accounting for MPA management contribution in national accounts. For example, this could include but not be limited to associated coastal fisheries, tourism, protection and ecosystem services value, including measuring the values of mangroves, seagrass and coral reefs. In 2021 IUCN's Blue Natural Capital Financing Facility worked with the private company Blue Finance and the NGO Turneffe Atoll Sustainability Association to initially explore means to improve monitoring, surveillance and information/other capacity building for its 132,000 hectares, of which 11,000 are mangroves. It extended to preparations for a blue carbon readiness/ecosystem valuation assessment. Subsequently they were looking at tourism/fisheries revenue including $US 250,000 in 2022 from 7000 visitors and other sources such as marine research, enforcement and surveillance, blue carbon and ecosystems as improved measures for monitoring in related annual reports. TASA piloted a Fisheries Catch Data Program in 2022, including Catch Per Unit Effort to monitor trends over time However, such a system could be extended not just to NGOs but as capacity towards adding marine conservation/research and blue carbon into ocean accounts. Additionally, it incorporates measures such as food production and security,

employment targets and numbers of small and medium enterprises, changes in blue carbon stocks for climate change mitigation and coral reef health as an indication of environmental health, degradation and loss. This provides a basis to extend the social, economic and environmental aspects of ocean accounting based on existing Belize based experience.

Table 3.5.1 Gross Value Added or GVA Contribution of Marine Protection and Management to Belize's Blue Economy US$

Stakeholder	Income/Budget	Output Expenditure
Association for Protected Areas Organisation	+- $74,406.5 (2019 value no updated report since 2020)	
Belize Audubon Society	+- 629,939.5 in 2020 2022 $580,000 from PACT, others unknown	No updated figures but $793,148.5for 265 patrols in 2020 with 4 convictions
Belize Coastguard	$3,349,383.25 direct for maritime security	Unknown
Belize Department of Environment	No direct information available	Unknown
Belize Forestry Department	Unknown only deriving from mangroves/wetlands	None direct at present, possibly with more reserves and blue carbon trade
Belize Fund for a Sustainable Future	$3,957,721.65 (2022) Total $279,781.50- for MPA Grant Belize Audubon Society $45,721.8 Sarteneja Alliance for Conservation and Development $34,384.48 Southern Environmental Association $42,825.26 Toledo Institute for Development and Environment, $63,028.77 Turneffe Atoll Sustainability Association $93,321.20	
Belize Lionfish Women's Group	+-$20000	Unknown
Belize Maya Forest Trust	Mainly terrestrial focus unless potential for mangroves	Unknown
Fragments of Hope	Opaque	Unknown
Healthy Reef Initiative	Opaque -No annual report provided	Unknown
National Biodiversity Office	Unknown	Unknown
Oceana	Opaque -No annual report provided	Unknown
Protected Areas Conservation Trust	$1,695,000 including $375,000 over 3 years to Belize Fisheries Department for marine reserves	Unknown
Reef Keeper Belize	+- $30000	Unknown
Sarteneja Alliance for Conservation and Development: Enhancing the Effectiveness of Corozal Bay Wildlife Sanctuary	Invalid links on website $180,500 from PACT over 3 years	Unknown
Sarstoon Temash Institute for Indigenous Management (SATIIM)	Terrestrial, unless mangroves.	Unknown
Southern Environmental Association	Opaque, no financial data provided	Unknown

The Nature Conservancy	+-$182,000,000 for the blue bond No financial data related to TNC Belize direct	Unknown
Toledo Institute for Development and Environment Maintaining the Effective and Sustainable Management of Port Honduras Marine Reserve and Payne's Creek National Park	2020 income -US$ $547,602.5 $854,625 over 3 years from PACT	2020 expenses were US$ 495,278
Turneffe Atoll Sustainability Association -Turneffe Atoll Marine Reserve	From PACT $159,750, other sources unknown, no financial report.	Unknown
Various NGOs	NA	NA
Wildlife Conservation Society	Opaque, no financial data provided	Opaque, no financial data provided
World Wildlife Fund	Not separated from WWF Mesoamerica	Not separated from WWF Mesoamerica
Total	US$ 196,129,186.65	

To truly identify associated employment from Belize's maritime protection and management stakeholders for its blue economy, this report advises incorporating the Coast Guard in conjunction with the Fisheries/Environmental Departments and their inspectors/other officials. This is based on their designated roles as the direct main authorities responsible for protection of maritime borders and resources, The Coastguard currently employs 500 but is rapidly expanding for an ideal target of 1000. There is also a National Maritime Communication Centre with an unspecified number of employees but contributing to the maritime security centre. As identified in Table 3.5.3, certain NGOs also play a protection, monitoring, and protection/employment role. Others include those physically employed by various marine reserves. Part of the process, however, is also about responding to various risks such as IUU fisheries, marine pollution, climate change, natural disasters, coastal erosion, seabed mining, oil spills and others. One unusual example identified through this Work Package is the example of invasive lionfish threatening Belize's Coral Reefs and across the Caribbean, where the NGO Blue Ventures partnered with the Belize Lionfish Jewellery Group initially training 12 women from 6 coastal communities, to convert invasive lionfish and sea urchin threats into jewellery for sale. Whilst several indicators are proposed to further develop more effective and accurate ocean accounts based on available information, this remains pending stakeholder engagement and decision making.

Table 3.5.2: Belize Marine Protection and Management Contribution to The Blue Economy

Stakeholder	Location	Employment including volunteers
Association for Protected Areas Organisation	18 Haulover Creek Street Belmopan	6 permanent plus various projects where applicable
Belize Audubon Society	16 North Park Street Belize City	7 staff, 1 volunteer. Excluding reserve staff of 20 for terrestrial parks of Guanacaste National Park, St Herman's Blue Hole National Park, Cockscomb Basin Wildlife

		Sanctuary and 15 marine for 2 protected areas -Half Moon Caye/Blue Hole Natural Monument and Crooked Tree Wildlife Sanctuary, Total 43
Belize Coastguard	Belize City but proposed north/south bases	500 Planned 1000
Belize Department of Environment	7552 Hummingbird Highway Belmopan	5-10 estimated staff only
Belize Fund for a Sustainable Future	15 Garden City Plaza, Mountain View Blvd Belmopan City, Cayo, Belize	6
Belize Lionfish Women's Group	Various	12
Belize Maya Forest Trust	Mainly terrestrial focus unless potential for mangroves	NA
Fragments of Hope	Placencia Village Stann Creek Belize	2
Healthy Reef Initiative	Belize	6
Oceana	2358 Hibiscus Street, Belmopan, Belize	11
Protected Area Conservation Trust	West Wing 3rd Floor, MSD Building Hummingbird Highway Belmopan, Belize	122 terrestrial and marine
Reef Keeper Belize	Tobacco Caye	2 and 5 volunteer Ambassadors but up to 800 volunteers each year as potential Guardians
Sarteneja Alliance for Conservation and Development	329 Lagunita Street, Sarteneja Village, Corozal District	5-10 estimated staff only
Sarstoon Temash Institute for Indigenous Management (SATIIM)	Terrestrial -Punta Gorda Town unless mangroves	NA -3 estimated staff and 10 volunteers
Southern Environmental Association	Placencia Belize	25 in report
The Nature Conservancy	41 Front Street P.O. Box 170. Punta Gorda	5-10 estimated staff only
Toledo Institute for Development and Environment	1 Mile San Antonio Road Punta Gorda Toledo District	5-10 estimated staff only
Turneffe Atoll Sustainability Association	1216 Blue Marlin Ave, Belize City	5-10 estimated staff only
Various NGOs not reflected here	Various	Unknown
Wildlife Conservation Society	1755 Coney Drive, Belize City,	14
World Wildlife Fund	1154 Sunrise Ave. Belize City	5-10 estimated staff only
Total		712 + 500 planned

Source: This Report

To minimise the need for additional funding and capacity building, whilst ensuring the most effective prioritisation of resources; by allowing effective planning and channelling of resources, this Work Package and report identify and include but not limited to some of the recent project

and initiatives relating to Belize's marine protection and management for its Blue Economy. Examples located for this project are summarised in Table 3.5.3.

Table 3.5.3: Recent Belize Marine Protection and Management Projects and Initiatives

Project	Timeframe	Funder
Enhancing Adaptation Planning and Increasing Climate Resilience in the Coastal Zone and Fisheries Sector of Belize	2023	GCF/FAO readiness project
Caribbean Regional Fisheries Mechanism Conference	2023	Various
Workshop for Belize's Fisheries Sector with Equipment and Training	September 2023	European Union
Coastal Zone and Fisheries Sector NAP Validation Consultation	August 22, 2023	Belize Government
Mesoamerican Reef Fund Accelerator Incubator	March 2023	Mesoamerican Reef Fund
Belize and Coral Reefs Awareness project	2023	Commonwealth Blue Charter
eDNA Expedition	2023	UNESCO
Fisheries/ Safety Satellite Monitoring Initiative	2023	Taiwan Government
Marine Megafauna Monitoring Project	2023	Sea-Change and Mar-Alliance
New Sustainable Finance project targeted at Belize and MBECA.	2023	CEFAS
D'Aloia Lab Deep Conservation Data	2023	University of Texas
Ocean Country Partnership Programme	2022/2023	UK DEFRA
People Centred Conservation Agenda for Belize's Marine Space	2023	Belize Government
Caribbean Blue Economy Entrepreneurship Accelerator Incubator Competition/Programme	2023	Compete Caribbean/IADB and World Ocean Council for Start-ups/Incubator
Coastal Marine Atlas 2 project	2023	GEF
Integrated Transboundary Ridges-to-Reef Management of the Mesoamerican Reef Project	2023	GEF, World Wildlife Fund (WWF) and the Central American Commission on Environment and Development (CCAD
Marine Conservation and Climate Adaptation Project	2023	Protected Areas Conservation Trust
Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus 2022 to 2027	2022-2027	Global Environmental Facility BE-CLME+":
Training Blue Economy journalists	2022/2023	Earth Journalism Network
Blue Bond project	2021 to Present	Private/The Nature Conservancy
Developing A National Marine Litter Action Plan	2021 to Present	CEFAS
Commonwealth Marine Economies Programme	2017 to Present	UK government

Source: This Study.

3.6: Maritime Transport and Shipping Services

The Belize Maritime Transport and shipping Service sector incorporates various port, shipping, and logistics operators plus services. Unlike other sectors, the process of developing the equivalent baseline ocean accounting including contribution to GDP or Gross Value-added income, revenue or production, the sector is marked by challenges in obtaining baseline data given a lack of annual reports from the various port authorities, operators, and shipping/logistics businesses. There was a high non-response rate and poor transparency noted, despite multiple efforts. This was further confirmed by similar efforts in the Belize Maritime Economy Plan and other previous policy and diagnostic assessments and may require MBECA, Statistics Institute of Belize or other equivalent government intervention to avert any subsequent data gaps, especially to overcome concerns over sharing potentially commercially sensitive information and persuading them of the value of an accurate rendition. Such data that exists for a minimal baseline assessment is provided in Table 3.5.1.

Table 3.6.1 Gross Value Added or GVA Contribution of Ports, Maritime Transport, Shipping and Logistics to Belize's Blue Economy

Stakeholder	Income/Budget US$	Output? Expenditure
Belize Port Authority	Opaque -no data publicly available	Opaque -no data publicly available
IMMARBE	+- US $3,250,000	
Port of Belize	Opaque -no data publicly available	Opaque -no data publicly available
Port of Big Creek	$6,750,000 operational income after expenses	Opaque -no data publicly available
Port of Magical Belize	In progress	
Shipping Companies - Belize Freight,	$17,100,000 SIB general sector estimates	Opaque -no data publicly available
Seaboard Marine	Opaque -no data publicly available	Opaque -no data publicly available
Belize Ship Handlers	Opaque -no data publicly available	Opaque -no data publicly available
Caribbean Shipping Agency	Opaque -no data publicly available	Opaque -no data publicly available
BTALCO Ltd,	Opaque -no data publicly available	Opaque -no data publicly available
TRC Shipping Service Belize	Opaque -no data publicly available	Opaque -no data publicly available
Sterling Freight- a Freight forwarding service	Opaque -no data publicly available	Opaque -no data publicly available
Island Express Freight	Opaque -no data publicly available	Opaque -no data publicly available
IB Shipping	Opaque -no data publicly available	Opaque -no data publicly available
Cayo Cargo Shipping company	Opaque -no data publicly available	Opaque -no data publicly available
Bayside Distributors Ltd. Freight forwarding service	Opaque -no data publicly available	Opaque -no data publicly available
Joseph Freight Limited	Opaque -no data publicly available	Opaque -no data publicly available
MB Pariente Moving Company Shipping service	Opaque -no data publicly available	Opaque -no data publicly available
Arrow Freight Enterprise	Opaque -no data publicly available	Opaque -no data publicly available
Marage Shipping.	Opaque -no data publicly available	Opaque -no data publicly available
Eastern Star Import/Export Co. Ltd.	Opaque -no data publicly available	Opaque -no data publicly available

Ysaguirre's Trucking	Opaque -no data publicly available	Opaque -no data publicly available
Quick & Easy Shopping & Shipping	Opaque -no data publicly available	Opaque -no data publicly available
Island Freight Forwarders LLP	Opaque -no data publicly available	Opaque -no data publicly available
Freight Masters Ltd Trucking company	Opaque -no data publicly available	Opaque -no data publicly available
Total	$28,100,000 minimum	

Source: This Report's consultants research.

To truly identify associated employment from Belize's maritime transport and shipping services for its blue economy, this report advises incorporating the above stakeholders to provide more accurate estimates of integrated ocean accounting, at a minimum. Table 3.6.2 provides employment estimates. This is based on census/interview-based averages for typical businesses of that type for stakeholder institutions identified for the maritime transport and shipping services sector. Whilst several indicators are proposed to further develop ocean accounts and their effectiveness based on available information, this remains pending stakeholder engagement and decision making.

Table 3.6.2: Belize Port, Shipping and Logistics Employment Contribution to The Blue Economy

Stakeholder	**Location**	**Employment including volunteers**
Seafarers	Various, 812 Belize flagged vessels	11,072
Belize Port Authority	Mile 4, George Price Highway, Belize City, Belize	66
IMMARBE	6130 Iguana Avenue, Mountain View Area, City of Belmopan	Estimated 15-20
Port of Belize	Caesar Ridge Road, Belize City	+-94 full time and 160 part time
Port of Big Creek	Big Creek Port of Belize 3 Port Road Big Creek, Belize	260-Big Creek Group
Port of Magical Belize	In progress	3 -pending formal approval
Shipping Companies – Belize Freight,	Juliet Soberanis St, Belize City,	5-10 estimated
Seaboard Marine	1 Mapp St. Belize City, Belize	5-10 estimated
Belize Ship Handlers	6480 Mahogany Street Belize City,	5-10 estimated
Caribbean Shipping Agency	117 Albert Street Belize City,	5-10 estimated
BTALCO Ltd,	Mapp Street Belize City	5-10 estimated
TRC Shipping Service Belize	Belize City, Belize	5-10 estimated
Sterling Freight- a Freight forwarding service	Belize City, Belize	5-10 estimated
Island Express Freight	Belize City	5-10 estimated
IB Shipping	Belize City,	5-10 estimated
Cayo Cargo Shipping company	Santa Elena, Belize	5-10 estimated
Bayside Distributors Ltd. Freight forwarding service	Belize City, Belize	5-10 estimated

Joseph Freight Limited	San Ignacio Town,	5-10 estimated
MB Pariente Moving Company Shipping service	Belize City, Belize	5-10 estimated
Arrow Freight Enterprise	Spanish Lookout, Belize	5-10 estimated
Marage Shipping.	Corozal Community College Road	5-10 estimated
Eastern Star Import/Export Co. Ltd.	Belize City,	5-10 estimated
Ysaguirre's Trucking	142 Bruce Avenue Hattieville	5-10 estimated
Quick & Easy Shopping & Shipping	140 Otro Benque Rd, Orange Walk,	5-10 estimated
Island Freight Forwarders LLP	Belize	5-10 estimated
Freight Masters Ltd Trucking company	Belize	5-10 estimated
Total		11,755

Source: This Report

To minimise the need for additional funding and capacity building, whilst ensuring the most effective prioritisation of resources as previously indicated so that the same projects are not duplicated by stakeholders and costly errors avoided; this Work Package and report identify recent projects and initiatives relating to Belize's maritime transport and shipping services for its Blue Economy. Examples located for this project are summarised in Table 3.6.3.

Table 3.6.3: Recent Belize Port, Maritime Transport/Shipping and Logistics Projects and Initiatives

Name	Timeframe	Funding Source
Port of Magical Belize	2020 to present	Private -under legal uncertainty Stake Bank, Portico Enterprise, and Waterloo Holdings,

To develop accurate ocean accounting for this sector requires a combination of partnership formation with the private sector, improve capacity building and improving data, many sources lacked available information. From a reporting perspective, only IMMARBE have been transparent in relation to potential monitoring indicators, but they propose to consider indicators such as hiring 2 new personnel for registrations, attending 2 maritime exhibitions for marketing and prioritising technical capacity building for the 2024 IMO Audit/16 other courses.

3.7: Ocean and Coastal Tourism

In 2019 the contribution of travel and tourism Belize was 44.7 % of GDP. or US $604,400,000 Contribution of travel and tourism to GDP (% of GDP) of Belize increased from 22.5 % in 2000 to 44.7 % in 2019 growing at an average annual rate of 3.99% reaching 43% in 2022. For expenditure from cruise vessels, disembarkation rates are 80 % for passengers and 15 % for crew members. The tour purchasing rate for disembarked

passengers is 60% to provide basic related revenue as calculated in Table 3.7.1. Whilst Belize provides approximations of general tourism contributions to the economy and GDP; it has not previously been disaggregated specifically in of the blue economy context, for ocean and coastal tourism. Yet, most tourism incorporates beaches/marine/coastal activities with very few land-based tourists solely interested in just the land provinces. Therefore, approximations can be provided in Table 3.7.1. Out of Belize's 6 districts, Cayo and Orange Walk are landlocked, leaving adjustments in valuation for coastal tourism in direct expenditure/employment for the blue economy rather than the overall tourism sector. to be made for Belize, Corozal, Stann Creek and Toledo Districts. versus a 35% regional average. various marine reserves as listed above in Section 3.6

Table 3.7.1 Gross Value Added or GVA Contribution of Ocean and Coastal Tourism to Belize's Blue Economy

Stakeholder	**GVA/Revenue US$**	**% Contribution to GDP**
General Tourism	43% of 1,412,040,918 =US$ 607,177,594.74 Of which $75 US$ for international visitors x 360,317 leisure/non-business or non-official visitors =$27,023,775	43%
Belize ferry visitors -tourists Punta Gorda Seaport 2,299 visitors, ferries Dangriga Town Seaport 2,396 visitors -ferries	Average of $75 =$172,425 Average of $75 per ticket =$179,700	
Belize Tourism Board	Unclear	Unknown
Ministry of Tourism	Unclear	
Belize Hotel and Industry Association	Out of 863 total hotels, 712 are in coastal districts. Total of 360,317 visitors for leisure purposes but need dividing into district level.	
Recreational/Nautical Tourism Yacht Visits 5 marinas Placencia 2 marinas Belize City 1 marina Hopkins	**50-85 (Estimated as marinas/port authority did not supply when asked)** Average of $125 to $250 in associated fees, $175 in expenditure Total $750,000 to $127,500	
Marine/Coastal Protected Area Visitor Revenue	BZ $117,530 for marine reserves under Fisheries Department	
Cruise Ship/Passenger Fees274 vessels in 2022 -615,021 passengers	Minimum $150 BZ in associated conservation, tourism, security fees = $46,126,575	
Cruise Tourism Passenger Expenditure	Passengers spent $78 US or $156 BZ on average according to cruise industry per shore visit or $47,971,638	
Tourism Investment in Belize (Government, BHTA)	Estimated $400,000,000 in 2022	
Tourism Expenditure	$536,300,000 BZ (Belize Tourism Board/government) not specifically divided into blue economy	
Total	43% of 1,412,040,918 =US$ 607,177,594.74	

Similarly, tourism estimates of employment have not been directly separated into those correlating specifically with ocean and coastal tourism. To truly identify associated employment from Belize's ocean and coastal tourism stakeholders for its blue economy, this report advises incorporating the below stakeholders at a minimum into integrated ocean accounting. As identified in Table 3.6.3, approximately 20,594 stakeholders are employed in this sector. Employment related to the cruise sector is more complicated given that vessels have international crew and do not cooperate on reporting. Yet, but Belize hosts up to 333 vessels per year, requiring bunkerage services, local supplies, and tourism experiences. This excludes those visitors from yachting/recreational tourism and domestic visitors. It also excludes any Belize citizens and residents who manage to obtain work in tourism such as the local cruise and yacht industry and potentially misclassified as remittances but technically could be linked to the blue economy. Whilst several indicators are proposed to further develop ocean accounts and their effectiveness based on available information, this remains pending stakeholder engagement and decision making. As previously motivated, this Work Package and report identify recent projects and initiatives relating to Belize's ocean and coastal tourism for its Blue Economy. Examples located for this project are summarised in Table 3.7.3.

Table 3.7.2: Ocean and Coastal Tourism Employment Contribution to The Blue Economy

Stakeholder	Location	Employment including volunteers
General Direct Tourism Employment	General	20594 (September 2021)
Belize Hotel Association	115 Barrack Road Belize City	14 including board
Belize Tourism Industry Association	Belize City	49 including volunteers etc
Belize Tourism Board	Unknown	5-10 estimated
Ministry of Tourism and Diaspora Relations	106 South Street Belize City	66
Recreational Tourism 8 marinas plus supply chains, yacht charters etc		25 to 75
Marine/Coastal Protected Area (See Section above to avoid double counting		5-10 estimated
Cruise		5-10 estimated
Total		20594 (September 2021)

Source: This Report

Table 3.7.3: Belize Ocean and Coastal Tourism Projects and Initiatives

Name of Initiative	Timeframe	Funding Source
Port of Magical Belize	2020 to present	Private -under legal uncertainty Stake Bank, Portico Enterprise and Waterloo Holdings,
Tourism Sector Training Workshops	2023	Florida International University, Belize Tourism Board
BTB Elevate Tourism Expo	September 2023	Belize Tourism Board

3.8: Marine Research and Development

In developing ocean accounting for Belize's blue economy sector for marine research and development it is especially important to identify and capture information on projects and initiatives for the baseline 2022 year from government, multilateral organisations, private sector, NGOS, academia and professional associations domestic, regional, and international -but situated within Belize's land and marine Exclusive Economic Zone. Though subject to data limitations, estimates of potential revenue contribution to the blue economy are summarized in Table 3.8.1, and employment in Table 3.8.2. Such information adjusts for the fact that project funding is time bound. It needs to avoid double counting by not being incorporated into any other sector and being indirectly based on allocated research funding budgeted and spent locally for potential benefits.

Table 3.8.1 Gross Value Added or GVA Contribution of Marine Research and Development to Belize's Blue Economy in 2022 General

Project Name	**GVA Contribution to GDP /Funding Level (If known)**	**Funder Source**
Enhancing Adaptation Planning and Increasing Climate Resilience in the Coastal Zone and Fisheries Sector of Belize	US $600,000	GCF/FAO readiness project
Caribbean Regional Fisheries Mechanism Conference	Virtual so minimal	Various
Workshop for Belize's Fisheries Sector with Equipment and Training	Unknown	European Union
Coastal Zone and Fisheries Sector NAP Validation Consultation	Unknown cost physical workshop	Belize Government
Mesoamerican Reef Fund Accelerator Incubator _MARINVEST 2022 Initial Proposals include potentially Solving Fleshy Macroalgae -Healthy Reefs Initiative (HRI) King crab restorative aquaculture HRI Seaweed farming TNC, HRI, MARTAF, Viwala Mangrove carbon -MARCARBON -Smithsonian Institution US Shrimp farming -Belize Shrimp Grower's Association, HRI, Viwala, WWF Central America Wastewater treatment plants BWSL: Belize Water and Services Company, MBECA	$15,050,000 total allocated capital investment-regional not just Belize	Mesoamerican Reef Fund
Belize and Coral Reefs Awareness project	Unknown	Commonwealth Blue Charter
eDNA Expedition	Unknown	UNESCO
Fisheries/ Safety Satellite Monitoring Initiative	+-175,000	Taiwan Government
Marine Megafauna Monitoring Project	Unknown	Sea-Change and Mar-Alliance
New Sustainable Finance project targeted at Belize and MBECA.	150-250,000 $	CEFAS

D'Aloia Lab Deep Conservation Data	Unclear	University of Texas
Ocean Country Partnership Programme	Need Input Response	UK DEFRA
People Centred Conservation Agenda for Belize's Marine Space - Linked to GEF Resilient Bold Belize	From 2023 - $23,061.66	Belize Government, GEF, WWF
Caribbean Blue Economy Entrepreneurship Accelerator Incubator Competition/Programme	$20,000 -Belize Adventure Tours, Swallow Caye Wildlife Sanctuary	Compete Caribbean/IADB and World Ocean Council for Startups/Incubator
Coastal Marine Atlas 2 project	Unclear -regional	GEF
Integrated Transboundary Ridges-to-Reef Management of the Mesoamerican Reef Project	Belize will gain part of 5-year US $9,0000,000 project with Mexico, Honduras, Guatemala	GEF, World Wildlife Fund (WWF) and the Central American Commission on Environment and Development (CCAD
Marine Conservation and Climate Adaptation Project	Total US 6,000,000 5 years or $2,400,000 each year	Protected Areas Conservation Trust, Belize Fisheries Department
Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus 2022 to 2027	Part of regional $6,250,000 project	Global Environmental Facility BE-CLME+
Training Blue Economy journalists	$27,500	Earth Journalism Network
Blue Bond project	Out of a total $182,000,000 projected to provide $1,200,000 for marine conservation/research annually,	Private/The Nature Conservancy $23,500,000 endowment
Developing A National Marine Litter Action Plan	Unknown finance	CEFAS
Resilient Reefs Initiative	Unknown	UNESCO
Fish Right Eat Right Campaign, Ban Oil Drilling	Unknown	Oceana
Smart Coasts Project or Climate-Smarting Marine Protected Areas and Coastal Management in the Mesoamerican Reef Region.	Unknown	WWF Mesoamerica/CZAMI
Commonwealth Marine Economies Programme	Unknown	UK government
Belize Department of Environment	Unknown	Various
Belize Fisheries Department MCCAP previously mentioned, Belize Sea Turtle Conservation Network Belize National Spawning Aggregation Group	Unknown	Various
Belize Forestry Department -ENGENDER project	Unknown	Global Affairs Canada and UK Dept for International Development
CZMAI -Resilient Reef Initiative project AI for the Belize National Marine Habitat Map" project,	Elsewhere	UNESCO Microsoft

Also Updating Belize MSO and Coastal Zone Management		
MBECA	$3,500,000 (loan) Full funded Master's scholarships	IDB/UK government Ocean Country Partnership Programme
Sub-Total	US36,095,561.66	

Table 3.8.2: Belize Autonomous Entities and NGO Gross Value Added or GVA Contribution of Marine Research and Development to Belize's Blue Economy in 2022 General

Project Name	GVA Contribution to GDP /Funding Level (If known)	Funder Source
Association for Protected Areas Organisations	+-110,000	Various
Belize Audubon Society Improved management models of four of Belize's highest priority protected areas. Implementation Period: 2020 to 2023 Belize Audubon Society, Also Healthy Reef Initiative	MPA monitoring for coral bleaching, conch density survey, Lobster density survey, sea turtle nest monitoring, spawning aggregation for Nassau grouper, Waterbird/seabird surveys US$ 604,741.63	Donor: The European Union and Organisation of African, Caribbean and Pacific States through the Biodiversity and Protected Areas Management (BIOPAMA) Programme. Funds allocated: 604, 742 Euros (400,000 Euros from BIOPAMA and 204,742 Euros from Belize Audubon Society)
Belize Fund for a Sustainable Future	Establish an enabling environment for MSP $5,846,457.60 Total. Subtotals below 1: Strengthened Fisheries Governance and Management effectiveness in Belize's Blue Space -$1,510,000 2: Electronic Monitoring of Belize's High Seas Fisheries Unit, 575,782.5.0 3: Enhance Enforcement and Protection of Belize's Marine Resources $500,000 -Belize Coastguard 4: Strengthen National Capacity for CZMAI -$1,015,000 5: Improving Monitoring, Reporting and Socialization of Mangroves and Forest -Belize Forestry Department, US$879,819.5 6: Adaptive Management, Implementation and Socialization of Belize's Blue Bond -$1,355,805.50 -Belize Blue Bond and Finance Permanence Unit.	Belize Fund for a Sustainable Future
Belize Maya Forest Trust	$750,000 to support Maya Forest Reserve	Global Conservation
Fragments of Hope	Continued restoration of critically endangered coral species -focus on acroporids $200,467.50	Belize Fund for a Sustainable Future
Galen University	None yet but hoping for a marine course	None yet
Healthy Reef Initiative	-Report Card with Indicators	Unknown

Mar Alliance	Restoring Science, Community engagement and megafauna tourism at Gladden Spit Marine Reserve $326,171 Marine Biodiversity Monitoring Lighthouse Reef Atoll Mesoamerican Reef Deep Sea Sharks Monitoring Hol Chan Marine Reserve Nurse Shark Survey	Belize Fund for a Sustainable Future
Oceana	Offshore Oil referendum campaign Oceana Fisheries Audit 2022	Oceana
Protected Areas Conservation Trust	Readiness Grant from the Green Climate Fund (GCF) US$ 998,037 to become a direct access entity. $1,485,000,000 for a National Multisector Adaptation Plan,	
Reef Keeper Belize	$30,000 -Wish to support marine research need funding	Unknown
Sarteneja Alliance for Conservation and Development	Safeguarding Biodiversity and Species Abundance in Corozal Bay Wildlife Sanctuary $175,000 Community Engagement/Outreach Programme Community research -mangroves, manatee, water quality, local fishery catches, benthic/coastal vegetation	Belize Fund for a Sustainable Future ? Limited signs of any update 2022/2023 last website updates were 2021
Sarstoon Temash Institute for Indigenous Management (SATIIM)	Website update only 2016/2017	No information available
Southern Environmental Association	Part of Smart Coast project no information	No information, website suspended
The Nature Conservancy	See elsewhere for Blue Bond for general protection. No indication for specific marine research projects	Interview did not supply any additional funder data
Toledo Institute for Development and Environment	Toledo Environmental Clubs Exchange Programme unknown	
Turneffe Atoll Sustainability Association	Improving Management of TAMR through technological solutions $415,894 $50,000 from Bonefish and Tarpon Trust Long Term Atoll Monitoring Programme Spawning Aggregation Monitoring	Belize Fund for a Sustainable Future Bonefish and Tarpon Trust/Global Conservation Mar Fund
University of Belize Environmental Research Institute	Population structure assessment of fished marine species within Belize $145,299.15 (Caribbean red snapper (*Lutjanus purpureous*), lane snapper (*Lutjanus synagris),* hogfish (*Lachnolaimus maximus*) and Nassau grouper across Belize Turneffe Atoll Marine Reserve queen conch population Strengthening coral reef resilience through science for adaptive management and stakeholder engagement	Belize Fund for a Sustainable Future

	Comparison of Rookery and Non-Rookery Mangrove Cayes through Biodiversity and Biomass Addressing Stony Coral Tissue Loss Disease in the Turneffe Atoll Marine Reserve through tourism stakeholder involvement National mangrove and seagrass carbon storage assessment	Funders: Great Barrier Reef Foundation, RRI Project partners: CZMAI, TASA Funders: Smithsonian; Project partners: Smithsonian Environmental Research Centre Funders: MARFund Project partners: TASA Funders: Smithsonian, Project partners: Smithsonian Environmental Research Centre
Various NGOs Not specified elsewhere	Unknown	Unknown
Wildlife Conservation Society Glover Reef Marine Research Station	Managed Access Programme, Replenishment Zones Programme, In Water Sea Turtle Monitoring, Spatial Monitoring and Reporting Tool, Long Term Atoll Monitoring Programme, Spawning Aggregation Monitoring, Fisheries Catch Data Collection Programme	Various
Wildtracks	$75,000 Helping Secure the Future for Belize's Iconic Manatee	Belize Fund for a Sustainable Future
World Wildlife Fund	Resilient Bold Belize -detailed elsewhere	Resilient Bold Belize -detailed elsewhere
	$1,493,312,494.6 including GCF, = $8,312,494.645	

Table 3.8.3: Location of Marine and Research Development Projects, Location and Employment Contribution to Belize's Blue Economy

Project Name	**Location**	**Funding Source**	**Projected Employment /Capacity Contribution to Sector including permanent, temporary/volunteer**
"Enhancing Adaptation Planning and Increasing Climate Resilience in Coastal Zone and Fisheries Sector of Belize"	Belize City/area	GCF/FAO readiness project	To train 50 government staff, 60 community members
Caribbean Regional Fisheries Mechanism Conference	Virtual	Various	200 delegates
Workshop for Belize's Fisheries Sector with Equipment and Training	Belize City	European Union	Unknown
Coastal Zone and Fisheries Sector NAP Validation Consultation	Belize City	Belize Government	30 participants
Mesoamerican Reef Fund Accelerator Incubator _MARINVEST 2022 Initial Proposals include potentially Solving Fleshy Macroalgae -Healthy Reefs Initiative (HRI)	Various	Mesoamerican Reef Fund	Unknown total

King crab restorative aquaculture HRI Seaweed farming TNC, HRI, MARTAF, Viwala Mangrove carbon -MARCARBON -Smithsonian Institution Shrimp farming -Belize Shrimp Grower's Association, HRI, Viwala, WWF Central America Wastewater treatment plants BWSL: Belize Water and Services Company, MBECA	Roatan, Caye Caulker		Target recovery of 1000 shrimp farming jobs mostly women
Belize and Coral Reefs Awareness project	Unknown	Commonwealth Blue Charter	Unknown
eDNA Expedition	Bacalar Chico Marine Reserve Glover Reef Marine reserve, South Water Caye Marine Reserve, and Sapodilla Caye Marine Reserve	UNESCO	13 fisheries officers/researchers
Fisheries/ Safety Satellite Monitoring Initiative	General EEZ	Taiwan Government	Not employment linked
Marine Mega Fauna Monitoring Project	31 sites across Belize's ocean	Sea-Change and Mar-Alliance	9 fisherfolk 10 University of Belize students
New Sustainable Finance/Marine Litter project targeted at Belize and MBECA.	General	CEFAS	18 participants
D'Aloia Lab Deep Conservation Data	US based -Belize reef research	University of Texas	No locals
Ocean Country Partnership Programme	General	UK DEFRA	Need input response
People Centered Conservation Agenda for Belize's Marine Space/Resilient Bold Belize	Reef Areas from 7% to 20% protected	Belize Government	9780 potential beneficiaries
Caribbean Blue Economy Entrepreneurship Accelerator Incubator Competition/Programme	2 entrepreneurs -Belize Adventure Tours, Swallow Caye Wildlife Sanctuary	Compete Caribbean/IADB and World Ocean Council for Startups/Incubator	5-20 beneficiaries
Coastal Marine Atlas 2 project	Coast	GEF	Unknown
Integrated Transboundary Ridges-to-Reef Management of the Mesoamerican Reef Project -• Comprehensive and Integrated Watershed Management Plan to Restore and Protect the New River Watershed (Belize	Mesoamerican Reef/New River	GEF, World Wildlife Fund (WWF) and the Central American Commission on Environment and Development (CCAD	Unknown
Marine Conservation and Climate Adaptation Project	Coastal Zones	Protected Areas Conservation Trust	1009 direct beneficiaries engaged
Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus 2022 to 2027	General	Global Environmental Facility BE-CLME+":	
Training Blue Economy journalists	Belize City	Earth Journalism Network	11

Blue Bond project	General	Private/The Nature Conservancy	Not directly mentioned, need to consider grant recipients
Developing A National Marine Litter Action Plan	General	CEFAS	17 beneficiaries
Resilient Reefs Initiative	Reefs	UNESCO	Policy so none anticipated
Fish Right Eat Right Campaign, Ban Oil Drilling	Belize City	Oceana	15 participants
Smart Coasts Project or Climate-Smarting Marine Protected Areas and Coastal Management in the Mesoamerican Reef Region.	Punta Gorda Town, Placencia Village, Corozal Town, San Pedro Ambergris Caye	WWF Mesoamerica	70
Improved management models of four of Belize's highest priority protected areas Implementation Period: 2020 to 2023 Belize Audubon Society, Also Healthy Reef Initiative	Cockscomb Basin Wildlife Sanctuary, Victoria Peak Natural Monument, Half Moon Caye Natural Monument and the Blue Hole Natural Monument	Funds allocated: 604, 742 Euros (400,000 Euros from BIOPAMA and 204,742 Euros from Belize Audubon Society)	The European Union and the Organisation of African, Caribbean and Pacific States through the Biodiversity and Protected Areas Management (BIOPAMA) Programme.
Commonwealth Marine Economies Programme	General	UK government	Unknown
Belize Department of Environment	General	Various Unspecified	Unknown
Belize Fisheries Department MCCAP previously mentioned, Belize Sea Turtle Conservation Network Belize National Spawning Aggregation Group	General	Various Unspecified	Unknown
Belize Forestry Department	General	Various Unspecified	Unknown
CZMAI	General	Various Unspecified	Unknown
MBECA	General	IDB $3,500,000	Unknown
Sub-Total			12,312 potential beneficiaries

3.9: Total Blue Economy Integrated Ocean Accounts for Belize

Belize's initial ocean account for the baseline of 2022 (given data constraints) is summarized in Table 3.9.1 below representing minimum economic contributions to GDP and estimated sector employment. Historic estimations of ocean accounting are provided for 2017 to 2022 below, though subject to extreme data limitations. This report aimed to go back aimed to go back as far as 2012, but several entities only provided more recent reports and certain sectors such as blue carbon, ports and shipping lacked the provision of major reports/estimates. From 2017, Belize's blue economy contribution to GDP was the highest recorded at US$1,374,406,670 in gross value but as a percentage of 49.6% In 2022 the Belize blue economy contributed an estimated US$1,295,473,023.53 to GDP or 0.6% drop, recovering from the COVID19 pandemic or 75% of GDP as calculated by the consultants implying both the significance of the Mesoamerican Reef and improving accuracy of blue

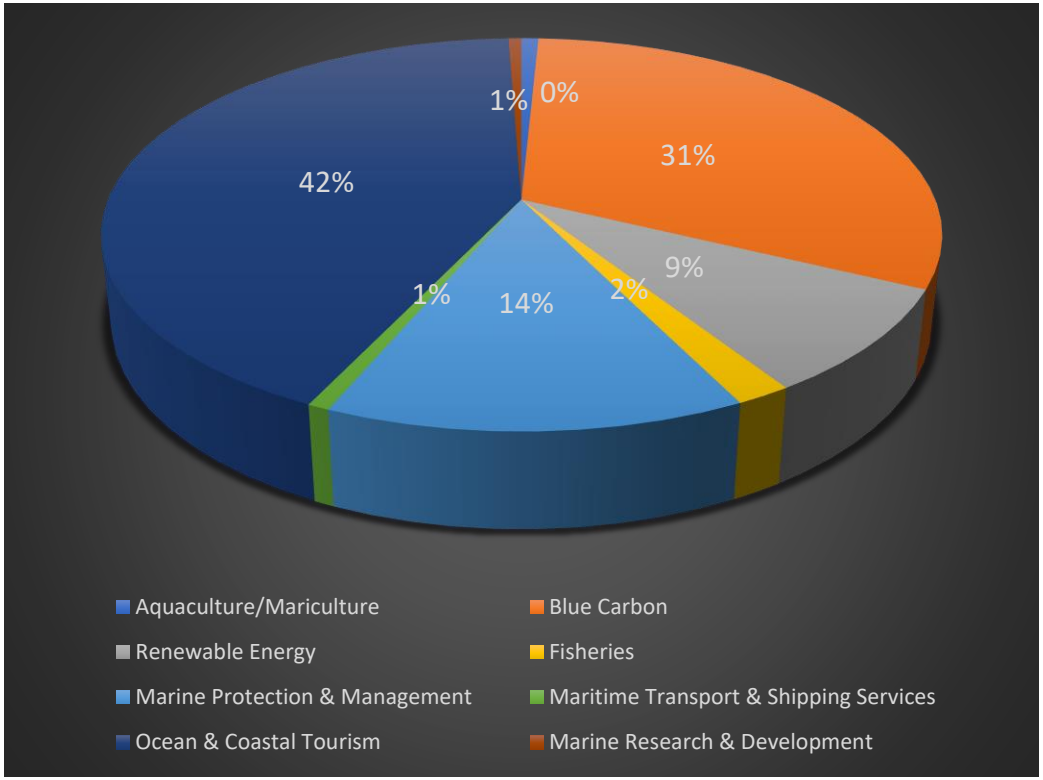
carbon/ecosystem valuation., Belize's blue economy and a significant need to revise ocean accounts to stop undercounting its true valuation of ecosystem services. From 2009 to 2020 Fishing GDP formally decreased from 4.5 to 1% of GDP, whilst tourism increased to 43% of GDP. Logistics including maritime transport and shipping increased from 3 to 3.3%. In 2022 the total labour force was 191,728, of which 118,626 were male and 73,102 were female. A minimum of 13.91% depends on Belize's ocean/blue economy for employment directly and 22.8% indirectly in 2022.

Table 3.9:1: Integrated Ocean Accounts for Belize 2022.

Belize Blue Economy Sector	Contribution to GVA/GDP US$	Employment
Aquaculture/Mariculture	1,1165,000	800-1200
Blue Carbon	321,602,452.5- 450,203,223.85	None formally
Renewable Energy	124,758,000	431
Fisheries	26,078,295	20,000 though only 3000 direct
Marine Protection & Management	196,129,186.65	712
Maritime Transport & Shipping Services	28,100,000	11,755 (11,000 are foreign seafarers)
Ocean & Coastal Tourism	607,177,594.73	20,594
Marine Research & Development	8,312,494.65	Partly included in above but +-250
Total for Blue Economy	**1,323,573,023.53**	**26,692 direct, 43,692 indirect**

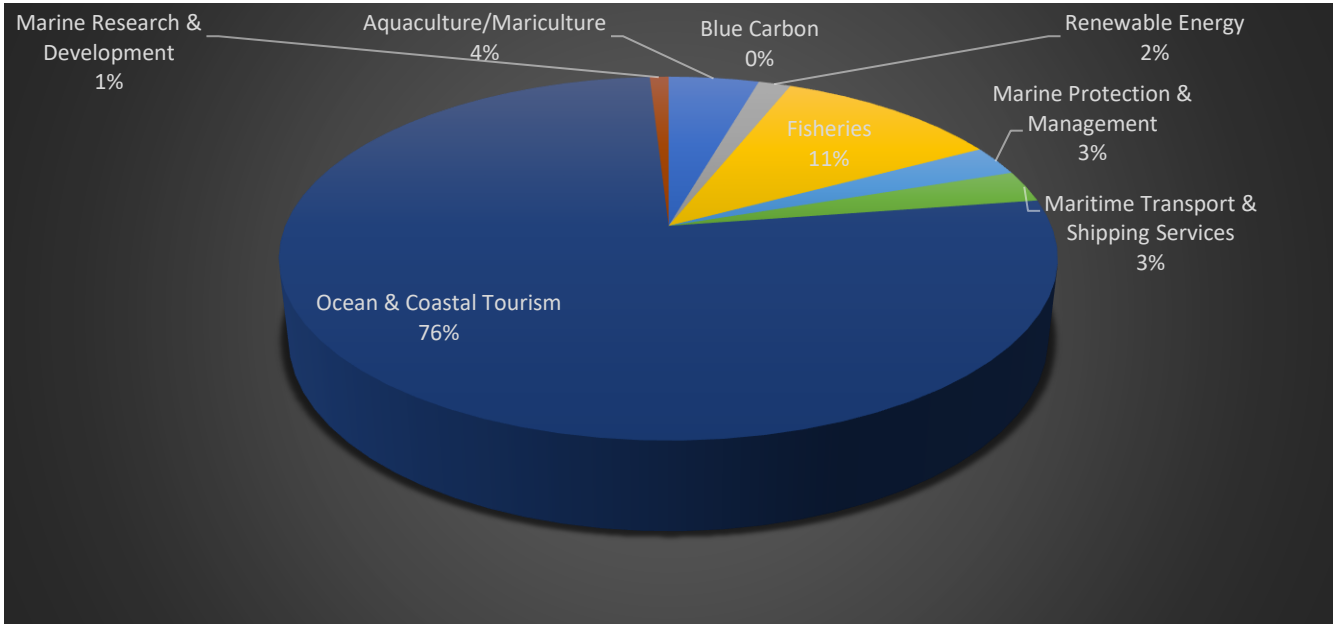
Source: This Report

Figure 3.9.1: Belize's Blue Economy by Sector Contribution to GDP 2022



Source: This Report.

Figure 3.9.2: 2022 Belize's Blue Economy Employment by Sector



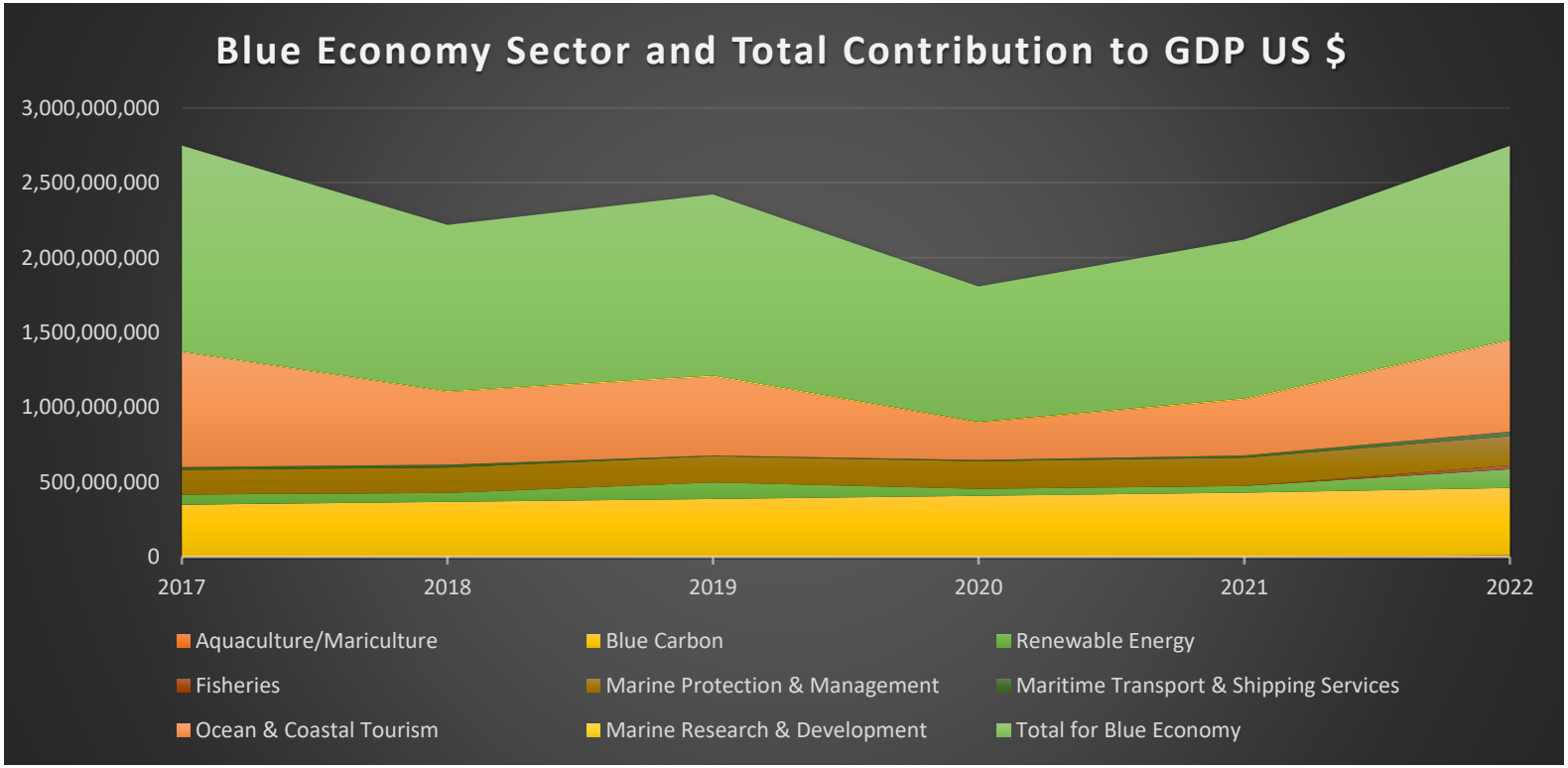
Source: This Report.

Though in many cases, subject to major data deficiencies such as for the blue carbon/ecosystem and maritime transport/shipping/logistics sectors which have virtually no publicly available data and the complexity of myriad sources for marine research and development/marine protection and management, dependent on stakeholders, Table 3.9.2 and Figure 3.9.3 provide a historic estimation of 2017 to 2022 ocean account contributions to Belize's GDP.

Table 3.9.2: Belize's Blue Economy by Sector Contribution to GDP 2017 to 2022

Belize Blue Economy Sector	2017	2018	2019	2020	2021	Contribution to GDP US$ 2022
Aquaculture/Mariculture	1,36 0,000	1,530,000	1,540,000	1,150,000	1,170,000	1,1165,000
Blue Carbon	348,358,672.61	366,693,339.59	385,992,989.04	406,308,409.52	427,693,062.65	321,602,452.5- 450,203,223.85
Renewable Energy	67,985,280	58,764,650	110,800,230	48,688,320	44,844,690.0	124,758,000
Fisheries	20,050.65	21,194.86	24,385.79	19,587.48	26,493.30	26,078,295
Marine Protection & Management	164,126,532.41	170,079,308.20	176,247,987.77	182,640,401.84	189,264,665.18	196,129,186.65
Maritime Transport & Shipping Services	18,800,000	18,300,000	2,600,000	10,300,000	15,500,000	28,100,000
Ocean & Coastal Tourism	766,800,000	487,000,000	527,000,000	247,000,000	374,000,000	607,177,594.73
Marine Research & Development	6,956,134.10	7,208,429.11	7,469,874.73	7,740,802.830	8,021,557.34	8,312,494.65
Total for Blue Economy	**1,374,406,670**	**1,109,596,922**	**1,211,675,467**	**903,847,522**	**1,060,520,468**	**1,295,473,023.53**

Figure 3.9.3: Belize's Blue Economy by Sector Contribution to GDP 2017 to 2022


Blue Economy Sector and Total Contribution to GDP US $
3,000,000,000
2,500,000,000
2,000,000,000
1,500,000,000
1,000,000,000
500,000,000
0
2017
2018
2019
2020
2021
2022
Aquaculture/Mariculture
Blue Carbon
Renewable Energy
Fisheries
Marine Protection & Management
Maritime Transport & Shipping Services
Ocean & Coastal Tourism
Marine Research & Development
Total for Blue Economy

4: Stakeholder Engagement

4.1: General

Out of 125 sent email requests based on provided contacts, recommendations and personal or professional connections, 25 were invalid responses based on incorrect contact information. The total number of responses as of 28 November 2023 was 64% of which 45% resulted in combined interviews and surveys with 19 interviews and 26 surveys. Stakeholders who did not respond or showed no interest in Belize's ocean accounts, blue economy and related capacity building are summarized in Table 4.1 below. These were approximately 36 or 36%. Those stakeholders who had confirmed interviews undertaken are summarized in Table 4.2. Those stakeholders from which confirmed survey responses were received are outlined in Table 4.3. Those stakeholders who initially responded but their interviews are either still pending or have not yet responded further are highlighted in Table 4.4, whilst remaining survey respondents are identified in Table 4.5. Those who declined to cooperate are provided in Table 4.6. Those who merely diverted or forwarded responses to other stakeholders, who in turn responded or failed to respond are provided in Table 4.7. One stakeholder Fein Catch requested a physical interview, which was passed onto another team member to follow up on. All responses and engagement were conducted by this report's author virtually with average interviews ranging between 15 minutes to 1 hour 35 minutes.

Table 4.1 Non-Responding Stakeholders 36

No	Sector	Stakeholders
1	Aquaculture	Belize Shrimp Growers Association
2	Fisheries	National Fisheries Producers Cooperative
3	Fisheries	Northern Fishermen Cooperative Association
4	Fisheries	Wabafu Fishermen Association
5	Energy	Energy Unit
6	Environment	Department of the Environment
7	Aquaculture	Department of Agriculture
8	Government	Lands and Survey Department
9	Government	Department of Transport
10	Marine Protected Area Co-manager - NGO	Belize Audubon Society
11	Community Based Organisation	Belize Association of Planners
12	Conservation NGO	Sarteneja Alliance for Conservation and Development
13	Marine Protected Area Co-manager - NGO	Southern Environmental Association
14	Marine Protected Area Co-manager - NGO	Toledo Institute for Development and Environment
15	Social NGO	Sarstoon Temash Institute for Indigenous Management SATIIM
16	Shipping & Ports	Port of Big Creek
17	Shipping & Ports	Belize Port Authority
18	Shipping/Ports/Tourism	Discovery Belize
19	Waste	Belize Solid Waste Management Authority
20	Environment	Protected Areas Conservation Trust
21	Education / Research	Statistical Institute of Belize
22	Community Based Organisation	Young Leader's Alliance of Belize (YLAB)
23	Government	Ministry of Finance, Economic Development & Investment
24	Government	Ministry of Transport, Youth and Sports
25	Government	Ministry of National Defence and Border Security

26	Government	Ministry of Human Development, Families & Indigenous Peoples' Affairs
27	Government	Ministry of Home Affairs & New Growth Industries
28	Government	Ministry of Education, Culture, Science & Technology
29	Government	Ministry of Sustainable Development, Climate Change & Disaster Risk Assessment
30	Government	Ministry of Public Service, Constitutional & Political Reform and Religion
31	Government	Ministry of Foreign Affairs, Foreign Trade and Immigration
32	Tourism	San Pedro Tourist Guide Association
33	Tourism	Ambergris Caye Fishing Guide Association
34	Tourism	San Pedro Tour Operators Association
35	Tourism	San Pedro Business Association
36	Civic Society	Ambergris Caye Citizens for Sustainable Development

Table 4.2: Confirmed Belize Blue Economy Stakeholder Interviews: 19

Response No	Sector	Stakeholder Organisation	Date/Time Undertaken
1	Government	Blue Bond Unit Office of Prime Minister	Wednesday 18 October 2-3 pm Belize Time
2	International Aid Donor	FAO Belize Representatives	Tuesday 24 October 2-3 pm
3	Government/Conservation	National Biodiversity Office Representatives Director	Thursday 26 October 2023, 9 am to 10 am Belize time
4	Conservation/NGO/ Protection/Research	Reefkeeper Belize NGO	Thursday 26 October 2023 12 pm to 13:07 pm
5	Government/Maritime Security /Protection and Governance	Belize Coastguard Senior Representative	Thursday 26 October 2023, 14:23 pm to 15:19 pm.
6	Government	Office of the Prime Minister Senior Representative	Friday 27 October 12 pm to 1 pm
7	Conservation/NGO/ Protection/Research	Association of Protected Areas Organisation Representatives	Monday 30 October 2023, 2 pm to 3:11 pm.
8	Government/Conservation	Belize Fund for a Sustainable Future Senior Representative	31 October 2 pm to 2:52 pm,
9	Fisheries	Belize Federation of Fishers Representatives	7 November 9:15 am to 10:37 am,
10	Government	CZAMI Senior Representatives.	7 November 14:30 to 15:30 pm,
11	Conservation/NGO /Protection/Research	Representatives from Turneffe Atoll Sustainability Association	13 November 2023 2 pm
12	Port/Logistics	Port of Big Creek Representatives	14 November 10-11 am
13	Government	Ministry of Economic Development Senior Representative	16 November, 9-9:45 am
14	Government	Ministry of Labour, Rural Development and Local Government Senior Representative	Tuesday 21 November 2 pm to 3 pm

15	Government/Fisheries	Fisheries Department Senior Representatives	Wednesday 29 November, 9 to 10 am
16	Government/Energy	Belize Geology Department Senior Representative	Thursday 8 December 10-11:14 am
17	Government	Ministry of Public Utilities, Energy, Communication and E-Governance Senior Representative	Monday 11 December 10-11 am
18	Government	Belize Government Sustainable Development Unit.	12 December 2023 10-10:56 am,
19	Conservation/NGO/ Protection/Research	Maya Forest Trust NGO Senior Representative.	Tuesday 19 December 2023, 8:30 to 9:30 am

Figure 4.1: Confirmed Survey Responses Received

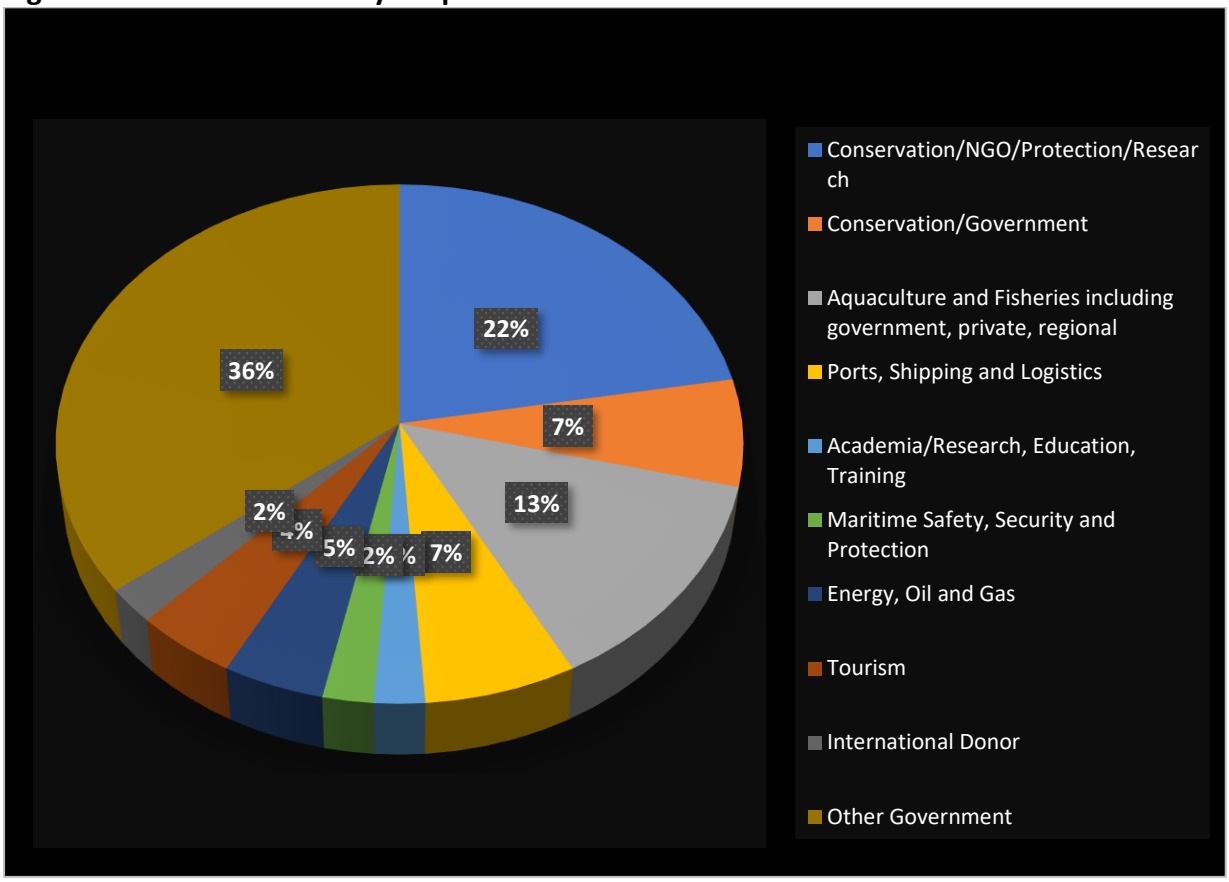


Table 4.3 Confirmed Survey Responses Received 26

Response No	Sector	Stakeholder
1	Government/Tourism	Belize Ministry of Tourism and Diaspora Relations
2	Port/Shipping	Belize Port Authority
3	Government	Climate Finance Unit
4	Conservation/NGO/Protection/Research	Crocodile Research Coalition NGO
5	Research/Academia	Galen University
6	Conservation/NGO/Protection	Healthy Reefs Initiative
7	Government/Fisheries	High Seas Fisheries Unit
8	Marine Research	Ikooma Belize -seaweed entrepreneur
9	Government	National Biodiversity Office

10	Government	National Meteorological Department
11	Government	Office of the Prime Minister Economic Development Council
12	Conservation/NGO/Protection/Research	University of Belize
13	Research/Academia	Wildlife Conservation Society Belize
14	Regional/Fisheries	Caribbean Regional Fisheries Mechanism
15	Government/Conservation	Protected Area Conservation Trust
16	Government	Ministry of Blue Economy and Disaster Risk Management
17	Government/Tourism	Belize Tourism Board
18	NGO/Conservation/Research	WWF Mesoamerica
19	Aquaculture/Mariculture	Private Seaweed Aquaculture Entrepreneur
20	Government	MBECA Representative 2
21	NGO/Conservation/Research	Hol Chan Marine Reserve
22	Government	Central Bank of Belize
23	Government	NEMO
24	Government/Aquaculture	Department of Aquaculture
25	NGO/Conservation/Research	Oceana NGO
26	Government/Research/Logistics	Beltraide

Table 4.4: Those Diverting Responses to Other Participants 6 (similar to those declining to participate direct)

No	Sector	Stakeholders
	Research	Caribbean Community Climate Change Centre pending response from the Executive Director
	Government	Department of Environment, diverted to CEO still pending a response
	Government	Ministry of Agriculture, Food Security and Enterprise Diverted to CEO, still pending a response
	Government	Ministry of Home Affairs -Forwarded it to CEO, awaiting response
	Government	National Climate Change Office -diverted to Director, still awaiting a response
	NGO	TIDE Belize

Table 4.6: Belize Blue Economy Stakeholders Uninterested and Declining to Participate 3

No	Sector	Stakeholders (based on perceived irrelevance)
	Government	Attorney General Ministry
	Tourism	Belize Tourism Industry Association
	Conservation/NGO/Protection/Research	Ya'axchè Conservation Trust

4.1.1: Interview Analysis

Table 4.1.1: Summary of Interview Existing Background, Projects and Initiatives

Interview No	Type	Existing Projects and Initiatives
	Blue Bond and Finance Permanence Unit, Office of Prime Minister	Mobilising Resources for Blue Economy Policy, Blue Bonds They are currently designing a new Project for Permanent Finance but unable to provide details, prioritising conservation and sustainable livelihoods, additional local NGOs. Developing Own Communication Strategy to improve public understanding. Ministry of Sustainable Development is advocating for a Blue/General Carbon Trading Bill
	FAO Belize Representatives	Climate change awareness and sensitivity training has also been conducted via a series of workshops as part of the second project outcome. This also focused on

		training communities into possible careers within a climate resilient fisheries sector and associated blue economy for certain coastal communities and NGOs. It extended to providing certain CZMAI/MBECA government officials with GIS and climate data related capacity building. A third deliverable included efforts to form a National Climate Change Communication Strategy especially in relation to the fisheries sector. They further recommend more attention to assess existing skills and experiences, whilst hiring additional capacity and allocating sufficient funds for the various priorities identified under the FAO project and its deliverables including its Climate Data Information Gap Assessment. The project also conducted various Vulnerability and Livelihood Assessments for climate change, with adaptation finance with SURFACE. However, only seven out of an identified twenty-seven coastal communities could receive potential funding under the FAO project, requiring potential funding support to be mobilised from other resources. A Technological Needs Assessment was similarly undertaken. In relation to climate finance, FAO aided the Belize government to design a concept note for Green Climate Fund support and to help directly address Nationally Determined Contribution requirements. However, this would require additional state co-financing to be committed.
	National Biodiversity Office Representatives Director	Current data and capacity building specific initiatives include the BIOFIN initiative started in 2016, in relation to biodiversity finance monitoring and support. The project is now identifying the third phase, aiming to breach the biodiversity/conservation finance gap especially for capturing the value of youth, marine biodiversity, education and welfare. Several assessments have been undertaken including an expenditure and needs assessment, with specific priorities and nine listed potential financing solutions such as tourism fees, green debt; blue bonds/debt for nature swaps, developing business and forward strategic plans and improving management effectiveness, revenue, project management and overall financial sustainability.
	Reefkeeper Belize NGO	Marine Conservation Awareness and Education for Youth, coral reefs and mangrove replanting (with even a mangrove nursery), along with beach clean-ups, general community education, school camps, interest and awareness to encourage greater marine eco-literacy and interest, along with possible careers. There are some limitations though as Ministry of Education guidelines limit children's ability to directly swim/dive in water. Need to prioritise the social aspects of ocean accounting, The interviewee also alluded to school educational talks, community outreach, professional teacher development to aid them in their assignments, summer camps and even showing students via a ROV/drone. The primary focus is awareness and education rather than research, though scope exists to develop that area with channelled resources
	Belize Coastguard Senior Representative	They mostly have smaller buts but are about to launch an international tender on procuring two new offshore patrol boats as it is the leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others
	Office of the Prime Minister Senior Representative	This stakeholder focused on broad policy and political orientated responses rather than engaging with the specifics of the questions raised.
	Association of Protected Areas Organisation Representatives	Support communication, cooperation, information sharing and capacity building as a technical secretariat for co-managed terrestrial and marine protected areas of which they have sixteen in total and four pending members, only three of which as current members are specifically marine orientated. These range in levels of understanding, financial, technical, data gathering and other support
	Belize Fund for a Sustainable	The Fund has only been initiated in April 2022 for the past 18 months and operational for the past year. The Fund was established as a direct requirement

	Future Senior Representative	of the Blue Bonds Loan Agreement. The interviewee was somewhat sceptical and reluctant about participating and seeing the direct utility and value of ocean accounting, seeking more detailed information and the scope of the assignment, not being familiar with such. Another source of ongoing capacity building highlighted was the British government funded Ocean Country Partnership Programme. They do not directly intervene in projects but are guided by and respond to the specific priorities identified by potential applicants. They conduct two main programmes for all eight sectors of Belize's Blue Economy and multiple stakeholders. The first provides direct funding and budget allocations to various government programmes and priorities that could potentially support Belize's blue economy and marine ecosystem. The second is a Grants Award Programme that aids NGO's and various civil society organisations to potentially support funding priorities devised by the stakeholders directly. They have just conducted their first cycle of grants from March 2022 to March 2023. 4/6 were based on protection for biodiversity and conservation, whilst the other two concentrated on climate resilient livelihoods.
	Belize Federation of Fishers Representatives	They perceived the various fishery cooperative associations to be mostly dormant with only one person officially dedicated by each, especially following the COVID19 pandemic recovery.
	CZAMI Senior Representatives.	2023 update of their Coastal Zone Management Plan and the marine spatial plan equivalent or Belize Sustainable Ocean Plan. They are working towards complementing the Blue Bonds agenda and Belize need to classify various marine space uses.
	Representatives from Turneffe Atoll Sustainability Association	Management programme and monitoring for sustainable fisheries and effective conservation; ecotourism, providing enforcement, financial, technical/data and related operational/administrative support. It does so jointly with links to fishermen cooperatives, the Belize Tourism Board, MBECA/Fisheries, the University of Belize with its Environmental Research Institute and others. This extends over 360,000 acres of landscape/seascape**.**
	Port of Big Creek Representatives	Wish to be actively engaged, given previously being ignored. they are looking at expanding/dredging out one of their main berths
	Ministry of Economic Development Senior Representative	This interview concentrated on representatives focusing on climate finance, policy and planning as several others were unable to join. They indicated quite a separation from ocean accounting and the blue economy but would like to participate and potentially learn significantly more. They have been concentrating on aligning this to the accreditation process needed to mobilise and implemented funding from the Green Climate Fund and others. It includes mobilising the finance, data and other resources necessary to identify and potentially exploit, with alignment to the Medium-Term Development Plan.
	Ministry of Labour, Rural Development and Local Government Senior Representative	Inter-American Development Bank project on improving municipal infrastructure in San Pedro, Corozal and Orange Walk, possibly looking to expand It to Belize City. This will include water., wastewater, the circular economy and coastal protection under the Blue Cities Programme. They have submitted a project concept note to the Caribbean Bank for Economic Development to support climate resilient infrastructure along with the formation of a National Rural Development Strategy for rural areas. This excludes local smaller projects such as rebuilding a reverse osmosis desalination plant as an urgent priority for one coastal village community
	Fisheries Department Senior Representatives	They have been involved in the gazetting of additional marine protected areas and Key Biodiversity Areas. They have also been supporting the WWF Project for Permanent Finance Initiative, considering sustainable financing options for these marine protected areas such as external investment sources. The Department is also contemplating devising a National Plan of Action to Address Illegal, Unreported and Unregulated Fisheries. They are considering a Blue Justice Hub

		to centralise monitoring, compliance and enforcement related data. They are also assessing their sea cucumber population for potential exploitation versus mariculture development.
	Belize Geology Department	Three main projects are currently being pursued. The first includes a land based and surface, geological survey for minerals, oil and gas prospecting prospects. The second focuses on a more detailed study of Belize's northern oil/petroleum, linked system. The third concentrates on investigating the feasibility of offshore potential. However, Belize currently has a moratorium on the issuing of new oil and gas licenses and indirectly on seabed mining. Present efforts primarily concentrate on updating digitally, data related to the historic existence of sixteen offshore oil and gas site locations to determine a valuation of the reserve and associated potential. These projects are expected to take 1-1.5 years and thus data cannot be provided at this time to truly assess the direct socioeconomic contribution potential of offshore oil and gas to Belize's general economy.
	Ministry of Public Utilities, Energy, Communication and E-Governance	Numerous projects concerning rural electrification, decarbonisation, renewable energy and even hybrid vehicles funded by the European Union, IDB and others. Other projects targeted improving digital connectivity platforms for e-governance under the ICDF and improving digitisation of logistics platforms for the maritime sector including port authorities. They are contemplating biofuels and other alternative fuel sources. Renewable ocean energy was not perceived as a target, with efforts more towards, solar, hydroelectric and wind.
	Sustainable Development Unit	These stakeholders are primarily concerned with implementing Sustainable Development Goals and the capturing of related data indicators rather than developing specific projects and initiatives of their own, e.g., supporting various Ministry Strategies and Action Plans.
	Maya Forest Trust	There was some interest and confusion as they alluded to a similar World Bank project under the Ministry of Economic Development they had been consulted about. They represent both the Association of Belize NGOs and the Maya Forest Trust as a separate NGO. The former works to represent Belize NGOs on legislation, initiatives and interests including lobbying the Senate and Parliament on the Carbon Trading Bill, the Blue Economy Policy and others; similar to the Union, Business and Churches representatives.

Table 4.4.2: Belize Blue Economy Survey Stakeholders Background, Projects and Initiatives

Survey No	Type	Belize Blue Economy Survey Stakeholders Background, Projects and Initiatives
1.	Belize Ministry of Tourism and Diaspora Relations	Current Initiatives by the Ministry of Tourism & Diaspora Relations and the Belize Tourism Board (BTB): Update of the National Sustainable Tourism Master Plan, Cruise Policy, Nautical Tourism Strategy
2.	Belize Port Authority	Projects: 1. digitalization of ports, in line with FAL Convention. Belize is to implement a maritime single window and the deadline for contracting parties is Jan 2024. The BPA is currently working with relevant stakeholders within the National Port Community Council to implement the MSW. 2. Green Voyage 2050 Project: aligns with the IMO GHG strategy to decarbonize shipping. Belize has two workstreams: domestication of MARPOL annex VI- Air emissions, through local regulations and the formulation of a National Action Plan for decarbonization. 1. Social and Economic Impact Study of Ports: this work is seeing the first of its kind data gathering and analysis of the impacts of ports to the Belizean economy. The final product will be completed in 2024 for dissemination to the public and those stakeholders who supplied generous information: finance dept, SIB, port terminal operators. 2. National Maritime Transport Policy: the first of its kind policy to help drive maritime transport. Data is being gathered by the consultants with BPA

		facilitating the process on the ground. Consultations and data gathered cover: regulating agencies related to shipping and other maritime activity, port terminal operators, water taxi operators, shipping agents, boat builders, domestic shipping registry. The first draft report is expected for December 2023.
3.	Climate Finance Unit	3 - The CFU mobilizes climate finance for projects/programmes that aim to achieve our NDC targets, sectoral priorities, and national priorities as outlined in the Medium-Term Development Strategy. We hold the GCF and Adaptation Fund portfolios, however, we also interact with other IFIs/MDBs that have dedicated funding windows for climate change initiatives. We recently wrapped up the fisheries and coastal NAP with the Ministry of Blue Economy and are working on a GCF concept note, based on the outcomes of the fisheries/coastal NAP. We are also working on developing a second phase of the Marine Conservation for Climate Adaptation project with MBECA.
4.	Crocodile Research Coalition NGO	The CRC currently is organizing trash pick-ups, as well as a community involved mangrove restoration and preservation program to assist in keeping the environment, wildlife and communities healthy. We conduct various wildlife research around the Placencia Lagoon, as well as on crocodiles. We are very active in community outreach, conducting outreach 1/week around the community of Placencia Lagoon. Our funding comes from grants and donors.
5.	Galen University	The University offers a comprehensive course on the Blue/Green Economy to students within its Environmental Science Program. The University is also currently in the process of developing certificate programs that will boost the country's human resources.
6.	Healthy Reefs Initiative	Focused on coordinating initiatives alongside partners dedicated to marine conservation and reef health. Training is provided to produce AGGRA certified surveyors that aid in data collection assessing reef health indicators. Currently, the data collected this year 2023 will be analysed and published in the 2024 Healthy Reef Report Card. We are also engaged in projects with these focuses: Stony Coral Tissue Loss Disease Monitoring, Restoring Herbivory Project (King Crab Mariculture) and will shortly begin some water quality monitoring south of Belize. Funding is obtained through proposals and grants obtained from various donor organizations as well as through collaborative efforts with other partners. .
7.	High Seas Fisheries Unit	We are also collaborating with the International Commission for the Conservation of Atlantic Tunas and through the Japanese Cooperation Assistance Program where we have obtained a grant for the reinforcement of data collection, monitoring for tuna fisheries and the adaptation of new catch documentation scheme of statistics system in Belize. This grant is primarily being used to collect sport and recreational fisheries data as it relates to regulated species in the ICCAT Convention area. However, personnel tasked with collecting these statistics require advanced training in species identification and fish population dynamics.
8.	Ikooma Belize - seaweed entrepreneur	I began experimenting with Eucheumatopsis isiformis (formerly Euchuema isiforme) seaweed in 2017 as a hair care solution. In 2019, I registered and trademarked iKOOMA. In 2020, I borrowed BZD 10,000 towards to construction of a home lab. In 2020 I borrowed BZ$8,000 to purchase raw materials in bulk. In 2019, I received a grant from the Commonwealth Litter Programme of BZD 3,000 towards the purchase of biodegradable refill packets for my plastic reduction initiative.
9.	National Biodiversity Office	Current projects under the NBIO are included Biodiversity Finance Initiative (Biofin) Phase 2 of the project supports the implementation of several finance initiatives including:

		1. Establishment of a National Biodiversity Unit 2. Development of Business models and plans 3. Environmental Funds – optimization/strengthening 4. Carbon Markets 5. Biodiversity Investment Impact Tracking Tool (BIIT) 6. Results Based Budgeting framework 7. Re-purposing biodiversity harmful expenditures and practices 8. Crowdfunding 9. Green Debt Private Sector Data Collection 10. Debt for Nature Swap Global Biodiversity Framework Early Action Support Component 1: Rapid review of NBSAP for alignment with the post-2020 GBF; Component 2: Rapid Assessment of monitoring systems; Component 3: Policy and institutional alignment and review for coherence with Global Biodiversity Framework; Component 4: Biodiversity Finance Activities. Strengthening the Protected Areas System via strategic interventions project
10.	National Meteorological Department	The NMS has worked recently with the MBECA and Coastal Zone Management, Authority and Institute (CZMAI) on a project titled: "Enhancing adaptation planning and increasing climate resilience in the coastal zone and fisheries sector of Belize" where a climate data and information GAP assessment was conducted for the Marine space. Through this project, training was done of the NMS's Climate Database Management System (SURFACE) for Fisheries, Blue Economy and CZMAI staff.
11.	University of Belize	The University of Belize has three academic programs related to the blue economy: Marine Biology, Natural Resources Management and Biology. These programs provide students with the opportunity to be in the field and participate in various activities carried out by blue economy stakeholders e.g., scientific research, internships, symposia, inter alia. After graduating from the University of Belize, these students become part of NGOs and Government Departments.
12.	Caribbean Regional Fisheries Mechanism	The CRFM, the FAO, and the Development Bank of Latin America and the Caribbean (CAF), have partnered to implement a four-year project in the region. The project is intended to strengthen the foundation for blue economic growth and sustainable development of marine living resources by focusing on marine spatial planning, area-based management, and climate-smart sustainable seafood value chain development. This initiative titled the "BE-CLME+: Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus" project, aims to maintain and preserve cultural heritage through sustainable fisheries management, improved livelihoods, and alternative livelihoods while strengthening the integration of fisheries and ecosystem management to restore, protect and maintain marine biodiversity, productivity, and resilience of marine ecosystems. The participating countries are Barbados, Belize, Guyana, Jamaica, Panama, and Saint Lucia.
13.	Protected Area Conservation Trust	PACT is currently working on developing grant proposals under its Conservation Investment Strategy 2.0; this will also cover training potential for co-managers within protected areas management. PACT is currently seeking potential partnership with other donor institutions within Belize, primarily the Belize Fund for a Sustainable Future. PACT is currently seeking other avenues for financing such as through the Green Climate Fund or the Adaptation Fund
14.	Ministry of Blue Economy and Disaster Risk Management	MBECA is currently engaged in a 5-year memorandum of understanding with the UK Government through its Ocean Country Partnership Programme (OCPP). The OCPP is providing technical support to Belize's MPA network to help Belize sustainably manage its ocean

15.	Belize Tourist Board	Capacity Building Tour guides were trained in 2022 by Coral Reef Alliance and in prior years in tour management at marine sites. In 2022 the BTB financially supported two cohorts in the Belize District and Placencia Village; these were awarded Dive Master and Dive Instructor Certifications. In 2022 and 2023 Belize Tourism Board provided support for Tour Guides for PADI Scuba Certification. In 2023 one cohort in Placencia Village received Dive Instructor Certification. The TDU is presently identifying training opportunities in GIS, BIG DATA and Data Analytics Nautical: The BTB is focused on diversifying the tourism product to embrace niche markets such as Leisure Cruise Tourism. As such it will incorporate the following: - Deployment & Certification of Mooring buoys for high traffic tourism areas and dive spots. - Development of additional port infrastructure and docking to create harbours for Mega yachts, small cruise ship and leisure yachts. - Policy development to provide support for the development of the industry and creation of auxiliary services. Coral Resilience Project: Climate change has taken an extensive toll on the Mesoamerican Reef and Belize has not been spared. As such a combination of research technologies for coral nurseries are being employed inclusive of establishing a land-based nursery to support out planting.
16.	WWF Mesoamerica	Current Initiatives – Long Term Resource Mobilization To assist the Government of Belize, deliver on 30x30, WWF's innovate approach to securing the finance needed is through a Project Finance for Permanence (PFP) initiative known as Resilient, Bold Belize (RBB). The PFP aims to secure major commitments from multiple stakeholders in a single closing to ensure large-scale systems of conservation areas are well-managed, sustainability financed, and benefit the communities who depend on them in perpetuity. WWF, through the support of the International Climate Initiative, embarked on a seven-year initiative which ran from 2018 to 2023. This project sought to incorporate climate change principles into the management of marine protected areas and coastal development policies in the countries bordering the Mesoamerican Reef, with the aim of improving the capacities of coastal communities to adapt to climate change. In Belize, three project regions were addressed in accordance with the national Integrated Coastal Zone Management plan: the Northern Regional Planning Zone, the Ambergris Caye Regional Planning Zone, and the Southern Regional Planning Zone. B WWF is currently working with government and partner agencies in seagrass management policy, coral reef restoration action plan, MPA and coastal protected areas, National Mangrove Restoration Action Plan. Part support has included the creation of summary documents and communication materials for stakeholder outreach on updated 2018 mangrove regulations.
17.	MBECA Representative 2	There are two main initiatives that have supported MBECA with capacity building and trainings since 2022, these are: 1. The United Kingdom Ocean Country Partnership Programme (OCPP) being funded under the UK's Blue Planet Fund. This is a programme where the Government of Belize is receiving technical assistance across thematic areas such as biodiversity, marine pollution, and sustainable seafood for Belize's environment to deliver positive impacts on the livelihoods of coastal communities that depend on healthy marine ecosystems. Through this partnership MBECA, the Belize Fisheries

		Department (BFiD) and key partners have benefitted with capacity building and trainings. 2. The GCF Readiness Project "Enhancing adaptation planning and increasing climate resilience in the coastal zone and fisheries sector of Belize. (Completed Nov 2023
18.	Hol Chan Marine Reserve	Data collection at HCMR: Commercial Species- National Methods established by the Belize Fisheries Department (Opening & Closing Seasons) Fish Abundance & Benthic Coral Surveys- AGRRA (Quarterly) Sea Turtle Nesting Beach Surveys- For season April-November Water Quality Surveys- YSI device (out of service, needs repairs thus data collection has been paused) Coral Restoration Program- Coral Nurseries and Out planting, National method established by the NCRMN. HCMR is constantly seeking additional funding to be able to meet with other objectives of the reserve. Most of our income comes from the park fee collection which allows us to provide the basic needs and priorities of the organization. Additional funding is sought for special projects. Our last project was Climate Change and Coral Restoration in the Northern Region funded by World Wildlife Fund. Currently we are in communications with PACT under the CIS 2.0 project to obtain funding for the management of the reserve.
19.	NEMO	NEMO's objectives, as articulated in the MSDCCDRM's Strategic Plan (2023) include: 1) improve response and recovery actions; 2) increase human resources and general capacities; 3) enhance integrated warning systems; and 4) increase public awareness and response to hazards and threats. NEMO does not have any activities in relation to the blue economy, and as such does have any current initiatives or projects in this regard.
20.	Department of Aquaculture	In Belize, inland and coastal aquaculture is administrated by the MAFSE. We have current interests in capacity building, training and information in the areas of Biosecurity and Marketing.
21.	Oceana NGO	Oceana is pleased to build and develop a network of journalists who will not only promote sustainable fisheries, but also produce factual, insightful reporting on fisheries issues in Belize via an annual one-day training workshop for local journalists and communication professionals entitled "Fish School." Oceana originally launched its Fish Right, Eat Right (FRER) program in 2016 to create incentives for fishers to fish legally and responsibly. It is designed to connect fishers fishing responsibly with restaurateurs willing to pay a premium price for responsibly caught fish. Oceana also established data-sharing partnerships with relevant government agencies to ensure that any data collected on Belize's finfish sector is made available to relevant stakeholders. Such agencies include the Fisheries Department, the Ministry of Tourism, and the Ministry of Fisheries. Oceana conducted a market analysis of finfish supply and demand in San Pedro and Caye Caulker to better understand fishing pressure, The Fisheries Department is currently working with Shell Catch to roll out and scale up the program nationally.
22.	Beltraide	BELTRAIDE, through SBDC Belize/ EXPORT Belize, offers two core services. Business advisory service to start, improve, and expand operations., Business Development Training, Technical assistance

Figure 4.1.2: Belize Blue Economy Interviewed Stakeholder Blue Economy Awareness/Interest in Ocean Accounting

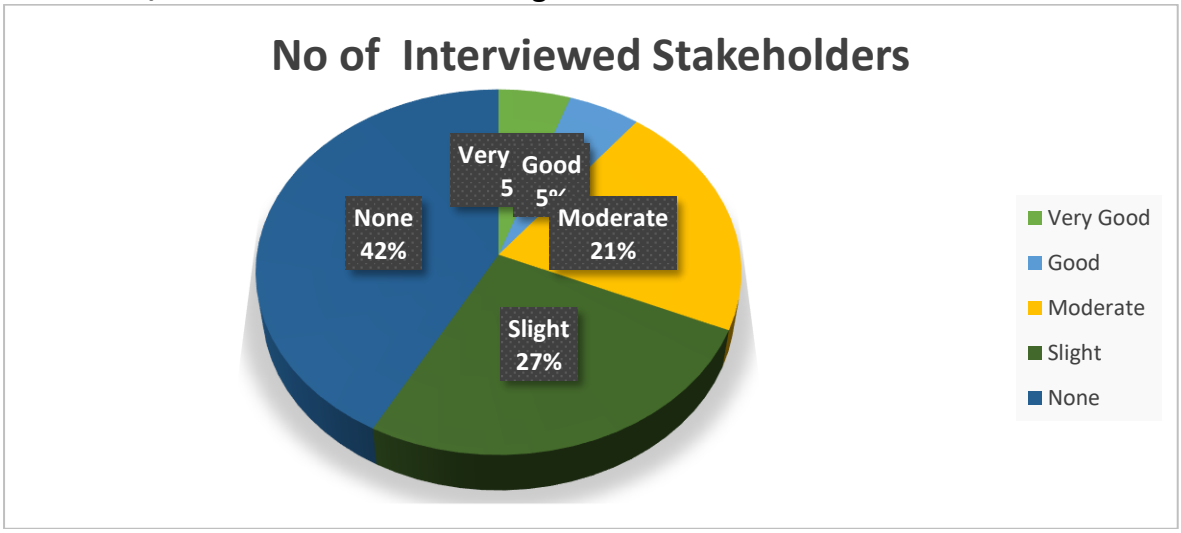


Figure 4.4.3a: Assessing the Extent of Surveyed Stakeholder Awareness of Belize Ocean Accounting

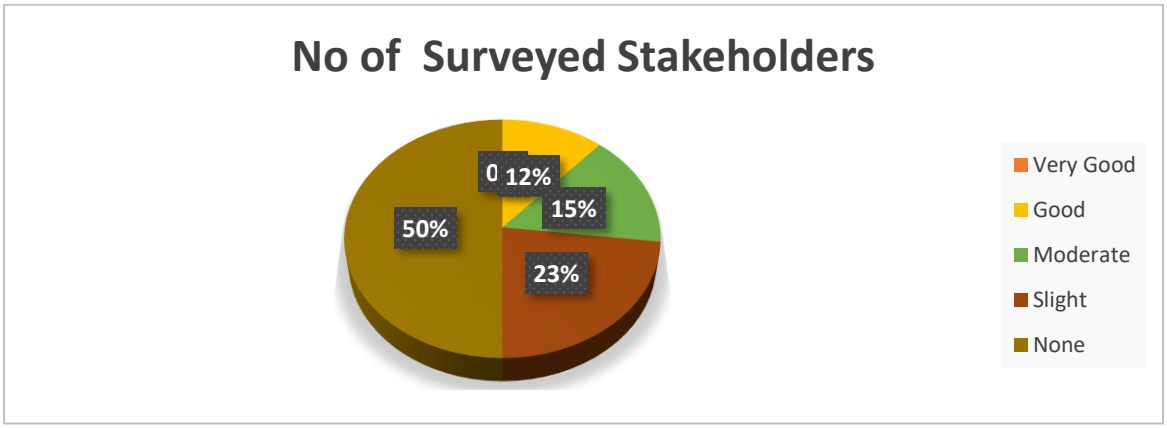


Figure 4.4.3b: Degree of Interest/Awareness in Ocean Accounting/Blue Economy Understanding and Training

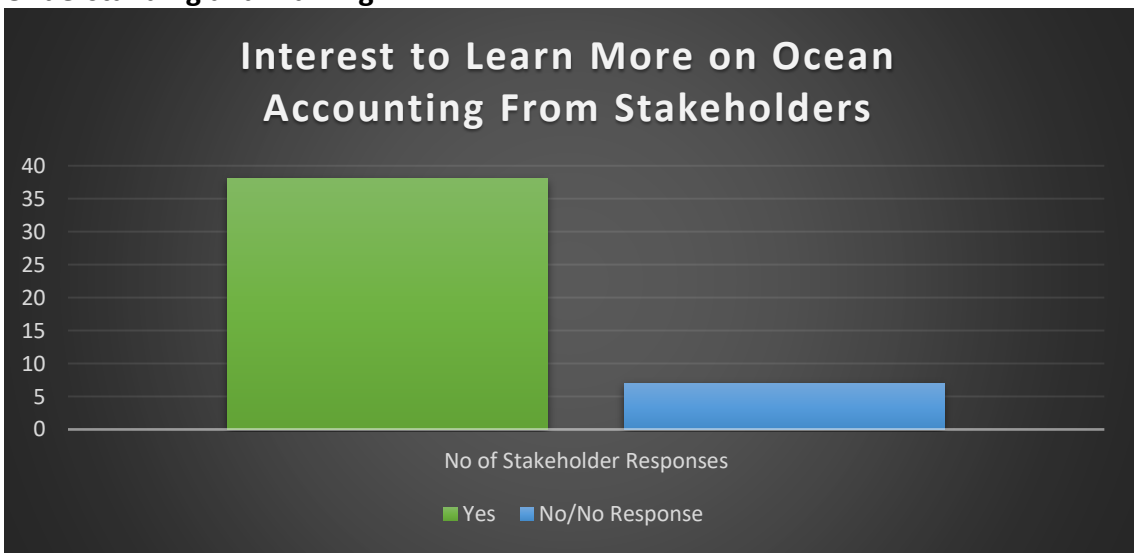


Table 4.1.3: Existing Interviewed Belize Blue Economy Stakeholders Data. Gaps and Needs

Interview No	Type	Existing Data, Gaps and Needs
1.	Blue Bond Unit Office of Prime Minister	Clear Key Performance Indicators need to be agreed to and consistently developed/understood across government agencies, civil society organisations and others. As part of Ocean Accounting, this would mean potentially identifying respective roles and responsibilities. Potential economic, social, environment and other indicators such as the Sustainable Development Goals, UN Sustainable Blue Economy Finance Principles, economic, social and environmental. Answers extended to emphasising and adjusting for the social aspect including poverty, welfare, ecosystem health and employment.
2.	FAO Belize Representatives	Physical data gathering needed to capture artisanal/community, individual and industrial fisheries, aquaculture and mariculture, including social and climate aspect electronically and not just for paper-based systems. Integrated databases could help. This FAO project however did emphasise keen interest was emphasised in the GIS/spatial technology training provided to various officials. However, more training might need to reach communities, along with the benefits of such training. Risks existed from stakeholder fatigue, constantly questioning when and how such efforts would result in direct material benefits. The social dimension also needs attention. Direct poverty and social implications for fisheries and other blue economy sectors have still not directly been computed. One recurring community concern remains the lack of fisherfolk insurance or equivalent social security benefits as a safety net.
3.	National Biodiversity Office Representatives	Certain biodiversity information gaps exist and linking to efforts by other stakeholders. For example, initially they have been focusing on hunting licenses in conservation areas and the Forestry Department. They also require additional boats and vehicle assets.
4.	Reefkeeper Belize NGO	The need for specialised training to aid NGOs, the need to train successors locally and to support student ambassadors was noted whether government, PACT, APAO, IADB or others especially in relation to data management, GIS, remote sensing, business skills, project management, MRV, blue carbon, ocean accounting, MSP etc. -even basic IT literacy such as Microsoft Office and spreadsheets was noted.
5.	Belize Coastguard Senior Representative	There remains a need for more understanding of the blue economy, ocean accounting and how indicators can best be captured, utilising the navy and the contribution of maritime security
6.	Office of the Prime Minister Senior Representative	They wished for concrete outcomes, i.e., data, resources and specific training/capacity building that would identify specific gaps, training requirements, mobilise finance and other support for the Medium-Term Development Strategy, recognising that many existing programmes already have specific objectives i.e., those outlined in the Budget. These can already help structure ocean accounts and other deliverables.
7.	Association of Protected Areas Organisation Representatives	Data captured is inconsistent -i.e., great for certain commercial fisheries, less so for marine biodiversity/blue carbon. Geospatial data is perceived as generally good but more analytical human and equipment/software resources may assist smaller organisations to gain meaningfully. However there remains no policy or guidelines into marine bioprospecting/scientific research, data sharing and related issues/benefits.
8.	Belize Fund for a Sustainable	In relation to specific blue economy/ocean accounting data and indicators, it was revealed that whilst data in relation to management area effectiveness, coral reef health and certain biological indicators

	Future Senior Representative	were well understood, significant gaps remain in understanding the socioeconomic impact of various blue economy sector activities, funded projects and capacity building interventions such as the number of women/youth beneficiaries, no of businesses, employment, poverty reduced and other potential metrics that the representative would like to see shared and consolidated to one database/accessible to those who need it.
9.	Belize Federation of Fishers Representatives	For ocean accounting, they hope far more emphasis can be used to monitor and measure social aspects of fisheries such as poverty, number of women empowered, diversified livelihoods, number of those leaving fisheries from increasing costs and perhaps other human dimensions. For example, a previous Caribbean Fisheries Regional Mechanism study they cited a few years ago ranked Belize worse in fisheries poverty out of 7 Caribbean/Central American countries. They indicated boat ownership and access to credit/equipment remained a concern and wondered if there was scope for MBECA/Ministry of Fisheries/IADB to consider related capacity support.
10.	CZAMI Senior Representatives.	In relation to compiling ocean accounts they advised the necessity of ensuring sustainable access to ecological datasets, combined with ecological and social, which may necessitate cooperating with other stakeholders. Whilst the focus has been traditionally on the coastal sector, CZAMI are particularly interested as to procuring data from various sources that encompass activities, uses, issues and indicators across Belize's entire Exclusive Economic Zone.
11.	Representatives from Turneffe Atoll Sustainability Association	There is a need to work with NGOs, government and civil society to agree on harmonising and synchronising data quality, indicators, methods and processes for sharing/cooperating, pooling funding/resources/training for Spatial Reporting/Mapping tools, monitoring, evaluation and ocean accounting. Eventually they would like initial specialist training via courses but then a regular programme to equip University of Belize and other graduates/existing staff.
12.	Port of Big Creek Representatives	They indicated a willingness to consider sharing more specific port/maritime transport related data to overcome existing gaps and highlight the potential contribution of Big Creek port to Belize's blue economy and trade. What is particularly noteworthy is the fact that their website is completely absent of such basic information including statistics and annual reports publicly. Nor does the Statistics Institute of Belize appear to have such information publicly available
13.	Ministry of Economic Development Senior Representative	Concerns exist in not having databases of their own in relation to climate change data and resources but continuously relying upon other stakeholders for sharing. They mainly record climate finance investments and required monitoring legally, rather than being direct repositories of information suitable for developing ocean accounting.
14.	Ministry of Labour, Rural Development and Local Government Senior Representative	One priority is a Labour Force Information System as a central database, which could be adapted to the blue economy that seeks to match employers with potential employees/available employment, training, funding and other opportunities. Second, would be an integrated database system for Rural/Coastal Communities and Development - covering projects, funders/sources and details of every community such as population and demographics, economic, social and environmental knowledge as background context. They have started to work on both but have been constrained by funding and human capacity. Theis could then swiftly aid monitoring and evaluation; project design, implementation and various external agencies such as Compete Caribbean, UNICEF, IDB and others.

		They are still reliant on the Statistical Institute of Belize but agree ocean accounting would be of value if it could capture poverty, gender and sector specific workforce/various socioeconomic indicators.
15.	Fisheries Department Senior Representatives	They indicated moving forward, a willingness towards potentially sharing related internal documents relating to economic, social and enforcement data, along with details of current projects to overcome any existing gaps. They also conveyed a need to focus more on deep water marine resources, biology and capacity, given the traditional focus has remained on coastal fisheries monitoring and development - especially for considering the needs of deep-water species.
16.	Belize Geology Department	A core priority recommendation moving forward was overcoming the human capacity gap shortage. Second was ensuring access to expensive data which can cost millions of Belizean dollars to generate and hundreds of thousands in annual license fees for the specialist software. A final priority is the need to work with other stakeholders for thorough but extremely expensive marine surveys to assess both prospects and risks offshore.
17.	Ministry of Public Utilities, Energy, Communication and E-Governance	The prime interest for this Ministry is data modelling simulation and forecasting analysis software to generate information easily digestible for informed policy decision making.
18.	Maya Forest Trust	None - Recently the Network received EU funding grant to improve capacity to hire an Executive Manager, improving administration, good governance and membership support.

Figure 4.1.3 Specific Data, Gaps and Needs Other Than Ocean Accounting

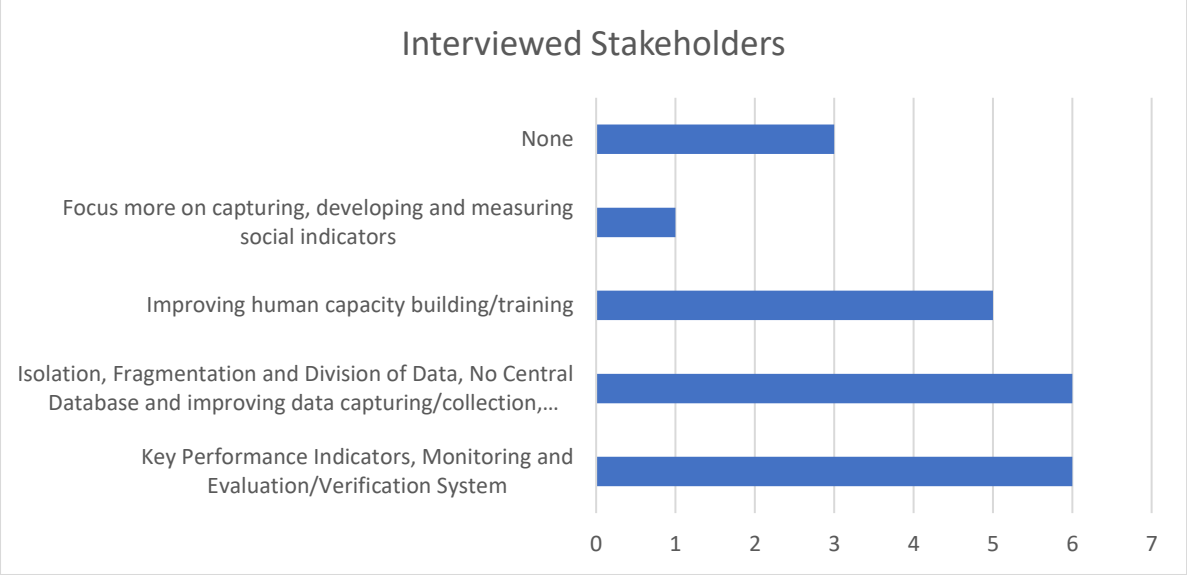


Table 4.1.4: Interviewed Belize Blue Economy Stakeholders Other Capacity Gaps and Needs

Interview No	Type	Other Capacity Gaps and Needs
1.	Blue Bond Unit Office of Prime Minister	Perception of adequate capacity including the need to fulfil eight positions. From a technical perspective, they especially highlighted the need to prioritise marine spatial planning. In relation to resource mobilisation and capacity needs, they seek to work with other government entities to jointly agree on related capacity gaps and institutional needs or priorities are

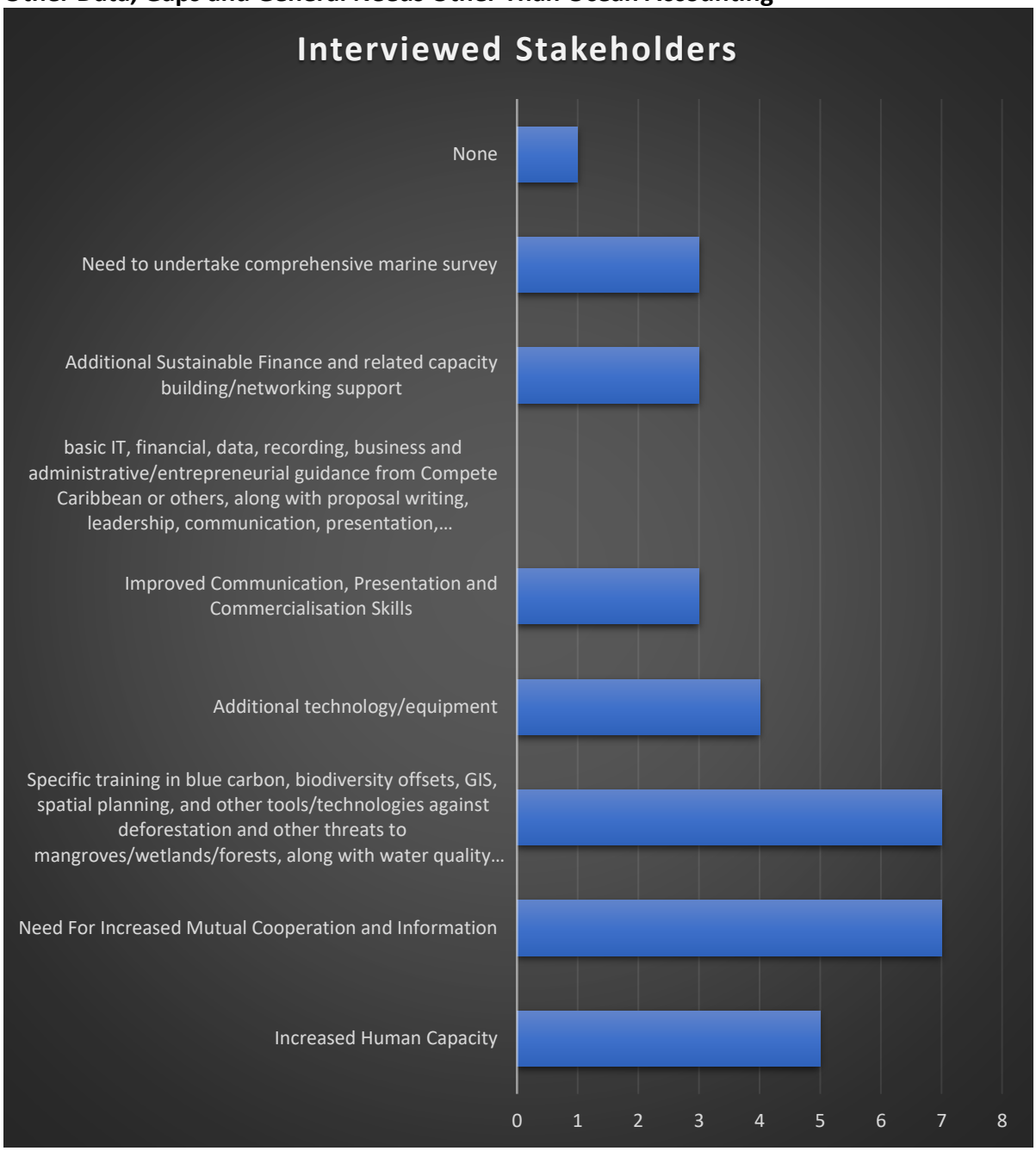
2.	FAO Belize Representatives	. There was also concern about the high turnover rate at government institutions such as MBECA with at least 2 CEOs and several directors. There were concerns about a perceived "silo" mentality where operators worked independently in part of each other. Insufficient human capacity was also identified. The interviewees proposed the need for improved knowledge exchange platforms, enhanced databases and more specialised and dedicated technical specialists including data operators. Concerns were especially raised that fisheries related data in many cases was divided between several government units and often relied on paper, rather than electronic.
3.	National Biodiversity Office Representatives Director	Internally the National Biodiversity Office has its own Strategic Plan up to 2027. It expressed significant concern officially and personally about the extreme shortage of human personnel with only four people in 2020 when it was inaugurated and now up to eight as of October 2023. They are heavily dependent upon internal volunteers, but this is ultimately unsustainable in their perspective. They are particularly seeking Finance and other Project management/monitoring/data management advisors/associates, pending funding to support existing, whilst determining new initiatives. They also seek to develop technology and improve data management/research capacity. They are also trying to develop their aforementioned biodiversity database clearing house mechanism with support from the Statistical Institute of Belize. They also require additional boats and vehicle assets.
4.	Reefkeeper Belize NGO	The main issue that surfaced included the challenges of accessing sustainable funding support for a smaller NGO, especially focusing on marine education that is still engaged in conservation and related initiatives but is not a formally designated marine protected area manager as expected by PACT and the Belize Fund for a Sustainable Future. Yet Reefkeeper has been active in the Southwest Marine Cays and Twin Cays. It would be great in their perspective if government/other entities could provide fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing. For example, students/interns if compensated even nominally could help with marine, pollution, illegal sand mining/coastal erosion and illegal fisheries, sargassum and crown of thorns starfish threats. Specific related training could help. Concerns were raised about covering basic staff costs, needing a specific vehicle, new computer, more diving and water testing equipment and another ROV/drone. The inclination to develop a mangrove nursery was further prompted by challenges in gaining access to seedlings.
5.	Belize Coastguard Senior Representative	Human capacity has been very recently identified as an emerging horizon of concern for the coastguard's senior leadership including not just ocean accounting but marine conservation, environment, technology, policy, climate change, data and various support.
6.	Office of the Prime Minister Senior Representative	Align Ocean Accounting with Pillar 2 or Economic Transformation of Plan Belize -with options to grow more sustainable fisheries, shrimp farming, flight routes, mariculture, eco and cruise tourism along with small boats transfers, maintenance, repair and construction. He advised capacity building and support that helps open up finance, the need for other resources and initiatives. There is demand potential for example for a need to consume fresh products. It was highlighted how Belize had developed MBECA to being elevated to a specific ministry with decision making powers that could improve coordination, planning, data gathering and capacity building. There were

		no further recommendations from improving organisational institutional capacity strengthening. However, Belize could benefit from more blue economy centred education, technology, research and development. He proposed a need to develop a specific Investment Framework for land, labour, capital, finance and technology.
7.	Association of Protected Areas Organisation Representatives	As efforts expand, they are working on a revenue sharing model from smaller organisations. They are funded partly by ecotourism levies, membership fees and strategic partnerships but indicated a profound interest in any capacity building relating to sustainable community livelihoods, blue carbon, biodiversity, fund raising and ocean accounting skills, among others promoting practical artisan and business skills for community members, co-managers and their own organisations. They regularly have a forum for members where they also focus on training rangers, who increasingly are relied upon to manage finance, administration, risk awareness, emergency response, tourism, research, data, enforcement, protection and a surfeit or multiplicity of various roles and functions beyond their designated job description. With more funding and other support, they would like to reach out to more communities.
8.	Belize Fund for a Sustainable Future Senior Representative	Belize Fund for a Sustainable Future currently have a staffing capacity of six. They seek no internal additional staffing capacity believing it to be adequate for the foreseeable future. Nor did they indicate the need for specialist training, data, technology and equipment, beyond understanding ocean accounting and the socioeconomic impacts of the blue economy as stated above. They have indicated that when technical aspects are specifically required, beyond their capacity a willingness to either seek involvement/support from entities such as MBECA/Statistics Institute of Belize/ Office of Prime Minister Blue Bonds Unit and or hire and approach consultants
9.	Belize Federation of Fishers Representatives	Curiously, they considered direct capacity building and technical training to be less of a potential concern than that of other areas including those more policy related but also direct concern about the long term economic, social and ecological sustainability of a sector experiencing many COVID19 and post-COVID19, climate change, IUU fisheries, pollution and other issues.
10.	CZAMI Senior Representatives.	There were mixed impressions in relation to assessing internal and sectoral institutional capacity. Certain technical capacity exists, in GIS/spatial data mapping, data collecting, MSP and others. However, they advised a strong pressing need to build up local organisational, technical, financial, human, equipment and any other support. This applies to all private stakeholders.
11.	Representatives from Turneffe Atoll Sustainability Association	Under the Adaptive Management Programme there has been a focus towards reef health indicators. There is particular interest in supporting Key Performance Indicators, fishery analysis, supporting systems and training people. From a data/technology perspective TASA have 4-5 GIS trained people and rely on developing SMART and GIS Dashboard capability. This feeds into a data system organised by the Wildlife Conservation Society but myriad problems exist in not linking to other NGOs and government/autonomous entities. It also links to Vessel Monitoring Systems for enforcement and surveillance of tourism, recreational, commercial and other vessels). They are also looking towards expanding and deploying drones. However, all this requires regular funding and technical/maintenance support, as another priority they would appreciate funding from MBECA/IADB or equivalent to make those area more sustainable.

12.	Port of Big Creek Representatives	They are looking at expanding/dredging out one of their main berths as the main initiative they proved willing to share. From an institutional capacity building needs perspective their main concern was that of ensuring adequate human capacity -as Belize lacks a dedicated maritime academy and it is expensive to train abroad. Thus, they seemed extremely receptive to the Coastguard interviewee proposal to develop the Belize blue economy via maritime education but also any support MBECA/Compete Caribbean/others could provide especially in relation to digitisation/cybersecurity, physical security, emerging environmental, climate, safety and other risks with effective management. Concerns were raised of many appearing self-taught. They also specifically mentioned port decarbonisation as an area they would like to see financially, technically and human training related/research support for their and other Belize ports. From a policy perspective they highly recommend allowing for revised modernised National Transport/Maritime Policies to reflect decarbonisation, climate change and other emerging risks.
13.	Ministry of Economic Development Senior Representative	From a human capacity perspective, more on ocean accounting and linking the blue economy to climate change -policy, finance, mitigation and adaptation research, along with the system were listed as fundamental priorities. Existing projects and initiatives for climate change, could also be adapted to incorporate ocean accounting-based indicators. There is a need to align to existing goals and priorities. In the future they are also looking to develop a Blue Cities Programme focusing on coastal infrastructure, water and wastewater resilience to climate change, with potential implications for the blue economy but are still in design conception phases. They remain interested to support further mutual collaboration and cooperation including monitoring marine/coastal related investments and projects/target indicators.
14.	Ministry of Labour, Rural Development and Local Government Senior Representative	The Ministry has partly started to resolve data and staff constraints in hiring just one policy/data coordinator -but would like to expand this towards a greater unit. There are also human and technical capacity development needs within Rural Development as a department and its various officers. These need guidance so that they in turn might empower elected and appointed representatives of villages/rural councils and entities to be able to successfully form community development plans, acquire sufficient finance/technical capacity, as agents of change. This might include basic IT, financial, data, recording, business and administrative/entrepreneurial guidance from Compete Caribbean or others, along with proposal writing, leadership, communication, presentation, marketing/media/social media/ocean accounting and blue economy sensitisation awareness. Aside from this, more equipment to capture information, basic office supplies and improving transport to get out into rural/more distant areas was prioritised. The interviewee also emphasised the value of GIS/remote sensing/surveying including drones.
15.	Fisheries Department Senior Representatives	They indicated core capacity gaps, with many generalists needing to undertake specialist technical work, yet comparatively few qualified, along with a pressing requirement for more research and data analytical capacity. They indicated that MBECA itself was set up with comparatively minimal regard for human capacity, coordination and integration/expansion of existing capacity and thus, this could be augmented further. They indicate some awareness and willingness to work with NGOs via a Coral Working Group. However, data gaps in relation towards coral reef health was still referred to as needing more institutional strengthening

		and capacity building along with enforcement and monitoring. More people also need to be urgently recruited.
16.	Belize Geology Department Representative	Currently the sector includes zero issued exploration licenses for oil and gas within Belize territorial waters and 5 Exploration/Prospecting licenses on land. Historically, prospects have been potentially viable offshore. There has been no discussion related to sand/shallow/seabed mining. Previously the nation tried undertaking seismic and multibeam echosounder surveys in conjunction with regional agencies and the private sector, but this was halted based on certain NGO opposition. The department is considered to have adequate technical capacity and qualifications, if the moratorium were to be lifted including a total of fourteen people., generally they must contract out for specialist laboratory/software services especially geochemical areas. They consider adequate GIS/equipment and general administrative operational capacity to be mostly sufficient.
17.	Ministry of Public Utilities, Energy, Communication and E-Governance	Despite the existence of a Data Sharing Act, they have experienced challenges in getting stakeholders to cooperate, thus hindering the potential for national ocean accounting, Monitoring, Reporting and Verification. There is no formal process for information exchange, being mostly based on personal relationships. The Ministry is working with the Statistical Institute of Belize for mutual cooperation. The Ministry is self-described as possessing average institutional capacity.
18.	Sustainable Development Unit	Recently they have been working with the University of Belize to develop two laboratories, acquire access to mass spectrometers, sensors and other customised equipment to test water quality and other environmental variables. In terms of human capacity, other needs were overshadowed by the dominance of requiring data analytics, management, statistics and IT capacity. They have some familiarity with SPSS, statistics and software but appreciate any further capacity in more updated areas.
19.	Maya Forest Trust	Keen interest was high in understanding the commercialisation potential and effective communication -i.e., how to engage with scientists, investors and the public separately. There was also interest in more projects, including infrastructure considering training in risk management and social-ecological safeguards -For example climate change, Indigenous/vulnerable communities and even wildlife crossings were cited. A core recommendation was to follow other countries by specifying more articulately the need for active stakeholder engagement -i.e., good negotiation skills

Other Data, Gaps and General Needs Other Than Ocean Accounting



Table/Figure 4.4.4: Survey Data/Information Collection and Potential Priorities for Belize Blue Economy Stakeholders

Survey No	Type	Data Collection and Potential for Each Stakeholder to Contribute towards Integrated Ocean Accounting in Belize
1.	Belize Ministry of Tourism and Diaspora Relations	The MTDR and the BTB is currently working with the Statistical Institute of Belize to develop the country's Tourism Satellite Account. The Tourism Satellite Account (TSA) will integrate data on the demand and supply of tourism-related goods and services into a single framework. Data is shared as requested or based on need. •Completion of workplan activities for the Tourism Satellite Account, has been delayed.
2.	Belize Port Authority	Data collected from part of the authority, and these are gathered in databases.

		1. Domestic shipping: number of vessels, types of vessels. 2. Water Taxis: number of vessels per operation, timings for departures arrivals, number of passengers moving to and from destinations. 3. International shipping: ship calls to port by size, port of call, turnaround time, type of business, container, cargo and passenger traffic to ports. 4. Marinas: number of marinas in operation, types of services rendered. 5. Port Performance: KPIs for cargo/ container ports. Information of maritime data is shared with the Belize Coast Guard, for security and if requested by other agencies. Technical Department, Registration Staff- approx. twenty-five, main focus is not data gathering, but it forms part of the job descriptions of each member.
3.	Climate Finance Unit	We do not explicitly collect or analyse data. We depend on the sharing of data, if we are asked to share anything from our office in terms of studies, strategies, etc. then we are more than willing to do so. In Belize, data collection and especially data analysis is a big constraint. For our office, we would monitor the progress of projects and programmes, but we do not partake in the collection or reporting of raw data.
4.	Crocodile Research Coalition NGO	**4-** Our data collection is basic, and we collaborate with various universities and researchers in the US and Europe to further assist us in statistical analysis and technology. Our challenges are not having the funds to hire on more people to further assist us in our research, aka, data collection, analysis, monitoring, reporting, etc.
5.	Galen University	Galen does not currently collect any data in this regard. The students and lecturers, alike, would source data from national entities to complete assessments.
6.	High Seas Fisheries Unit	The BHSFU collects a wide range of data and information to support its fisheries management efforts and to meet its international reporting obligations. These include: Catch data on species composition, quantities, types, and size of species caught by Belize flagged fishing vessels. This data is reported to the regional fisheries management organizations to provide insights into the state of the fish stocks and to help determine sustainable catch limits. The unit also collects effort data on the fishing activities such as number of fishing trips, duration of trip and fishing gears used. This data helps to assess the pressure and identify trends in fishing effort over time. 2. Vessel monitoring system and fish information system is the technology used by the Unit that utilizes a satellite-based tracking system that is installed on fishing vessels to monitor their movements in real time. The unit use this system to determine the vessels' positions, detect IUU fishing and ensure compliance with international regulations. The FIS part is used to also collect catch data information. 3. The unit also maintains an outsourced at-sea observer program where trained observers are deployed to fishing vessels to collect scientific data on catch composition, discards and other relevant at sea operations. This helps to provide valuable insights into fishing practices and help validate self-reported data from vessel operators. Biological data is also collected by the at-sea observer which is crucial in helping to understand population dynamics and setting appropriate management and conservation measures. .

7.	Ikooma Belize - seaweed entrepreneur	My data comes from consumers who have used my products. In the scope of cosmetics, there are no laboratory/regulation services available in Belize that can assist with obtaining certifications such as: shelf life, vegan, organic, etc. This makes it difficult to boost product credibility in the local market and in the tourism sector and to prepare for export.
8.	National Biodiversity Office	Belize does not currently have a consolidated system for data management. The main barrier to adoption of technology in Belize is the lack of trained technical personnel to manage and deploy technology. Effective biodiversity conservation will require considerable capacity building to ensure that practitioners are able to maximize the returns from technology to ensure that decision making is data driven and informed.
9.	National Meteorological Department	The NMS collects all weather and climate data using weather stations in its observation network. It is updated in 5-, 10- and 15-minute intervals, hourly and daily when collected by the Human Observers. Some stakeholders have direct access to the NMSs database, but the data is available upon request using an online data request form found on the NMS website. The NMS from time to time faces challenges with the constant Maintenance of the weather stations, sourcing spare instruments and requires additional QC on the automatic weather station data. Additionally, training would be useful for the analysis and in the creating of sector specific information.
10.	Office of the Prime Minister Economic Development Council	Across government, there are data gaps resulting from ministries, departments and government agencies not adequately collaborating and sharing critical data that can support other sectors in making adequate policy decision making. A gap remains particularly as it relates to data collection and analysis for adequate decision-making.
11.	University of Belize	Data collected is based on Faculty research and student thesis projects. These change every year. We collect data/ have collected data on sea cucumber, lobster, conch, fish, mercury in fish, microplastics in fish, microplastics in sea cucumber, microplastics in conch, sargassum, invertebrates, coral, mangroves, seagrass, others. Technologies used include lab equipment e.g., FTIR, centrifuge, mercury analyser, GPS, GIS technology, drones, others. Technologies are purchased by the University or from external funding. Data is collected annually by faculty and students. UB collaborates with the Fisheries Department, CZMAI in various efforts, meetings. Faculty are the ones who lead research at UB, not staff. About thirty or more faculty are actively involved in research. More training is needed in biological and social data analysis.
12.	Wildlife Conservation Society Belize	We are currently using WCS staff to collect data at site level but have also worked with fishing communities for data collections. We collect data using traditional pen and paper but also have done data collection using SMART. The process to get scientific research in Belize can be very complex and difficult.
13.	Caribbean Regional Fisheries Mechanism	Statistics and information on fisheries catch and effort are submitted on an annual basis to the Secretariat. A Statistics and Information report is prepared annually. Data are stored in Excel. The Secretariat is in process of developing a regional cloud-based data management tool called The Fisheries Manager (TFM) under the CARICE (CARRICOM Iceland) project. Three Member States are also expected to pilot TFM at the national level under CARICE. Fisheries catch and effort data are sourced from the Fisheries Divisions/Departments of Member States. Challenges related to data, statistics, monitoring, reporting, collection and verification include limited human and financial resources within the

		Fisheries Divisions/Departments of Member States to routinely collect and analyse fisheries catch and effort data.
14.	Protected Area Conservation Trust	Currently three staff collect data. Because the data varies from project to project the challenge is developing a standard set of data that PACT considers appropriate. We are currently working on a results-based framework which would standardize data requirements. The data would be more relevant to answering questions within the PACT Strategic Plan.
15.	Ministry of Blue Economy and Disaster Risk Management	MBECA does not collect any data at the moment, but as mentioned, we do hope to be able to expand our capacity to collect data for environmental accounting purposes. The data would ideally need to capture the economic value of activities occurring in the blue space; a detailed account of stakeholders that exist in the blue space and the social and environmental dynamics in which these activities exist. As mentioned, MBECA does not collect data, we are more of a coordinating body. The main challenges for MBECA would be lack of adequate financial and human resources needed to engage in data collection.
16.	Belize Tourist Board	There is under-reporting by hotels to evade taxes; auditors can only get to a certain volume of establishments in a given fiscal year. Data is not forthcoming in a timely manner. Hotel sector reports lag due to the reporting period (reported the month after as opposed to more real time). We are not able to collect real time data. There are limited financial and human resources to collect the data. There is limited capacity to process, analyse and interpret the data. Visitors are not willing to apply technology to providing data; instead of completing questionnaires on tablets they prefer paper-based questionnaires. This creates a lag as the data then needs to be entered. There is limited data triangulation. There is a very small window to collect cruise sector data from departing passengers.
17.	WWF Mesoamerica	- Some agencies are unwilling to share data which they collect. They may require payment and/or formal data sharing agreements which include restrictions of use and publication. - Duplication of efforts resulting in unwise use or resources, - No national data clearing houses and lack of access to raw datasets housed by some agencies. - Unwillingness of govt agencies to share data between agencies. General mistrust of how data will be used. - Some data only available in hard copy, and not processed digitally. - Backlog of raw data (not incorporated into digital platforms)
18.	Private Seaweed Aquaculture Entrepreneur	Production data, water quality, influent and effluent quality differences. We use about six personnel to collect data, several to collect samples and two to run laboratory analysis.
19.	MBECA Representative 2	No data is collected. I only collect project progress updates from projects executed by MBECA. MBECA has no staff dedicated to collect data. 1. No legal mandate to support Blue Economy structures and processes for the whole of government coordination and communication, which is a major impediment for implementing a long-term coherent blue economy agenda across government and non-government sectors. 2. Limited human resources, specifically with specialization of positions to meet the needs. For instance, there is no dedicated person overseeing data management. There is limited staff with capacity to manipulate data

		collected, conduct data analysis, identify trends, develop case studies to inform policies and decision making and database management. 3. The need for enhanced capacity building for staff to perform efficiently and effectively. Example, staff have limited knowledge on management and use of data. There is no proper procedure to store and file data, data integrity, and security for the proper data management. 4. Limited financial resources to fulfil institutional roles and functions due to pre-approved ceiling set on budget by the Ministry of Finance. 5. Limited equipment and technology to perform duties such as to collect and process data for decision making effectively manage its operations. 6. There is no centralised and comprehensive data information management system for data collection, storage, processing, and analysis for the sustainable management of ocean resources.
20.	Hol Chan Marine Reserve	All our data is collected and input manually in excel files. We do not have any software to interpret data. Stored on our network and computers. In terms of data collection, statistics and reporting the limitation is that we do not have a data analyst or a software to quickly interpret the data. It must be done manually with the limited in-house capacity.
21.	Central Bank of Belize	Central Bank's statistical platforms include FAME Database, which houses economic and banking system statistics, the Meridian Database for debt statistics, and APSSS for payment system and Government securities statistics. • As a compiler and user of statistics, the Central Bank frequently collaborates with members of the public and private sector, including Government Ministries, financial institutions, industry stakeholders, and other statutory bodies. • Challenges relating to data, statistics, monitoring, reporting, collection, and verification include data timeliness and availability
22.	NEMO	NEMO currently does not collect primary data. It relies on government and regional organizations for this data. NEMO aims to collaborate with all government ministries and interested entities in the country.
23.	Department of Aquaculture	We collect agricultural production data as well as shrimp annual production and exports and tilapia production. The MAFSE has a data base called Belize Agriculture, Information Management System, BAIMS. DATA is collected by MAFSE extension officers to enter into BAIMS. Shrimp production is shared by the private sector to MAFSE and the Ministry of Finance as well as the Min of Economic Development. Around forty people in the MAFSE, three in the Aquaculture Unit.
24.	Oceana Belize	Oceana's Fisheries Audit provides an evaluation of national fisheries management performance within the categories of fishery policy, transparency, and fish stock health and management. It describes scores for twenty-two indicators within the categories and serves as a baseline for continued progress tracking within those indicators. **Audit categories and indicators:** Fisheries, Transparency, Fish stocks Fisheries information, including landings data, if they have been systematically collected and reported, have not been shared. This practice hinders the ability to properly assess fish stocks and develop effective catch control measures.
25.	Beltraide	BELTRAIDE uses NEOSERRA outreach, a client management platform for data collection relating to economic impact. These include economic impact indicators classified as milestones include jobs created/ retained, capital investment, product diversification, among other factors. We utilize a data collection system since 2013, there are times when we are unable to capture updates from clients yearly.

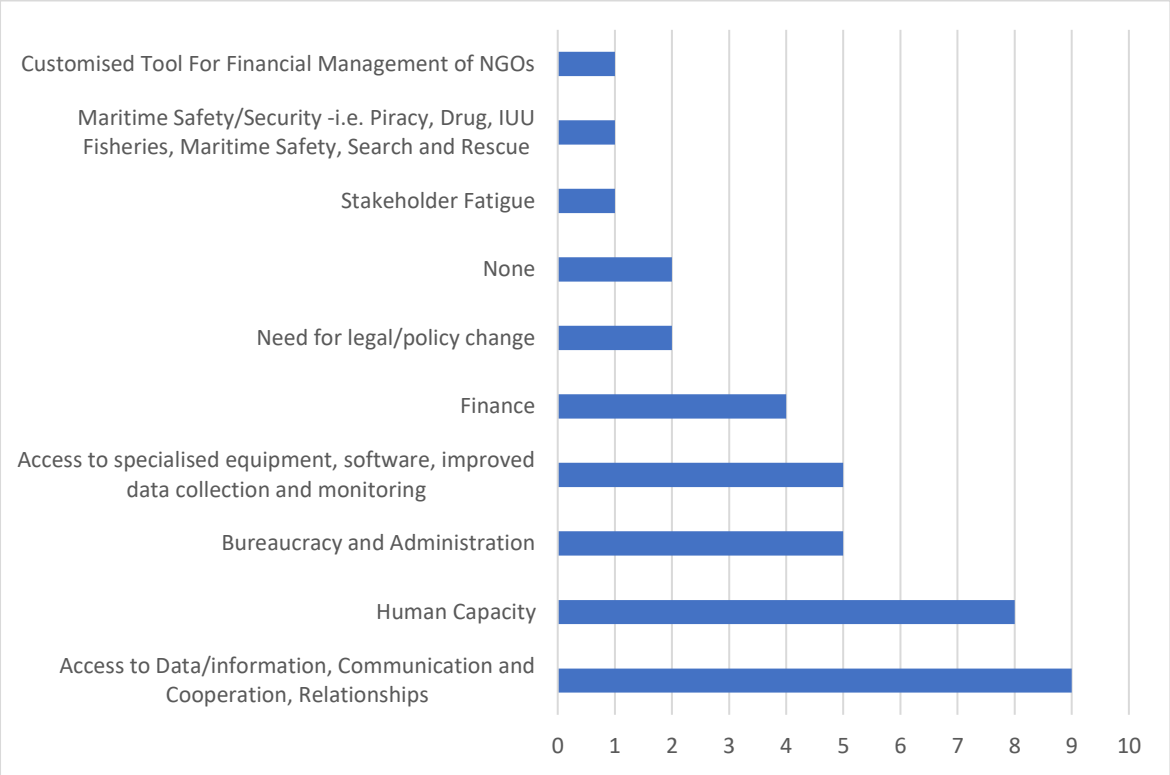
Table/Figure 4.1.5: Interviewed Belize Blue Economy Stakeholder Risks, Issues and Concerns

Interview No	Type	Risks, Concerns and Issues
1.	Blue Bond Unit Office of Prime Minister	Nor were any risks/concerns shared by the participants as they considered the Blue Bond Initiative and related project and strengthening the conservations and monitoring capacity to still be comparatively early.
2.	FAO Belize Representatives	They further recommend more attention to assess existing skills and experiences, whilst hiring additional capacity and allocating sufficient funds for the various priorities identified under the FAO project and its deliverables including its Climate Data Information Gap Assessment. The project also conducted various Vulnerability and Livelihood Assessments for climate change, with adaptation finance with SURFACE. However, only seven out of an identified twenty-seven coastal communities could receive potential funding under the FAO project, requiring potential funding support to be mobilised from other resources. A Technological Needs Assessment was similarly undertaken. In relation to climate finance, FAO aided the Belize government to design a concept note for Green Climate Fund support and to help directly address Nationally Determined Contribution requirements. However, this would require additional state co-financing to be committed
3.	National Biodiversity Office Representatives Director	There was also indication of working with PACT to improve local biodiversity monitoring, extending to data and surveillance equipment, collection and analysis via specific capacity/data needs as priorities. There has also been uncertainty about specific roles and responsibilities of the National Biodiversity Office versus PACT, the Forestry Department, Fisheries Department and Department of the Environment, often executing similar roles -i.e., mangroves/wetlands, which is legislatively unclear. General inter-agency cooperation, coordination and communication remains a concern.
4.	Reefkeeper Belize NGO	The main issue that surfaced included the challenges of accessing sustainable funding support for a smaller NGO, especially focusing on marine education that is still engaged in conservation and related initiatives but is not a formally designated marine protected area manager as expected by PACT and the Belize Fund for a Sustainable Future. Yet Reefkeeper has been active in the Southwest Marine Cays and Twin Cays. Concerns were raised about covering basic staff costs, needing a specific vehicle, new computer, more diving and water testing equipment and another ROV/drone. The inclination to develop a mangrove nursery was further prompted by challenges in gaining access to seedlings.
5.	Belize Coastguard Senior Representative	The Belize Coastguard identifies the top threats to be drug trafficking, piracy and illegal fisheries/other major crimes. Drug trafficking arises from its central position geographically via land, air and sea routes across Central America and the Caribbean. Security concerns exist of the ever-pervasive threats of powerful Mexican drug cartels seeking to infiltrate Belize. Weapons and human smuggling have also been linked to it. Piracy and Armed Robbery is mostly small scale but still a pervasive threat, especially from Guatemala. Both illegal fishing and cross border smuggling in efforts to evade customs duties, taxes and inspections has manifested in threats before from neighbouring Honduras, Guatemala and Mexico. He boasts of increased successes in prosecutions, strengthening penalties and responses. Other roles include maritime safety including search and rescue, security and Environmental Protection. Increasingly they are engaged with other stakeholders including the Environment and Fisheries Department to support enforcement, alongside communities and NGOs. Current employment capacity is five hundred, but they are looking to enlist a further five hundred to a total of 1000, from an original fifty. They mostly have smaller boats but are about to launch an international tender on procuring

		two new offshore patrol boats as it is the leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others. Periodically they try to ensure coordination with other stakeholders via scheduling Maritime Security Conferences. With neighbouring countries over decades, they have built up effective, mutually supporting relationships with Honduras and Mexico. However, there have been more potential tensions and strife with Guatemala over ownership and influence over Corona Reef with five miles of ecosystem in Guatemala and three miles in Belize submitted to the International Court of Justice. Therefore, there may be more need of specialised hydrographic capacity from abroad to train locals by 2024/2025.
6.	Office of the Prime Minister Senior Representative	It was highlighted how Belize had developed MBECA to being elevated to a specific ministry with decision making powers that could improve coordination, planning, data gathering and capacity building. There were no further recommendations from improving organisational institutional capacity strengthening. However, Belize could benefit from more blue economy centred education, technology, research and development. He proposed a need to develop a specific Investment Framework for land, labour, capital, finance and technology
7.	Association of Protected Areas Organisation Representatives	Stakeholders indicated concerns such as marine environmental education NGOs and others such as the Belize Federation of Fishers that would like to benefit from such a network of shared finance, conservation and technical capacity building but currently do not qualify, as APAO's mandate legally only focuses on direct protected areas. This may necessitate the need for finance/training/equipment/technology etc to be supported by other organisations such as IDB/MBECA and or looking to expand APAO's legal mandate. Moving forward, ocean accounting could learn from the specific data captured by the National Determined Contributions and climate change, for an ocean/blue economy including blue carbon equivalent. However there remains no policy or guidelines into marine bioprospecting/scientific research, data sharing and related issues/benefits
8.	Belize Fund for a Sustainable Future Senior Representative	It was illuminated that many potential grant beneficiaries but also failed applicants could benefit far more from basic capacity building, especially basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training, blue carbon, risk management and blue economy. The example of MBECA looking to develop Community Innovation Hubs in support. There is a need to ensure more sustainable businesses including structures to grant applicants the chance to improve their internal capacity to access finance as a paradigm. The perception is that many community members are not well equipped -it is not so much a need for IADB/MBECA etc to provide finding, equipment/technology etc -but access to certain human capacity building -specific training. The aim of this is so that target beneficiaries can have a chance to apply and retain funding; develop and contribute to baseline data, whilst achieving long term sustainable blue economy businesses, diversified funding, social and ecological indicators. Whilst other stakeholders have flagged and raised concerns about accessing financing and grants, the respondent was adamant that funding is potentially there -but issues have arisen when certain organisations are not registered and/or not grasped the basic transparency, financial, organisational and general capacity to implement and ensure adequate transparency/Monitoring/Reporting and Verification. More and more, they are looking to help bridge the gap and seeking technical capacity assistance from other entities such as Compete Caribbean/MBECA/CZAMI.

		Concern was raised about ensuring various integrated databases -and access to them, any ocean accounts, MRV systems etc -given various departments such as Ministry of Economic Development, National Biodiversity Office and others have attempted their own internal databases. But often these are not sustained, or very restricted data is captured and access possible.
9.	Belize Federation of Fishers Representatives	They were very sceptical with many questions related to the point of this consultancy/other project initiatives, indicating the significant issue of stakeholder fatigue, seeking local consultation and more recurring, meaningful engagement. They were highly concerned about the significant proportion of funding in their perspective was allocated to consultants, travel, data, and other costs up to "75% but very little appeared to be dedicated towards actual capital and expenditure related tangible outcomes directly aiding stakeholders. For example, around only two hundred beneficiaries were targeted out of 4,500 fisherfolk in the World Bank recent project and around $2,000,000 was claimed to be returned to the Bank by the Belize government
10.	CZAMI Senior Representatives.	They expressed potential interest and willingness to share data, information and cooperate. They would really value access to sufficient high resolution, satellite data to help monitor current risks rather than a transmission lag delay. A few staff members have been receiving GIS, ocean accounting and R software training to analyse trends and improve accuracy. There are gaps and the team would appreciate more comprehensive, updated information, along with the capacity for improved data management, monitoring and analytics. There may also be a need to hire more people.
11.	Representatives from Turneffe Atoll Sustainability Association	TASA primarily rely on grant funding, with some from donations, blended finance and ecotourism revenue. However, they remain keenly interested to find out alternative forms of sustainable finance such as blue carbon for capacity building. What they would really prioritise is the development of a customised financial management tool specifically for NGOs capable of supporting at least 15-20 separate grants. They were very specific about how it would need to range from a few thousand dollars up to $2000,000-3000,000 for Monitoring, Reporting and Verification according to their, donor and government/international indicators. This would be able to identify savings and adjust for potential reallocations where funding was specifically necessary, also allowing for the fact certain grants are allocatable/ring-fenced for specific purposes and future years and thus cannot be always assumed as profits or disposable income/taxable revenue, in contrast to traditional organisations. Priorities generally relate to staffing costs such as monitoring and enforcement, then adaptation management, then research/education and outreach and finally administration before operational costs, especially fuel and vessel costs.
12.	Port of Big Creek Representatives	Their main risk concerns include trying to balance the economic, social and environmental sustainability and thus are intrigued to find out more about how MBECA and the blue economy can directly benefit and work with them as traditionally they have not been so involved. They are keenly conscious of the need to remain virtually and physically safe, efficient and competitive such as investing in more digital rather than paper-based document submission via an online Maritime Single Window. -Hence the need for improved security/cybersecurity and risk management awareness and training. They have recently done some work on improving oil spill response capacity but have a significant information gap in relation to pollution, emissions and waste regenerated. They have been investigating the cost feasibility of a port waste receptor handling facility.
13.	Ministry of Economic Development	Concerns exist in not having databases of their own in relation to climate change data and resources but continuously relying upon other stakeholders for sharing. They mainly record climate finance investments and required

	Senior Representative	monitoring legally, rather than being direct repositories of information suitable for developing ocean accounting. They would like more evidence ongoing to support any climate related rationale for their policy/investment decisions along with MRV. They would like more regular physical/online access and resource support for observatories and meteorological systems. From a human capacity perspective, more on ocean accounting and linking the blue economy to climate change -policy, finance, mitigation and adaptation research, along with the system were listed as fundamental priorities. This would need to complement existing established processes for monitoring climate related indicators along with policies such as the Medium-Term Development Policy
14.	Ministry of Labour, Rural Development and Local Government Senior Representative	Aside from this, more equipment to capture information, basic office supplies and improving transport to get out into rural/more distant areas was prioritised. The interviewee also emphasised the value of GIS/remote sensing/surveying including drones. to the blue economy, including any support for information/resource mobilisation and technical/human development capacity. They are also hoping to improve planning capacity. A final concern was the need to still note basics for many rural and coastal communities including gaps in renewable energy, education, healthcare, water, sanitation and sustainable development/ecological protection.
15.	Fisheries Department Senior Representatives	The Fisheries Department are hoping to formulate a Resource Policy for marine scientific research and associated data, including storage, collection and management, but this requires additional implementation support at present. In terms of research prioritise they would like to assess more finfish and other species. They enjoy good work with agricultural processing but would like to expand cooperation and collaboration for more traceable, sustainable fisheries, against IUU fishing. Belize has not yet ratified the Port State Measures Agreement, but they would like to collaborate with ports and associated supply chain operators, traditionally reluctant to share information. They indicate some awareness and willingness to work with NGOs via a Coral Working Group. However, data gaps in relation towards coral reef health was still referred to as needing more institutional strengthening and capacity building along with enforcement and monitoring. More people also need to be urgently recruited.
16.	Ministry of Public Utilities, Energy, Communication and E-Governance	For the Energy Sector there remains a need to develop the equivalent of a skills gap audit and Roadmap, whilst the maritime sector has not been investigated at all. The Ministry referred to previous IDB skills-based assessments of the education and labour market sectors, though this could link more specifically to the blue economy. For example, the logistics sector could benefit from new licensing systems including shipping and port users electronically. There is a need for more specialised software training to reduce dependency on external consultants. They would also wish to align port infrastructure and information systems to be regionally and internationally competitive.
17.	Sustainable Development Unit	Their core challenges, risks and concerns centre about trying to acquire certain data, access to certain technology and equipment along with certain fundamental human training needs. They are working with the Statistical Institute of Belize to try and coordinate respective roles
18.	Maya Forest Trust	Existing challenges of communication, consultation and cooperation with many government departments, recommending NGOs and civil society are more frequently engaged to provide technical support and input on policies. In the past for example, they were included in COP delegations for climate change

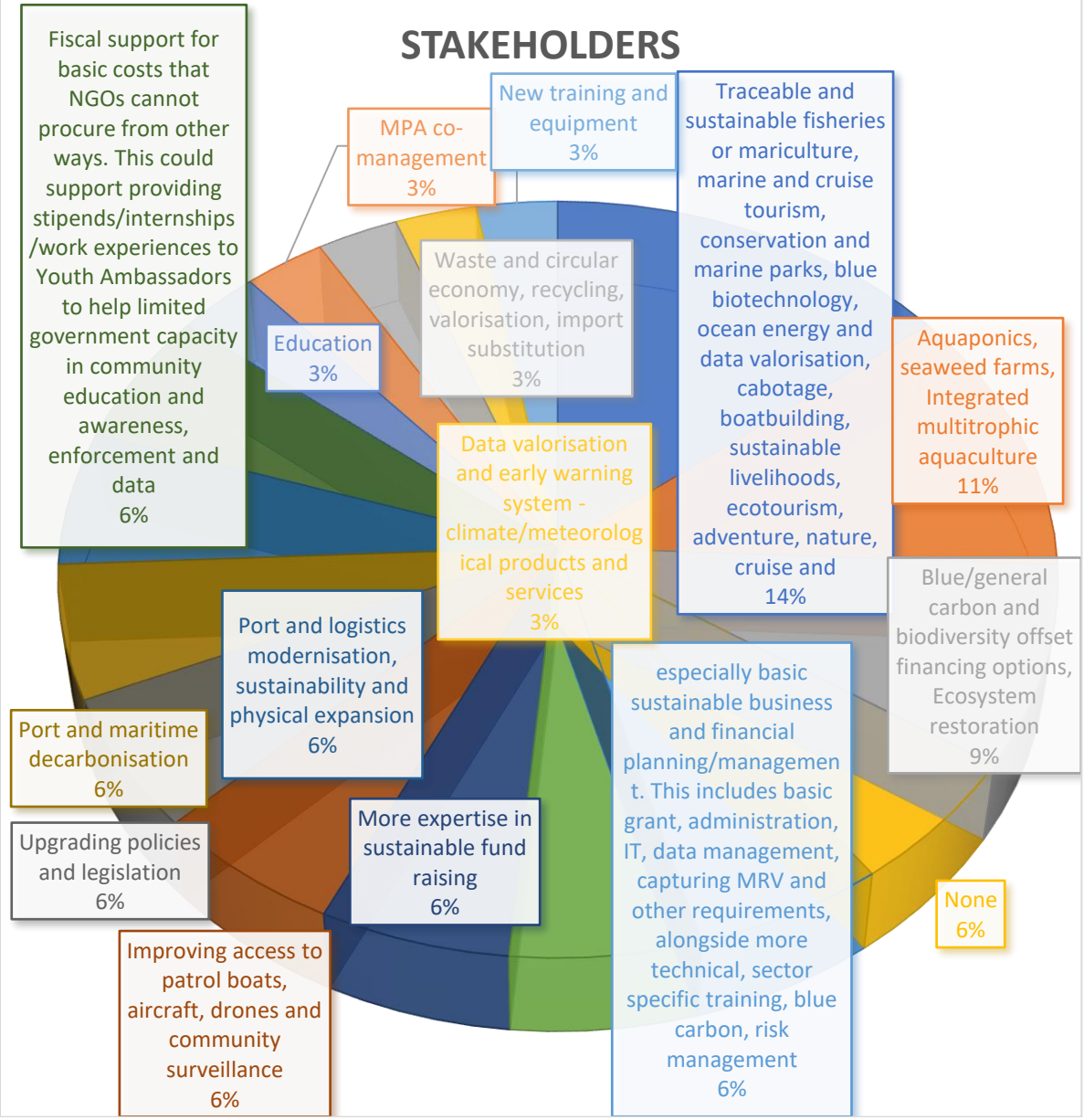


Table/Figure 4.4.5: Survey Identified Risks, Issues and Concerns in Implementing the Belize Blue Economy

Survey No	Type	Risks, Issues and Concerns in Implementing the Belize Blue Economy
1.	Belize Ministry of Tourism and Diaspora Relations	Cross cutting Issues: Sargassum affects vessels, marina, beaches and creates and unsightly and unpleasant smell on the beaches. Climate Change/ Risk- negative impacts to the ecosystem that supports the tourism industry are increase due to extreme weather events, damaging infrastructure and causing erosion. Sea level increases are predicted to increase beach and loss include areas of the Cayes, and impacts on urban areas.
2.	Climate Finance Unit	Financial and human capacity to sustain the growth of our project portfolios and to partake in more of the data collection than just the project development process. In our department specifically, it is often difficult to coordinate across ministries and departments due to the lack of human capacity, which has implications for the project development timelines.
3.	Crocodile Research Coalition NGO	There needs to be more funding to go towards organizations in hiring more people and providing them the proper education and training in scientific methods. Additionally, assisting in research funding can also be beneficial.
4.	Healthy Reefs Initiative	Coastal development as well as development offshore on islands near the reef can prove to cause significant negative impacts (sedimentation, nutrient runoff, pollution etc) on reef health. Appropriate measures must be set in place across the board to ensure that development is done in an environmentally friendly manner.
5.	High Seas Fisheries Unit	The state of the tropical tuna stocks has affected our monetary contribution to the country's economic development since the quotas we receive have been decreased which has limited our growth potential,

		such as registering new vessels or utilizing that same quota locally as opposed to selling it to foreign owned vessels. Utilizing these quotas for national development can have significant impact on our economic growth and overall progress. By properly integrating our high seas sector with our domestic sector, we can stimulate innovation, create jobs, and improve productivity. This can lead to increased foreign investment, a stronger domestic market, and contribute to the sustainable development of our nation. However, this type of potential will require investment and commitment from government and interested stakeholders.
6.	Ikooma Belize - seaweed entrepreneur	Seaweed supply is a concern to expand into a regional/global brand. I am especially concerned about access to Eucheumatopsis isiformis as more farmers favour the Kappaphycus (macho) variety that is more resilient and easier to grow.
7.	National Meteorological Department	Other considerations would be having sufficient trained and qualified personnel to collect, analyse provide products for the marine sector. Human resource issues continue to be a challenge.
8.	Office of the Prime Minister Economic Development Council	The Blue Economy is one of the fields of priority that the government has. Understanding how the ocean economy impacts growth and thus creates opportunities for improved livelihoods and sustained economic growth is important. Because the Blue Economy is a new area, there is the need for creating awareness
9.	University of Belize	Funding is always needed. Time to apply for funding is also needed. It takes time to write proposals.
10.	Wildlife Conservation Society Belize	The Fisheries Management Plans and Stock Assessments should be more open, transparent and inclusive.
11.	Caribbean Regional Fisheries Mechanism	Concerns regarding the local blue/ocean ecosystem include potential marginalization of small-scale fishers in the development of the blue economy. IUU fishing is also a threat to the sustainable development and management of fisheries resources. Natural events such as hurricanes and Sargassum also threaten coastal communities and the marine ecosystems supporting fisheries.
12.	Ministry of Blue Economy and Disaster Risk Management	A major concern and risk is ensuring smooth coordination across the other sectors that exist in the blue space. Additionally, as the Blue Economy is a relatively new concept, securing stakeholder buy-in and acceptance is critical.
13.	Belize Tourist Board	Lack of stakeholder buy-in becomes a significant risk when attempting to implement a new legislative framework for a sector that already overlaps with other sectors' mandates
14.	WWF Mesoamerica	-Probusiness approach at the expense of conservation -Inefficient and ineffective application of environmental regulations. Lack of coordination between environmental agencies further exacerbates this issue. -Perverse incentives which favour development -Flawed EIA regulations. EIA process, regulations and decision making needed to be strengthened. -Trend towards large scale developments in vulnerable coastal areas.
15.	Private Seaweed Aquaculture Entrepreneur	We are very interested to learn about breeding and culturing local fish species. Both Saltwater and Brackish water species.
16.	Central Bank of Belize	o Climate and climate-related risks o The achievement of the remaining milestones contained in Belize's conservation commitments, as set out under the Nature Conservancy's (TNC) Blue Loan and Conservation Funding Agreements, signed in November 2021.

		o Limited interest or investment in blue economy projects and technologies, which could inhibit the sector's growth potential.



Table/Figure 4.1.6: Interviewed Belize Blue Economy Stakeholder Identified Blue Economy Opportunities

Interview No	Type	Identified Belize Blue Economy Opportunities
1.	FAO Belize Representatives	Stakeholders also need training and equipment. Existing data processes can be supported and extended where necessary. For example, FAO aided the Meteorological Services Department with 2 new sensors and adjusting climate data to be more valuable to fisheries. Ultimately, they considered that such projects may need to develop sustainable finance within a pre-set timeframe.
2.	National Biodiversity Office	Whilst the Biodiversity Office wish to emphasise how very new they are; they remain willing to finding out and potentially looking at how to

	Representatives Director	align ocean accounting to biodiversity and any general blue economy capacity building.
3.	Reefkeeper Belize NGO	It would be great in their perspective if government/other entities could provide fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing. For example, students/interns if compensated even nominally could help with marine, pollution, illegal sand mining/coastal erosion and illegal fisheries, sargassum and crown of thorns starfish threats. Specific related training could help. The need to locate sustainable financing sources whether through alternative livelihoods such as ecotourism or community seaweed mariculture attempted by NGOs such as TIDE and Sarteneja Alliance for Development or partnering with larger organisations such as WCS, WWF, Oceana and others; also needs investigation. This could follow GCF/GEF with its provision of budget and technical support towards developing concept notes to access climate finance. Few consultants exist to monitor education related initiatives -Reefkeeper Belize is currently sourcing one from Guatemala. Moving forward; providing such funding and empowering local students/potential recent graduates with such funding and capability would significantly reduce pressure on government/NGOs to directly undertake such roles of data collection, monitoring, awareness, research and enforcement.
4.	Belize Coastguard Senior Representative	They mostly have smaller boats but are just about to launch an international tender on procuring 2 new offshore patrol boats as it's the leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others. However, if working regionally they would still need to clarify each other's role in responding to climate and other threat or environmental monitoring They are looking to acquire aerial capacity being currently dependent on the Belize defence Force with 2 drones/Unmanned Aerial Vehicles ordered for this year (2023) and 2 others (for next year). Moving forward they identified Belize could develop a proper Maritime Training Base and School including strategy/the curriculum and skills such as diving, marine research and experiments. It could support seafarers and others seeking specific skills and training. There is a need to develop an extended or new Logistics Base and storage/supplies. Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats.
5.	Office of the Prime Minister Senior Representative	Moving forward they identified Belize could develop a proper Maritime Training Base and School including strategy/the curriculum and skills such as diving, marine research and experiments. It could support seafarers and others seeking specific skills and training. There is a need to develop an extended or new Logistics Base and storage/supplies. Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats. Aside from that in the long term, the respondent admitted slight concerns over any potential political instability that could influence factors.
6.	Association of Protected Areas Organisation Representatives	The respondent seemed quite hesitant and covert to reveal such, but they are quietly working on their own coordinated biodiversity database though only pilot stage at the moment, which could support further data. The interviewer -oneself, indicated this might offer

		further commercialisation and data MRV/ocean accounting support for the future, which appeared to provide some reassurance. They are also looking to try and support more marine capacity building in applying for a $11,000,000 GCF grant for technical development of protected areas.
7.	Belize Fund for a Sustainable Future Senior Representative	There is a need to ensure more sustainable businesses including structures to grant applicants the chance to improve their internal capacity to access finance as a paradigm. The perception is that many community members are not well equipped -it's not so much a need for IADB/MBECA etc to provide finding, equipment/technology etc -but access to certain human capacity building -specific training. The aim of this is so that target beneficiaries can have a chance to apply and retain funding; develop and contribute to baseline data, whilst achieving long term sustainable blue economy businesses, diversified funding, social and ecological indicators.
8.	Belize Federation of Fishers Representatives	They are particularly concerned as to what types of sustainable livelihoods can be generated as a possible specific capacity building but also if there can be any benefits from marine protected areas and no take fishing zones. Moving forward they were very receptive towards how to regularise and improve direct communication, access to sustainable finance and support. They also cited an example of trying to ensure access to local modern boats -asking for a $170,000 grant for 10 boats and supporting 30 crew as a pilot project. They would also like to see from the Belize government/IADB/Compete Caribbean or equivalent about access to finance, modern vessels but also vocational skills such as boatbuilding, repair, artisanal, engineering/technical, and other apprenticeship options available. They estimated up to 79% of artisanal fishing vessels were imported from Mexico along with high volumes of fishing gear, when it could be fabricated locally. Diversified livelihoods reducing the pressure on existing fisherfolk is perceived as one urgent way to ensure a more sustainable long-term fisheries sector. Fisherfolk could only obtain up to $10,000 each under current projects, which they considered as inadequate.
9.	CZAMI Senior Representatives.	None specifically
10.	Representatives from Turneffe Atoll Sustainability Association	Examples of such efforts include the development of specific use zones such as those earmarked for Conservation or Specific Species Management; those for catch and release/recreational fisheries, those for tourism, research, mariculture and protected as aggregate spawning sites. They also monitor certain permit allowed activities such as lobster fishing. They therefore participate in supporting fishery regulations, their monitoring and enforcement. This extends to gear/tourism developments and other various uses and activities. They have engaged with ecotourism/tourism operators to encourage sponsored donations and gifts in exchange, with a specified minimum. They are using 2-3 apps to manage tourism, conservation and the blue economy including bookings and donations, but these could be streamlined more effectively. They would like Belize Tourism Board/MBECA/investor/Compete Caribbean or equivalent support in developing investment portfolios for mariculture, eco and marine tourism, including business model opportunities for investors. To overcome existing perceived high bureaucracy and uncertainty, they proposed the need for more target government support, reviewing development/environment policies and incentive/disincentives and mainstreaming/centralising for a 1 stop investment shop. They would

		like more targeted research funding of around US $100,000/ other support to determine the Belize Sustainable Tourism Levels Models that the ecosystem can withstand, whilst preserving its main values and functions. They project this could yield another $500,000 to $1000,000 for the reserve/Belize's local blue economy each year. However, they have expressed challenges in trying to convince certain government/ funding entities to support such an initiative for the equivalent Rate of Return on Investment. Other high costs include those related to the provision and maintenance of ecotourism and general marine conservation, data monitoring and enforcement infrastructure, which they would highly recommend and hope for a partial funding grant support, along with basic staffing and operational costs as these areas, combined with maintenance, repairs, training and staffing are seldom easily covered by funding grants. For example, telecommunication and Internet towers cost around $250,000 BZ to install plus over $10,000 each year in basic costs. They are looking to replace solar/general powered ones lasting 5-10 years, with lithium batteries with a projected 10–20-year lifespan but costing $60-70,000 each.
11.	Port of Big Creek Representatives	They are looking at expanding/dredging out one of their main berths as the main initiative they proved willing to share. The COVID19 pandemic appeared not to create any apparent major disruptions to port operations and macroeconomic activity, with no staff terminated. It did encourage greater hygiene and commitments towards digitisation efficiency. They have been moving to expand neighbouring trade to Guatemala, Honduras and Mexico. They would appreciate working with Beltraide, MBECA and others via non-bind Memoranda of Understanding. They remain concerned about potential hurricane event risks and climate change adaptation There are also opportunities for drydocking, boatbuilding, repairs, maritime services, supplies, cabotage, education and trading for various incentives.
12.	Ministry of Economic Development Senior Representative	There is a need to align to existing goals and priorities. In the future they are also looking to develop a Blue Cities Programme focusing on coastal infrastructure, water, and wastewater resilience to climate change, with potential implications for the blue economy but are still in design conception phases. They remain somewhat interested to support further mutual collaboration and cooperation including monitoring marine/coastal related investments and projects/target indicators.
13.	Ministry of Labour, Rural Development and Local Government Senior Representative	The Ministry is revising several plans and policies which could be mainstreamed more effectively into the blue economy. For example, these include focusing on employability skills -National Employability Strategy, the aforementioned National Rural Development Strategy and one related to the Digitisation of Municipal Services to improve support for small and medium enterprises including those in the blue economy. The Trade License Bill is currently being debated in the Senate to improve data and simplify processes for tourism and other sectors. They have updated the Labour Act and looking at an Occupational Health and Safety Act. A final concern was the need to still note basics for many rural and coastal communities including gaps in renewable energy, education, healthcare, water, sanitation and sustainable development/ecological protection.
14.	Fisheries Department	Blue economy opportunities in seaweed, clams and crabs in particular were enthusiastically presented, however they would like to expand more mariculture capacity. There are also proposed preparations for a

	Senior Representatives	related legal review of mariculture related potential laws, policies and incentives. Moving further on, they are looking to expand training and institutional capacity for improved enforcement and monitoring on benthic marine ecosystem habitats under the UK funded Ocean Country Partnership Programme. It is also looking to expand monitoring of remote sites in partnership with the University of Belize. In the future they would also like to be more proactive in working with various NGOs, sharing infrastructure, data and human/equipment capacity as more efficient and economical.
15.	Belize Geology Department	They would also like to increase collaboration with the NGOs and University of Belize to develop survey, monitoring and human capacity, given the significant expense of employing expensive consultants and training people to send abroad to Mexico, the US and United Kingdom. Belize is currently revising their various laws and regulations passed around 30 years ago in 1991/1992 to modernise the industry, improving potential equity, revenue and sustainability. They are also adopting UK North Sea based safety regulations and concentrating on a triage of energy of safety, energy security and sustainable, cleaner energy production. Though climate change remains internationally an often-cited risk with major pressure for decarbonisation and renewable energy, the respondent remained convinced of the perceived necessity of this sector. It was noted how Guyana and Trinidad and Tobago prove successful examples to potentially emulate. Jamaica and Barbados are even contemplating opening marine areas to potential fossil fuel extraction, which may in turn present competitive risks. No other specific risks, issues, concerns or priorities were subsequently identified
16.	Ministry of Public Utilities, Energy, Communication and E-Governance	They would also wish to align port infrastructure and information systems to be regionally and internationally competitive. A future blue economy opportunity and priority would be to zoom in and sufficiently empower more related small and medium enterprises including solar/wind energy, e-mobility, and decarbonisation. Budget constraints present a recurring dilemma. The Ministry has been engaging with the Ministry of Education, University of Belize and others to start exploring the need for curricula and course changes, along with more career awareness among youth. In the future the respondent cited the need to develop more expertise in generating Public-Private Partnerships such as in Barbados -including the potential to take over and convert the Port of Belize into a green port model, akin to the European Union Green Port Initiative. Other forms of technology, equipment, processes and training to improve overall logistics efficiency and port competitiveness would also be greatly appreciated. The emissary spoke of exploring waste to energy and alternative marine fuels as further blue economy opportunities, along with exploring the circular economy, processing and valorisation. To develop a truly decarbonised future for Belize supply chains, support in suitable technologies, information and human capacity needed for monitoring emissions, quantifying and converting into marketable carbon credit offsets remains a key priority. Belize is currently preparing its Carbon Credits Bill, aiming for ratification in 2024.
17.	Sustainable Development Unit	They identified Belize has significant blue economy prospects in areas such as more traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue biotechnology, ocean energy and data valorisation.

18.	Maya Forest Trust	In relation to carbon and terrestrial conservation of mangroves/wetlands, the Maya Forest Trust recently worked with The Nature Conservancy on a US $75,000,000 land acquisition investment including $15,000,000 to establish an autonomous trust. This necessitated a specialised financial agreement with the Belize government direct. The stakeholder indicated good blue economy prospects exist for protected areas including carbon and biodiversity offsets ever since the original small projects before the REDD+ initiative, including working with entities such as Verra for independent monitoring.

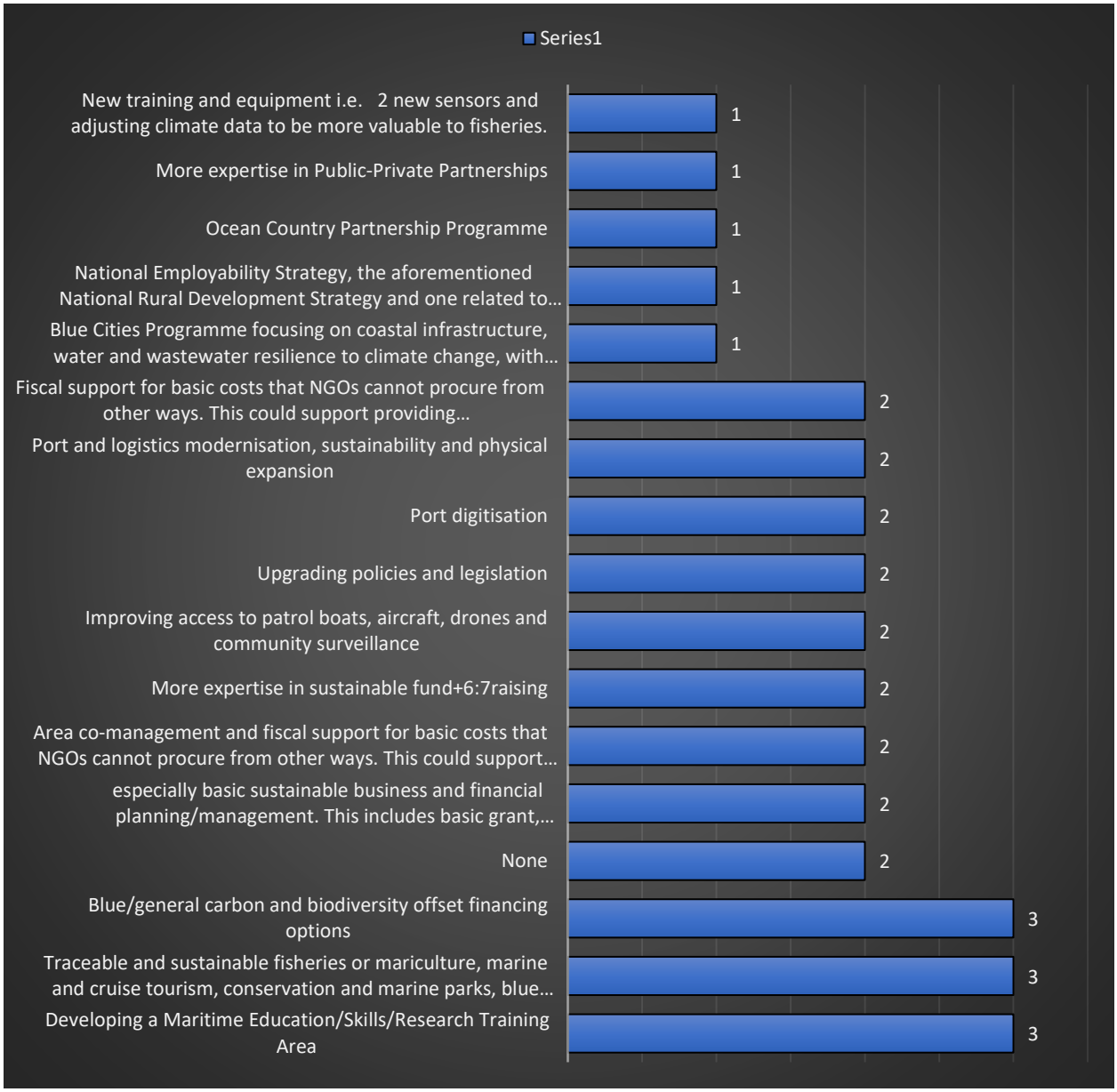


Table 4.3.7: Potential Survey Identified Belize Blue Economy Opportunities

Survey No	Type	Potential Belize Blue Economy Opportunities Identified
1.	Belize Ministry of Tourism and Diaspora Relations	Several emerging coastal destinations have the potential to become "new hub" destinations. With several unspoilt offshore islands, there are numerous opportunities for sustainable growth, development, and

		investment in the tourism sector, including opportunities in the ecotourism, adventure, nature, cruise and nautical tourism and the decentralization to more remote areas and outer islands.
2.	Belize Port Authority	2- Decarbonization of ports, domestic shipping.
3.	Climate Finance Unit	There are ample opportunities for the growth and development of blue/ocean ecosystems through the targets and investments done under the Blue Bond Unit, investments through GCF and Adaptation Fund projects, etc. The Blue Bond transaction highlighted the potential that our blue space has not only for economic development, but also for climate adaptation and sustainable livelihoods.
4.	Crocodile Research Coalition NGO	0
5.	Galen University	Opportunities would extend to the creation and implementation of a comprehensive marine ecosystem course, which can be used to annually provide skilled professionals already in the field with advanced training and information on tools, technologies, techniques and mechanisms which can improve Belize operation of the Blue Economy Sector.
6.	Healthy Reefs Initiative	To contribute to decision making on a national level based on informed science and continue to pursue initiatives that aid in the restoration, preservation and conservation of the coral reefs system.
7.	High Seas Fisheries Unit	Some opportunities for growth and development within the high seas fisheries sector, for the most part, include the strengthening of international cooperation and governance frameworks to help address the issue of IUU fishing as well as promoting sustainable management of the high seas fisheries sector. This can include improving our monitoring, control, and surveillance measures, such as implementing our electronic monitoring system program as well as our at-port inspection program and strengthening our at-sea observer program. Updating our vessel monitoring system and our data collection methods is also an opportunity for growth and development, but this will include investing in technology to upgrade our current systems. Strengthening our catch documentation scheme is also important to ensure sustainable fishing practices. In addition, providing capacity-building training and support for personnel involved in monitoring, control, and surveillance activities is essential for realizing this growth and development potential.
8.	Ikooma Belize -seaweed entrepreneur	I see a huge opportunity ahead for Belize to build a brand differentiation globally for its premium seaweed. It appears that the incentives need to be stronger to encourage farmers to commit.
9.	National Biodiversity Office	Opportunities in terms of the economic aspect: - Additional resources to be made available for marine conservation under TNC Debt-for-Nature swap. - Opportunity to contribute to national economy through implementation of BIOFIN Finance Solutions - Opportunity for job creation through greater engagement with the private sector Opportunity in terms of the social aspect - Opportunity to gain stakeholder buy-in through income diversification programs/ livelihood support. Opportunity in terms of technological aspect - Opportunity to leverage mobile technologies for greater management effectiveness, transparency and accountability across the NPAS.

		Opportunity in terms of environmental aspect - Opportunity to mobilize additional resources for conservation by accounting for climate change and its impacts. Opportunity in terms of policy environment Resource mobilization to ensure financial stability of NPAS ● Improve data collection to facilitate informed policy decisions
10.	Wildlife Conservation Society Belize	1. Co-Management of MPA 2. Community engagement and Capacity Building 3. Economic Alternatives and Diversification.
11.	Caribbean Regional Fisheries Mechanism	Future opportunities are outlined in Strategic Objective 2.1- Competitive and profitable fisheries and marine resource development within the blue economic space of respective Member States through the: • Enhancement of industries' role and contribution within the blue economy by strengthening Competitive advantage and profitability of fisheries and aquaculture. • Promulgation and support implementation of regulations, guidelines and protocols on Good Fish and Fishery Product Hygiene Practices in private sector companies. • Improvement of uptake, sustainability, and economies of scale, via development of sustainability plans beyond CRFM assistance period, and via strengthened capacities, established system of documentation and sharing of lessons and best practices for building institutional memory and adaptive learning. Enhancement cross-sectoral collaboration and knowledge generation on differentiated social and cultural factors impacting gender equality and youth engagement in fisheries
12.	Ministry of Blue Economy and Disaster Risk Management	1. The sustainable growth of future sectors such as deep-sea mineral mining, biopharmaceuticals, mariculture. 2. Blue finance 3. Greater investment in blue carbon initiatives 4. Greater investment in climate change adaptation
13.	Belize Tourist Board	Sourcing sustainable financing is critical for responsible economic growth within the tourism sector. There are major hurdles with 1) access to finance and 2) the cost of capital in Belize. As a result, micro, small, medium and large enterprises are not more proactive in their business models to further the Sustainable Development Goals. A Disaster Relief Fund for Tourism Enterprises is direly needed to respond to shocks and rebound in a shorter time span.
14.	WWF Mesoamerica	For the Organization - Continued partnership and collaboration with relevant organizations (NGOP, GOB, Private Sector and Academia) For the Blue Economy sector: - Improvement and strengthening of fisheries management - Improved livelihood diversification - Support for MSMEs in the blue economy - Government focus on people centric conservation agenda for financing ocean conservation - Blue-Green carbon framework and legislation (Under development)
15.	Private Seaweed Aquaculture Entrepreneur	Technology to grow local species on large and small scales. Aquaponic trainings for small scale farming. Combining of aquaculture and aquaponics to market value added products. To provide reliable seed production to assist small and large farmers in other species than Tilapia and shrimp

16.	MBECA Representative 2	Opportunities for the fisheries sector lie in developing new products and value add as well as exploring new fisheries diversification potential that is based on robust science and formal marine spatial planning regulations that help to support co-management initiatives. Adopt very effective measures to combat plastic waste-derived marine pollution. Each year over 10 million tonnes of waste end up in the sea. Opportunity of piloting and showcasing new marine renewable energy technologies in Belize.
17.	Hol Chan Marine Reserve	Eco-tourism and Education: Leveraging eco-tourism opportunities within MPAs can promote sustainable economic growth while raising awareness about marine conservation. Educational programs, guided tours, and visitor centres can engage tourists and locals, fostering a deeper understanding of the marine environment. Blue Economy Initiatives: Exploring and supporting blue economy initiatives can be beneficial. This includes sustainable fisheries, aquaculture, renewable energy from ocean resources, biotechnology, and the development of marine-based products.
18.	Central Bank of Belize	The Central Bank may contribute to sustainable growth and development of the blue economy in the future through developing environmental and risk management frameworks that can help the financial sector assess risks associated with blue economy activities or encourage financial institutions to consider extending more funding to blue economy projects, as well as establishing supportive regulations for emerging blue economy businesses that can incentivise more investments in the sector, while minimising the levels of risk
19.	Department of Aquaculture	Diversification of shrimp farms, where ponds unfit for shrimp farming can be used for brackish water finfish aquaculture. Fresh water aquaculture receives assistance in tilapia biosecurity measures and improved brood stocks. Marine aquaculture needs guidelines established for potential producers to know the way through bureaucratic red tape. Research and investment in aquaculture feed production for the aquaculture to be able to grow.
20.	Oceana	Technology driven data – eMonitoring, eReporting, and traceability in fisheries sector which will in turn increase access to new markets for fishers.
21.	Beltraide	The following areas can be explored: -capacity building and education -policy and regulatory reform - investment related to blue spaces - blue economy business development - eco-tourism and conservation

Institutional Strengthening and Capacity Needs for the Blue Economy

Survey No	Type	Response
1.	Belize Ministry of Tourism and Diaspora Relations	Institutional strengthening and capacity need priorities for the MTDR: • Policy Development and Analysis in Nautical Tourism • Coastal Area and Island System Management and Development (energy and water supply, communications, sanitation, transportation, climate change resilience, building codes and emergency) 1. Ocean Accounting 2. Strengthening MTDR's ability to incorporate tourism business and entrepreneurship opportunities in the Maritime Sector 3. Sargassum Control and Management 4. Spatial Data Collection and Analysis
2.	Belize Port Authority	2- Hydrography, safety of navigation (Aids to Navigation), legislative drafting, information technology (digitalization), port management

3.	Climate Finance Unit	3- Streamlined M&E platform, project development platform where we can interact with stakeholders and a repository for documents/project concept notes. Human capacity has been strengthened but can always be further strengthened to maximize our turnaround time for project development.
4.	Galen University	Training of our lecturers in the areas of Ocean Accounting and Monitoring Reporting and Verification/Evaluation Processes.
5.	Healthy Reefs Initiative	Technological enhancement. Taking advantage of the various tools available to analyse data that contributes to decision making to enhance management.
6.	High Seas Fisheries Unit	As a fisheries regulator, we believe that it is important to strengthen our capacity in data collection and analysis. This includes investment in training programs to enhance the skills of staff members in data analysis techniques such as stock assessment models, catch and effort data analysis, fish dynamics and identification and vessel tracking as well as training in at port and discharge inspections.
7.	Ikooma Belize - seaweed entrepreneur	iKOOMA needs at least BZD 250,000 in funding to become export ready. That should start with covering patenting and trademark fees, gaining necessary cosmetic certifications, hiring staff and expanding operational facility. Part of this funding could also be used to partner with a seaweed supplier committed to nurturing the growth of Euchuematopsis isiformis.
8.	National Biodiversity Office	Outlining methods to improve NBIO's organizational capacity performance led to the identification of two important strategic objectives: improvement of knowledge and skills; and recruitment of additional personnel. Develop employee development/ training plans. Develop and implement ranger training program. Recruit resource mobilization specialist. Recruit 6 rangers
9.	National Meteorological Department	Top priorities would be having persons trained in weather and climate forecasting, production of climate services (data analysis, modelling and forecasting) and weather station installation and repairs.
10.	Office of the Prime Minister Economic Development Council	There are several areas of institutional strengthening and capacity building, but the top priorities would be having persons trained in weather and climate forecasting, production of climate services (data analysis, modelling and forecasting) and weather station installation and repairs.
11.	Wildlife Conservation Society Belize	Social Science, Blue Finance Training and Climate Change Resilience and Monitoring Techniques
12.	Caribbean Regional Fisheries Mechanism	Priorities for Institutional strengthening and capacity needs include the following: Resource mobilization and implementation of the CRFM Resource Mobilization Strategy 2022-2030 and support for achieving the objective to enhance the effectiveness of development assistance for blue growth through fisheries and marine resource use, conservation and management in the CRFM States.
13.	Protected Area Conservation Trust	In relation to Blue Economy, it would be understanding the concept as well as financing opportunities that exists for the conservation sector. This would also require being in alignment with donor requirements as well as their monitoring and evaluation framework.
14.	Ministry of Blue Economy and Disaster Risk Management	1. Increased financial resources. 2. Adequate human and technical capacity to carry out the BE objectives. 3. Increased partnerships and collaboration 4. Increased BE sensitization Policy development, Project management, Stakeholder engagement and communication

15.	Belize Tourist Board	Important needs include Proposal Writing, Project Management, Recreational Management, Product Development, Sustainable Tourism, Data collection, monitoring and verification: There are limited financial and human resources to collect the data and consequently, limited capacity to process, analyse and interpret the data. We can benefit from training in Statistical Package for the Social Sciences (SPSS), and Python Programming Language., GIS< Big data, Big Data, Business Intelligence platforms, Data Analytics or the use of Artificial Intelligence.
16.	WWF Mesoamerica	-Capacity building in Ocean accounting concept and application
17.	MBECA Representative 2	To create an enabling environment (skilled staffing, equipment, materials and technology)
18.	Hol Chan Marine Reserve	Enforcement and Compliance: Develop capacities for effective enforcement strategies, including training in law enforcement, surveillance, and compliance monitoring to ensure regulations within MPAs are respected. Policy Development and Advocacy: Build skills in policy analysis, development, and advocacy to influence local, national, and international policies related to marine conservation and sustainable resource management. Capacity in Sustainable Resource Management: Offer training in sustainable fishing practices, ecosystem-based management, and adaptive management techniques to balance conservation goals with sustainable resource use. GIS and Technology Integration: Invest in Geographic Information Systems (GIS) and other technological tools for spatial planning, mapping, and data analysis, aiding in decision-making processes. Financial Management and Fundraising: Strengthen capacities in financial management, grant writing, and fundraising to secure resources necessary for MPA management and conservation initiatives. Leadership and Governance: Develop leadership skills within the organization, fostering good governance, effective communication, and strategic planning to ensure successful MPA management. None. We are an autonomous body, and our main income comes from the park fees. On occasion, depending on projects, we have grant funding available. Currently none.
19.	Central Bank of Belize	• The capacity needs for the Central Bank could include further training of staff to build expertise in environmental economics, macroeconomics of climate change, sustainable finance, and sustainable development, among other related topics, to promote the blue economy and integrate environmental considerations into its policy and regulatory framework. • Building upon this expertise, the Central Bank can embark on the development of a policy document outlining its vision for a more climate conscious financial system and sustainable economic growth.
20.	NEMO	NEMO is slowly developing it analytical abilities. Currently the organization does not effectively analyse data which leads to ineffective reporting. NEMO is currently undergoing an institutional strengthening period. For this to be successful, it requires effective and qualified staff. It also requires more input in information technology to allow for better decision-making in disaster situations.
21.	Department of Aquaculture	We need to have better preparedness for aquatic disease outbreaks. We need the understanding of each other's capabilities and responsibilities. Annual budget from the government and at the moment no sponsorships from international donors.
22.	Oceana Belize	Oceana is committed to strengthening our internal capacity to bolster data-based decisions in national decision-making processes and supporting data collection efforts to ensure informed decision making in fisheries management, address plastic pollution, etc.

23.	Beltraide	Yes, capacity building for the team is very important. We ensure to organize internal capacity building and compliment with external training opportunities. BELTRAIDE receives its subvention from the Government of BELIZE. BELTRAIDE also seeks additional funding from funding agencies for particular projects.

Table 4.1.8: Interviewed Belize Blue Economy Stakeholder Identified Priorities and Recommendations

Interview No	Type	Identified Belize Blue Economy Priorities and Recommendations
1.	Blue Bond Unit Office of Prime Minister	MBECA could also look at what is and is not regulated and how this can be mainstreamed across various sectors of the blue economy and prioritises for ensuring adequate progress remains on the right track. Finally, they highlighted the role and value of needing more attention provided to awareness, communication and engagement and expressed more support and collaboration could be focused in this area. The Blue Bond Unit is currently embarked on developing its own Communication Strategy to rectify issues of poor understanding and inspire greater support.
2.	FAO Belize Representatives	To improve Belize's blue economy capacity building in the future, attention and resources should ensure each government entity should have electronic databases, hire more dedicated specialists, modernise data collection, implementation, communication, coordination and cooperation.
3.	National Biodiversity Office Representatives Director	Moving forward, any system that can prioritise streamlined process efficiency, empower real capacity building and overcome fragmentation is highly cherished by the respondents. Whilst the Biodiversity Office wish to emphasise how very new, they are; they remain willing to finding out and potentially looking at how to align ocean accounting to biodiversity and any general blue economy capacity building.
4.	Reefkeeper Belize NGO	The interviewee also alluded to school educational talks, community outreach, professional teacher development to aid them in their assignments, summer camps and even showing students via a ROV/drone. The primary focus is awareness and education rather than research, though scope exists to develop that area with channelled resources. An eventual dream to aid the development of Belize's blue economy was developing a combined small aquarium and marine education centre, especially in an area such as Dangriga that does not receive many tourist visitors, that could benefit basic marine research, education, tourism and aquaculture/fisheries development simultaneously. The need to locate sustainable financing sources whether through alternative livelihoods such as ecotourism or community seaweed mariculture attempted by NGOs such as TIDE and Sarteneja Alliance for Development or partnering with larger organisations such as WCS, WWF, Oceana and others; also needs investigation.
5.	Belize Coastguard Senior Representative	Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats. Aside from that in the long term, the respondent admitted slight concerns over any potential political instability that could influence factors.
6.	Office of the Prime Minister Senior Representative	Citing an agroforestry example, it was indicated that the scope should allow for communities and others for direct stakeholder input and channelling resources. They echoed that this should extend to the choice of which ever indicators should be utilised and monitored for ocean accounting including a possible definition of the causes, the direct

		impact and any solutions to improve efficiency, cost-effectiveness and sustainability. Monitoring, reporting, verification and evaluation systems need to be focused more on domestic than international objectives in his experience, not generating data for the sake of doing so. Hs recurrent question remained: "To what purpose or value would this training/capacity building/information generated be deployed? This might mean adding, changing or even removing such assumptions along with analytical and research capacity. There is also the Learning component to be considered as well. For example, Belize could benefit from Sustainable Finance, though it has managed to significantly reduce its debt to GDP from 130% down to 60%. Belize also needs to focus on measuring social protection and poverty aspects of the Blue Economy including health, education and wellbeing.

Table 4.4.8: Survey Priority Recommendations for IADB/Other Funders

Interview No	Type	Priority Recommendations for IADB/Funders
1.	Belize Ministry of Tourism and Diaspora Relations	Conducting a Human Capacity Needs Assessment and train workforces to plan and manage sustainable tourism development in marine areas. Managing the risk of coastal hazard/ climate change to tourism facilities. Develop guidance and building codes to ensure resilience. Identifying strategic areas for tourism development. Developing a Marine tourism transport plan. Resilient Tourism Infrastructure, inclusive of shoreline stabilization initiatives. Maintaining a high quality coastal and marine environment underpins the tourism sector. To ensure tourism development is climate resilient and sustainable, the IADB and Government of Belize should prioritize: Develop tourism development and investments plans for the marine scape.

2.	Belize Port Authority	2- Digitalization, as SIDS already face a higher transport cost for shipping. Many of these costs can be tied to inefficient systems to facilitate trade such as infrastructure and the use of paper-based systems. would also aid national goals set by the national digital agenda.
3.	Galen University	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats.
4.	Healthy Reefs Initiative	Priority areas looking at the following: Technological innovation, Ocean Conservation and Biodiversity, Blue Tourism and Recreation, Education and Capacity Building, Data and Information sharing. Technological innovations focusing on advanced monitoring systems for fisheries and environmental conditions. Ocean Conservation and Biodiversity would look at the MPA's and enhance management in these areas. Blue Tourism and Recreation in order to develop sustainable tourism practices and support eco-friendly tourism. Education and Capacity Building would look at offering educational programs and training in the fields of marine sciences and sustainable resource management. Enhance the capabilities of coastal communities to actively participate in and adopt sustainable practices. Data and Information sharing in order to enhance data collection and information sharing for informed decision making.
5.	Ikooma Belize - seaweed entrepreneur	8 - Having just visited Indonesia, one of the largest suppliers of seaweed globally, I believe priority needs to be given to developing regulatory bodies in the profitable industries connected to seaweed like cosmetics. We need to be able to meet international certification needs to boost our exporting capabilities. I am assuming an IDB loan can help in this regard? Of course, as a business owner, I am always looking for grant opportunities to develop my business growth.
6.	National Biodiversity Office	The areas for funding that can be prioritized include resource mobilization for implementation of strategies and plans to support the achievement of the targets and action areas outlined below. Technology transfer, capacity building to support implementation, monitoring and reporting are key for timely and informed biodiversity management in Belize. Mainstreaming of biodiversity targets across sectors is key as it is recognized that implementation of biodiversity targets will only be achieved if all sectors understand and actively do their part to adopt sustainable/biodiversity friendly practices to reduce biodiversity loss.
7.	National Meteorological Department	Marine Climate Data Collection and Forecast including the collection of marine variables and the training of personnel in Marine Meteorology and Oceanography.
8.	University of Belize	Blue Economy projects where faculty and students are involved e.g., mariculture and others. Training is required. There are lots of opportunities for students, especially because there are many of them; they do not require a salary, and they need the experience. It would be great to have funded thesis projects for our BSc, MSc and MPhil students.
9.	Wildlife Conservation Society Belize	1. Exploration of Mariculture or ranching for Conch, Lobster, Crabs, Urchins 2. Development of Formal training program for Fisherfolk 3. Improved MPA Management and Enforcement and Compliance
10.	Caribbean Regional Fisheries Mechanism	Risks: Climate change and its influence on the abundance and distribution of marine resources which could impact livelihoods and productivity Opportunities: Development of climate-smart fisheries and aquacultur**e**

11.	Protected Area Conservation Trust	An area of interest, from a PACT perspective, would be investments within sustainable revenue generating mechanism for protected areas managers. As the national Trust Fund, we see gaps in PA (Protected Areas) managers covering their basic operations and often rely on restricted funds, however, with a revenue generating mechanism, emergency or extra ordinary costs can be considered. Though PACT has been able to provide capital funding for such mechanism, it would require partnerships and other investments within the blue space to develop this mechanism.
12.	Ministry of Blue Economy and Disaster Risk Management	• Greater sensitization about the blue economy is crucial as it is a newly developing sector vulnerable to poor stakeholder buy-in. • Promoting new opportunities for livelihood sustainability through funding more mariculture, and seaweed and sargassum development research. The aim is to enable those who directly rely on and depend on resources within the blue space to build resilience against the changing dynamics of the ocean and its associated economy, considering the impacts of climate change.
13.	Belize Tourist Board	Tourism Product Development, Business Development and Recreational Management are training opportunities for assistance to be provided. This will create more to do and experience in Belize while supporting conservation efforts in the blue and green spaces. Many protected areas co-managers (NGOs) oversee a site or sites. Their revenue generation is handicapped by their tourism product development. Their vision is limited due to their areas of expertise, conservation. They cannot discern revenue generating opportunities such as developing relationships with universities to provide a constant revenue stream. They can make their facilities living classrooms while generating income to assist in site management and covering salaries.
14.	WWF Mesoamerica	A major priority is sustainable fisheries management based on sound science and is stakeholder driven. This should also include support to livelihood diversification and MSME development in the sector.
15.	Private Seaweed Aquaculture Entrepreneur	Potential funding/incubation support
16.	MBECA Representative 2	• Share research and know-how related to blue economy • Financial Support in the development of a green carbon - blue carbon investment policy to attract and expand investment and funding • Support in the development of sustainability criteria for incentive packages to enhance the sustainability of established economy sectors in Belize's blue space and to encourage the sustainable development of emerging sectors
17.	Hol Chan Marine Reserve	Education & Outreach, Enforcement & Compliance. Capacity building and resources to continue conducting efforts in these areas are priority
18.	Central Bank of Belize	Increased Data Collection, Capacity Building, Research and Development
19.	NEMO	investments in community-based disaster management.
20.	Department of Aquaculture	Technical training for feed manufacturing, hatchery management
21.	Oceana	Transparency and accountability in decision-making processes. Greater capacity for marine resource users to participate in management efforts.
22.	Beltraide	Develop Curriculum to support BELTRAIDE in delivery trainings to support the Blue Economy, Product Development; Financial Management; Governance; Strategic Planning; Business Modelling

Table 4.4.9: Interview Recommendations for Belize's Government

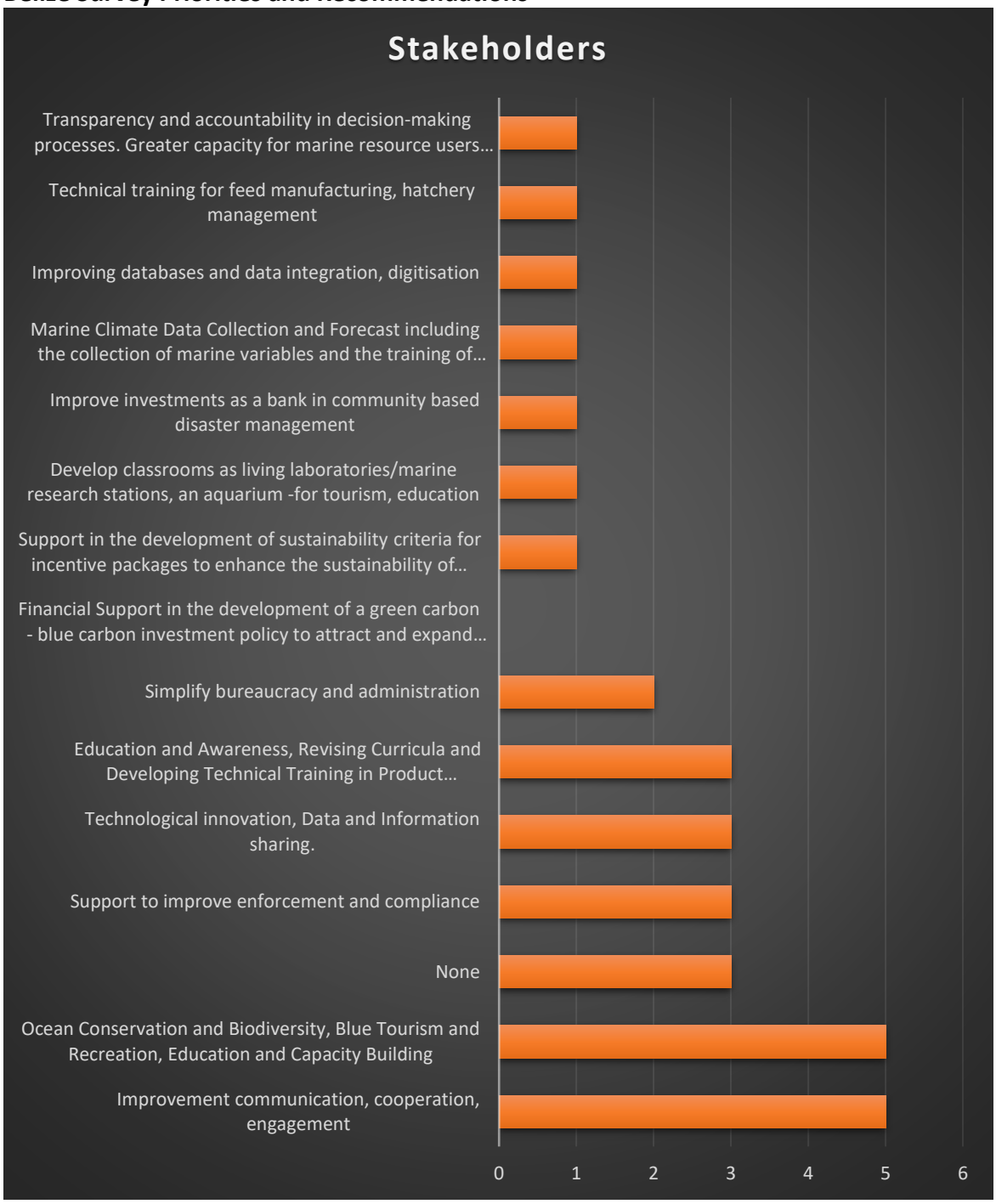
Interview No	Type	Recommendations for Belize's Government

1.	Belize Port Authority	Port development (infrastructure both physical and digital) because our trading partners will continue to be more accessible through shipping. Additionally, with an increase in trade volumes, shipping can bring greater benefits though economies of scale. If Belize wants to reduce its trade deficit, it must not ignore the impact that inefficient ports have to the cost and burden of doing business in Belize.
2.	Galen University	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats
3.	Healthy Reefs Initiative	The risk of climate change impacting the coral reef system and fishing sector should be a priority area. The availability of funding by the government for small scale projects. Encouraging a national adaptation of a standardized method of data collection for the various marine species based on existing data verified data already in existence. Ensure that opportunities to share findings with the government are enabled to ensure effective use of the information for proper resource management and decision making.
4.	High Seas Fisheries Unit	Government priorities should be centred on the sustainable management of fisheries resources, which includes developing laws and regulations that will protect the marine ecosystem and guarantee the long-term health of fish stocks, both within the fisheries sector and overall blue economy framework. BHSFU and, by extension, Belize actively participates in three regional fisheries management organizations (RFMOs), whose mandate is to ensure the adoption of management measures to ensure the protection of certain fish stocks. It should be noted that Belize's high seas fisheries is primarily dominated by foreign owned fishing vessels flying the Belize flag, so the potential to develop the HS fisheries sector to extend to the local fishing community exist, however this will require putting in place a system for infrastructure development, which will include, building cold storage facilities, processing plants and port facilities to enhance and develop this sector. This can support value-added processing of fish taken in the high seas and improve the overall competitiveness of the Belize seafood industry by integrating locally caught species such as tuna and tuna like species into the market and for export purposes which can have substantial economic benefits for Belize. Developing the high seas fisheries sector within its local environment presents an opportunity for economic growth through increased employment, export revenues, and value-added processing activities. The government should prioritize training programs for fishermen to improve their skills and knowledge of sustainable fishing practices not only in domestic waters but also in the high seas. Additionally, investing in education and awareness campaigns can help promote conservation efforts, foster a culture of responsible fishing within local communities, and increase the potential of high-seas fisheries. Sport and recreational fisheries activities are not properly regulated and have led to the fishing of regulated species without any monitoring efforts or data collection. Additionally, climate change poses a significant risk to ocean ecosystems, impacting fish populations and altering traditional fishing patterns. Therefore, Belize should also prioritize the effect of climate change on both domestic and high-seas fisheries and the impact this can have on fishing in the long term.
5.	Ikooma Belize - seaweed entrepreneur	Need to see a clear step-by-step process available for people to know how to start a seaweed farm. What is the licensing process? What is the fee? Where can they farm? A website dedicated to the seaweed farming

		industry could be helpful that provides a directory to operating farms and the species and products available. Indonesia offers a good example
6.	National Biodiversity Office	NBSAP Priority Targets as well as alignment with Belize's Medium Term Development Strategy. To be able to better regulate access to genetic resources and secure benefits from its use, it is important to establish a Biosafety Policy for Belize to regulate the use of GMOs. It is also important for a decision to be made on how Belize should regulate access to and benefit sharing from the use of genetic resources from the use of biological diversity. With no policy, legislation or framework in place, Belize is behind in actively managing our genetic resources.
7.	National Meteorological Department	Investment in additional training and resources for Forecaster and Climate Data/ Services personnel and Climate Modelling. The NMS Legislation should be finalized and approved formally giving the NMS authority on Weather and Climate.
8.	Office of the Prime Minister Economic Development Council	With the use of all natural resources, ensuring sustainability for generations to come is critical. One way to do this is to build strategic and inclusive partnerships across relevant sectors to better leverage ocean opportunities. There is also the need to build capacity within the Ministry of the Blue Economy and to create awareness on the use of innovative and sustainable technologies along with recommendations on the best business models for use by private sector to avoid over exploitation, pollution, or damage to our reef our coastal zones. These if adequately leveraged, will build a strong and resilient blue economy that contributes to improved livelihoods and an improved overall economy. There is the need for financing avenues/windows to support the implementation of respective policies such as the Blue Economy Development Policy, Strategy and Implementation Plan and the Maritime Economy Plan. Additionally, government needs to prioritize on data collection and analysis across all sectors for improved decision making.
9.	University of Belize	Investments in students e.g., targeted scholarships for MSc and MPhil at the University of Belize.
10.	Wildlife Conservation Society Belize	1. Sustainable Financing form Fisheries Management and MPA Managements 2. Strengthening Value Chain for Main Fisheries
11.	Protected Area Conservation Trust	From a PACT perspective, this would be the standardization of data and data requirements – whether on biodiversity monitoring or green/blue law enforcement. Storage, analysis and availability of such data is also important.
12.	Ministry of Blue Economy and Disaster Risk Management	A governmental priority should involve exploring additional avenues that will lead to greater investment in the blue economy. This can be done by actively engage in regional and international collaborations to address shared challenges, such as climate change. Pooling resources with neighbouring countries and participating in global initiatives can amplify the impact of Belize's efforts and unlock additional support.
13.	Belize Tourist Board	For example, public sector data needs to be provided in a timelier manner and become more accessible; the private sector must make insurance coverage more comprehensive and affordable. Infrastructure, such as provision of electricity, potable water, liquid and solid waste management needs addressing. There must not be major water and electricity shortages and inadequate planning plaguing key tourism destinations.
14.	WWF Mesoamerica	-Strengthen the protection and sustainable management of Belize's ocean space -Strengthen the management and conservation of marine and coastal protected areas as well as associated ecosystems

		-Implement informed and targeted fisheries management in place of ad hoc approach -Major effort towards recovery of dwindling fisheries stocks (finfish, conch, lobster) -Continued commitment to co-designing and implementing Belize's coastal and marine project finance for permanence initiative, along with the design and implementation of the marine spatial plan for the broader ocean space. -Greater focus towards alignment and harmonization of national policies, plans, strategies and legislation guided by an effective monitoring and evaluation framework for impact monitoring.
15.	MBECA Representative 2	Priority area is the establishment of governance framework for blue economy development to establish a robust legal and policy framework and a functional and effective institutional arrangement for blue economy development and implementation that is responsive to Belize's needs and consistent with the guiding principles. This includes institutional capacity development and enacting legislation to coordinate blue economy development in Belize. Capacity building is required for institutional strengthening to aid in the execution of functions and priority areas.
16.	Hol Chan Marine Reserve	Research & Monitoring and alternative livelihood ventures for the fisheries sector
17.	Central Bank of Belize	• The Government should continue to prioritise the achievement of the milestones set out in the 2021 Blue Bond Agreement, as failure to do so can have fiscal and financial stability implications. the Government can conduct more campaigns to attract international investors and mobilise capital for sustainable blue projects, facilitate more access to financial services and funding to businesses and communities engaged in the blue economy, develop a governance framework to oversee sustainable practices within the blue economy, and capacity building through trainings to stakeholders involved in the sector. The Government should also closely monitor climate risks and unsustainable fishing practices and increase enforcement measures and conservation efforts.
18.	NEMO	Yes, GOB must prioritize disaster risk management. If it is not given the level of importance it requires, then the impacts on the country will be severe.
19.	Department of Aquaculture	Develop Aquaculture regulations, incentives and support private enterprises in the manufacturing of aquaculture feeds to substitute some of the imported feeds.
20.	Oceana	Data/science driven policy implementation. Greater investment in enforcement of the current fisheries regulations. Monitoring/verification of existing regimes/regulations
21.	Beltraide	Financial Incentives for BLUE Economy MSMEs Capacity Building for BELTRAIDE trainers on business trainings for Blue Economy Matchmaking days for Blue Economy

Belize Survey Priorities and Recommendations



Survey Recommendations and Priorities to Develop Belize's Blue Economy

Survey No	Type	Other Recommendations and Priorities
1.	Belize Port Authority	Incentivize sustainable development of ports. The draft national ports policy calls for incentivizing ports to develop in line with the changes in demand for services. Port development is costly, and government should be able to create the enabling environment for the private sector to invest.
2.	Crocodile Research Coalition NGO	Research on possible aquatic species that may need a moratorium for hunting, in addition there needs to be more money on enforcement to protect Belize's waters from overfishing, and other negative impacts by those who may not be following the laws and regulations.

		If there could be money geared towards creating job opportunities, and an educational program
3.	Galen University	We believe a technology and knowledge transfer program would be well suited for the development of a national education program that can be self-sustained. Galen University is in the process of developing new programs/certificates within the above areas inclusive of climate change. Hence, a technology and knowledge transfer program would significantly boost the long-term sustainability and adaptability of any education program, thereby enabling the development of Belize's human resources
4.	Healthy Reefs Initiative	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats
5.	High Seas Fisheries Unit	Sport and recreational fishing contribute significantly to the economy; however, they are not properly regulated. There is a need for stricter regulations. Data is not being collected, especially during sport fishing tournaments and in other aspects of recreational fishing, which hinders effective monitoring and conservation efforts. CZMAI take the necessary action to implement a catch reporting framework or strengthen its catch and reporting mechanisms to properly regulate the sport and recreational fisheries sector. This will ensure accurate data collection and enable effective management of the sport and recreational fishing activities. This organization may not have the necessary capacity to implement and enforce a data collection program and will need to invest in capacity development to implement this system.
6.	Ikooma Belize - seaweed entrepreneur	Develop something like the Indonesian Food and Drug Authority (BPOM) to issue cosmetic production licenses, etc. and certifications so we can develop export ready businesses and prioritize customer safety and confidence in the local market. Along with an initiative like this, I would want to see chemists and professionals in the field come in to certify local formulators. Another consideration is to develop a large cosmetic manufacturing lab that can help with scaling our products – so we are talking a lab that can produce for multiple Belizean businesses and help us to scale for the local and regional markets
7.	National Meteorological Department	Greater Collaboration is needed amount public and private sector entities including universities for the provision of weather and climate services. There is still a huge disconnect between the climate data and science and the policy makers and users of the information.
8.	University of Belize	Investments in students e.g., targeted scholarships for MSc and MPhil at the University of Belize. Internship opportunities for our students. They can fund thesis projects for our students – projects they are interested in. Support for faculty led research, support for thesis student projects.
9.	Wildlife Conservation Society Belize	Improve conditions to access funding for fisheries projects. There are Gaps in Gender Inclusion, Adequate and responsible consultations, Fishers Organizations need to be formalized and legally recognized by BFD, Updating of Fisheries Regulations
10.	Caribbean Regional Fisheries Mechanism	Develop programmes and strategies to provide sustainable and innovative financing for the SSF/A sector including supporting private-public sector partnerships. Resources to support implementation of the following: O Climate Change Adaptation and Disaster Risk Management in Fisheries and Aquaculture in the CARICOM Region- Regional Strategy and Action Plan 2020-2030 O Gender Analysis, Strategy and Action Plan on Gender Mainstreaming in Fisheries of Member States.

11.	Belize Tourist Board	Develop local consulting capacity, Important needs include Proposal Writing, Project Management, Recreational Management, Product Development, Sustainable Tourism, Policy Development, Waste Management is, challenge, not just in tourism destinations. This has detrimental consequences for the blue economy and area. Financing for MSMEs is critical to improve the quality of the physical facilities and for capacity building of staff so there can be a better guest experience.
12.	WWF Mesoamerica	Greater focus towards alignment and harmonization of national policies, plans, strategies and legislation guided by an effective monitoring and evaluation framework for impact monitoring.
13.	Hol Chan Marine Reserve	Investing in renewable-energy or circular economy products from marine resources. Investing in research.
14.	Central Bank of Belize	• More public and private sector sensitisation of Belize's Blue Economy Development Policy, Strategy, and Implementation Plan 2022-2027 (BEDPS) which presents the enabling framework for Blue Economy development. This would allow opportunities for open discussions and engaging more stakeholders from different sectors involved in the blue economy's development. • To build capacity, the IDB could offer technical assistance and training opportunities in sustainable finance and the blue economy. Additionally, guidance could be provided for incorporating environmental considerations into the Central Bank's policy framework.
15.	Oceana	Capacity building for beneficiaries, civil society, environmental defenders et al will ensure that knowledge gaps are filled and ensure that the extensive challenges confronting the blue economy become opportunities for collaborative success.

5: Conclusions, Priorities and Recommendations

From 2017, Belize's blue economy contribution to GDP was the highest recorded at US$1,374,406,670 in gross value but as a percentage of 49.6% In 2022 the Belize blue economy contributed an estimated US$1,295,473,023.53 to GDP or 0.6% drop, recovering from the COVID19 pandemic or 75 % of GDP From 2009 to 2020 Fishing GDP formally decreased from 4.5 to 1% of GDP, whilst tourism increased to 43% of GDP. Logistics including maritime transport and shipping increased from 3 to 3.3%. In 2022 the total labour force was 191,728, of which 118,626 were male and 73,102 were female. A minimum of 13.91% depends on Belize's ocean/blue economy for employment directly and 22.8% indirectly in 2022. Belize's comprehensive access to information and series of potential systems and indicators; the nature of its ecosystem and economy; the mobilised will and interest of its core stakeholders to express interest in the area and its existing expertise in Monitoring, Reporting and Verification including in its new climate change related system, are strong motivations as to why Belize should and is well situated towards implementing Ocean Accounting as well as associated Blue Economy Capacity Building. Belize can therefore serve as an example to being one of the first global nations to pursue this. In conclusion this Deliverable provided a comprehensive overview of existing information that could be utilised to populate and develop Belize's first integrated ocean accounts including estimates of sectoral and overall employment based on its 8 priority blue economy sectors. However, to truly integrate Belize's blue economy and mainstream ocean accounting best practises and principles aligned with international best practises, the following priorities and recommendations are:

Immediate/Short Term Priorities and Recommendations (1 Year or Less)

- **Leadership, Focal Points and Institutional Structure**: Designate a Central Authority/Committee i.e., MBECA/Statistics Institute of Belize to provide a coordinated mechanism and central leadership for ocean accounting.
- Ensure familiarisation and awareness training on defining ocean accounting and its value.
- **Awareness, Engagement and Consensus on Ocean Accounting:** To engage stakeholders and facilitate awareness to ensure agreement on a proposed common methodology and Clear Key Performance Indicators that can be used to monitor progress for ocean accounting.

a. This includes Sustainable Development Goals indicators such as 14, the Sustainable Blue Economy Finance Principles, any commitments under the UNFCCC/Paris and any other international agreements. For example, Certain indicators capturing not just the economic but environmental and social impacts, accountability, transparency, governance, progress against risks and finance/blue carbon have also been proposed within this report.

- **Provide Supporting Human, Technical and Financial Resources**: Allocate/Redirect sufficient resources, staff training, technology, and information systems (Prioritise Capacity Building -Link to Deliverable 2).
- **Developing Pilot Systems (Actual System May Be a Medium-Term Objective**), Develop an integrated database capturing system/modify and realign others/MRV systems, infrastructure, technology, staff, and analytical capacity along with prioritising monitoring and reporting to create a central clearinghouse mechanism for stakeholders to

contribute/add data including adapting the climate change indicators, (Alignment to Deliverable 4).

- Communication, Data Sharing and Cooperation, improve internal government communication and cooperation agreements towards sharing data.
- Further improve technical/financial and information sharing agreement supports with NGOs, academics, civil society, private sector, and other stakeholders

Medium Term Priorities/Intermediate Recommendations (1-3 years)

Whilst stakeholder engagement noted many priorities, these are summarised as additional recommendations below for implementation by the IDB or any other development partner

- **Extended Communication, Awareness and Engagement: More** interest, support and awareness for ocean accounting and Monitoring, Reporting and Verification.
- **Development of a central database related to ocean/blue economy knowledge.** For example, the Fisheries Department/MBECA are considering a centralized Data and Information Management System. This system will integrate data collection, licensing database, e-catch data reporting, enforcement data, and vessel monitoring system. This work aligns with the E-governance and Digital Transformation framework and will strengthen ocean resources management. Similar initiatives are being created for BIOFIN or Biodiversity Financing Initiative or Biodiversity Impact Investment Tool.
- **Additional Training/Institutional Capacity Building:** Establishing local training and awareness on blue carbon, marine spatial planning, and ocean ecosystem/social valuation techniques, along with processes for improved capacity building, research, monitoring equipment and analytical capacity.
- **Assessing Natural Capital and Comprehensive Marine Ecosystem Survey.** Support an integrated ocean survey baseline assessment to gauge existing ecosystem health, overcome existing ecological, socioeconomical and risks/other data gaps.
- **Investing in Pilot Nature Based Solutions and Projects:** Consider support for nature-based solutions, blue economy livelihood development and ecosystem restoration approaches to enhance natural capital/ecosystem value.

Long Term Priorities and Recommendations (3-5 Years)

- Arrange for monitoring processes to evaluate changes over time, including funding and support for updates.
- Develop finance and support mobilisation for additional stakeholders to contribute towards integrated ocean accounting, monitoring, and evaluation -including providing NGOs, community-based organisations and others, simplified access to funding such as stipends/grants to cover initial costs and implementing various financial methods.
- Basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training such as GIS and remote sensing.
- Provision to support Marine Conservation and Education Awareness Initiatives such as stipends to volunteers and Youth Ambassadors. Communities could be trained to become rangers and data recorders and nominally compensated.
- **Technology:** In parallel, stakeholders identified the need to investigate technological solutions towards monitoring, reporting and verification, along with data analysis.

- **Improving Governance Systems.** More emphasis must be on improving governance systems given a high staff turnover and certain critical staff/equipment gaps that exist throughout various Belize government/ quasi-government entities.
- **Integration into Ocean Accounting:** Align other government institutional systems of accounting and statistics to capture ocean accounting and the blue economy. For example, to capture net flows, total production could be extended to the above production of Exports-Imports to yield net adjusted production as an alternative measurement. However, the Statistical Institute of Belize does not directly capture fisheries/marine and aquaculture directly for imports, in contrast to export statistics. Instead, it generically measures categories such as food/drink, commodities, manufactured goods and other manufactured
- **Alignment With Other Laws/Policies It** is recommended to support/implement and align existing and future data capturing systems and indicators to laws, regulations, and policies such as the current National Maritime Transport Policy.
- **Blue Carbon Trading**: Support the implementation of the Blue/Green Carbon Trading Bill to encourage monitoring and increases in the value of ecosystem goods and services.
- **Connect with International Collaborations:** Active collaboration in local, regional, and international initiatives to ensure opportunity costs and problems are minimised and success may be replicated and upscaled.
- **Further External Collaboration with Additional Partners for Information Input.** More support is needed for inter-agency collaboration including not just strengthening internal government Data Sharing Agreement Process and Public-Private-NGO Partnerships but co-management of marine protected areas.
- **Development of Blue Economy Opportunities.** Belize blue economy stakeholders also identified several sustainable blue economy livelihood opportunities for investment seeking IADB support including traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue biotechnology, ocean energy and data valorisation, cabotage, boatbuilding, sustainable livelihoods, ecotourism, adventure, nature, cruise, and other areas.

1. It includes aligning other government systems of accounting and information to capture ocean accounting and the blue economy.
2. It is recommended to support/implement and align existing and future data capturing systems and indicators to laws, regulations and policies such as the current National Maritime Transport Policy.
3. It includes supporting the implementation of the Blue/Green Carbon Trading Bill to encourage monitoring and increases in the value of ecosystem goods and services.
4. Active collaboration in local, regional and international initiatives to ensure opportunity costs and problems are minimised and success may be replicated and upscaled.
5. More support is needed for inter-agency collaboration including not just strengthening internal government Data Sharing Agreement Process and Public-Private-NGO Partnerships but co-management of marine protected areas.
6. Belize blue economy stakeholders also identified several opportunities seeking IADB or other development partner support including Traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue

biotechnology, ocean energy and data valorisation, cabotage, boatbuilding, sustainable livelihoods, ecotourism, adventure, nature, cruise and other areas.

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Annex I - Preliminary Stakeholder List

Table 1 Stakeholders Targeted for Potential Outreach

Stakeholder Institution	Contact Person	Contact Address	Contact Details (Email and Telephone)
Ministry of Blue Economy & Civil Aviation	Kennedy Carrillo, CEO Felicia Cruz, Director Andria Grinage, Senior Blue Economy Officer Gisel Correa-Cobb, M&E Officer Carlie Gillett, Blue Economy Officer Trina Palacio, Blue Economy Officer	Seashore Drive, Belize City	ceo@blueeconomy.gov.bz director@blueeconomy.gov.bz grinageaa@blueeconomy.gov.bz Gisel.Correa@blueeconomy.gov.bz gillettca@blueeconomy.gov.bz trina.palacio@blueeconomy.gov.bz 223-2768
Turneffe Atoll Sustainability Association	Mr. Valdemar Andrade, Executive Director Ms. Virginia Burns-Perez, Adaptive Management Program Director	Blue Marlin Avenue, Belize City	valdemar@tasabelize.com 615-1544 virginia@tasabelize.com 670-8272
Ministry of Tourism & Diaspora Relations	CEO Nicole Solano	South Street, Belize City	ceo@tourism.gov.bz 633-6829
Fisheries Department	Mr. Rigoberto Quintana	Princess Margaret Drive, Belize City	QuintanaRI@gobmail.gov.bz 613-0705
Blue Bonds and Project for Finance Permanence Unit, Office of the Prime Minister	Ms. Beverly Wade, Director	Office of the Prime Minister, City of Belmopan	directorbbpfpunit@opm.gov.bz 621-3397
Ministry of Blue Economy & Civil Aviation	Hon. Andre Perez Minister CEO Kennedy Carrillo- Chair of Blue Economy Cluster	Seashore Drive, Belize City	ceo@blueeconomy.gov.bz 613-1712
IMMARBE	Annette Alonzo Director	Marina Towers, Belize City	annette.garel@immarbe.com 610-1071
Galen University	Dr. Cynthia Eve Aird	Central Farm, Belize	eaird@galen.edu.bz 615-6657
Ministry of Finance, Economic Development & Investment	CEO Dr. Osmond Martinez	City of Belmopan	ceo@med.gov.bz

Stakeholder Institution	Contact Person	Contact Address	Contact Details (Email and Telephone)
Ministry of Finance, Economic Development & Investment	Mrs. Kimberley Westby, Economist	City of Belmopan	Kimberley.westby@med.gov.bz 620-9649
Beltraide	Dr. Leroy Almendarez, Executive Director	Orchid Garden, City of Belmopan	executivedirector@belizeinvest.org.bz 610-1197
Ministry of Energy	Ryan Cobb, Energy Director	City of Belmopan (North Wing, West Block)	energy@energy.gov.bz 636-1433
Belize Port Authority	Darlin Gaitan	Mile 3, Belize City	commissioner@portauthority.bz 222-5666 bzportauth@btl.net
Ministry of Tourism & Diaspora Relations	Jonelle Hemmans, Business Development & Investment Officer	South Street, Belize City	jonelle.hemmans@belizetourism.gov.bz 630-1544
Coastal Zone Management Authority and Institute	Chantalle Samuels, Chief Executive Officer	Princess Margaret Drive, Belize City	ceo@coastalzonebelize.org 223-0719 or 223-5739
Coastal Zone Management Authority and Institute	Arlene Young, Director	Princess Margaret Drive, Belize City	director@coastalzonebelize.org 223-0719 or 223-5739
Coastal Zone Management Authority and Institute	Samir Rosado, Marine Spatial Plan (MSP) Process Lead	Princess Margaret Drive, Belize City	msplead@coastalzonebelize.org 223-0719 or 223-5739
Coastal Zone Management Authority and Institute	Chelsea Perera, Coastal Planner	Princess Margaret Drive, Belize City	coastalplanner@coastalzonebelize.org 223-0719 or 223-5739 coastalplanner@coastalzonebelize.org
Ministry of Sustainable Development, Climate Change & Risk Assessment	CEO Dr. Kenrick Williams	City of Belmopan	ceo@environment.gov.bz 602-1769
Department of Environment	Mr. Anthony Mai, Chief Environmental Officer	City of Belmopan	Doe.ceo@environment.gov.bz
Ministry of Sustainable Development, Climate Change & Risk Assessment	Vanessa Figueroa, Policy Coordinator	City of Belmopan	policy@environment.gov.bz 613-0321
National Biodiversity Office	Mr. Saul Cruz, Acting Director	City of Belmopan	cruzs@gobmail.gov.bz director.nbio@environment.gov.bz
World Wildlife Fund	Ms. Nadia Bood, Senior Program Officer	Sunrise Avenue, Belize City	NBood@wwfca.org 602-615
Belize Project Finance for Permanence (PFP)/WWF Mesoamerica	Mr. Osmany Salas, Lead	Sunrise Avenue, Belize City	osalas@wwfca.org

Stakeholder Institution	Contact Person	Contact Address	Contact Details (Email and Telephone)
Fein Catch Ltd.	Mr. Troy Gabb, Manager	Eyre Street, Belize City	troy.gabb@yahoo.com 610-2725
Belize High Seas Fisheries Unit	Ms. Valarie Lanza, Executive Director	Princess Margaret Drive, Belize City	valerie.lanza@bhsfu.gov.bz 636-1499
Belize High Seas Fisheries Unit	Mr. Robert Robinson, Deputy Director	Princess Margaret Drive, Belize City	valerie.lanza@bhsfu.gov.bz 636-1499
National Climate Change Office	Dr. Lennox Gladden	#2 Slim Lane, City of Belmopan	822-0810
Inter-American Development Bank	Astrid Danielle Salazar Gerard P. Alleng Alex Sanchiz June Alleyne	Princess Margaret Drive, Belize City	astrids@iadb.org gerarda@iadb.org alexsa@iadb.org
Statistical Institute of Belize	Mrs. Diana Castillo-Trego, Acting Director General	#1902 Constitution Drive Belmopan City Phone: (501) 822-2207	dtrejo@mail.sib.org.bz
Central Bank of Belize	Kareem Michael, Governor, Central Bank of Belize	5 Eve St, Belize City, Belize	info@centralbank.org.bz +501 223-6194
Coastguard Commandant Elton Bennet or senior officer	Rear Admiral Elton Bennett	Belize City	Tel: +(501)-225-2186 Fax: +(501)-205-2479 E-mail: commandant@bncg.gov.bz belize_coastguard@yahoo.com
NGOS Fragments of Hope	Lisa Carne	Placencia Village, Stann Creek	lisasinbelize@gmail.com
Healthy Reef Initiative	Ms. Nicole Craig, Country Director	Belize City	craig@healthyreefs.org
University of Belize Environmental Research Institute	Dr. Mr. Jake Snaddon, Administrative Director	Price Center Road P.O. Box 340 Belmopan,	Tel-Fax: +501- 822-2701 Email us at: jsnaddon@ub.edu.bz uberiinfo@ub.edu.bz lricketts@ub.edu.bz
The Nature Conservancy	Contact to be requested from the TNC Belize Program Director	Punta Gorda	Phone: +501501-722-2503 Email: belize@tnc.org
Belize Tourism Industry Association	Linette Canto Executive Director	10 Taiwan Street, P.O. Box 62, Belize City	phone: +501-227-1144 Email: info@btia.org
National Biodiversity Office	Ms. Rasheda Garcia Biodiversity Officer	#2557 Hummingbird Highway, Belmopan	info.nbio@environment.gov.bz 828-9056
Department of Transport	Dian Vasquez Chief Transport Officer	Mehlado Drive, Nemo Office, City of Belmopan	customerservice@transport.gov.bz 802-2038
Ministry of Public Utilities, Energy, Communication and E-Governance	Chief Executive Officer - Mr. Jose Urbina	2nd Floor, West Block Building Belmopan	Tel: +(501)-822-0822 / 401 Fax: +(501)-822-2394 E-mail: ceo@moysegov.gov.bz

Stakeholder Institution	Contact Person	Contact Address	Contact Details (Email and Telephone)
Ministry of Natural Resources, Petroleum and Mining	Chief Executive Officer – Ms. Nelda Tulcey	H.M. Queen Elizabeth II Boulevard City of Belmopan Cayo District,	CEO's E-mail: ceo@naturalresources.gov.bz Minister's E-mail: minister@naturalresources.gov.bz Tel: +(501)-828-5028/ 5177 / 5178 Fax: +(501)-822-2083
Association of Protected Areas Management Organizations	Mr. Jose Perez Executive Director	18 Haulover Creek Street, Belmopan	execdirector@apamobelize.org 611-8814
Belize Audubon Society	Mrs. Amanda Burgos-Acosta Executive Director	16 N Park Street, Belize City	executivedirector@belizeaudubon.org 223-4988
OCEANA	Janelle Chanona, President	City of Belmopan	chanona@oceana.org
Sarteneja Alliance for Conservation and Development	Mr. Joel Verde Executive Director	Sarteneja Village	ed@sacdbelize.org 671-1440
Southern Environmental Association	Elizabeth Muschamp Acting Executive Director	Placencia Village	executivedirector@seabelize.bz
The Nature Conservancy	Ms. Julie Robinson Belize Program Director	Garden Plaza, City of Belmopan	jrobinson@TNC.ORG
Toledo Institute for Development and Environment	Asad Magana Executive Director	Hopeville, Punta Gorda	execdirector@tidebelize.org 722.2274
Wildlife Conservation Society	Mrs. Nicole Auil-Gomez Country Director	Coney Drive, Belize City	nauilgomez@wcs.org 223-3005
Protected Areas Conservation Trust	Mrs. Nayari Diaz-Perez Executive Director	7552 Hummingbird Hwy, Belmopan	ed@pactbelize.org, 822-3637
Hol Chan Marine Reserve	Mr. Ian Pou Executive Director	Caribena Street, San Pedro	info@holchanmarinereserve.org, 226-2247
Caribbean Regional Fisheries Mechanism (CFRM)	Mr. Milton Haughton Executive Director	Princess Margaret Drive, Belize City	milton.haughton@crfm.int 223-4443

Annex II: Survey Adapted for Interviews and Surveys Depending on Time/Availability/Type of Stakeholders

Project Title: Capacity Building to Advance the Blue Economy Development in – BL-T1145
Questionnaire for Measuring Blue Economy related industries contribution to the GDP.

Background
The recently established Ministry of Blue Economy and Disaster Risk Management MBEDRM) has as one of its primary mandates, to develop a sustainable Blue Economy (BE) for Belize that will contribute to the country's economic growth/recovery and the creation of opportunities for improved livelihoods through the responsible use and management of its ocean and aquatic resources. To deliver on this mandate, policy and strategic guidance are necessary that are reflective of the sustainable and inclusive development of ocean resources, while ensuring environmental protection, sustained livelihoods, and transparency and accountability in Blue Economy Decision-making Frameworks, identifying existing data and other capacity resources and requirements. To achieve the sustainable development of Belize's blue space within the context of the existing policy framework, an equally assertive approach in institutional strengthening is necessary to ensure policy coherence and blue justice in Blue Economy development beyond individual institutional sector-specific mandates.

Purpose of the Questionnaire
To obtain, analyse and interpret perceptions of capacity, ocean accounting, data and related needs for BE development in the short, medium, and long-term across institutions considered relevant for BE development in Belize, and to define and prioritize actions for gender-sensitive BE capacity development.

Targeted Respondents
Institutions involved in the management and development of the eight (8) sectors prioritized for BE development in Belize (Aquaculture/Mariculture, Blue Carbon, Renewable Energy, Fisheries, Marine Protection & Management, Maritime Transport & Shipping Services, Ocean & Coastal Tourism, and Marine Research & Development), and emerging sectors that may not have been identified in the existing BE policy framework, but which may be critical for the strategic development of BE in Belize.

Guidelines

1. The questionnaire consists of several sections.
2. Fill in your name and other information in Section 1.
3. Please respond to the questions in the other section(s) that are relevant to you. You can use bullet points. Please feel free to contribute as much or as little as you wish.
4. All researchers and responses adhere to strict ethical processes, details of which can be provided on request. All responses will be kept confidential.
5. Persons to be contacted if you have any questions or need clarification.

   a. Dr Jack Dyer, Email: Jack.Dyer@utas.edu.au; Mobile +679 940 1440 /WhatsApp 27 (0)76 973 2765
6. Return the completed questionnaires (**as a Word file**) to Dr Jack Dyer Email: Jack.Dyer@utas.edu.au with a copy to jadyer2020@gmail.com
7. Deadline: 30 December 2023
8. Please contact Dr Jack Dyer if you would be interested in a more detailed interview by Skype, Zoom, Google Hangout, phone, WhatsApp or preferred method of contact to be scheduled before 30 December. Limited field interviews/surveys may be available as an alternative.
9. For any questions relating to the research that cannot be resolved by the above; please contact the myself, our consortium leaders Gary Hesling or Andy Hamflett on… or MBECA.

The Ministry of Blue Economy and Disaster Risk Management of Belize and Compete Caribbean Partnership Facility is counting on your responses to produce a valid first Belize country profile of its Blue Ocean Economy, marine ecosystem resources, circular economy related risks, issues and opportunities.
THANK YOU FOR YOUR COLLABORATION

1. RESPONDENT

TITLE & NAME (Mr, Ms, Dr):	**JOB TITLE:**
INSTITUTION/PRIVATE:	**ADDRESS:**
AREA OF EXPERTISE:	**EMAIL:**
SECTOR:	**TELEPHONE/WhatsApp:**
Website Links:	

2a: Please provide more information introducing you, your role and your institution/organisation below in relation to the Belize blue economy and area, current initiatives and projects in relation to capacity building, training and information.

2b: Please provide more information introducing you, your role and your institution/organisation below in relation to the Belize blue economy and area, current initiatives and projects in relation to data collection, technology.

2c: Please provide more information introducing you, your role and your institution/organisation below in relation to the Belize blue economy and area, current initiatives and projects in relation, to access to funding/other resource mobilisation?

Belize is looking at developing ocean accounting and statistics, along with other monitoring and evaluation indicators such as SDG training, towards capturing progress and implementing a more socially, ecologically and economically sustainable blue economy model.

Potential benefits may include:

- Improving informed decision making
- Allowing effective resource prioritisation.
- Avoiding duplication of effort.
- Allowing for social, cultural and environmental valuations to be captured.
- Improving Monitoring, Reporting and Verification/Evaluation.

- Attracting various types of finance/investment.
- Honouring international and local legal requirements i.e., blue carbon for the Paris Agreement.
- Improving transparency and governance.
- Monitoring and responding to risks.

3a: How aware are you/your organisation of the concept of ocean accounting and or any Monitoring Reporting and Verification/Evaluation Processes? Please specify and its potential role/value?

3b: Would you/your organisation be interested to find out more in direct relation to ocean accounting and related ecosystem/natural capital/blue carbon/blue finance data/method processes?

3c: Would you/your organisation be interested to/receive any particular training, technology, funding, awareness, coordination, research/ and or other resource mobilisation for you/your organisation? Please kindly specify what might help/why.

4a: What is your/your organisation's current approach to data collection/statistics /other information -i.e., types of data, technology/systems used? I.e., What type of data do you collect?

4b: From where is it sourced/from whom?

4c: How often is it updated?

4d: To what extent do you/your organisation collaborate/share with others?

4e: How many staff are designated to collect data.

4f: What is the reporting frequency of data?

4g: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, verification and why? Please specify?

5: Do you/your organisation wish to share any other concerns/risks/issues/trends and developments to sustainable growth, development and your business and local blue/ocean ecosystem and economy in your sector and why?

6a: What do you/your organization consider the institutional strengthening and capacity need priorities for you/your organization.

6b: What level or type of existing support /resources/funding do you receive (if any) from government/other organisations.

7: What do you/your organization consider the future opportunities for sustainable growth, development and the blue/ocean ecosystem for your organization and within your sector?

8: PRIORITIES FOR INTER AMERICAN DEVELOPMENT BANK

With limited resources, which risks, opportunities and areas do you/your organisation think Compete Caribbean/ should prioritise to develop your sector, the overall ocean/blue economy and why?

9: PRIORITIES FOR BELIZE'S GOVERNMENT

With limited resources, which resources, risks, opportunities and areas do you/your organisation think Belize's government should prioritise to develop your sector, the overall ocean/blue economy and why?

10: PRIORITIES AND RECOMMENDATIONS FOR PRIVATE SECTOR/INTERNATIONAL BUSINESSES/AID AGENCIES/OTHERS

If you have any recommendations for any other Belize, national government/ocean sector stakeholders i.e., policies, incentives, research, resources, support, actions etc. to consider in relation to the above risks, opportunities, priorities, needs, information gaps etc., please provide more detail.

11: OTHER INFORMATION

Or is there any other information/data/technology/human gaps, training and priorities/resources needed that you think could be provided by the INTER AMERICAN DEVELOPMENT BANK and Compete Caribbean Partnership Facility improved means of communication etc that you think could help you in implementing your/your organisation's requirements and or sustainable development, climate change, gender/youth mainstreaming or any other area?

Please add any other information that you think will be useful for this research related initiative. You can use bullet points if you wish or provide more detailed responses.

Any information related to the above would be appreciated, even if provided below or separately.

Please also feel free to provide the contact details below of any other stakeholder who you think might benefit from participating in this survey.

Thank you for responding to this questionnaire. Please feel free to get in touch for a more detailed interview or for any further queries and clarification to Jack.Dyer@utas.edu.au; jadyer2020@gmail.com

Annex III: Extended Stakeholder Insights

Table 4.1.1: Summary of Interview Existing Background, Projects and Initiatives

Interview No	Type	Existing Projects and Initiatives
1.	Blue Bond Unit Office of Prime Minister	The Blue Bond Unit's purpose is to provide delivery and coordination not just of the blue bond but a mandated blue economy space to help mobilise resources within the Blue Economy Policy and Framework. This includes supporting institutions such as MBECA and CZAMI. In relation to resource mobilisation and capacity needs, they seek to work with other government entities to jointly agree on related capacity gaps and institutional needs or priorities are. For example, the Ministry of Sustainable Development is advocating for a Blue/General Carbon Trading Bill and related need for supporting associated capacity building for implementation. They are currently in the inception phases of designing a new Project for Permanent Finance but were unable to provide details, suffice to indicate that it would look at prioritising conservation and sustainable livelihoods and look to incorporate other more local/smaller NGOs not just The Nature Conservancy and WWF. This will also focus on developing the potential financial mechanisms and investable projects. The Blue Bond Unit is currently embarked on developing its own Communication Strategy to rectify issues of poor understanding and inspire greater support
2.	FAO Belize Representatives	From November 2021 to November 2023, they have been engaged in a Global Environment Facility funded/FAO supported project worth around $600,000 in budget specifically focusing on policy development, institutional strengthening, capacity building via training, database and improving data collection processes. It has directly targeted CZAMI, fisherfolk and communities as potential beneficiaries. As part of this project, they have been focusing on climate finance and general related adaptation. They also undertook a Gender Analysis of the fisheries sector including forming a Strategy and Monitoring and Evaluation Plan. This led to the convening of stakeholder engagement and a Women in Fisheries Forum event. Climate change awareness and sensitivity training has also been conducted via a series of workshops as part of the second project outcome. This also focused on training communities into possible careers within a climate resilient fisheries sector and associated blue economy for certain coastal communities and NGOs. It extended to providing certain CZMAI/MBECA government officials with GIS and climate data related capacity building. A third deliverable included efforts to form a National Climate Change Communication Strategy especially in relation to the fisheries sector. They further recommend more attention to assess existing skills and experiences, whilst hiring additional capacity and allocating sufficient funds for the various priorities identified under the FAO project and its deliverables including its Climate Data Information Gap Assessment. The project also conducted various Vulnerability and Livelihood Assessments for climate change, with adaptation finance with SURFACE. However, only seven out of an identified twenty-seven coastal communities could receive potential funding under the FAO project, requiring potential funding support to be mobilised from other resources. A Technological Needs Assessment was similarly undertaken. In relation to climate finance, FAO aided the Belize government to design a concept note for Green Climate Fund support and to help directly address Nationally Determined Contribution requirements. However, this would require additional state co-financing to be committed.
3.	National Biodiversity Office Representatives Director	Current data and capacity building specific initiatives include the BIOFIN initiative started in 2016, in relation to biodiversity finance monitoring and support; traditionally this has been more focused on terrestrial sources such as forests and wetlands but could present a template for management/operation. There have been some implementation delays in setting up this biodiversity reporting and tracking database system and data collection framework, most notably the fact the National Biodiversity Office was only formed in 2020, followed by disruptions related to the COVID19 pandemic. This prompted urgent stakeholder identified priorities of needing to diversify funding two project phases are complete. The project is now identifying the third phase, aiming to breach the biodiversity/conservation finance gap especially for capturing the value of

		youth, marine biodiversity, education and welfare. Several assessments have been undertaken including an expenditure and needs assessment, with specific priorities and nine listed potential financing solutions such as tourism fees, green debt: blue bonds/debt for nature swaps, developing business and forward strategic plans and improving management effectiveness, revenue, project management and overall financial sustainability. There was also indication of working with PACT to improve local biodiversity monitoring, extending to data and surveillance equipment, collection and analysis via specific capacity/data needs as priorities. As part of the issues of coordinating and liaising with communities, to ensure maximum coordination and outreach awareness efficiently, there has been a current proposal for the National Biodiversity Office, as existing biodiversity towards developing a central database and clearinghouse mechanism for various data. It is also more uneven in coverage, does not address emerging threats, lacks links to NGOS, academia and other sources and was updated. They are also evaluating other Biodiversity Enabling Support The Office of the Prime Minister, CZAM and others are working on improving Marine/Conservation Finance via diversified finance sources and the development of a Belize Sustainable Ocean Plan for marine spatial planning. They are equally in the preliminary stages of a Biodiversity Impact Investment Tool to measure the economic contribution of biodiversity itself and related conservation finance. This could provide a further platform for monitoring and evaluation; ocean accounting and/or Monitoring, Reporting and Verification under the BIOFIN programme initiative, however results were too early to be of immediate application to this specific Work Package at this time but offers promise for the future -they indicated hopefully next year it would begin to be properly active. Internally the National Biodiversity Office has its own Strategic Plan up to 2027
4.	Reefkeeper Belize NGO	This NGO focuses on marine youth education and rather than many of the responses being directly applicable in the survey, the particular interest was how ocean accounting and various capacity building could be re-developed to capture the social/youth aspect, alongside economic and ecological factors. For example, it focuses on exposing up to six hundred students and multiple educators with practical experiences including coral reefs and mangrove replanting (with even a mangrove nursery), along with beach clean-ups, general community education, interest and awareness to encourage greater marine eco-literacy and interest, along with possible careers. There are some limitations though as Ministry of Education guidelines limit children's ability to directly swim/dive in water. The interviewee also alluded to school educational talks, community outreach, professional teacher development to aid them in their assignments, summer camps and even showing students via a ROV/drone. The primary focus is awareness and education rather than research, though scope exists to develop that area with channelled resources
5.	Belize Coastguard Senior Representative	The Coastguard's role is to facilitate trade, support tourism and protect the Exclusive Economic Zone, conceding around 85% of trade is coastal despite proximity to the United States, 65% of imports and 67% of the population as coastal. Other roles include maritime safety including search and rescue, security and Environmental Protection. Increasingly they are engaged with other stakeholders including the Environment and Fisheries Department to support enforcement, alongside communities and NGOs. Current employment capacity is five hundred, but they are looking to enlist a further five hundred to a total of 1000, from an original fifty. They mostly have smaller boats but are about to launch an international tender on procuring two new offshore patrol boats as it is the leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others
6.	Office of the Prime Minister Senior Representative	This stakeholder focused on broad policy and political orientated responses rather than engaging with the specifics of the questions raised.
7.	Association of Protected Areas Organisation Representatives	The Association of Protected Areas Organisation indicated their role acts not only to implement various projects but to support communication, cooperation, information sharing and capacity building as a technical secretariat for co-managed terrestrial and marine protected areas of which they have 16 in total and 4 pending members, only 3 of which as current members are specifically marine orientated. These range in levels of understanding, financial, technical, data

		gathering and other support from larger, well-established examples with international connections such as the Belize Audubon Society to smaller organisations more community focused.
8.	Belize Fund for a Sustainable Future Senior Representative	The Fund has only been initiated in April 2022 for the past 18 months and operational for the past year. The Fund was established as a direct requirement of the Blue Bonds Loan Agreement. The interviewee was sceptical and reluctant about participating and seeing the direct utility and value of ocean accounting, seeking more detailed information and the scope of the assignment, not being familiar with such. Another source of ongoing capacity building highlighted was the British government funded Ocean Country Partnership Programme. They do not directly intervene in projects but are guided by and respond to the specific priorities identified by potential applicants. They conduct two main programmes for all eight sectors of Belize's Blue Economy and multiple stakeholders. The first provides direct funding and budget allocations to various government programmes and priorities that could potentially support Belize's blue economy and marine ecosystem. The second is a Grants Award Programme that aids NGO's and various civil society organisations to potentially support funding priorities devised by the stakeholders directly. They have just conducted their first cycle of grants from March 2022 to March 2023. 4/6 were based on protection for biodiversity and conservation, whilst the other two concentrated on climate resilient livelihoods. An annual report is published on their website providing more information and potential indicators, However, existing government allocated support by the Fund has included a diversity of projects such as direct maritime security and enforcement finance for the Belize Fisheries Department and Coastguard, mangrove restoration guidelines for CZAMI, VMS systems for the High Seas Fisheries Unit and general funding for the Blue Bonds Permanence Unit.
9.	Belize Federation of Fishers Representatives	The Belize Federation of Fishers represents 3500-4500 fisherfolk as the main sector organised association focusing on member concerns, interests, priorities, support, education, capacity building and other developments. They perceived the various fishery cooperative associations to be mostly dormant with only one person officially dedicated by each, especially following the COVID19 pandemic recovery.
10.	CZAMI Senior Representatives.	The Belize Coastal Zone Authority and Management Institute (CZAMI) is well familiar with the blue economy in Belize as an integral stakeholder. They have been focusing on the recent developments related to their 2023 update of their Coastal Zone Management Plan and the marine spatial plan equivalent or Belize Sustainable Ocean Plan. They have also been working towards implementing the Blue Bonds agenda and Belize need to classify various marine space uses.
11.	Representatives from Turneffe Atoll Sustainability Association	The Turneffe Atoll Sustainability Association NGO operates several initiatives as co-managers of a Marine Protected Area including an Adaptive Management programme and monitoring for sustainable fisheries and effective conservation: ecotourism, providing enforcement, financial, technical/data and related operational/administrative support. It does so jointly with links to fishermen cooperatives, the Belize Tourism Board, MBECA/Fisheries, the University of Belize with its Environmental Research Institute and others. This extends over360,000 acres of landscape/seascape. It has been actively involved in the Belize Blue Bond Agreement and Project Finance for Permanence Initiative, along with Marine Spatial Planning efforts. Examples of such efforts include the development of specific use zones such as those earmarked for Conservation or Specific Species Management; those for catch and release/recreational fisheries, those for tourism, research, mariculture and protected as aggregate spawning sites. They also monitor certain permit allowed activities such as lobster fishing. They therefore participate in supporting fishery regulations., their monitoring and enforcement. This extends to gear/tourism developments and other various uses and activities
12.	Port of Big Creek Representatives	The respondents indicated concern that as a port operator and potential influential had appeared to be overlooked from participating in MBECA/blue economy discussions and earnestly hoped to find out more about ocean accounting, data sharing, the blue economy, and associated capacity building/policies and various initiatives. They indicated a willingness to consider sharing more specific port/maritime transport related data to overcome existing gaps and highlight the potential contribution of Big Creek port to Belize's blue economy and trade. What is particularly noteworthy is the fact that their website is completely absent of such basic information including statistics and annual reports publicly. Nor does the Statistics Institute of

		Belize appear to have such information publicly available/ For example they indicated available berths up to a depth of eleven metres. They mainly focus on raw materials/natural resource commodities including sugar, bananas, other agricultural produce, LPG and general cargo. However, they are keenly interested to diversify more into containers -identified as a blue economy opportunity, fisheries aquaculture and any marine/blue economy related goods and services. They have two major shipping lines as regular callers, excluding Maersk for agricultural goods and the National Gas Company. They also work with Customs and the Ministry of Health. The port operates its own pilots, stevedores and crane operators, it has approximately 175-200 part time and full-time staff, of which the majority of operational staff are male -though they are proudly training their first female operator. Female employees are mainly administrative. Socially they have a policy of seeking to maximise local community employment and provide basic social/health insurance. They are looking at expanding/dredging out one of their main berths as the main initiative they proved willing to share
13.	Ministry of Economic Development Senior Representative	This interview concentrated on representatives focusing on climate finance, policy and planning as several others were unable to join. They indicated quite a separation from ocean accounting and the blue economy but would like to participate and potentially learn significantly more. They have been concentrating on aligning this to the accreditation process needed to mobilise and implemented funding from the Green Climate Fund and others. It includes mobilising the finance, data and other resources necessary to identify and potentially exploit, with alignment to the Medium-Term Development Plan. Current initiatives have focused primarily on rural development and climate finance. However, they are looking to undertake a project for the water/waste systems and enhancing resilience to climate change, along with an equivalent Municipality Climate Resilience Project for local governments/communities. They are in the process of developing National Action Plans of Adaptation such as for fisheries and the coastal sector
14.	Ministry of Labour, Rural Development and Local Government Senior Representative	This senior representative demonstrated moderate interest in the blue economy and its potential towards influencing the three sectoral departments of labour, rural development and local government. He indicated how many rural communities and urban municipalities had livelihoods, employment and economic activities dependent on coastal ecosystem resources and functions. Currently they are working on several potential related projects, plans and initiatives. For example, they are looking to work with the Inter-American Development Bank on improving municipal infrastructure in San Pedro, Corozal and Orange Walk, looking to expand It to Belize City. This will include water., wastewater, the circular economy and coastal protection under the Blue Cities Programme. They have submitted a project concept note to the Caribbean Bank for Economic Development to support climate resilient infrastructure along with the formation of a National Rural Development Strategy for rural areas. This excludes local smaller projects such as rebuilding a reverse osmosis desalination plant as an urgent priority for one coastal village community. With labour, they continue to cultivate improving industrial relations. The Ministry is revising several plans and policies which could be mainstreamed more effectively into the blue economy. For example, these include focusing on employability skills - National Employability Strategy, the aforementioned National Rural Development Strategy and one related to the Digitisation of Municipal Services to improve support for small and medium enterprises including those in the blue economy. The Trade License Bill is currently being debated in the Senate to improve data and simplify processes for tourism and other sectors. They have updated the Labour Act and looking at an Occupational Health and Safety Act.
15.	Fisheries Department Senior Representatives	They are preparing to be involved in project work related to the Inter-American Development Bank Blue Economy programme and The Nature Conservancy Blue Bond Loan Agreement. They have been involved in the gazetting of additional marine protected areas and Key Biodiversity Areas. They have also been supporting the WWF Project for Permanent Finance Initiative, considering sustainable financing options for these marine protected areas such as external investment sources. The Department is also contemplating devising a National Plan of Action to Address Illegal, Unreported and Unregulated Fisheries. They are considering a Blue Justice Hub to centralise monitoring, compliance and enforcement related data. They are also

		assessing their sea cucumber population for potential exploitation versus mariculture development.
16.	Belize Geology Department	The Geology Department representative expressed some awareness of Belize's blue economy. Though not cogniscent of ocean accounting, they were highly interested and expressed willingness to potentially cooperate over this blue economy area. Their prime mandate is to focus on sustainable mineral production, geological, oil, sand and gas exploration/development. Three main projects are currently being pursued. The first includes a land based and surface, geological survey for minerals, oil and gas prospecting prospects. The second focuses on a more detailed study of Belize's northern oil/petroleum, linked system. The third concentrates on investigating the feasibility of offshore potential. However, Belize currently has a moratorium on the issuing of new oil and gas licenses and indirectly on seabed mining. Present efforts primarily concentrate on updating digitally, data related to the historic existence of sixteen offshore oil and gas site locations to determine a valuation of the reserve and associated potential. These projects are expected to take 1-1.5 years and thus data cannot be provided at this time to truly assess the direct socioeconomic contribution potential of offshore oil and gas to Belize's general economy. Belize is currently revising their various laws and regulations passed around 30 years ago in 1991/1992 to modernise the industry, improving potential equity, revenue and sustainability. They are also adopting UK North Sea based safety regulations and concentrating on a triage of energy of safety, energy security and sustainable, cleaner energy production.
17.	Ministry of Public Utilities, Energy, Communication and E-Governance	Numerous projects concerning rural electrification, decarbonisation, renewable energy and even hybrid vehicles funded by the European Union, IDB and others. Other projects targeted improving digital connectivity platforms for e-governance under the ICDF and improving digitisation of logistics platforms for the maritime sector including port authorities. They are contemplating biofuels and other alternative fuel sources. Renewable ocean energy was not perceived as a target, with efforts more towards, solar, hydroelectric and wind.
18.	Sustainable Development Unit	These stakeholders are primarily concerned with implementation of the Sustainable Development Goals and the capturing of related data indicators. They assemble and analyse data from various sources as a national focal point for areas related to sustainable development rather than developing specific projects and initiatives of their own, such as supporting various Ministry Strategies and Action Plans.
19.	Maya Forest Trust	There was some interest and confusion as they alluded to a similar World Bank project under the Ministry of Economic Development they had been consulted about. They represent both the Association of Belize NGOs and the Maya Forest Trust as a separate NGO. The former works to represent Belize NGOs on legislation, initiatives and interests including lobbying the Senate and Parliament on the Carbon Trading Bill, the Blue Economy Policy and others; similar to the Union, Business and Churches representatives.

Table 4.4.2: Belize Blue Economy Survey Stakeholders Background, Projects and Initiatives

Survey No	Type	Belize Blue Economy Survey Stakeholders Background, Projects and Initiatives
23.	Belize Ministry of Tourism and Diaspora Relations	Approximately, 70% of tourism activities occur in the blue economy space, and therefore there is a symbiotic relationship between tourism and the marine sphere. The main marine based tourism activities are sun-beach tourism, recreational fishing, water sports, diving, wildlife watching and cruise tourism. Belize has more than one hundred islands and beaches in the reef system, which makes it a popular diving destination. Current Initiatives by the Ministry of Tourism & Diaspora Relations and the Belize Tourism Board (BTB): 1. Update of the National Sustainable Tourism Master Plan 2.Cruise Policy 3. Nautical Tourism Strategy
24.	Belize Port Authority	2- The Belize Port Authority, established in 1980 by the BPA Act, Ch 233 is the regulator of ports, shipping, and related auxiliary services. They provide licensing & registration for the following: Ports; Domestic shipping; Domestic seafarers/ mariners; Shipping agents; Water taxis; Marine Pilots; Marine Surveyors; Boatbuilders

		Current initiatives related to capacity building: They budgeted for training in preparation of the IMO member state audit (IMSAS). These relate to the implementation of IMO instruments. Capacity building focus: maritime law, marine surveying, QMS, port management, cybersecurity among other priority areas. They also outlined (within the training calendar) other non-technical training for the company to complement technical skills: management, leadership, finance, relevant areas. Projects: 1. digitalization of ports, in line with FAL Convention. Belize is to implement a maritime single window and the deadline for contracting parties is Jan 2024. The BPA is currently working with relevant stakeholders within the National Port Community Council to implement the MSW. 2. Green Voyage 2050 Project: aligns with the IMO GHG strategy to decarbonize shipping. Belize has two workstreams: domestication of MARPOL annex VI- Air emissions, through local regulations and the formulation of a National Action Plan for decarbonization. 1. 2 Social and Economic Impact Study of Ports: this work is seeing the first of its kind data gathering and analysis of the impacts of ports to the Belizean economy. The final product will be completed in 2024 for dissemination to the public and those stakeholders who supplied generous information: finance dept, SIB, port terminal operators etc. 2. National Maritime Transport Policy: the first of its kind policy to help drive maritime transport. Data is being gathered by the consultants with BPA facilitating the process on the ground. Consultations and data gathered cover: regulating agencies related to shipping and other maritime activity, port terminal operators, water taxi operators, shipping agents, boat builders, domestic shipping registry. The first draft report is expected for December 2023.
25.	Climate Finance Unit	3 - The CFU mobilizes climate finance for projects/programmes that aim to achieve our NDC targets, sectoral priorities, and national priorities as outlined in the Medium-Term Development Strategy. We hold the GCF and Adaptation Fund portfolios, however, we also interact with other IFIs/MDBs that have dedicated funding windows for climate change initiatives. We recently wrapped up the fisheries and coastal NAP with the Ministry of Blue Economy and are working on developing a concept note to submit to the GCF, based on the outcomes of the fisheries/coastal NAP. We are also working on developing a second phase of the Marine Conservation for Climate Adaptation project with MBECA.
26.	Crocodile Research Coalition NGO	The CRC currently is organizing trash pick-ups, as well as a community involved mangrove restoration and preservation program to assist in keeping the environment, wildlife and communities healthy. We conduct various wildlife research around the Placencia Lagoon, as well as conduct research around the country on crocodiles. We are very active in community outreach, conducting outreach 1/week around the community of Placencia Lagoon. Our funding comes from grants and donors.
27.	Galen University	They worked with both public and private sector entities in areas of environmental management and climate change, inclusive of the Wildlife Conservation Society (WCS), the Belize Forest Department, National Climate Change Office (NCCO), National Biodiversity Office (NBIO), the Protected Areas Conservation Trust (PACT) and the Caribbean Development Bank (CDB). Galen University offers a unique niche of academic programs to the Belizean market. Given the importance of Belize's Blue Economy to the country's economic growth and sustainability, the University offers a comprehensive course on the Blue/Green Economy to students within its Environmental Science Program. The course is the study of finance and sustainability as an integrated subject beginning with an introduction of financial and investment principles and moving towards sustainable development, and key areas of investment including blue, green, and climate financing (Course Outline Excerpt). The course covers diverse aspects of sustainable investments and offers tools for effective financial valuation and effective risk assessment. The University is also currently in the process of developing certificate programs that will boost the country's human resources.
28.	Healthy Reefs Initiative	Focused on coordinating initiatives alongside partners dedicated to marine conservation and reef health. Training is provided to produce AGGRA certified surveyors that aid in data

		collection assessing reef health indicators. Currently, the data collected this year 2023 will be analysed and published in the 2024 Healthy Reef Report Card. We are also engaged in projects with these focuses: Stony Coral Tissue Loss Disease Monitoring, Restoring Herbivory Project (King Crab Mariculture) and will shortly begin some water quality monitoring south of Belize. Funding is obtained through proposals and grants obtained from various donor organizations as well as through collaborative efforts with other partners. .
29.	High Seas Fisheries Unit	The role includes overseeing the operations of the BHSFU. This includes policy development, regulatory enforcement, international negotiations and ensuring compliance by Belize with international fishing agreements and regulations. Representing Belize/BHSFU in international forums and advocating for conservation measures at global level. The Belize High Seas Fisheries Unit exists under the Ministry of Finance and was established on 12th November 2013 pursuant to our High Seas Fishing Act 2013. It is the primary authority responsible for the regulation and control of Belize-flagged vessels which engage in fishing or related activities on the high seas. The High Seas Fishing Act 2013 clearly outlines the powers and functions of the Unit and can be found on our website www.bhsfu.gov.bz. The BHSFU recently obtained a grant through the Belize Fund for a Sustainable Future for the procurement of electronic monitoring systems to be installed on board Belize flagged fishing vessels engaged in fishing on the high seas to improve data collection and ensure compliance with fishing regulations. The grant/project also envisage training for BHSFU staff in the installation and utilization of this system to enhance their capabilities and maximize the effectiveness of the new technology. We are also collaborating with the International Commission for the Conservation of Atlantic Tunas and through the Japanese Cooperation Assistance Program where we have obtained a grant for the reinforcement of data collection, monitoring for tuna fisheries and the adaptation of new catch documentation scheme of statistics system in Belize. This grant is primarily being used to collect sport and recreational fisheries data as it relates to regulated species in the ICCAT Convention area. However, personnel tasked with collecting these statistics require advanced training in species identification and fish population dynamics.
30.	Ikooma Belize -seaweed entrepreneur	I began experimenting with *Eucheumatopsis isiformis* (formerly *Euchuema isiforme)* seaweed in 2017 as a hair care solution. In 2019, I registered and trademarked iKOOMA. In 2020, I borrowed BZD 10,000 towards to construction of a home lab. In 2020 I borrowed BZ$8,000 to purchase raw materials in bulk. In 2019, I received a grant from the Commonwealth Litter Programme of BZD 3,000 towards the purchase of biodegradable refill packets for my plastic reduction initiative. Over the course of four years, I have participated in the following sponsored events/trainings: Smithsonian Earth Optimism Festival, 2022; Indian Technical and Economic Cooperation course in Project Management, 2023 and the AIS Forum Blue Business Startup Summit.
31.	National Biodiversity Office	The office is housed within the Ministry of Sustainable Development, Climate Change & Disaster Risk Management. The National Biodiversity Office was established in 2020 to provide the management and coordination required to effectively implement Belize's NBSAP. The office is responsible for the oversight and regulation of management activities across Belize's terrestrial protected areas system and advises the Government of Belize on biodiversity conservation, sustainable utilisation and equitable sharing of biological resources. It provides direct oversight for non-extractive protected areas including nature reserves, national parks, natural monuments, wildlife sanctuaries as well as corridors and private protected areas. Current projects under the NBIO are included below: Biodiversity Finance Initiative (Biofin) Purpose: The overarching objective of BIOFIN is to deliver a new methodological framework, facilitating the identification, development and implementation of optimal and evidence-based finance plans and solutions. Under Phase one of the Project, Belize's Biodiversity Finance Plan was developed which proposed several biodiversity finance solutions, capable of raising the financial and other resources required to achieve Belize's NBSAP Targets. Phase 2 of the project supports the implementation of several finance initiatives including: 1. Establishment of a National Biodiversity Unit 2. Development of Business models and plans

		3. Environmental Funds – optimization/strengthening 4. Carbon Markets 5. Biodiversity Investment Impact Tracking Tool (BIIT) 6. Results Based Budgeting framework 7. Re-purposing biodiversity harmful expenditures and practices 8. Crowdfunding 9. Green Debt Private Sector Data Collection 10. Debt for Nature Swap Global Biodiversity Framework Early Action Support Purpose: The global project objective is to fast-track readiness and early actions to implement the post-2020 Global Biodiversity Framework (GBF) by providing financial and technical support to GEF-eligible Parties to the United Nations Convention on Biological Diversity (CBD) in their work to align their National Biodiversity Strategies and Action Plans (NBSAPs) including national biodiversity targets, monitoring, policy, and finance frameworks with the Global Biodiversity Framework of the CBD. Key Activities: The activities are being implemented under four components which are as follows: Component 1: Rapid review of NBSAP for alignment with the post-2020 GBF; Component 2: Rapid Assessment of monitoring systems; Component 3: Policy and institutional alignment and review for coherence with Global Biodiversity Framework; Component 4: Biodiversity Finance Activities. Under the first component, Belize will be conducting a rapid review of our NBSAP to align with the K-M GBF to determine coherence between national targets with the new targets of the GBF. Targets are to be updated in alignment with the GBF and SDGs and should be made operations. Under Component 2, an assessment will be conducted to identify gaps in existing monitoring systems with recommendations made to close identified gaps. Activities include the hiring of a monitoring and evaluation officer to support the NBIO in monitoring execution of commitments under protected areas co-management agreements. Component three includes an activity to review the management planning framework for protected areas to build in considerations/solutions for climate change resilience and ecosystem-based management. The fourth component of the project supports implementation of biodiversity solutions and includes capacity building in the development of business plans to be implemented across non-extractive protected areas to support resource mobilization. It also supports development of Belize's carbon policy. Strengthening the Protected Areas System via strategic interventions project Purpose: The project aims to support the operationalize of key systems that will contribute to improved management effectiveness for the PAs overseen by NBIO and its Co-managers, enhancing ecosystem health. The main outcomes of the project are included below: Results 1.1: Improved capacity of PA management agencies (Public Management Entity and Co-management entity) to carry out and comply with roles and responsibilities outlined within the co-management agreement. Results 1.2: Improved SMART tool usage capacity, SMART data availability among PA management agencies and partners to strengthen data and information sharing and collaboration. Results 1.3: Improved technical capacity to monitor and enforce biodiversity laws and regulations. Results 1.4: Improved knowledge and promotion of biodiversity laws, values, policies, and frameworks to increase biodiversity appreciation and compliance.
32.	National Meteorological Department	National Meteorological Service is the authority for weather and climate. It is responsible for the collection, storage and analysis of all weather and climate information. The Service provides different types of forecasts and specialized products for the aviation, marine, agriculture and other industries at different timescales. The NMS has worked recently with the MBECA and the Coastal Zone Management, Authority and Institute (CZMAI) on a project titled: "Enhancing adaptation planning and increasing climate resilience in the coastal zone and fisheries sector of Belize" where a climate data and information GAP assessment was conducted for the Marine

		space. Through this project, a training was done of the NMS's Climate Database Management System (SURFACE) for Fisheries, Blue Economy and CZMAI staff.
33.	Office of the Prime Minister Economic Development Council	Public Private Dialogue Unit (PPD), Secretariat to the Economic Development Council within the Office of the Prime Minister. As the PPD Unit, we serve as a bridge between the public and the private sector. We sit on various Technical Working Groups and Committees to ensure that private sector perspectives are considered and to also ensure that vulnerable groups are not left behind. We also provide project management support to Ministries, Department's and other government agencies who do not have this capacity built into their teams- from planning to project closure. Our work is focussed primarily on business climate reform and on developing and executing projects that aim at improving the ease of doing business.
34.	University of Belize	12 The University of Belize has three academic programs related to the blue economy: Marine Biology, Natural Resources Management and Biology. These programs provide students with the opportunity to be in the field and participate in various activities carried out by blue economy stakeholders e.g., scientific research, internships, symposia, inter alia. After graduating from the University of Belize, these students become part of NGOs and Government Departments.
35.	Wildlife Conservation Society Belize	I have been working for the WCS for the past 13 years and had many roles including community development, Fisheries Policy, Laws and Regulations review, I also support the training of SMART for law enforcement. I have supported the revision and updating of Fisheries Enforcement Assessment and Strategy. The Wildlife Conservation Society has worked in Belize for the past 30 years promoting the conservation and protection of Belize's wildlife and wild places through conservation action and sound science. WCS Belize strives toward the following 20-30-year vision: a country where diverse marine and terrestrial wildlife thrives in healthy lands and waters is managed sustainably and provides value for the Belizean people. We will implement our 10-20-year mission: to conserve and protect the interconnected lands and waters of Belize through science, conservation action, education, and inspiring people to value nature. We will focus on several more specific programmatic goals in the coming 3-5 years, including: • Sustainable natural resource management: Science-based policies are protecting natural resources and the livelihoods of resources users. • Improved protected area management: Scientific understanding, collaborations among co-managers, and increased protected area management capacity are leading to improvements in the design and expansion of protected areas. WCS is a locally registered overseas company under chapter 250 of the Laws of Belize, revised edition 2000 since 2008. WCS has a board of directors supported by a global team of regional directors that support our Global initiatives across fourteen regions and 5o countries; WCS Belize is a part of the Mesoamerica Program. We have a team of twenty-four employees, some of which have been with us over a decade. WCS has worked in partnership with the Belize Fisheries Department from the early 1980's to support the planning and designation of marine protected areas. We have supported management and monitoring of Glover's Reef Marine Reserve since 1993. WCS also supported the revision of the Fisheries Act financially and technically. In 2012, WCS in partnership with Environmental Defence Fund, the Toledo Institute for Development and Environment collaborated with the Fisheries Department to pilot the Managed Access Program at Glover's Reef and supported the rollout of the program to all the fishery waters of Belize. WCS also supported the implementation of the National Replenishment Expansion Project supporting the spatial planning and coordination. WCS has implemented many community projects and supports the organization of fisher's groups such as the Sarteneja Fishermen Association, Chunox Fishermen Association, Wabafu Fishermen Association, and Hopkins Fishermen Association. We have also updated our strategy to be more inclusive and proactive. WCS has in recent years expanded our community work to include Women in Fisheries in an effort to reduce the marginalization of the vulnerable sector of communities in which we work. Community engagement and meaningful participation in policy development and sustainable resource management are key in all our work. WCS ensures community participation by employing various communication and outreach strategies. We conduct community visits, thematic road shows, boat to boat engagement at sea, forums, and social media engagement

36.	Caribbean Regional Fisheries Mechanism	The CRFM's purpose is to promote the development, conservation, and management of the shared living aquatic resources of the region in a responsible and sustainable manner, and to improve the quality of life of the thousands of people who depend upon the fishery resources for their well-being and livelihood. Seventeen member states constitute the CRFM, while other states and agencies have observer status, Belize being one of the Member States. The CRFM is comprised of three Bodies with distinctly different functions, namely: The Ministerial Council; The Caribbean Fisheries Forum; and the CRFM Secretariat. Strategic Goal 2 within the CRFM Strategic Plan (2022-2030) is "Improvement of the welfare and sustainable livelihoods of fishing and aquaculture communities in Member States". Strategic objective 2.1 is "Competitive and profitable fisheries and marine resource development within the blue economic space of respective Member States." In line with this Strategic Goal 2 and Strategic Objective 2.1, the CRFM, the FAO, and the Development Bank of Latin America and the Caribbean (CAF), have partnered to implement a four-year project in the region. The project is intended to strengthen the foundation for blue economic growth and sustainable development of marine living resources by focusing on marine spatial planning, area-based management, and climate-smart sustainable seafood value chain development. This initiative titled the "BE-CLME+: Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus" project, aims to maintain and preserve cultural heritage through sustainable fisheries management, improved livelihoods, and alternative livelihoods while strengthening the integration of fisheries and ecosystem management to restore, protect and maintain marine biodiversity, productivity, and resilience of marine ecosystems. The participating countries are Barbados, Belize, Guyana, Jamaica, Panama, and Saint Lucia.
37.	Protected Area Conservation Trust	My current role is to oversee PACT's grants within the conservation space in Belize, primarily within protected areas management. Furthermore, the role is to seek innovative ways to access funding for protected areas management. As PACT, financing support is provided to both terrestrial and marine ecosystems and PACT is currently working on developing grant proposals under its Conservation Investment Strategy 2.0; this will also cover training potential for co-managers within protected areas management. Under PACT's Conservation Investment Strategy 2.0 (CIS 2), financing for fisheries (inclusive of commercial fish species) monitoring and assessment are being provided. This is inclusive of equipment, researchers, data collectors as well as enforcement of the fisheries regulations. Public outreach and education are also other major area for funding. PACT is currently seeking potential partnership with other donor institutions within Belize, primarily the Belize Fund for a Sustainable Future. PACT is currently seeking other avenues for financing such as through the Green Climate Fund or the Adaptation Fund
38.	Ministry of Blue Economy and Disaster Risk Management	Sixteen have been working under the capacity of Blue Economy Officer as of May 9, 2023, within the Blue Economy Unit of MBECA. I am responsible for providing technical support to programmes and activities in areas relating to environmental and marine health, fisheries, waste management, coastal development, urbanization, and tourism. A part of my key responsibilities includes activities such as collect, compile, analyse, and disseminate data; and conduct research and baseline studies on topics associated with the areas of activities outlined. However, currently, there is no framework set in place for the Blue Economy Unit to collect or store data relating to these Blue Economy sectors. One of my major responsibilities is to liaise with the Belize Fisheries Department and CZMAI in areas relating to fisheries, coastal development, and marine spatial planning and to ensure coordination of activities with the BE approach. Additionally, the BEU has several on-going projects/programmes that are assigned based on areas of expertise. For example, MBECA is currently engaged in a 5-year memorandum of understanding with the UK Government through its Ocean Country Partnership Programme (OCPP). The OCPP is providing technical support to Belize's MPA network to help Belize sustainably manage its ocean resources.
39.	Belize Tourist Board	I work in the Tourism Data Unit (TDU) which collects, compiles and produces tourism statistics. The significance of the blue economy and area are not lost in the updated National Sustainable Tourism Master Plan (2023) nor in the updated Cruise Policy (2023).

		The BTB is fully cognizant of the socioeconomic importance of the blue economy to coastal and island destinations engaged in tourism activity. Some of these destinations have almost fully migrated from a fishing economy to a tourism economy. Consequently, when the Covid19 pandemic struck, these destinations were devastated. We also realize that while the Belize Barrier Reef is not pristine, it plays a huge role for snorkelling, diving and other activities mentioned below at 2b. **Capacity Building** Tour guides were trained in 2022 by Coral Reef Alliance and in prior years in tour management at marine sites. In 2022 the BTB financially supported two cohorts in the Belize District and Placencia Village; these were awarded Dive Master and Dive Instructor Certifications. In 2022 and 2023 Belize Tourism Board provided support for Tour Guides for PADI Scuba Certification. In 2023 one cohort in Placencia Village received Dive Instructor Certification. The TDU is presently identifying training opportunities in GIS, BIG DATA and Data Analytics The BTB collects the following data: - Traveller profile, average daily expenditure and level of satisfaction, activities engaged in, in the marine spaces (diving, snorkelling, swimming, kayaking, sailing, fishing, island tours, etc.) by overnight visitors. - Cruise passenger types of activities participated in and location. - Seaport arrivals and departures - Data on visitation to marine attractions such as Hol Chan Marine Reserve (HCMR), Half Moon Caye Natural Monument (HMCNM), and Blue Hole Natural Monument (BHNM) - Number of hotels in coastal and island destinations - Number of tour operators using the marine space and types of tours conducted. - Number of vessels licensed for tour operations. - Types of criminal activity perpetrated by service providers (unlicensed hotels, unlicensed tour operations and unlicensed tour guides) in the marine space. - Types of criminal activity perpetrated on the tourism sector in the marine space. The BTB does not employ technology in the marine space. We source data from the technology users such as the Fisheries Department and the Non-Governmental Organizations (NGOs). We do not track tourists' carbon footprint in terrestrial nor in the marine areas. The Sargassum Task Force (STF) has sought to mobilize resources for the collection of the sargassum prior to it reaching the shore and proper disposal. This poses health and economic threats to tourism dependent destinations. The BTB and the Ministry of Tourism and Diaspora Relations (MTDR) are currently engaged in the Compete Caribbean project called the Garifuna Trail targeting Dangriga Town and Hopkins Village. These are two coastal communities engaged in tourism and fishing for their livelihoods. Nautical: The BTB is focused on diversifying the tourism product to embrace niche markets such as Leisure Cruise Tourism. As such it will incorporate the following: - Deployment & Certification of Mooring buoys for high traffic tourism areas and dive spots - Development of additional port infrastructure and docking to create harbours for Mega yachts, mall Cruise ship and leisure yachts promote. - Policy development to provide support for the development of the industry and creation of auxiliary services. **Coral Resilience Project:** Climate change has taken an extensive toll on the Mesoamerican Reef and Belize has not been spared. As such a combination of research technologies for coral nurseries are being employed inclusive of establishing a land-based nursery to support out planting.
40.	WWF Mesoamerica	Over the years, WWF has worked closely with the Government of Belize, other local and regional NGO partners and communities towards conservation efforts for increased biodiversity through the protection and restoration of critical places and species and minimizing the negative impacts of human activities. In Belize, efforts have focused on ridge to reef through several thematic areas including oceans and climate change. In terms of the ocean's thematic area, WWF works towards ensuring that oceans ecosystems are productive and resilient, thereby

		improving livelihoods and biodiversity. Through the climate change, WWF's goal is that a global shift towards a low carbon and climate resilient future is achieved. **Current Initiatives – Long Term Resource Mobilization** To assist the Government of Belize, deliver on 30x30, WWF's innovate approach to securing the finance needed is through a Project Finance for Permanence (PFP) initiative known as Resilient, Bold Belize (RBB). The PFP aims to secure major commitments from multiple stakeholders in a single closing to ensure large-scale systems of conservation areas are well-managed, sustainability financed, and benefit the communities who depend on them in perpetuity. Resilient, Bold Belize has five pillars: protected area management, ecosystem restoration and protection, livelihoods and well-being, institutional and policy reform and sustainable financing. RBB is currently in the design phase which concludes with the development of a ten-year conservation plan and sustainable financing mechanism to support the programs and activities indicated by the plan. WWF is working with the Government towards signing its closing deal in 2025 and thereafter commencing its implementation. RBB seeks to secure long-term resource mobilization through the PFP mechanism and improve the institutional and policy framework for ecosystem management. **Climate Smarting** The WWF, through the support of the International Climate Initiative, embarked on a seven-year initiative which ran from 2018 to 2023. This project sought to incorporate climate change principles into the management of marine protected areas and coastal development policies in the countries bordering the Mesoamerican Reef, with the aim of improving the capacities of coastal communities to adapt to climate change. In Belize, three project regions were addressed in accordance with the national Integrated Coastal Zone Management plan: the Northern Regional Planning Zone, the Ambergris Caye Regional Planning Zone, and the Southern Regional Planning Zone. B These sites were selected due to their importance for biodiversity conservation and their population's vulnerability towards climate change. Policy Support WWF is currently working with government and partner agencies in the following areas: seagrass management policy, coral reef restoration action plan, MPA and coastal protected areas, National Mangrove Restoration Action Plan. Part support has included the creation of summary documents and communication materials for stakeholder outreach on updated 2018 mangrove regulations. Capacity Building WWF continues to facilitate capacity building with both government and NGO partners. Several such interventions include: • Mangrove restoration training and implementation (Forest Department, Fisheries Department and several NGOs) • R Data Analysis training with the CZMAI and the Belize Fisheries Department • Coral Restoration with the Belize Fisheries Department • MPA Resilience Guidelines with NGO co-managers **Science and Research** WWF has also worked in conjunction with UB-ERI, PEW and Smithsonian Institute for the Mangrove Carbon Stock Assessment and MPA Resilience Assessment. Belize is looking at developing ocean accounting and statistics, along with other monitoring and evaluation indicators such as SDG training, towards capturing progress and implementing a more socially, ecologically and economically sustainable blue economy model
41.	Private Seaweed Aquaculture Entrepreneur	Provided a CV We can assist with production data regarding shrimp culture. We have years of data; of water quality, production poundage, growth rates, feed consumed. We can also explain differences in culture systems; for example, the difference of growing shrimp in dirt ponds and lined ponds when vibrio bacterial diseases are present. Our main goals are to provide alternative jobs, provide foreign revenue and train people in water culture and people management.
42.	MBECA Representative 2	Our role at MBECA is to monitor, track and evaluate the implementation and progress on achievement of outputs of the blue economy strategic plans, policies, and commitments, ensuring quality and timely inputs across all programmes/projects. As part of my

		responsibilities, I compile, collate and submit project progress updates on a quarterly basis and semi-monthly basis to the Ministry of Economic development as part of the Public Sector Investment Programme (PSIP) reporting requirement. There are two main initiatives that have supported MBECA with capacity building and trainings since 2022, these are: 3. The United Kingdom Ocean Country Partnership Programme (OCPP) being funded under the UK's Blue Planet Fund. This is a programme where the Government of Belize is receiving technical assistance across thematic areas such as biodiversity, marine pollution and sustainable seafood for Belize's environment to deliver positive impacts on the livelihoods of coastal communities that depend on healthy marine ecosystems. Through this partnership MBECA, the Belize Fisheries Department (BFiD) and key partners have benefitted with capacity building and trainings. 4. The GCF Readiness Project "Enhancing adaptation planning and increasing climate resilience in the coastal zone and fisheries sector of Belize. (Completed Nov 2023 There is currently no Data and Information Management System at MBECA and the BFiD. There are no personnel dedicated for data analysis and data management. Data is currently stored on GoB issued desktops, one-drive, CITO network, licensing database (in excel format) and AGRRA website. MBECA has no data collection mandate. However, it is intended to incorporate data collection mandate in legislation and streamlining the same in subsequent policies and action plans. BFiD has the legal mandate for the Fisheries and aquatic resources in Belize. The management of these resources requires considerable human and financial resources. In order to improve efficiency and effectiveness of services at MBECA and BFiD, it is important to implement a centralize Data and Information Management System. This system will integrate data collection, licensing database, e-catch data reporting, enforcement data, and vessel monitoring system. This work aligns with the e-governance and digital transformation framework and will strengthen ocean resources management. Therefore, through the recently signed IDB Loan Investment: Promoting Sustainable Growth in the Blue Economy Program – BL-L1042, MBECA and BFiD envisions to strengthen the Institutional capacity to improve data collection, management and analysis of information. Activities will involve the design, and implementation of a Data and Information Management System, inclusive of hardware, software and human resources required for the establishment of a Management Information System Unit to create internal capacity that will provide support to MBECA and the BFiD in the maintenance, management and operation of the system. At the request of MBECA and the BFiD, as part of the OCPP work programme, the OCPP team conducted a review of the data collection and monitoring systems of important marine biodiversity features within Belize's fourteen (14) Protected Areas in the marine environment (hereafter referred to as MPAs), during the period February 2022 to August 2023. The report summarizes how information is stored, analysed, and disseminated to decision makers and offer recommendations of how the flow of data could be improved. It is intended that the results of this review will improve the flow of information on key biodiversity features in Belize, and feed into the goals and objectives described in the NPAS-MEEs and PAME assessments. GoB recently signed the IDB Loan Investment to fund a five-year program: Promoting Sustainable Growth in the Blue Economy Program – BL-L1042 which promotes sustainable growth-enabling-investments that would enhance the competitiveness of productive sectors and sub-sectors in the blue economy, with an initial focus on offshore marine fisheries.
43.	Hol Chan Marine Reserve	I oversee the research and monitoring department. The reserve has two marine biologists employed now. We currently do monitor for the commercial species (Conch and Lobster), Fish, Corals, Sea Turtle Nesting and water quality. We are currently lacking the following expertise and hope to be able to build capacity in these areas: CPR & First Aid training, AGRRA, Temperature loggers, Sediment Traps, Sea turtle care and rehabilitation, GIS, Data Analysis, Publication of Data and Bird Identification. Data collection at HCMR:

		Commercial Species- National Methods established by the Belize Fisheries Department (Opening & Closing Seasons) Fish Abundance & Benthic Coral Surveys- AGRRA (Quarterly) Sea Turtle Nesting Beach Surveys- For season April-November Water Quality Surveys- YSI device (out of service, needs repairs thus data collection has been paused) Coral Restoration Program- Coral Nurseries and Out planting, National method established by the NCRMN. HCMR is constantly seeking additional funding to be able to meet with other objectives of the reserve. Most of our income comes from the park fee collection which allows us to provide the basic needs and priorities of the organization. Additional funding is sought for special projects. Our last project was Climate Change and Coral Restoration in the Northern Region funded by World Wildlife Fund. Currently we are in communications with PACT under the CIS 2.0 project to obtain funding for the management of the reserve.
44.	Central Bank of Belize	•The Economists in the Research Department of the Central Bank of Belize (Central Bank) prepare macroeconomic and analytical reports on Belize and economic issues based on information gathered from a network of contacts, published information and survey data; conduct research and write papers on topical economic issues that enhance the knowledge base. They are also tasked with analysing underlying trends, inter-relationships as well as forecast key economic variables; assist with the development of economic statistical information and databases; keep abreast of economic developments and trends, assisting with, and developing policy recommendations, and contributing to the public outreach educational activities of the Central Bank. • The Central Bank's role is to foster monetary and financial system stability for the wellbeing of Belize. Its functions include providing economic advice to the Government of Belize, providing banking services to domestic banks, Government of Belize, and public sector organizations, issuing monetary notes and coins in Belize, managing Belize's foreign reserves, acting as fiscal agent to the Government of Belize, administering monetary policy, and regulating the financial system. • In relation to the development of Belize's Blue Economy, the Central Bank plays a role by enabling the regulatory environment and facilitating access to funding and other resource mobilisation. The Central Bank encourages financial institutions to diversify their investments at home by allocating resources specifically to projects that support Belize's development and growth, potentially including sustainable ocean initiatives. Additionally, the regulator is ensuring that climate-related risk is now incorporated into stress-testing activities, as well as credit risk assessments at the domestic banks.
45.	NEMO	Belize's national DRM programme is coordinated by the National Emergency Management Organization (NEMO), a department within the Ministry of Sustainable Development, Climate Change and Disaster Risk Management (MSDCCDRM). which is mandated to keep Belize in a state of preparedness for any emergency that may require a national response. NEMO's objectives, as articulated in the MSDCCDRM's Strategic Plan (2023) include: 1) improve response and recovery actions; 2) increase human resources and general capacities; 3) enhance integrated warning systems; and 4) increase public awareness and response to hazards and threats. NEMO does not have any activities in relation to the blue economy, and as such does have any current initiatives or projects in this regard.
46.	Department of Aquaculture	I am a trained aqua culturist working in the Agriculture Department of the MAFSE. In Belize, inland and coastal aquaculture is administrated by the MAFSE. We have current interests in capacity building, training and information in the areas of Biosecurity and Marketing.
47.	Oceana NGO	Oceana, founded in 2001, is the largest international advocacy organization focused solely on ocean conservation. Our offices around the world work together to win strategic, directed campaigns that achieve measurable outcomes that will help make our oceans more biodiverse and abundant. We run time-limited, multi-year campaigns with specific policy goals and measurable milestones. To date, we have won nearly two hundred victories and protected more than 3.5 million square miles of ocean throughout world.

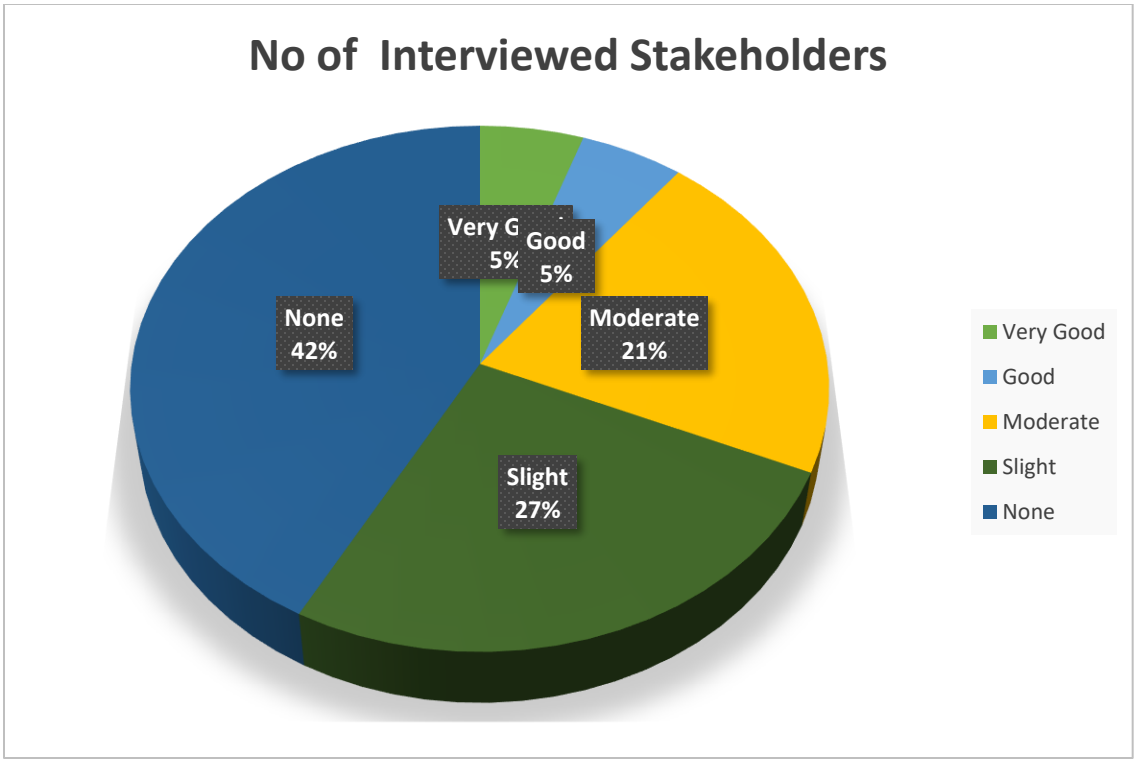
		In Belize, since 2009, Oceana has promoted the importance of protecting Belize's natural resources, encouraging healthy fisheries and highlighting the impact of destructive fishing gear in Belize. Our long-term vision for the Belize Barrier Reef is a thriving ecosystem, capable of producing abundant, healthy marine resources that support a vibrant and sustainable local economy for Belizeans. Fishing is part of the Belizean DNA. It is a valued cultural tradition and an important source of food and income for many coastal communities, yet it remains a complex theme for journalists to cover. Effective communication and a strong, informed media are necessary to not only build awareness but also, a more complete understanding of the importance and urgency of sustainable fisheries management by the public. In this regard, Oceana is pleased to build and develop a network of journalists who will not only promote sustainable fisheries, but also produce factual, insightful reporting on fisheries issues in Belize via an annual one-day training workshop for local journalists and communication professionals entitled "Fish School." Oceana originally launched its Fish Right, Eat Right (FRER) program in 2016 to create incentives for fishers to fish legally and responsibly. It is designed to connect fishers fishing responsibly with restaurateurs willing to pay a premium price for responsibly caught fish. On October 31st, 2019, Oceana's Vice President, Janelle Chanona, and the Inter-American Development Bank's President, Luis Alberto Moreno, signed a technical agreement for the project "Market-based Incentives for Responsible Fishing". The aim of this project was to create a virtual marketplace focused on better connecting consumers with suppliers, key harvesting data like date and location of fish catch, and priority access to the virtual marketplace for participants in Belize's Fish Right Eat Right program. Through this partnership with the Inter-American Development Bank, Oceana worked with Shell Catch to digitally connect fisherfolk in San Pedro and Caye Caulker with restaurants, hotels, and other prospective buyers of domestically sourced finfish in San Pedro and Caye Caulker. This digital platform will incentivize responsible fishing practices by providing premium visibility and advertising for individuals or organizations that participate in our FRER program. Oceana also established data-sharing partnerships with relevant government agencies to ensure that any data collected on Belize's finfish sector is made available to relevant stakeholders. Such agencies include the Fisheries Department, the Ministry of Tourism, and the Ministry of Fisheries. Through this project, Oceana conducted a market analysis of finfish supply and demand in San Pedro and Caye Caulker to better understand fishing pressure, identify knowledge gaps, and highlight opportunities for improved management of Belize's finfish sector. By compiling and updating such data, Oceana helped inform government actions to limit overfishing either through public policy or incentives for private businesses. The Fisheries Department is currently working with Shell Catch to roll out and scale up the program nationally.
48.	Beltraide	At SBDC Belize, I work to foster an environment that efficiently coordinates the competitiveness development of targeted MSMEs in priority industries by developing and strengthening the business acumen of local MSMEs. As the manager, I develop and maintain networks with BELTRAIDE/SBDC Belize, public and private sectors, and civil society to provide a comprehensive business support ecosystem. Additionally, I am responsible for the overall operations of SBDC Belize and work in tandem with the technical arm, including BTEC, EXPORT Belize and Belize INVEST. BELTRAIDE, through SBDC Belize/ EXPORT Belize, offers two core services. Business advisory service to start, improve, and expand operations. Business Development Training Technical assistance

Table/Figure 4.1.2: Belize Blue Economy Interviewed Stakeholder Blue Economy Awareness/Interest in Ocean Accounting

Interview No	Type	Awareness/Interest in Ocean Accounting

1.	Blue Bond Unit Office of Prime Minister	**Very Good:** In relation to Ocean Accounting specifically, following initial efforts expressed by this Unit and CZAMI, the interviewees expressed interest in receiving specific support and guidance, including that extended to natural capital. However, they expressed concern in needing more awareness in relation to a clearer definition of ocean accounting itself, its method, proposed indicators and realignment with existing initiatives.
2.	FAO Belize Representatives	**Slight:** Though not directly interested or aware with only slight interest in ocean accounting/statistics, this stakeholder was keenly aware and interested with a willingness to share multiple documents in relation to a recent FAO project focusing on coastal fisheries and CZAMI. F
3.	National Biodiversity Office Representatives Director	**Moderate:** The National Biodiversity Office expressed high interest in finding out more about ocean accounting and statistics with some degree of awareness.
4.	Reefkeeper Belize NGO	**Slight.** Whilst this NGO admitted to some basic awareness of ocean accounting and what it might mean for Belize's blue economy, she expressed potential interest in being willing to find out more. Whilst openly conceding ocean accounting and related ecosystem were areas with which the representative was not personally nor the Coastguard generally familiar, with; initial interest was potentially registered so that social indicators such as measuring the number of youth employed, awareness undertaken, trash collected, mangroves replanted, poverty reduced and other potential social, economic and ecological indicators
5.	Belize Coastguard Senior Representative	**None.** Whilst this NGO admitted to some basic awareness of ocean accounting and what it might mean for Belize's blue economy, she expressed potential interest in being willing to find out more. Whilst openly conceding ocean accounting and related ecosystem were areas with which the representative was not personally nor the Coastguard generally familiar, with; initial interest was potentially registered so that social indicators such as measuring the number of youth employed, awareness undertaken, trash collected, mangroves replanted, poverty reduced and other potential social, economic and ecological indicators
6.	Office of the Prime Minister Senior Representative	**Slight**
7.	Association of Protected Areas Organisation Representatives	**None**. They were not directly familiar with the term ocean accounting and would like more specific guidance, training and associated implementation support.
8.	Belize Fund for a Sustainable Future Senior Representative	**None.** The interviewee was sceptical and reluctant about participating and seeing the direct utility and value of ocean accounting, seeking more detailed information and the scope of the assignment, not being familiar with such.
9.	Belize Federation of Fishers Representatives	**None.** They were unaware of ocean accounting
10.	CZAMI Senior Representatives.	**Good.** Recently it undertook ocean accounts training under the Global Ocean Accounts Partnership. However, MBECA just recently (November 2023) indicated efforts to achieve a signed cooperation agreement as a potential member, which they hope a pending decision will be finalised in December. There is keen fascination to determine how this baseline ocean account assessment will benefit t Belize and the interviewees

11.	Representatives from Turneffe Atoll Sustainability Association	**Slight:** They have only a vague idea of ocean accounting and its potential value but seemed interested to find out more.
12.	Port of Big Creek Representatives	**None.** They earnestly hoped to find out more about ocean accounting, data sharing, the blue economy, and associated capacity building/policies and various initiatives.
13.	Ministry of Economic Development Senior Representative	**None.** This interview concentrated on representatives focusing on climate finance, policy and planning as several others were unable to join. They indicated quite a separation from ocean accounting and the blue economy but would like to participate and potentially learn significantly more.
14.	Ministry of Labour, Rural Development and Local Government Senior Representative	**Slight**. They have only minimal knowledge of ocean accounting as a Ministry and of the potential prospects of mainstreaming the blue economy but remain promisingly interested.
15.	Fisheries Department Senior Representatives	**Moderate.** The Fisheries Department senior representatives primarily expressed moderate interest and awareness in ocean accounting and the blue economy.
16.	Belize Geology Department	**None.** The Geology Department representative expressed some awareness of Belize's blue economy. Though not cogniscent of ocean accounting, they were highly interested and expressed willingness to potentially cooperate over this blue economy area.
17.	Ministry of Public Utilities, Energy, Communication and E-Governance	**None.**
18.	Sustainable Development Unit	**Moderate.** They thus believe that any data gathering process such as ocean accounting should strictly align towards Belize's Blue Economy Strategy, Marine Spatial Plan, coastal zone management and the various Sustainable Development Goals. This also links to any willingness to support with potential technical capacity and support.
19.	Maya Forest Trust	**Moderate.** Not just with ocean accounting but ecological accounting, carbon markets, ecosystem valuation and sustainable forestry.



Table/Figure 4.4.3a: Assessing the Extent of Surveyed Stakeholder Awareness of Belize Ocean Accounting

Survey No	Type	Stakeholder Awareness Perception of Ocean Accounting
1.	Belize Ministry of Tourism and Diaspora Relations	**None** -The Ministry of Tourism & Diaspora Relations has not participated in any exercises or trainings related to Ocean Accounting, Monitoring & Reporting, or Verification/ Evaluation
2.	Belize Port Authority	**None/Not aware**
3.	Climate Finance Unit	**None:** Not aware of the ocean accounting process. This would be geared towards the Ministry of Blue Economy or the National Climate Change Office that deal with more of the NDC implementation.
4.	Crocodile Research Coalition NGO	No response/**None**
5.	Galen University	**Good**: We have both heard about the concept of Ocean Accounting; with it being mentioned in sessions and explained very briefly. In relation to Monitoring and Reporting and Verification/Evaluation we are both fully aware of the importance of this process in the achievements of organizational/project goals and objectives. We note its importance as a means of evaluating progress and to potentially re-evaluate project direction and mechanisms being employed. This also serves as a method of identifying viable best practices which can be duplicated in future efforts. In light of the above, Galen University is interested in being a part of the development and the piloting of such an initiative. This would also result in the University's modification of the current course outline and content to provide students increased awareness of national initiatives.
6.	Healthy Reefs Initiative	**Good -**My understanding of ocean accounting is that it is a concept that focuses on the economic evaluation and sustainable management of oceans and marine resources. It aims to integrate environmental considerations into national accounting systems.

		Verification/evaluation process has great value in a project. It enables you to monitor progress, assess performance against project goal, and make adjustments, as necessary. It helps to keep the project on track and within the scope.
7.	High Seas Fisheries Unit	**Moderate**: "Although I am not extremely knowledgeable in the notion of ocean accounting, I think it relates to the process of having a comprehensive understanding of the state and condition of the oceans and how they contribute to our well-being. It can be an essential tool for understanding the health of the oceans and the eco-system service they provide. Policy makers can also use it to help make decisions in respect to regulations governing sustainable fishing practices and protecting vulnerable marine ecosystems and can also guide the preparation of necessary blue economy strategies and policies required in a blue economy framework."
8.	Ikooma Belize - seaweed entrepreneur	**None:** "I do not know about this. It sounds like it could help me to access data on the nutrient properties of the species of seaweed growing in Belize and could help my seaweed suppliers improve their farming techniques."
9.	National Biodiversity Office	9**- None:** The Government utilizes the Management Effectiveness Tracking Tool to assess management effectiveness of its protected areas across the system. This assessment which will be conducted every two years and will outline areas of strength within the system but will also highlight the key areas of focus for which the NBIO will need to strengthen. The main categories that will be graded across the system are: 1. Resource Information 2. Resource Management 3. Participation (community), Education and Socio-Economic Benefit 4. Management Planning 5. Governance 6. Human Resources 7. Financial and Capital Management. The Management Effectiveness Assessment tool will also identify priority sites (sites with the lowest scores). This will help NBIO to identify the sites most in need of technical assistance. In the Co-Management Agreement, it specifically states an obligation for NBIO will be to review and provide technical input, if necessary, on Annual Operational Plans. However, while NBIO will work with these priority sites on a one-on-one basis as much as it can, the organization will seek to address structural deficiencies from a systems level, targeting the critical areas from the aforementioned categories. This supports NBIO's mandate of seeking to improve the structural deficiencies within the NPAS from a system level rather than the site level.
10.	National Meteorological Department	**None:** The NMS monitors and collects rainfall, temperature and other meteorological data through its network of weather stations. There is currently an ongoing project (ERCAP) where 7-8 offshore weather stations will be installed that will be monitoring these variables. We have one Sea Level (Tide) station that will be installed near the Coast Guard/Port of Belize, but additional marine variables are required to be monitored such as Sea Surface Temperature, Wave height etc. to enhance our Marine forecast and the monitoring of other marine variables. The NMS currently issues marine forecasts on SST, Wave Height, Sea Conditions etc. using satellite products.

11.	Office of the Prime Minister Economic Development Council	**Slight-** one cannot properly account for the economic capacity and potential of our ocean and how best to formulate indicators for appropriate monitoring and evaluating if one does not collect proper data- this is what the concept of ocean accounting speaks to me about. M&E, however, is a critical component of project management, supporting with the tracking of project activities, outputs and progress towards anticipated results. M&E addresses issues relating to data collection, analysis and reporting which is critical to ocean accounting. It ensures that available resources are adequately utilized, it highlights gaps in communication, and the need for additional resources. Overall, it ensures that projects are managed efficiently, transparently and with accountability.
12.	University of Belize	**Slight Awareness.** However, there is potential for student involvement, especially because these students are future leaders in Belize. We need to get them involved in all aspects of national development.
13.	Wildlife Conservation Society Belize	**Moderate,** We can support in developing process and providing training in use of tools including the use of technology to measure the indicators.
14.	Caribbean Regional Fisheries Mechanism	**Slight Awareness**. Some experience with valuation of ecosystem services. Knowledge of Monitoring Reporting and Verification/Evaluation processes through the management of projects and workplans.
15.	Protected Area Conservation Trust	**None:** I am not aware of the concept of ocean accounting, though capacity for statistics, monitoring and evaluation is available within PACT.
16.	Ministry of Blue Economy and Disaster Risk Management	**Moderate (**I have surface level knowledge on both topics.) Ocean accounting is especially important to Belize in quantifying the economic value of our ocean resources and/or ocean-related activities such as Tourism. This valuation is important in understanding the economic contributions of oceans to Belize's economy and is also, therefore, very crucial in policy development and decision making. MRV and M&E are similar but not the same. In the context of the Blue Economy (BE), MRV is important to measure BE outcomes to very specific global or regional standards. While M&E is more so used to monitor the progress of projects and activities within our Unit. The only M&E that the BE unit is currently engaged in is in regard to the quarterly Public Sector Investment Project (PSIP) information submissions made to the Ministry of Economic Development, which reports on the status of government projects. This report is prepared and collated by the Ministry's M&E officer.
17.	Belize Tourist Board	**17 Moderate** The BTB tracks tourism arrivals and share of visitors who participate in water based (riverine and marine) activities and locations. This data is shared with the Ministry of Tourism and Diaspora Relations (MTDR) which is the parent agency for the BTB. The MTDR takes the lead with the National Sustainable Tourism Master Plan and Cruise Policy, to name a few. Governance is one of the key components of both documents. The MTDR is also engaged in the MRV program.
18.	WWF Mesoamerica	**Moderate:** The respondents are minimally aware of the concept of ocean accounting, however, as an organisation, the WWF does have expertise in the area. Ocean accounting would enable Belize to go beyond GDP to measure the contribution of the ocean economy towards SDGs. It would also allow the country to make better decisions relating to investments and policies relating to improvement in management of our ocean resources and economy.
19.	Private Seaweed Aquaculture Entrepreneur	**None**

20.	MBECA Representative 2	**Good** The BEU team (inclusive of myself) is aware of the concept of ocean accounting. Ocean accounting provides an opportunity to quantify, measure and mange progress towards ocean sustainable development by measuring the economic and environmental impacts of ocean-related activities; Ocean accounting showcases the relationship between the economy and the ocean environment. For instance, Ocean accounting can help track the environmental impacts of activities/industries like fishing, tourism, and offshore energy on marine ecosystems and their economic value. By gathering this information, policies and management strategies that combine economic development with protecting marine biodiversity and ecosystem services can be created. Furthermore, Ocean accounting can help monitor the progress in accomplishing the objectives of programmes like the Belize Blue Economy Development Policy, Strategy and Implementation Plan 2022-2027, the Belize Sustainable Ocean Plan and the Belize Integrated Coastal Zone Management Plan.
21.	Hol Chan Marine Reserve	**Slight Awareness.** HCMR is aware of the importance of ocean accounting and how the monitoring system, collection of data, analysis and publication are instrumental to inform decision making processes nationally and globally. Through the Belize Fisheries Department we partake in National Management Effectiveness Evaluation of our MPA and have taken self-evaluation tools to understand and better the management of our reserve. We see the importance and impact, especially of the IUCN Green Listing standards, to meet with certain global criteria to elevate our status and conservation targets which can only be informed by having accurate and constant ocean accounts.
22.	Central Bank of Belize	**Slight Awareness:** The Central Bank's awareness of ocean accounting and other monitoring reporting and verification/evaluation processes stems from its relevance to financial stability, policy development, and economic decision-making. Ocean accounting offers a unique perspective on a nation's wealth by encompassing natural assets alongside traditional economic activity, such as fisheries, aquaculture, shipping/port operations, and coastal tourism. This broader view can enrich national statistics and macroeconomic indicators like Gross Domestic Product, providing a more comprehensive data set for informed decision-making. These insights could be valuable to the Central Bank, particularly the Research and Supervision Departments, as a deeper understanding of the economic contributions and potential risks associated with the blue economy can help the Central Bank create more precise and reliable forecasts of national economic performance, as well identify emerging trends, and keep abreast of new investments/loans within the sector.
23.	NEMO	**None:** I am not aware of this concept. I cannot provide any other feedback on this question.
24.	Department of Aquaculture	**None.** We are aware in the MAFSE that the management of fresh water in natural and agricultural environments in inland territory does have an impact on coastal and reef environments.
25.	Oceana	**None.** Oceana has yet to be engaged in any MRV processes. Collaboration and cohesion in ongoing efforts, especially as it relates to the carbon credits, will be conducive to optimum outcomes in monitoring.
26.	Beltraide	**None.** General principles captured based on the organization operations. Ocean accounting is not a familiar concept for us; however, through project implementation, BELTRAIDE focuses on developing monitoring reports for donor agencies. Verification is done informally through client

		outreaches or follow-up post-implementation to validate impact. Recently, with capacity building provided by IDB, our technical arm and project unit were capacitated with the Monitoring and Evaluation framework.

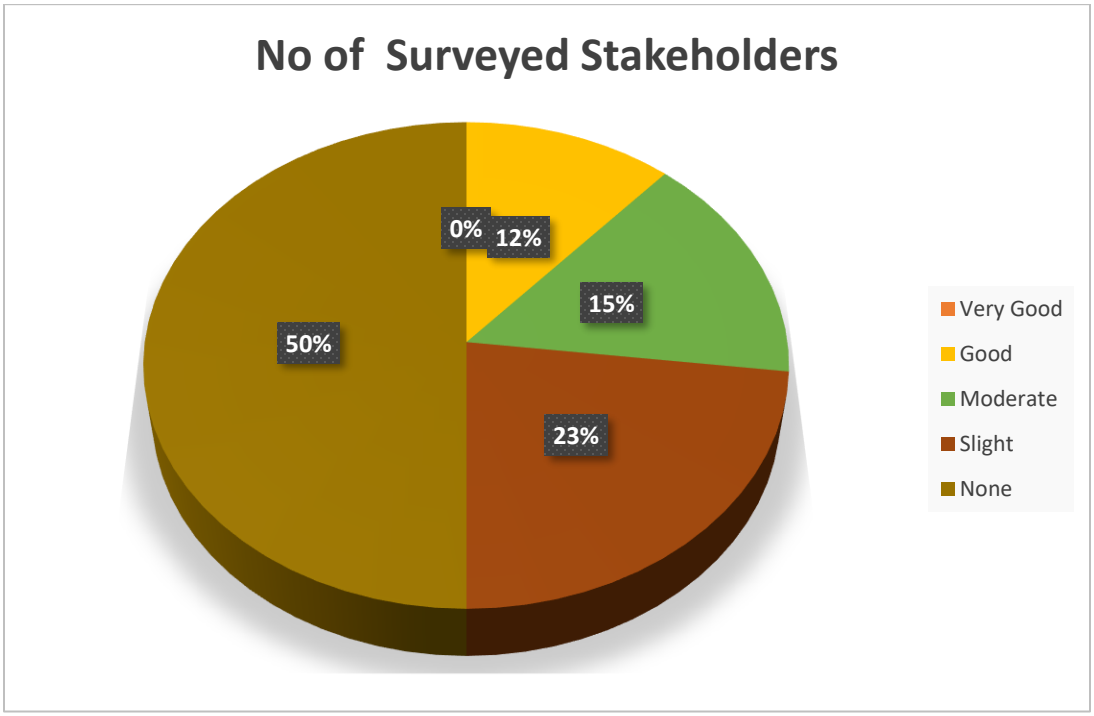


Table 4.4.3b: Degree of Interest/Awareness in Ocean Accounting/Blue Economy Understanding and Training

Interview No	Type	Degree of Interest/Awareness in Ocean Accounting/Blue Economy Understanding and Training
1.	Belize Ministry of Tourism and Diaspora Relations	1-Yes, the MTDR is interested in finding out more about Ocean Accounting and the other related areas mentioned above. The MTDR will utilize the knowledge and skills gained for informed decision making & cross departmental/ sector coordination, for diversification of tourism opportunities and for identification of strategic areas for tourism development.
2.	Belize Port Authority	2-No response for ocean accounting. Priority areas for the Authority for which it may benefit from are digitalization, maritime decarbonization, technology transfer to decarbonize domestic shipping and ports, environmental stewardship in maritime operations.
3.	Climate Finance Unit	3 Yes -It would be helpful to know more about these processes for us to have a better understanding of how this could be woven into a project, or to see how funding can be acquired for these types of initiatives.
4.	Crocodile Research Coalition NGO	4- Yes, I would be interested in my organization, especially since we are now interested in habitat restoration and conservation around the caves given the habitat of the American crocodile.
5.	Galen University	**Yes,** this would result in the University modifying the Blue/Green Economy Course content to provide students increased awareness of national initiatives, updated information and mechanisms on ocean accounting. Thus, enabling the university to better serve the professionals working within the public and private blue economy sector.
6.	Healthy Reefs Initiative	**Yes -**Knowledge exchange is always welcomed especially relating to blue carbon/blue finance data/method processes. In addition to funding new

		projects and technology, coordination and research initiatives in relation to improving reef health or monitoring to fill in data gaps.
7.	High Seas Fisheries Unit	**Yes** -The BHSFU will be highly interested in learning more about these concepts, as they are all important in understanding the health of our oceans and their impact on our socio-economic status. As regulators in the fisheries sector, it is important to have a wide understanding of our oceans and the various factors that contribute to their health. This knowledge will enable us to make informed decisions and implement effective policies that promote sustainable fishing practices, especially at the international level, where Belize actively participates in the decision-making process as it relates to the adoption of CMM related to certain species in the different ocean areas. Additionally, understanding the socio-economic implications of ocean health will help us assess the long-term viability of the fishing industry and ensure its continued contribution to our economy. As a result, training and capacity building in these areas are important to effectively implement and enforce sustainable fishing practices by our fishing vessels operating in the high seas.
8.	Ikooma Belize -seaweed entrepreneur	**Yes**. Funding is crucial for growing my small business. At this time, it is only a solopreneurship venture. With funding, I can grow, hire staff, expand my product line, gain the necessary certifications to venture into export. Data on seaweed that can help me with my formulations, local supply and marketing can also help.
9.	National Biodiversity Office	Yes, this is an area where there is the need to build capacity within the office. There is limited capacity in the marine conservation and increased capacity in the office will support stronger coordination and collaboration across the protected areas landscape of Belize from both the terrestrial and marine realms.
10.	National Meteorological Department	Yes, technology (marine weather sensors), training in Marine Forecast and data analysis and research in of essential climate variables for the marine space would help us improve our services and products offered to the marine community to assist in building resilience and providing early warning for coastal and marine hazards.
11.	Office of the Prime Minister Economic Development Council	Potentially
12.	University of Belize	0 We are interested in getting our students and faculty members involved in field work, trainings, meetings, workshops, conferences, collaboration meetings, collaborative research with NGOs and relevant Government Departments.
13.	Wildlife Conservation Society Belize	-0 Yes, capacity needs to be built across stakeholders; a workshop that speaks to the blue economy, its respective policies and how these aim for sustainable and resilient growth of the ocean economy. More specifically, there would the need for targeted workshops that speak to areas such as natural K accounting. These workshops would be of help to ensure that critical stakeholders have built capacity and a clear understanding of how they contribute to the Blue Economy and how this in returns impacts economic growth.
14.	Caribbean Regional Fisheries Mechanism	Yes, training and capacity building in ocean accounting and related ecosystem/natural capital/blue carbon/blue finance data/method processes would be useful for our organisation and Member States. Funding and coordination for research using these methods would also be welcomed especially related to fisheries and marine habitats as this would help Member States assess their marine resources, inform polices and planning

		for blue economic growth, and marine spaces (for e.g., protected areas for critical marine resources and their habitats).
15.	Protected Area Conservation Trust	No response
16.	Ministry of Blue Economy and Disaster Risk Management	16-Yes, it would be helpful to get capacity building in ocean accounting and the above-mentioned trainings. The Blue Economy Unit through its proposed BE legislation aspires to engage in some level of environmental accounting to assess the economic value of activities that occur within the Blue Space
17.	Belize Tourist Board	17 We would like to understand what this is and what criteria goes into the calculation. We would also like to understand how our work contributes to the process(es) and what we can do to assist. The STF needs financing on a yearly basis to address this challenge. Technologies available to facilitate our ability collect, compile, analyse and report on marine data is greatly welcomed. GIS devices can allow us to get a better idea of the precise locations mainly used for tours. Our present budget does not permit the funding of additional research. For example, another iteration of the National Domestic Tourism Survey is needed since coastal and island destinations are the primary locations for Easter break by locals. Research is also needed in southern Belize targeting the Mexican, Guatemalan and Honduran visitors that frequent the marine parks and reserves. BIG DATA, Data Analytics and use of Artificial Intelligence is very important. Training opportunities and funding would assist greatly.
18.	WWF Mesoamerica	Yes - To create enabling conditions for ocean accounting to be effectively implemented in Belize: - Training of policy and decision makers, legislators, practitioners, NGOs, and academia to create the necessary capacity to implement and support an enabling environment for the national integration of ocean accounting. - Collaborate processes and mechanisms among the key stakeholders (policy and decision makers and legislators, NGOs, Academia) for a more inclusive approach. - Case studies highlighting how ocean accounting has been implemented and lessons learned by the jurisdictions. - Identification of funding opportunities - Knowledge brokering in ecosystem/natural capital/blue carbon/blue finance data/method processes.
19.	Private Seaweed Aquaculture Entrepreneur	Yes -We have no experience
20.	MBECA Representative 2	Yes, I am interested in receiving training on Monitoring and Evaluation for Learning, and any training on blue economy to enhance my knowledge of the sector.
21.	Hol Chan Marine Reserve	Yes, we would be interested in capacitating ourselves on ocean accounting. HCMR would appreciate any funding available for equipment and training purposes for Enforcement and Compliance, Research and Monitoring as well as Education and Outreach. Training needed: - Public Relations - Conflict Management - Weapons handling - Enforcement & Compliance - Refresher on Fisheries Regulations - CPR & First Aid training - Dive training

		- AGRRA - Temperature loggers - Sea turtle care and rehabilitation - GIS - Case Files/Prosecution - Data Analysis - Publication of Data - Bird Identification Survey
22.	Central Bank of Belize	•Access to ocean accounting information, including blue finance data and method processes, could be beneficial for the Central Bank. Recognizing the economic value of natural assets like fisheries and mangroves would allow the Central Bank to assess potential financial risks posed by environmental threats such as climate change. Furthermore, learning the method processes and indicators used in ocean accounting could strengthen the Central Bank's toolkit for improved risk management and promote a more environmentally conscious financial system that ensures long-term economic and ecological benefits.
23.	NEMO	I would be interested in learning how funding can become available in relation to ocean accounting. This funding would support NEMO's efforts in developing community resilience in coastal settlements.
24.	Department of Aquaculture	Yes. Our aquaculture activities on the coast are going to have direct relation to ocean accounting.
25.	Oceana Belize	Yes. Training on "ocean accounting" and carbon credits would allow us to share such information with our stakeholders to ensure their meaningful participation in the process and build public ownership.
26.	Beltraide	Yes, BELTRAIDE would be interested in finding out more as it relates directly to ocean accounting and related ecosystem/ natural capital/ blue carbon/ blue finance data/ method processes. We would be most interested in the areas as follows: Data Collection and Analysis practices Research and Networking Capacity Building and Training Guidance on how financial institutions can be provide support.

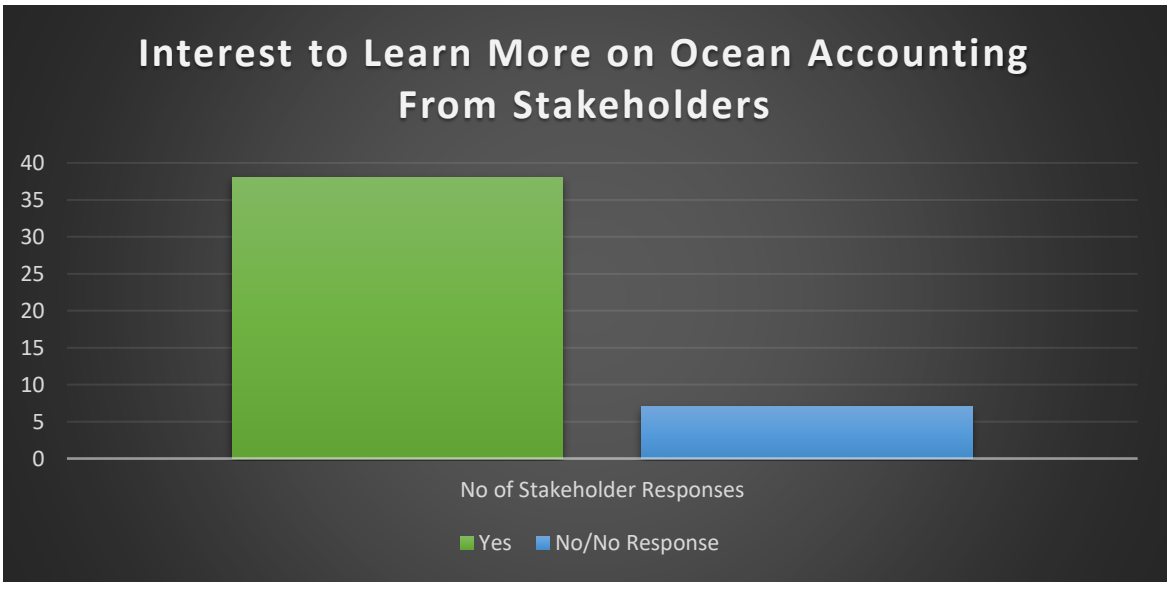


Table 4.1.3: Existing Interviewed Belize Blue Economy Stakeholders Data. Gaps and Needs

Interview No	Type	Existing Data, Gaps and Needs
19.	Blue Bond Unit Office of Prime Minister	Clear Key Performance Indicators need to agree to and consistently developed/understood across government agencies, civil society organisations and others. As part of Ocean Accounting, this would mean potentially identifying respective roles and responsibilities. Potential economic, social, environment and other indicators such as the Sustainable Development Goals, UN Sustainable Blue Economy Finance Principles, economic, social and environmental. Answers extended to emphasising and adjusting for the social aspect including poverty, welfare, ecosystem health and employment. The Unit has already looked at exploring engagement potentially with the Statistical Institute of Belize to have a role as core supporters of data gathering. They also indicated a potential need to restructure such processes and ocean accounts with Monitoring, Reporting and Verification Systems. For example, existing systems may need to have an expanded mandate beyond just the UNFCCC and obligations associated to climate change or fisheries.
20.	FAO Belize Representatives	Concerns were especially raised that fisheries related data in many cases was divided between several government units and often relied on paper, rather than electronic. Certain fisheries data being captured was not being utilised, when more valuable efforts in relation to ecological and social sustainability/enforcement could have been provided. Once collected, a core gap remained a lack of fisheries analysis related capacity including people, equipment and database systems. It was a principal recommendation for all this institutional capacity needs to be addressed not just for fisheries but consistently across all eight recognised blue economy sectors. Physical data gathering needed to capture artisanal/community, individual and industrial fisheries, aquaculture and mariculture, including social and climate aspect electronically and not just for paper-based systems. Integrated databases could help. This FAO project however did emphasise keen interest was emphasised in the GIS/spatial technology training provided to various officials. However, more training might need to reach communities, along with the benefits of such training. Risks existed from stakeholder fatigue, constantly questioning when and how such efforts would result in direct material benefits. The social dimension also needs attention. Direct poverty and social implications for fisheries and other blue economy sectors have still not directly been computed. One recurring community concern remains the lack of fisherfolk insurance or equivalent social security benefits as a safety net.
21.	National Biodiversity Office Representatives	Certain biodiversity information gaps exist and linking to efforts by other stakeholders. For example, initially they have been focusing on hunting licenses in conservation areas and the Forestry Department. They are also trying to develop their aforementioned biodiversity database clearing house mechanism with support from the Statistical Institute of Belize. They also require additional boats and vehicle assets.
22.	Reefkeeper Belize NGO	The need for specialised training to aid NGOs, the need to train successors locally and to support student ambassadors was noted whether government, PACT, APAO, IADB or others especially in relation to data management, GIS, remote sensing, business skills, project management, MRV, blue carbon, ocean accounting, MSP etc. -even basic IT literacy such as Microsoft Office and spreadsheets was noted.
23.	Belize Coastguard Senior Representative	There remains a need for more understanding of the blue economy, ocean accounting and how indicators can best be captured, utilising the navy and the contribution of maritime security

24.	Office of the Prime Minister Senior Representative	They expressed broader general interest in developing ocean accounting and capacity building for the Belize blue economy but were at pangs to emphasise that such should reflect the realities of stakeholders on the ground, directly benefit them not just government authorities and implement political strategic objectives such as Plan Belize. They wished for concrete outcomes, i.e., data, resources and specific training/capacity building that would identify specific gaps, training requirements, mobilise finance and other support for the Medium-Term Development Strategy, recognising that many existing programmes already have specific objectives i.e., those outlined in the Budget. These can already help structure ocean accounts and other deliverables. This approach can follow the Office of the Prime Minister which is primarily concerned with financial and performance management including supporting policies, human, technical and other strategic inputs. It also could align to the Planned Private Sector Investment Programme and what funders are looking for from a data perspective. Belize specifically needs more attention not just to merely collect/acquire data but to be able to analyse it for meaningful outcomes.
25.	Association of Protected Areas Organisation Representatives	There have been past challenges in seeking to develop centralised databases, with government departments and NGOs/protected area management organisations generally developing their own efforts of varying levels of consistency, subject to resources available. Concern was voiced at many projects and research either not being captured in these databases and/or formulated externally with external objectives, not those of Belize. They cited issues with the University of Belize for example in not taking the lead and being proactive. They were highly in favour of the concept of a central database that was accessible and data that could be used for indicators, MRV, M and E and other purposes. However, such a project would need greater standardisation, analysis, supporting training, equipment and data management/collection support among the various member protected area organisations. Data captured is inconsistent -i.e., great for certain commercial fisheries, less so for marine biodiversity/blue carbon. Geospatial data is perceived as generally good but more analytical human and equipment/software resources may assist smaller organisations to gain meaningfully. However there remains no policy or guidelines into marine bioprospecting/scientific research, data sharing and related issues/benefits.
26.	Belize Fund for a Sustainable Future Senior Representative	In relation to data, it was indicated that existing data is fragmented, not captured in a database and is mostly limited to that received by recipients or from other departments rather than collected direct. It was re-iterated they are in the process of developing log frames and performance indicators expected of funding beneficiaries, but this is in draft form and the interviewee was uncomfortable sharing it prior to Board approval. The respective beneficiaries also have their own indicators. It was indicated that in principle such project information would become publicly available, and they were quite willing to share or cooperate in linking towards any efforts towards improving ocean accounting, integrating databases, actual information and capacity building. In relation to specific blue economy/ocean accounting data and indicators, it was revealed that whilst data in relation to management area effectiveness, coral reef health and certain biological indicators were well understood, significant gaps remain in understanding the socioeconomic impact of various blue economy sector activities, funded projects and capacity building interventions such as the number of women/youth beneficiaries, no of businesses, employment, poverty reduced and other potential metrics that the representative would like to see shared and consolidated to one database/accessible to those who need it.

27.	Belize Federation of Fishers Representatives	For ocean accounting, they hope far more emphasis can be used to monitor and measure social aspects of fisheries such as poverty, number of women empowered, diversified livelihoods, number of those leaving fisheries from increasing costs and other human dimensions. For example, a previous Caribbean Fisheries Regional Mechanism study they cited a few years ago ranked Belize worse in fisheries poverty out of 7 Caribbean/Central American countries. They indicated boat ownership and access to credit/equipment remained a concern and wondered if there was scope for MBECA/Ministry of Fisheries/IADB to consider related capacity support.
28.	CZAMI Senior Representatives.	Their main information gap is moving beyond the coastal zone. This includes extending cooperation and information, including access to more deep-sea cameras. They need more training and capacity strengthening assistance in terms of data collection, ease of use storage and Management. There is a need for more analytical capacity for data to be cleaned up and more useful. In relation to compiling ocean accounts they advised the necessity of ensuring sustainable access to ecological datasets, combined with ecological and social, which may necessitate cooperating with other stakeholders. Whilst the focus has been traditionally on the coastal sector, CZAMI are particularly interested as to procuring data from various sources that encompass activities, uses, issues and indicators across Belize's entire Exclusive Economic Zone. This would improve the scientific basis for decision making, help identify and respond to various emerging risks and opportunities, prioritising and allocating resources most efficiently. One example included the UK Ocean Country Partnership programme. It would improve the optimal allocation of space according to Belize's defined eight blue economy sectors, especially in revising the current Coastal Zone Management Policy and Belize Sustainable Ocean Plan for marine spatial planning
29.	Representatives from Turneffe Atoll Sustainability Association	There is a need to work with NGOs, government and civil society to agree on harmonising and synchronising data quality, indicators, methods and processes for sharing/cooperating, pooling funding/resources/training for Spatial Reporting/Mapping tools, monitoring, evaluation and ocean accounting. Eventually they would like initial specialist training via courses but then a regular programme to equip University of Belize and other graduates/existing staff. In relation to education and outreach, research and development TASA did not provide much specific detail, arguing these areas were mostly not their concern, relying primarily on various funders, research entities and those partners such as other NGOs or the University of Belize Environmental Research Institute. They research aggregate spawning sites for conch, certain finfish, coral and spiny lobster. To track reef health and consider adaptive management such as mangrove planting and coral restoration.
30.	Port of Big Creek Representatives	They indicated a willingness to consider sharing more specific port/maritime transport related data to overcome existing gaps and highlight the potential contribution of Big Creek port to Belize's blue economy and trade. What is particularly noteworthy is the fact that their website is completely absent of such basic information including statistics and annual reports publicly. Nor does the Statistics Institute of Belize appear to have such information publicly available
31.	Ministry of Economic Development Senior Representative	Concerns exist in not having databases of their own in relation to climate change data and resources but continuously relying upon other stakeholders for sharing. They record climate finance investments and require monitoring legally, rather than being direct repositories of information suitable for developing ocean accounting. They would like more evidence ongoing to support any climate related rationale for their policy/investment decisions along with MRV. They would like more regular physical/online access and resource support for observatories and meteorological systems.

32.	Ministry of Labour, Rural Development and Local Government Senior Representative	With candour, it was admitted existing databases, capturing, evaluation and human capacity systems were very week in relation to information needs and priorities, hugely relying upon the Statistical Institute of Belize for associated data capturing and provision such as occasional Labour Force surveys. They would therefore appreciate any generic internal Belize or external financial, technical operational and other support or assistance One priority is a Labour Force Information System as a central database, which could be adapted to the blue economy that seeks to match employers with potential employees/available employment, training, funding and other opportunities. Second, would be an integrated database system for Rural/Coastal Communities and Development -covering projects, funders/sources and details of every community such as population and demographics, economic, social and environmental knowledge as background context. They have started to work on both but have been constrained by funding and human capacity. Theis could then swiftly aid monitoring and evaluation; project design, implementation and various external agencies such as Compete Caribbean, UNICEF, IDB and others. They are also striving towards implementing their own Ministry specific Monitoring and Evaluation System and would like any customised support for that. It is being pursued in a phased in approach. They are still reliant on the Statistical Institute of Belize but agree ocean accounting would be of value if it could capture poverty, gender and sector specific workforce/various socioeconomic indicators.
33.	Fisheries Department Senior Representatives	They indicated moving forward, a willingness towards potentially sharing related internal documents relating to economic, social and enforcement data, along with details of current projects to overcome any existing gaps. From a human capacity perspective, however they would like additional support not just in overcoming current data gaps but in the training and support for Monitoring, Reporting and Verification Systems, the methodologies and indicators, along with developing their central database, refinements in the equipment, technology and systems towards collecting and amalgamating data. They also conveyed a need to focus more on deep water marine resources, biology and capacity, given the traditional focus has remained on coastal fisheries monitoring and development -especially for considering the needs of deepwater species. They feel that they have performed a fair job and have good access to the main commercial fisheries data and that pertaining towards protected areas. They are looking to strengthen the licensing system with an electronic system and to capture small scale fisheries, given historic problems with paper-based systems, including limited processing capacity. They are still seeking guidance and technical, financial along with equipment related resources to develop a centralised Monitoring, Reporting and Verification System. There is no immediate plan to modify existing policies, regulations and legislation as these are mostly perceived to be adequate. There is a need however to strengthen enforcement and monitoring utilising data and technology innovations. To this effect they are piloting drone trials but would like support to acquire more. They would also like to prioritise GIS and remote sensing.
34.	Belize Geology Department	A core priority recommendation moving forward was overcoming the human capacity gap shortage. Second was ensuring access to expensive data which can cost millions of Belizean dollars to generate and hundreds of thousands in annual license fees for the specialist software. A final priority is the need to work with other stakeholders for thorough but extremely expensive marine surveys to assess both prospects and risks offshore.
35.	Ministry of Public Utilities, Energy,	Currently they wish to prioritise improving data generating capacity, describing it as “adequate” at best, not capturing much, with the need for more specific

	Communication and E-Governance	intervention for maritime decarbonisation/renewable energy, working with associated stakeholders towards developing technical, information sharing Memoranda of Understanding. This will help overcome certain gaps towards accomplishing international commitments such as the Sustainable Development Goals, Paris Agreement and more local obligations. Some data is published in their annual report as with others. However, the prime interest for this Ministry is that of the data modelling simulation and forecasting analysis software to generate information easily digestible for informed policy decision making.
36.	Sustainable Development Unit	These stakeholders expressed moderate awareness of ocean accounting as a concept being primarily concerned with the implementation of the Sustainable Development Goals and the capturing of related data indicators. They assemble and analyse data from various sources as a national focal point for areas related to sustainable development rather than developing specific projects and initiatives of their own, such as supporting various Ministry Strategies and Action Plans. They thus believe that any data gathering process such as ocean accounting should strictly align towards Belize's Blue Economy Strategy, Marine Spatial Plan, coastal zone management and the various Sustainable Development Goals. This also links to any willingness to support with potential technical capacity and support.
37.	Maya Forest Trust	None - Recently the Network received EU funding grant to improve capacity to hire an Executive Manager, improving administration, good governance and membership support.

Table/Figure Specific Data, Gaps and Needs Other Than Ocean Accounting

Specific Data, Gaps and Needs Other Than Ocean Accounting	Interviewed Stakeholders
Key Performance Indicators, Monitoring and Evaluation/Verification System	6
Isolation, Fragmentation and Division of Data, No Central Database and improving data capturing/collection, equipment and technology/online system	6
Improving human capacity building/training	5
Focus more on capturing, developing and measuring social indicators	1
None	3

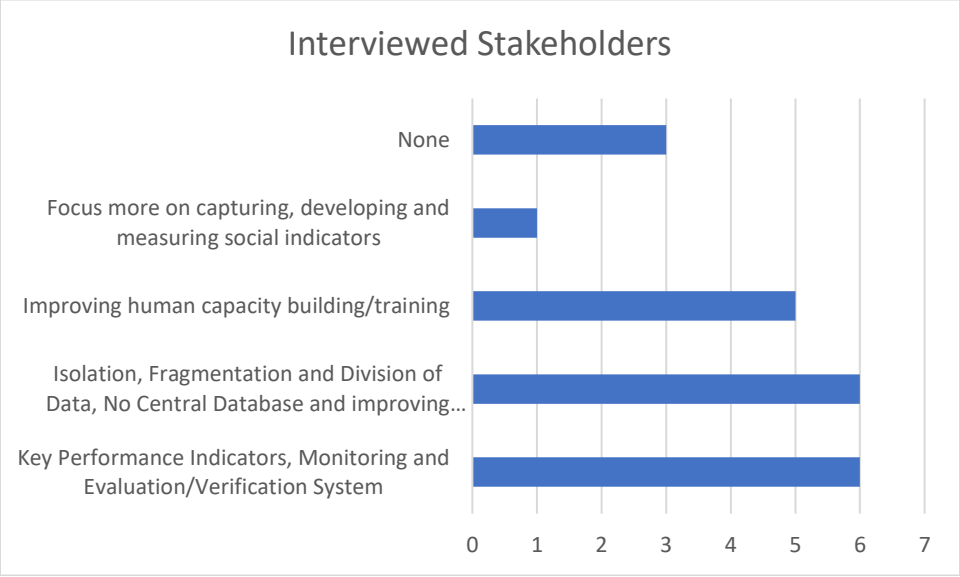


Table 4.1.4: Interviewed Belize Blue Economy Stakeholders Other Capacity Gaps and Needs

Interview No	Type	Other Capacity Gaps and Needs
20.	Blue Bond Unit Office of Prime Minister	So far, they consider themselves to be aware of various diversified sources and mechanisms of funding. The two interviewed representatives appeared confident that their unit possessed adequate internal organisational/administrative, financial, technical, data and human/asset capacity at present and for the foreseeable future. In relation to other government institutions, they highlighted certain previous concerns identified in conjunction with CZAIMI had identified key major human capacity gaps including the need to fulfil eight positions. From a technical perspective, they especially highlighted the need to prioritise marine spatial planning. They indicated in the future, that the Forestry Department might need to be reached too given increasing local and international concern over carbon sequestration and biodiversity offset. In relation to resource mobilisation and capacity needs, they seek to work with other government entities to jointly agree on related capacity gaps and institutional needs or priorities are
21.	FAO Belize Representatives	The respondents noted with concern, certain major challenges in relation to capacity building, institutional strengthening and related project implementation as cautions to heed for Belize's sustainable blue economy future. As an external partnering entity, they expressed certain frustrations and pressures about the lack of regular coordination and cooperation regarding various entities within the Belize government, and linking it to communities, NGOs, funders and the private sector. This resulted in challenges in acquiring data, concerns over miscommunication and issues pertaining to perceive less efficiency in unnecessarily duplicating certain efforts, whilst failing to consider resources to support other critical initiatives according to their perspective. There was also concern about the high turnover rate at government institutions such as MBECA with at least 2 CEOs and several directors. There were concerns about a perceived "silo" mentality where operators worked independently in part of each other. Insufficient human capacity was also identified. The interviewees proposed the need for improved knowledge exchange platforms, enhanced databases and more specialised and dedicated technical specialists including data operators. Concerns were especially raised that fisheries related data in many cases was divided between several government units and often relied on paper, rather than electronic. Certain fisheries data being captured was not being utilised, when more valuable efforts in relation to ecological and social sustainability/enforcement could have been provided. Once collected, a core gap remained a lack of fisheries analysis related capacity including people, equipment and database systems. It was a principal recommendation for all of this institutional capacity needs to be addressed not just for fisheries but consistently across all eight recognised blue economy sectors. To implement Belize's blue economy, stakeholder consultations illuminated the advice to look at databases as a means of reducing loss of institutional memory with high joint turnover rates among technical experts and senior management. Personal experience of needing around 6-8 months was cited by the respondent to ensure acclimatisation and develop effective relationships. There was a need recommended to appoint actual gender, data management, project development, capacity and skills development/IT specialists, alongside offering training for blue carbon, Monitoring Reporting and Verification, Monitoring and Evaluation, nature-based solutions, blue finance and ocean accounting/statistics specifically. There was a need for more frequently convened and developed coordination structures connecting climate change with the environment and blue economy. It noted uncertainty from MBECA being very new and needing actual workplans and general future policy visions, as guidelines similar to other government entities, alongside other enabling conditions and factors.

22.	National Biodiversity Office Representatives Director	Internally the National Biodiversity Office has its own Strategic Plan up to 2027. It expressed significant concern officially and personally about the extreme shortage of human personnel with only four people in 2020 when it was inaugurated and now up to eight as of October 2023. They are heavily dependent upon internal volunteers, but this is unsustainable in their perspective. They are particularly seeking Finance and other Project management/monitoring/data management advisors/associates, pending funding to support existing, whilst determining new initiatives. They also seek to develop technology and improve data management/research capacity. Certain biodiversity information gaps exist and linking to efforts by other stakeholders. For example, initially they have been focusing on hunting licenses in conservation areas and the Forestry Department. They are also trying to develop their aforementioned biodiversity database clearing house mechanism with support from the Statistical Institute of Belize. They also require additional boats and vehicle assets. Moving forward they would like to see specific training in blue carbon, biodiversity offsets, GIS, spatial planning, and other tools/technologies against deforestation and other threats to mangroves/wetlands/forests, along with water quality indicators
23.	Reefkeeper Belize NGO	The main issue that surfaced included the challenges of accessing sustainable funding support for a smaller NGO, especially focusing on marine education that is still engaged in conservation and related initiatives but is not a formally designated marine protected area manager as expected by PACT and the Belize Fund for a Sustainable Future. Yet Reefkeeper has been active in the Southwest Marine Cays and Twin Cays. It would be great in their perspective if government/other entities could provide fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing. For example, students/interns if compensated even nominally could help with marine, pollution, illegal sand mining/coastal erosion and illegal fisheries, sargassum and crown of thorns starfish threats. Specific related training could help. Concerns were raised about covering basic staff costs, needing a specific vehicle, new computer, more diving and water testing equipment and another ROV/drone. The inclination to develop a mangrove nursery was further prompted by challenges in gaining access to seedlings.
24.	Belize Coastguard Senior Representative	Human capacity has been very recently identified as an emerging horizon of concern for the coastguard's senior leadership including not just ocean accounting but marine conservation, environment, technology, policy, climate change, data and various support. They are developing a Marine Technical Branch headed by a Lieutenant Commander and three others, having provided them with study leave, scholarships and related support to study at the University of Belize or elsewhere.
25.	Office of the Prime Minister Senior Representative	This approach can follow the Office of the Prime Minister which is primarily concerned with financial and performance management including supporting policies, human, technical and other strategic inputs. It also could align to the Planned Private Sector Investment Programme and what funders are looking for from a data perspective. Belize specifically needs more attention not just to merely collect/acquire data but to be able to analyse it for meaningful outcomes. Effective data integration and access should strive for improving coordination, understanding and cooperation towards a collective outcome. There was a need to align it with Pillar 2 or Economic Transformation of Plan Belize -with options to grow more sustainable fisheries, shrimp farming, flight routes, mariculture, eco and cruise tourism along with small boats transfers, maintenance, repair and construction. He advised capacity building and support that helps open up finance, the need for other resources and initiatives. There is demand potential for example for a need to consume fresh products. It was highlighted how Belize had developed MBECA to being elevated to a specific ministry with decision making powers that could improve coordination, planning,

		data gathering and capacity building. There were no further recommendations from improving organisational institutional capacity strengthening. However, Belize could benefit from more blue economy centred education, technology, research and development. He proposed a need to develop a specific Investment Framework for land, labour, capital, finance and technology. Specific training for the blue economy could identify types of finance and preparation on how to access it. Stakeholders can also be looking for basic business, media M and V, project management, monitoring, sustainable finance, risk management skills and others They wish to be direct beneficiaries of any training/data etc not just rely on governments, given high turnover risk rates.
26.	Association of Protected Areas Organisation Representatives	As efforts expand, they are working on a revenue sharing model from smaller organisations. They are funded partly by ecotourism levies, membership fees and strategic partnerships but indicated a profound interest in any capacity building relating to sustainable community livelihoods, blue carbon, biodiversity, fund raising and ocean accounting skills, among others promoting practical artisan and business skills for community members, co-managers and their own organisations. They regularly have a forum for members where they also focus on training rangers, who increasingly are relied upon to manage finance, administration, risk awareness, emergency response, tourism, research, data, enforcement, protection and a surfeit or multiplicity of various roles and functions beyond their designated job description. With more funding and other support, they would like to reach out to more communities.
27.	Belize Fund for a Sustainable Future Senior Representative	It was illuminated that many potential grant beneficiaries but also failed applicants could benefit far more from basic capacity building, especially basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training, blue carbon, risk management and blue economy. The example of MBECA looking to develop Community Innovation Hubs in support. There is a need to ensure more sustainable businesses including structures to grant applicants the chance to improve their internal capacity to access finance as a paradigm. The perception is that many community members are not well equipped -it is not so much a need for IADB/MBECA etc to provide finding, equipment/technology etc -but access to certain human capacity building - specific training. The aim of this is so that target beneficiaries can have a chance to apply and retain funding; develop and contribute to baseline data, whilst achieving long term sustainable blue economy businesses, diversified funding, social and ecological indicators. Whilst other stakeholders have flagged and raised concerns about accessing financing and grants, the respondent was adamant that funding is potentially there - but issues have arisen when certain organisations are not registered and/or not grasped the basic transparency, financial, organisational and general capacity to implement and ensure adequate transparency/Monitoring/Reporting and Verification. More and more, they are looking to help bridge the gap and seeking technical capacity assistance from other entities such as Compete Caribbean/MBECA/CZAMI. Belize Fund for a Sustainable Future currently have a staffing capacity of six. They seek no internal additional staffing capacity believing it to be adequate for the foreseeable future. Nor did they indicate the need for specialist training, data, technology and equipment, beyond understanding ocean accounting and the socioeconomic impacts of the blue economy as stated above. They have indicated that when technical aspects are specifically required, beyond their capacity a willingness to either seek involvement/support from entities such as MBECA/Statistics Institute of Belize/ Office of Prime Minister Blue Bonds Unit and or hire and approach consultants

28.	Belize Federation of Fishers Representatives	Curiously, they considered direct capacity building and technical training to be less of a potential concern than that of other areas including those more policy related but also direct concern about the long term economic, social and ecological sustainability of a sector experiencing many COVID19 and post-COVID19, climate change, IUU fisheries, pollution and other issues.
29.	CZAMI Senior Representatives.	There were mixed impressions in relation to assessing internal and sectoral institutional capacity. Certain technical capacity exists, in GIS/spatial data mapping, data collecting, MSP and others. However, they advised a strong pressing need to build up local organisational, technical, financial, human, equipment and any other support. This applies to all private stakeholders. Their main information gap is moving beyond the coastal zone. This includes extending cooperation and information, including access to more deep-sea cameras. They need more training and capacity strengthening assistance in terms of data collection, ease of use storage and Management. There is a need for more analytical capacity for data to be cleaned up and more useful.
30.	Representatives from Turneffe Atoll Sustainability Association	Under the Adaptive Management Programme there has been a focus towards reef health indicators. There is particular interest in supporting Key Performance Indicators, fishery analysis, supporting systems and training people. A core challenge has related to ensuring financial and technical capacity in securing funding, data monitoring, analysis and human capacity -which they recommend, partially resolving through improved training, data systems and centralised database. Succession planning needs support too. Their priorities include more support for the technical/financial/administrative aspect of capacity building especially NGO orientated. From a data/technology perspective TASA have 4-5 GIS trained people and rely on developing SMART and GIS Dashboard capability. This feeds into a data system organised by the Wildlife Conservation Society but myriad problems exist in not linking to other NGOs and government/autonomous entities. It also links to Vessel Monitoring Systems for enforcement and surveillance of tourism, recreational, commercial and other vessels). They are also looking towards expanding and deploying drones. However, all this requires regular funding and technical/maintenance support, as another priority they would appreciate funding from MBECA/IADB or equivalent to make those area more sustainable. There is a need to work with NGOs, government and civil society to agree on harmonising and synchronising data quality, indicators, methods and processes for sharing/cooperating, pooling funding/resources/training for Spatial Reporting/Mapping tools, monitoring, evaluation and ocean accounting. Eventually they would like initial specialist training via courses but then a regular programme to equip University of Belize and other graduates/existing staff
31.	Port of Big Creek Representatives	They are looking at expanding/dredging out one of their main berths as the main initiative they proved willing to share. From an institutional capacity building needs perspective their main concern was that of ensuring adequate human capacity -as Belize lacks a dedicated maritime academy and it is expensive to train abroad. Thus, they seemed extremely receptive to the Coastguard interviewee proposal to develop the Belize blue economy via maritime education but also any support MBECA/Compete Caribbean/others could provide especially in relation to digitisation/cybersecurity, physical security, emerging environmental, climate, safety and other risks with effective management. Concerns were raised of many appearing self-taught. They also specifically mentioned port decarbonisation as an area they would like to see financially, technically and human training related/research support for their and other Belize ports. From a policy perspective they highly recommend allowing for revised modernised National Transport/Maritime Policies to reflect decarbonisation, climate change and other emerging risks.
32.	Ministry of Economic Development Senior Representative	Concerns exist in not having databases of their own in relation to climate change data and resources but continuously relying upon other stakeholders for sharing. They mainly record climate finance investments and required monitoring legally,

		rather than being direct repositories of information suitable for developing ocean accounting. They would like more evidence ongoing to support any climate related rationale for their policy/investment decisions along with MRV. They would like more regular physical/online access and resource support for observatories and meteorological systems. From a human capacity perspective, more on ocean accounting and linking the blue economy to climate change -policy, finance, mitigation and adaptation research, along with the system were listed as fundamental priorities. This would need to complement existing established processes for monitoring climate related indicators along with policies such as the Medium-Term Development Policy. It was recommended that ocean accounting should also align to this forecast vision moving forward, measuring changes in ocean production socioeconomic and ecosystem value/health and wealth, accounting for changes in asset values in responses to certain risks and flows over time. It needs to factor in both government and IDB priorities. Existing projects and initiatives for climate change, could also be adapted to incorporate ocean accounting-based indicators. There is a need to align to existing goals and priorities. In the future they are also looking to develop a Blue Cities Programme focusing on coastal infrastructure, water and wastewater resilience to climate change, with potential implications for the blue economy but are still in design conception phases. They remain somewhat interested to support further mutual collaboration and cooperation including monitoring marine/coastal related investments and projects/target indicators.
33.	Ministry of Labour, Rural Development and Local Government Senior Representative	They are also striving towards implementing their own Ministry specific Monitoring and Evaluation System and would like any customised support for that. It is being pursued in a phased in approach. They are still reliant on the Statistical Institute of Belize but agree ocean accounting would be of value if it could capture poverty, gender and sector specific workforce/various socioeconomic indicators. As they need far more data analytical capacity, development of suitable indicators, equipment, technology -and human capacity. The Ministry has partly started to resolve this in hiring just one policy/data coordinator -but would like to expand this towards a greater unit. There are also human and technical capacity development needs within Rural Development as a department and its various officers. These need guidance so that they in turn might empower elected and appointed representatives of villages/rural councils and entities to be able to successfully form community development plans, acquire sufficient finance/technical capacity, as agents of change. This might include basic IT, financial, data, recording, business and administrative/entrepreneurial guidance from Compete Caribbean or others, along with proposal writing, leadership, communication, presentation, marketing/media/social media/ocean accounting and blue economy sensitisation awareness. Aside from this, more equipment to capture information, basic office supplies and improving transport to get out into rural/more distant areas was prioritised. The interviewee also emphasised the value of GIS/remote sensing/surveying including drones.
34.	Fisheries Department Senior Representatives	They indicated moving forward, a willingness towards potentially sharing related internal documents relating to economic, social and enforcement data, along with details of current projects to overcome any existing gaps. From a human capacity perspective, however they would like additional support not just in overcoming current data gaps but in the training and support for Monitoring, Reporting and Verification Systems, the methodologies and indicators, along with developing their central database, refinements in the equipment, technology and systems towards collecting and amalgamating data. They also expressed keen interest in the need for specialist human capacity and training. They indicated core capacity gaps, with many generalists needing to undertake specialist technical work, yet comparatively few qualified, along with a pressing requirement for more research and data analytical capacity. They indicated that MBECA itself was set up with comparatively

		minimal regard for human capacity, coordination and integration/expansion of existing capacity and thus, this could be augmented further. They indicate some awareness and willingness to work with NGOs via a Coral Working Group. However, data gaps in relation towards coral reef health was still referred to as needing more institutional strengthening and capacity building along with enforcement and monitoring. More people also need to be urgently recruited.
35.	Belize Geology Department Representative	Currently the sector includes zero issued exploration licenses for oil and gas within Belize territorial waters and 5 Exploration/Prospecting licenses on land. Historically, prospects have mainly been potentially viable offshore. There has been virtually no discussion related to sand/shallow/seabed mining. Previously the nation tried undertaking seismic and multibeam echosounder surveys in conjunction with regional agencies and the private sector, but this was halted on the basis of certain NGO opposition. The department is considered to have adequate technical capacity and qualifications for the most part if the moratorium were to be lifted including a total of fourteen people. This includes four administrative and ten technical staff including two geologists, two finance experts, a subsurface petroleum engineer and others. However, generally they must contract out for specialist laboratory/software services especially geochemical areas. They consider adequate GIS/equipment and general administrative operational capacity to be mostly sufficient. However, there are existing skills/institutional gaps in needing a geochemist and a geophysicist. They have tried encouraging the youth to apply but so far, marketing efforts have not materialised. They have internal partnerships with other companies in seeking to procure the necessary information and to commercialise/sell it as they lack the current capacity to do so, as a further revenue generating option. Engaging in analysis is technically possible but can be extremely expensive.
36.	Ministry of Public Utilities, Energy, Communication and E-Governance	Despite the existence of a Data Sharing Act, they have experienced challenges in getting stakeholders to cooperate, thus hindering the potential for national ocean accounting, Monitoring, Reporting and Verification. There is no formal process for information exchange, being mostly based on personal relationships. The Ministry is working with the Statistical Institute of Belize for mutual cooperation. The Ministry is self-described as possessing average institutional capacity. Priorities for the Belize government/IADB include urgently needing capacity building expertise in data analytics. In particular they and the Belize blue economy require local positions and skills training especially in Information Technology sectors including cybersecurity, data architecture, programming, engineering and the AGILE methodology. They have been trying for a couple of years to get a list of vacant positions accepted by the Ministry of the Public Service.
37.	Sustainable Development Unit	Recently they have been working with the University of Belize to develop two laboratories, acquire access to mass spectrometers, sensors and other customised equipment to test water quality and other environmental variables. In terms of human capacity, other needs were overshadowed by the dominance of requiring data analytics, management, statistics and IT capacity. They have some familiarity with SPSS, statistics and software but appreciate any further capacity in more updated areas. Other recommended area gaps include those related to ecosystem and blue carbon valuation, fund raising and proposal writing prioritising resource mobilisation, communication and marketing, including translating information into a more user and public friendly format
38.	Maya Forest Trust	In terms of priority needs from MBECA/IADB and others they would like technical capacity building in relation to determining carbon/blue carbon and related critical areas. Keen interest was high in understanding the commercialisation potential and effective communication -i.e., how to engage with scientists, investors and the public separately. There was also interest in more projects, including infrastructure considering training in risk management and social-ecological safeguards -For example climate change, Indigenous/vulnerable communities and even wildlife crossings were cited. A core recommendation was to follow other countries by

		specifying more articulately the need for active stakeholder engagement -i.e., good negotiation skills

Other **Data, Gaps and General Needs Other Than Ocean Accounting**	**Interviewed Stakeholders**
Increased Human Capacity	5
Need For Increased Mutual Cooperation and Information	7
Specific training in blue carbon, biodiversity offsets, GIS, spatial planning, and other tools/technologies against deforestation and other threats to mangroves/wetlands/forests, along with water quality indicators	7
Additional technology/equipment	4
Improved Communication, Presentation and Commercialisation Skills basic IT, financial, data, recording, business, and administrative/entrepreneurial guidance from Compete Caribbean or others, along with proposal writing, leadership, communication, presentation, marketing/media/social media/ocean accounting and blue economy sensitisation awareness.	3
Additional Sustainable Finance and related capacity building/networking support	3
Need to undertake comprehensive marine survey	3
None	1

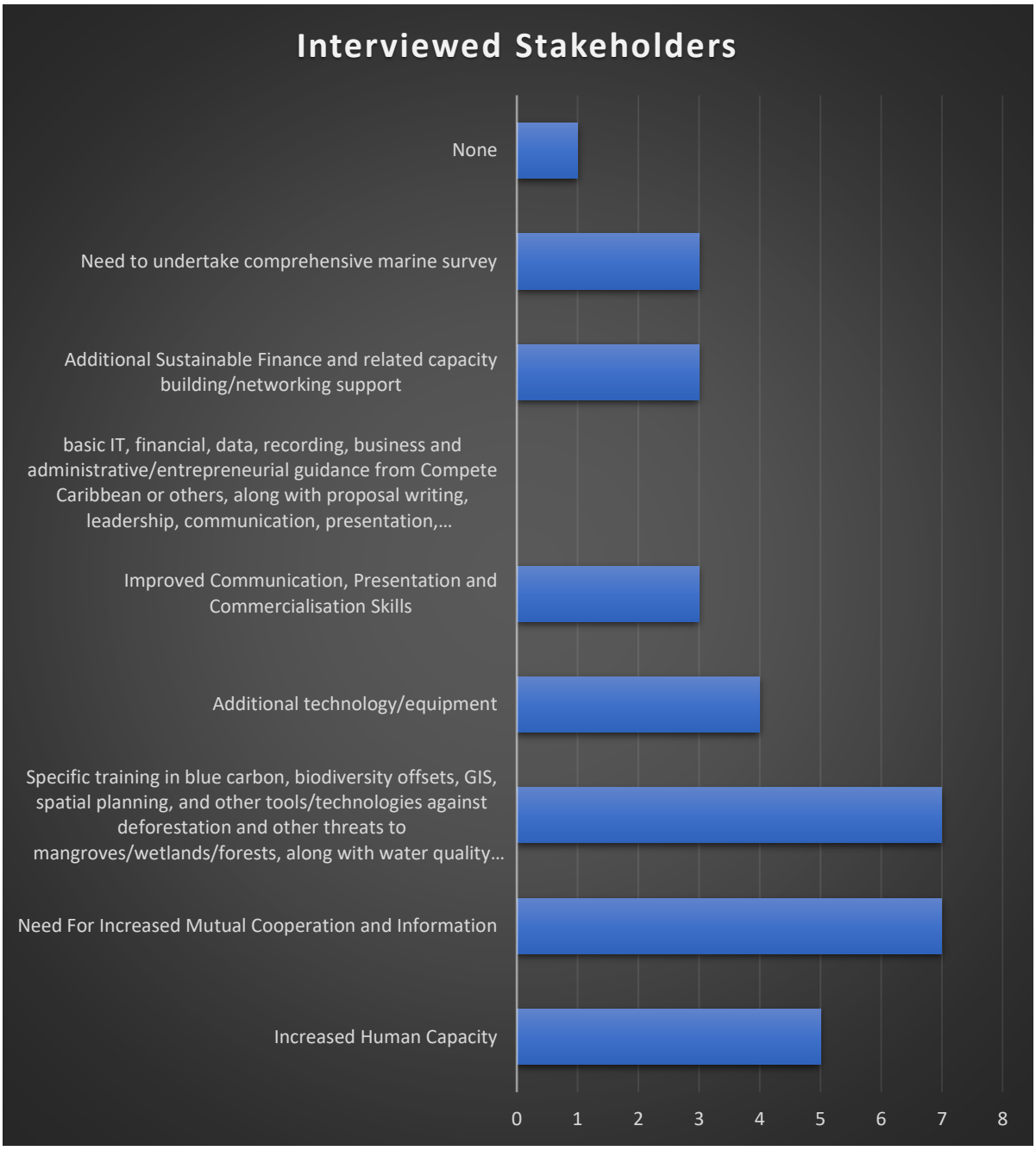


Table 4.4.4: Survey Data/Information Collection and Potential Priorities for Belize Blue Economy Stakeholders

Survey No	Type	Data Collection and Potential for Each Stakeholder to Contribute towards Integrated Ocean Accounting in Belize
2(	Belize Ministry of Tourism and Diaspora Relations	The MTDR and the BTB is currently working with the Statistical Institute of Belize to develop the country's Tourism Satellite Account. The Tourism Satellite Account (TSA) will integrate data on the demand and supply of tourism-related goods and services into a single framework. The Belize Tourism Board is the primary data collection agent for the Tourism industry in Belize. It works with the Immigration Department, Attraction Managers, Hoteliers, Tour

		Operators, and other industry stakeholders to collect information on the performance of tourism in Belize. **4b: From where is it sourced/from whom?** • Belize Tourism Board- Tourism Data Analyst, 4c: How often is it updated? • Travel & Tourism Mid-Year Report • Travel & Tourism Statistics Digest – Annual • Monthly KPI Tourism Performance Report 4d: To what extent do you/your organisation collaborate/share with others? • Data is shared as requested or based on need. The Mid-Year Report, KPI Report, & Annual Statistics Digest is published on the BTB's website. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** • Completion of the workplan activities for the Tourism Satellite Account, has been delayed.
2	Belize Port Authority	Data collected form part of the operational work of the authority, and these are gathered in databases. 6. Domestic shipping: number of vessels, types of vessels. 7. Water Taxis: number of vessels per operation, timings for departures arrivals, number of passengers moving to and from destinations. 8. International shipping: ship calls to port by size, port of call, turnaround time, type of business, container, cargo, and passenger traffic to ports. 9. Marinas: number of marinas in operation, types of services rendered. 10. Port Performance: KPIs for cargo/ container ports. **4b: From where is it sourced/from whom?** Form the day-to-day operation of the authority. **4c: How often is it updated?** On the go. **4d: To what extent do you/your organisation collaborate/share with others?** Information of maritime data is shared with the Belize Coast Guard, for security and if requested by other agencies. **4e: How many staff are designated to collect data.** Technical Department, Registration Staff- approx. twenty-five, main focus is not data gathering, but it forms part of the job descriptions of each member. **4f: What is the reporting frequency of data?** Weekly, monthly, and annual reports of data for each department (which generates its specific data) **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** Yes, accuracy of data requires there be constant monitoring to ensure data is being captured on time and accurately. This is the role of middle and upper management, and it can be strengthened. Also, our data is by department and there is not a central hub. There are plans to rectify this by having a central area to house all our data.
2	Climate Finance Unit	**What is your current approach to data collection/statistics /other information -i.e., types of data, technology/systems used.** We do not explicitly collect or analyse data. **4b: From where is it sourced/from whom?** We are usually given analysed data from the source (i.e.., MET office, SIB, relevant ministries or departments, CCCCC, etc.) **4c: How often is it updated?** **n/a** **4d: To what extent do you collaborate/share with others?** We depend on the sharing of data, if we are asked to share anything from our office in terms of studies, strategies, etc. then we are more than willing to do so.

		4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify. In Belize, data collection and especially data analysis is a big constraint. For our office, we would monitor the progress of projects and programmes, but we do not partake in the collection or reporting of raw data.
2	Crocodile Research Coalition NGO	**4-** Our data collection is basic, and we collaborate with various universities and researchers in the US and Europe to further assist us in statistical analysis and technology. **4b: From where is it sourced/from whom?** Grants and donors. **4c: How often is it updated?** We try to update our approach to scientific methodology every few months. We are in contact with various academics to ensure our approach is modern, etc. **4d: To what extent do you collaborate/share with others?** The CRC collaborates extensively with local and international organizations and researchers**.** **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** Our challenges are not having the funds to hire on more people to further assist us in our research, aka, data collection, analysis, monitoring, reporting, etc.
3	Galen University	**4a: What is your current approach to data collection/statistics /other information - i.e., types of data, technology/systems used.** Galen does not at this time collect any data in this regard. The students and lecturers, alike, would source data from national entities to complete assessments. **4b: From where is it sourced/from whom?** Analysed data is sourced from the Ministry of Blue Economy, Fisheries Department, Statistical Institute of Belize, Coastal Zone Management Authority and Institute as well as some marine based Non-Governmental Organizations. These are available via reports of data sets from the entity. **4c: How often is it updated?** We are not certain of this. **4d: To what extent do you collaborate/share with others?** Not Applicable. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** The availability of data is a challenge for research purposes, as the data is not readily available via a digital platform, in most cases. Data might not be collected in a periodic manner, due to various reasons, hence limiting Galen's ability to access data as needed from other entities.
3	Healthy Reefs Initiative	**4a: What is your current approach to data collection/statistics /other information - i.e., types of data, technology/systems used.** Data is physically collected in the field by surveyors and entered into the AGGRA database online**.** **4b: From where is it sourced/from whom?** Data is sourced from trained AGGRA certified surveyors in fish, benthic and coral survey methodology. **4c: How often is it updated?** Every two years AGGRA data is collected and updated. **4d: To what extent do you collaborate/share with others?** Often collaborate with partners as well as freelance data collectors that have been AGGRA certified. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** A standardized approach to data collection from start to finish is required to eliminate some of the issues faced.

		Organizations may be looking for different outputs and may collect data differently and manipulate it differently.
3	High Seas Fisheries Unit	**4a: What is your current approach to data collection/statistics /other information - i.e., types of data, technology/systems used.** The BHSFU is responsible for the management and conservation of fisheries resources in the high seas adjacent to Belize's EEZ. To effectively conduct its mandate, the BHSFU employs various approaches for the collection of data, statistics and other information related to high seas fisheries. These encompass the types of data collected, as well as the technologies and systems used for data collection and management. The BHSFU collects a wide range of data and information to support its fisheries management efforts and in order to meet its international reporting obligations. These include: 1. Catch data on species composition, quantities, types, and size of species caught by Belize flagged fishing vessels. This data is reported to the regional fisheries management organizations to provide insights into the state of the fish stocks and to help determine sustainable catch limits. The unit also collects effort data on the fishing activities such as number of fishing trips, duration of trip and fishing gears used. This data helps to assess the pressure and identify trends in fishing effort over time. 2. Vessel monitoring system and fish information system is the technology used by the Unit that utilizes a satellite-based tracking system that is installed on fishing vessels to monitor their movements in real time. The unit use this system to determine the vessels' positions, detect IUU fishing and ensure compliance with international regulations. The FIS part is used to also collect catch data information. 3. The unit also maintains an outsourced at-sea observer program where trained observers are deployed to fishing vessels to collect scientific data on catch composition, discards and other relevant at sea operations. This helps to provide valuable insights into fishing practices and help validate self-reported data from vessel operators. Biological data is also collected by the at-sea observer which is crucial in helping to understand population dynamics and setting appropriate management and conservation measures. The BHSU employs various technologies and systems to facilitate the collection, management and analysis of fisheries data. These include: 1. Logbooks, manual and electronic reporting platforms are used to capture catch and effort data from fishing vessels. 2. A vessel monitoring, and fish information system is used to track the movement of fishing vessels in real time and provides valuable information on vessel activities. 3. The Unit maintains a dedicated data management system to store, organize and analyse fisheries data. These systems ensure that data is consolidated, stored and readily accessible for reporting purposes, scientific analysis, and decision-making processes. 4. The Unit utilizes collaborative platforms from regional and international organizations to access additional data sources and share information, such as the Global Fishing Watch AIS platform, Marine Traffic, Sea web, Google Maps, RFMO databases, inter alia. 5. In addition, the unit collaborates with regional fisheries management organizations to which Belize subscribes to access scientific research that focuses on stock assessments, ecosystem monitoring and impact of climate change on fisheries. **4b: From where is it sourced/from whom?** Data is sourced from our vessel monitoring system which provides location and movement of the fishing vessel. From on-board observers who collect data on catch composition, fishing methods, gear types, mitigation methods and other relevant information. Logbooks and landing declarations are also available which documents fishing activities including catch quantities, species, location, size, bycatches, discards, interactions, etc., Operators are also required to submit landing declarations upon returning to port or when seeking export documentation. Scientific research conducted by scientists and experts also contribute to the information sourced by the Unit, these include, stock assessment, surveys tagging programs and other methods aimed at understanding fish populations, patterns, reproduction, and other relevant information. The Unit, through its interaction with regional and international organizations also obtains information from these organizations. This

		allows for exchange of information between countries and harmonization of methodologies for data collection and analysis. **4c: How often is it updated?** The data collected by the Unit is updated on a regular basis with frequent updates depending on the source of the data and the specific needs of the Unit. For example, catch and effort data are required to be submitted monthly, stock assessment data are obtained from RFMOs every four years depending on the type of species, position reports are received hourly, observer data are obtained annually. **4d: To what extent do you collaborate/share with others?** Collaboration and data sharing are important components of effective fisheries management as it facilitates the exchange of information to support sustainable fisheries. The extent at which the BHSFU collaborates and shares information with others can be examined from various perspectives. RFMOs – The BHSFU actively collaborates with these organizations such as ICCAT, IATTC, SPRFMO for the sharing of catch and effort data, observer data, inter alia. We receive stock assessment reports and participate in scientific and annual meetings to determine appropriate management measures based on relevant scientific data received not only from other member countries but from the research carried out by the organisation's scientific team. We also collaborate with regional bodies such as OSPESCA for the sharing of data, systems, and polies with other members of this organization. We collaborate with the FAO also in the exchange of information, to capitalize on their capacity building programs and to implement best practices in high seas fisheries management. We also collaborate with organizations such as CRFM for data sharing, research projects and policy development. We collaborate with NGOs that focus on marine conservation and sustainable fisheries such as OCEANA, WWF, TNC. These organisations have extensive networks, resources and expertise that support the Unit's efforts in data collection analysis, vessel monitoring and advocacy. Collaborating with these organization involves not only data sharing but participation in workshops or organizations. We understand the importance of maintaining confidentiality of data and as such we aim to ensure that data sharing is conducted in a manner that respects and protects sensitive information and complies with all legal requirements. We also enter MOUs with partner governments and organisations to formalize the exchange of information. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** Although the Unit employs accepted systems and technology for the collection, monitoring, reporting, and verification of data, we still encounter many challenges. One of the significant challenges is our reliance on the voluntary reporting from the vessel operators who often submits inadequate or erroneous information. This makes it difficult to track trends, access quota utilization and enforce relevant fisheries regulations. The fact that we operate a distant water fishery makes it also difficult to obtain accurate information since the vessels do not discharge at our ports. We must rely on discharge reports from other countries which may not always be forthcoming. This also impedes our ability to inspect our vessels and their discharges to ensure the accuracy of the data being submitted. Limited capacity and resources are also a challenge since we lack the necessary funding to travel to the different ports where our vessels discharge to carry out proper inspections of their vessels as well as their catches. Proper personnel training in fish identification and vessel inspection also limits our ability to collect, monitor and report data
3	Ikooma Belize -seaweed entrepreneur	As a results-driven cosmetic brand, I have only relied on anecdotal information since 2019 from customers to understand how my product works and my own experiments since 2015. I do not have any other data collection method at this time. **4b: From where is it sourced/from whom?** My data comes from consumers who have used my products. **4c: How often is it updated?** This is information that just comes in as consumers choose to share. **4d: To what extent do you collaborate/share with others?**

		I have been exploring my patenting options, so I try not to share too much at this time. I do try to promote other seaweed related businesses, in the wider effort to boost the sales of our seaweed suppliers and their morale. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** In the scope of cosmetics, there are no laboratory/regulation services available in Belize that can assist with obtaining certifications such as: shelf life, vegan, organic, etc. This makes it difficult to boost product credibility in the local market and in the tourism sector and to prepare for export.
3	National Biodiversity Office	Belize does not currently have a consolidated system for data management. The National Biodiversity Monitoring Program is cited as one of the main tools to be used to improve standardized and systematic monitoring of biodiversity indicators to inform national decision making. The development of the NBMP which was led by the Environmental Research Institute under the University of Belize, was aligned to the Aichi Targets. The aim is to update the NBMP in alignment with the KM Global Biodiversity Framework to support the prioritization, tracking and reporting of implementation of Belize's update NBSAP targets. The updating of the NBMP is one of a few processes that needs to be updated to support a more coherent and consolidated approach to tracking Belize's implementation of its biodiversity targets and to make data and information related to biodiversity management more accessible to decision makers, academia and the general public. A Clearing House Mechanism is also in the pipeline for re-establishment to support implementation of Belize's NBSAP targets and to increase accessibility of information related to biodiversity. As it pertains to protected areas management, reporting is to be done annually through the newly signed co-management agreements. These agreements are signed per sight with non-governmental or community-based organizations and outlines the roles and responsibilities of the government and its partners for the effective management of protected areas. The Spatial Monitoring and Reporting Tool has been rolled out across all protected areas under the administrative oversight of the National Biodiversity Office. The tool supports a coordinated effort for monitoring and enforcement of environmental legislation throughout the system. A data model was developed by the office to standardize the parameters to be collected and reported on at the national level. **4b: From where is it sourced/from whom?** There are multiple key data collections departments nationally including the Forest Department, Fisheries Department, Department of the Environment, NBIO, Co-Management Entities including but not limited to the Belize Audubon Society, Ya'axche Conservation Trust, Toledo Institute for Development and Environment, etc. **4c: How often is it updated?** Reports from protected areas site managers are to be prepared on an annual basis while SMART reports are to be submitted via the platform monthly. National Reports to the Convention on Biological Diversity where Parties report on actions taken toward the implementation of the biodiversity strategy is to be done every four years. **4d: To what extent do you collaborate/share with others?** There is insufficient sharing of data currently. Considering the need to centralize data and information on biodiversity, a gap still exists where data is housed by multiple entities in multiple databases. There is no standardized reporting or information sharing at this time but rather both are done based on the requirements of the entity the report is being submitted to. Availability or access is often given based on request. Efforts have been made to correct this situation but have proven to be short lived on many instances. The structures in the pipeline for development/updating the NBMP and the Clearing House Mechanism should help in bridging this gap and making data more accessible. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?**

		While the larger, more effective NGOs have been improving the information on the resources they manage, there are still gaps and challenges in having effective in-house information management systems in place. The main barrier to adoption of technology in Belize is the lack of trained technical personnel to manage and deploy technology. Effective biodiversity conservation will require considerable capacity building to ensure that practitioners are able to maximize the returns from technology to ensure that decision making is data driven and informed.
3	National Meteorological Department	The NMS systematically monitors, collects, stores and analyses weather and climate data at different timescales (5min, 10 min, 15 min and daily) across the country. This is done with both manual and automatic weather stations that has various weather instruments recording rainfall, temperature, windspeed and direction, solar radiation, soil temperature etc. that is transmitted in near real time into the NMS's database using different modes of transmission (Satellite, Data/SMS, Internet). The data that is collected undergoes a monthly quality control system utilizing the World Meteorological Service QC methodology. **4b: From where is it sourced/from whom?** The NMS collects all weather and climate data using weather stations in its observation network. **4c: How often is it updated?** It is updated in 5-, 10- and 15-minute intervals, hourly and daily when collected by the Human Observers. **4d: To what extent do you collaborate/share with others?** Some stakeholders have direct access to the NMSs database, but the data is available upon request using an online data request form found on the NMS website. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** The NMS from time to time faces challenges with the constant Maintenance of the weather stations, sourcing spare instruments and requires additional QC on the automatic weather station data. Additionally, training would be useful for the analysis and in the creating of sector specific information.
3	Office of the Prime Minister Economic Development Council	We rely on desk research, drawing on national data provided by the Statistical Institute of Belize, National Policy documents, Annual Ministry Technical Reports, and on data directly requested from respective departments and Ministries (on a needs basis), and global data stemming from the World bank, the IMF, IDB reports, etc., **4b: From where is it sourced/from whom? See 4a.** **4c: How often is it updated?** **4d: To what extent do you collaborate/share with others? We do not serve as a repository for data.** **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** Across government, there are data gaps resulting from ministries, departments and government agencies not adequately collaborating and sharing critical data that can support other sectors in making adequate policy decision making. A gap remains particularly as it relates to data collection and analysis for adequate decision-making.
3	University of Belize	Data collected is based on Faculty research and student thesis projects. These change every year. We collect data/ have collected data on sea cucumber, lobster, conch, fish, mercury in fish, microplastics in fish, microplastics in sea cucumber, microplastics in conch, sargassum, invertebrates, coral, mangroves, seagrass, others. Technologies used include lab equipment e.g., FTIR, centrifuge, mercury analyser, GPS, GIS technology, drones, others. **4b: From where is it sourced/from whom?** Technologies are purchased by the University or from external funding. Data is collected annually by faculty and students.

		4c: How often is it updated? Equipment is purchased based on need. Different data are collected annually based on the faculty research projects. **4d: To what extent do you/your organisation collaborate/share with others?** UB collaborates with the Fisheries Department, CZMAI in various efforts, meetings. **4e: How many staff are designated to collect data.** Faculty are the ones who lead research at UB, not staff. About thirty or more faculty are actively involved in research. **4f: What is the reporting frequency of data?** Annually. **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** More training is needed in biological and social data analysis.
3	Wildlife Conservation Society Belize	We are currently using WCS staff to collect data at site level but have also worked with fishing communities for data collections. We collect data using traditional pen and paper but also have done data collection using SMART. **4b: From where is it sourced/from whom?** Fishers, Communities, Field **4c: How often is it updated?** Some Data collections are as frequent as every month others are twice a year, and some are based on need. **4d: To what extent do you collaborate/share with others?** We share data with the government of Belize and are willing to share data once a data agreement is signed. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** The process to get scientific research in Belize can be very complex and difficult.
3	Caribbean Regional Fisheries Mechanism	**technology/systems used.** Statistics and information on fisheries catch and effort are submitted on an annual basis to the Secretariat. A Statistics and Information report is prepared annually. Data are stored in Excel. The Secretariat is in process of developing a regional cloud-based data management tool called The Fisheries Manager (TFM) under the CARICE (CARRICOM Iceland) project. Three Member States are also expected to pilot TFM at the national level under CARICE. TFM can be used by data collectors to collect, store, and report on fisheries data for sustainable management of living marine resources. **4b: From where is it sourced/from whom?** Fisheries catch and effort data are sourced from the Fisheries Divisions/Departments of Member States. **4c: How often is it updated?** Annually **4d: To what extent do you collaborate/share with others?** The Statistics and Information report is shared with the Member States annually during the Caribbean Fisheries Forum and endorsed by the CRFM Ministerial Council. Regarding statistics and collaboration, the CRFM participates in the WECAFC-CRFM-OSPESCA Fisheries Data and Statistics Working Group (FDS-WG) and the WECAFC-FIRMS (Fisheries and Resources Monitoring System) partnership which seeks to facilitate access to high-quality information on the status and trends of global marine fishery resources, fisheries and their management.

		4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify? Challenges related to data, statistics, monitoring, reporting, collection, and verification include limited human and financial resources within the Fisheries Divisions/Departments of Member States to routinely collect and analyse fisheries catch and effort data.
4(	Protected Area Conservation Trust	The type of data varies and is dependent on the proposal or program type of program or grant. under funding. For example, under enforcement we collect information related to patrols and infractions. There is information on biodiversity monitoring as well but related to outputs under the program. For example, if the indicator is related to fish stocks, then a fish stock report is submitted to PACT, not the disaggregated datasets. The type of data varies depending on the **4b: From where is it sourced/from whom?** The source is from Protected Areas Management **4c: How often is it updated?** The data is updated quarterly or when it becomes available. **4d: To what extent do you/your organisation collaborate/share with others?** PACT is a public entity and request for data is shared in an aggregated form. PACT does see the need for a formal data sharing agreement to be established with other government entity. **4e: How many staff are designated to collect data.** Currently three staff. **4f: What is the reporting frequency of data?** It is dependent on the deliverables of the project. **4f: Currently are there any challenges in relation to data, statistics, monitoring,** Because the data varies from project to project the challenge is developing a standard set of data that PACT considers appropriate. We are currently working on a results-based framework which would standardize the data requirements. The data would be more relevant to answering the questions within the PACT Strategic Plan. **reporting, collection, and verification and why? Please specify?**
4	Ministry of Blue Economy and Disaster Risk Management	MBECA does not collect any data at the moment, but as mentioned, we do hope to be able to expand our capacity to collect data for environmental accounting purposes. The data would ideally need to capture the economic value of activities occurring in the blue space; a detailed account of stakeholders that exist in the blue space and the social and environmental dynamics in which these activities exist. **4b: From where is it sourced/from whom?** n/a **4c: How often is it updated?** n/a **4d: To what extent do you/your organisation collaborate/share with others?** As mentioned, MBECA does not collect data, we are more of a coordinating body. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** The main challenges for MBECA would be lack of adequate financial and human resources needed to engage in data collection.
4	Belize Tourist Board	Data is collected through administrative records as the BTB is the regulator agency for hotels, tour operators and tour guides. Each of these have their own legislation and licensing period annually. Only recently has this licensing process become electronic whereas it was fully manual. Furthermore, hotels submit monthly reports electronically. This data is stored in a database; this is tapped into for analysis and reporting.

		Data is also formally requested from the respective government departments, institutions and NGOs on a semi-annual basis. Monitoring at the Fort Street Tourism Zone (in Belize City) of pedestrian and vehicular activity in the cruise zone is done unobtrusively through several video surveillance cameras placed in the area. There is currently no API which the BTB accesses to tap into data already entered by external agencies. The BTB employs limited use of BIG DATA. The BTB has subscriptions to IATA Global Agency Pro (https://www.iata.org/en/services/statistics/intelligence/global-agency-pro-gap/) which provides airline tickets sold by travel agencies. BTB has also been using Forward Keys travel intelligence (https://forwardkeys.com/) to capture airline data. As we speak the BTB does not utilize GIS nor drone technology. We do not use infrared or Radio Frequency Sensors to monitor traffic and analyse traffic patterns at sites and attractions. **4b: From where is it sourced/from whom?** **4c: How often is it updated?** Hotels, tour operators and tour guides are required by law to renew their licenses with the BTB annually. Hotels are required by law to submit a Monthly Accommodation Tax Report to the BTB. The Immigration and Nationality Department provides border flows on a weekly basis. Visitation statistics are requested semi-annually from government departments and NGOs. Previous years' data are revised as applicable. Airline data has been sourced from IATA Global Agency Pro and Forward Keys on an as needs basis. The data is updated weekly from the sources from which these companies buy their subscriptions. **4d: To what extent do you/your organisation collaborate/share with others?** The BTB is a member of a variety of committees and working groups on a broad range of issues related to planning, policy, governance, and legislation, including legislative support to other Ministries. For data collection it partners heavily with the Statistical Institute of Belize and the Central Bank of Belize. **4e: How many staff are designated to collect data?** The BTB has the Tourism Data Unit comprising of three staff. As the regulatory agency there are also five licensing officers and three licensing assistants. While technically they are not designated to collect data, they deal with the administrative portion of the licensing procedure and ensure the data is complete and accurate. For cruise tourism there are three data collectors. **4f: What is the reporting frequency of data?** Press Releases are done several times monthly. The Tourism Performance Dashboard is updated on a monthly basis. Travel and Tourism Statistical Digest is updated annually. **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify.** The BTB depends on external agencies for data so there is no way the BTB can independently verify the accuracy and integrity of the data. There is under-reporting by hotels to evade taxes; auditors can only get to a certain volume of establishments in a given fiscal year. Data is not forthcoming in a timely manner. Hotel sector reports lag due to the reporting period (reported the month after as opposed to more real time). We are not able to collect real time data. There are limited financial and human resources to collect the data. There is limited capacity to process, analyse and interpret the data.

		Visitors are not willing to apply technology to providing data; instead of completing questionnaires on tablets they prefer paper-based questionnaires. This creates a lag as the data then needs to be entered. There is limited data triangulation. There is a very small window to collect cruise sector data from departing passengers. Staff is not GIS savvy. Staff is not trained in Tableau, Data Analytics or the use of Artificial Intelligence. We can benefit from training in Statistical Package for the Social Sciences (SPSS), and Python Programming Language.
4	WWF Mesoamerica	WWF on its own and in partnership with other agencies (government, academia, and NGOs) actively collect and analyses data on ecosystem and species health, function and services. This is done through field studies, modelling and community and stakeholder capacity building and engagement to collect information, integrating citizen science approaches wherever possible to enable communities and stakeholders to help data collection and monitoring of key marine and coastal ecosystems. Spatial data is collected and stored in ecosystem and georeferenced databases which is shared and utilized by WWF and its partners. **4b: From where is it sourced/from whom?** Where raw data and GIS/spatial datasets are needed to inform research, such are sourced from external agencies and independent research institutions that have the mandate and responsibility to collect such data, (e.g., Fisheries Department, CMZAI, Forest Department, HRI, Academia, etc.). The WWF also supports data collection through subcontracting such partner agencies. **4c: How often is it updated?** As needed and as resources become available. **4d: To what extent do you collaborate/share with others?** WWF's core value include collaboration, and this is effectively done through long term relationships established with various partners for local, national and regional level efforts. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify.** - Some agencies are unwilling to share data which they collect. They may require payment and/or formal data sharing agreements which include restrictions of use and publication. - Duplication of efforts resulting in unwise use or resources, - No national data clearing houses and lack of access to raw datasets housed by some agencies. - Unwillingness of govt agencies to share data between agencies. General mistrust of how data will be used. - Some data only available in hard copy, and not processed digitally. - Backlog of raw data (not incorporated into digital platforms)
4	Private Seaweed Aquaculture Entrepreneur	Production data, water quality, influent and effluent quality differences. **4b: From where is it sourced/from whom?** On the farm. **4c: How often is it updated?** Daily. **4d: To what extent do you/your organisation collaborate/share with others?** We share this with our Local Health Authority, (BAHA), Department of Environment and auditors for Sustainable Aquaculture such as (ASC) Aquaculture Stewardship Council. **4e: How many staff are designated to collect data.** We use about six personnel to collect data, several to collect samples and two to run laboratory analysis. **4f: What is the reporting frequency of data?** Daily, 24 hours.

		4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify? None that I can think of
4	MBECA Representative 2	No data is collected. I only collect project progress updates from projects executed by MBECA. **4b: From where is it sourced/from whom?** N/A **4c: How often is it updated?** N/A **4d: To what extent do you/your organisation collaborate/share with others?** I share project progress updates with MED on a quarterly basis. Final project deliverables and project materials are shared to stakeholders based on request. **4e: How many staff are designated to collect data.** MBECA has no staff dedicated to collect data. **4f: What is the reporting frequency of data?** N/A **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** 2. No legal mandate to support Blue Economy structures and processes for the whole of government coordination and communication, as a major impediment for implementing a long-term coherent blue economy agenda across government and non-government sectors. 3. Limited human resources, specifically with specialization of positions to meet the needs. For instance, there is no dedicated person overseeing data management. There is limited staff with capacity to manipulate data collected, conduct data analysis, identify trends, develop case studies to inform policies and decision making and database management. 4. The need for enhanced capacity building for staff to perform efficiently and effectively. Example, staff have limited knowledge on management and use of data. There is no proper procedure to store and file data, data integrity, and security for the proper data management. 5. Limited financial resources to fulfil institutional roles and functions due to pre-approved ceiling set on budget by the Ministry of Finance. 6. Limited equipment and technology to perform duties such as to collect and process data for decision making effectively manage its operations. 7. There is no centralize and comprehensive data information management system for data collection, storage, processing, and analysis for the sustainable management of ocean resources.
4	Hol Chan Marine Reserve	All our data is collected and input manually in excel files. We do not have any software to interpret data. Stored on our network and computers. **4b: From where is it sourced/from whom?** **4c: How often is it updated?** Depending on the frequency of monitoring. Mostly quarterly. **4d: To what extent do you/your organisation collaborate/share with others?** We have good collaboration with governmental partners especially those departments from Fisheries, Tourism, Coast Guard, Port Authority, Forestry and Environment. We also collaborate with NGO such as WWF, HRI and FoH. As well as other MPAs. **4e: How many staff are designated to collect data.** Technical Department- Supervisor & Marine Biologists (3) Clerks and Station Rangers (11) Environmental Educator (1) **4f: What is the reporting frequency of data?** Annually **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify?** In terms of data collection, statistics and reporting the limitation is that we do not have a data analyst or a software to quickly interpret the data. It must be done manually with the

		limited in-house capacity. Monitoring is constant, limitations come with available resources (finance, staff and equipment) to continue the monitoring program.
4	Central Bank of Belize	The Central Bank collects, analyses, and utilises data to inform its policies and decision-making. This data forms the bedrock for impactful reports, analyses, and research conducted by the Bank. The Central Bank's statistical platforms include FAME Database, which houses economic and banking system statistics, the Meridian Database for debt statistics, and APSSS for payment system and Government securities statistics. **4b: From where is it sourced/from whom?** • Data are primarily sourced from domestic banks, international banks, credit unions, insurance companies, and Development Finance Corporation. However, the Central Bank also utilities data compiled by the Statistical Institute of Belize, Belize Customs Department, Belize Tourism Board, industry stakeholders, as well as public and private sector surveys. **4c: How often is it updated?** • Data is updated on a weekly, monthly, quarterly, and annual basis. **4d: To what extent do you collaborate/share with others?** • As a compiler and user of statistics, the Central Bank frequently collaborates with members of the public and private sector, including Government Ministries, financial institutions, industry stakeholders, and other statutory bodies. **4e: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify.** • Challenges relating to data, statistics, monitoring, reporting, collection, and verification include data timeliness and availability
4	NEMO	NEMO currently does not collect primary data. It relies on government and regional organizations for this data. 4b: From where is it sourced/from whom? National Meteorological Service, Caribbean Disaster Emergency Management Agency **4c: How often is it updated?** This is provided as needed. **4d: To what extent do you collaborate/share with others?** NEMO aims to collaborate with all government ministries and interested entities in the country.
4	Department of Aquaculture	We collect agricultural production data as well as shrimp annual production and exports and tilapia production. The MAFSE has a data base called Belize Agriculture, Information Management System, BAIMS. **4b: From where is it sourced/from whom?** DATA is collected by MAFSE extension officers to enter into BAIMS. Shrimp production is shared by the private sector to MAFSE and the Ministry of Finance as well as the Min of Economic Development. **4c: How often is it updated?** Monthly and Annually **4d: To what extent do you/your organisation collaborate/share with others?** We communicate with other Ministries for sure, but collaboration is to a lesser degree. We do have a collaboration at the moment with 2 other ministries and CZMAI in the Ocean Country Partnership Programme. 4e: How many staff are designated to collect data. Around forty people in the MAFSE, three in the Aquaculture Unit. **4f: What is the reporting frequency of data?** Monthly and annually
5	Oceana Belize	**4a: What is your/your organisation's current approach to data collection/statistics /other information -i.e., types of data, technology/systems used? I.e., What type of data do you collect?** Oceana's Fisheries Audit provides an evaluation of national fisheries management performance within the categories of fishery policy, transparency, and fish stock health and

		management. It describes scores for twenty-two indicators within the categories and serves as a baseline for continued progress tracking within those indicators. **Audit categories and indicators:** **Category:** Fisheries Policy **Desired Outcome:** There is robust and binding legislation underlying the legal framework for fisheries management. **Indicators:** 1.1 Long-term objectives 1.2 Obligation to maintain healthy stocks. 1.3 Science-based management 1.4 Ecosystem approach to management 1.5 Defined roles and responsibilities **Unit of Evaluation:** National fisheries laws **Category:** Transparency **Desired Outcome:** Decision-making processes are transparent, and fisheries information is publicly accessible. **Indicators:** 2.1 Belize Fisheries Council 2.2 Use of scientific information in management 2.3a Formal public consultations 2.3b Informal public consultations 2.4 Published estimates of production 2.5a Data on registered fishers and authorized vessels operating in domestic waters 2.5b Data on authorized vessels operating outside of Belize's EEZ 2.6 Information on status of fish stocks 2.7a Tracking of domestic fishing vessels 2.7b Tracking of fishing vessels outside of Belize's EEZ **Unit of Evaluation:** The national fisheries management framework **Category:** Fish stocks **Desired Outcome:** Fish stocks are maintained at sustainable levels of exploitation. **Indicators:** 3.1 Stocks with known status as determined by a stock assessment. 3.2 Overfished stocks 3.3 Stocks subject to overfishing 3.4 Stocks with defined catch limits 3.5 Stocks included in a fishery management plan. 3.6 Stocks subject to catch effort control. 3.7 Stocks whose landings are monitored. **Unit of Evaluation:** Individual fish stocks **4b: From where is it sourced/from whom?** The data is publicly accessible and/or published data by the Belize Fisheries Department, Co-management organizations, Academia, the Food and Agriculture Organization, other local and international NGO's. **4c: How often is it updated?** Every two years. **4d: To what extent do you/your organisation collaborate/share with others?** Our campaigns are designed following extensive discussions and implemented through varied collaborations. The meaningful participation of marine resource users and beneficiaries ensures ownership of the policy outcomes. **4e: How many staff are designated to collect data?** **N/A** **4f: What is the reporting frequency of data?** **N/A** **4f: Currently are there any challenges in relation to data, statistics, monitoring, reporting, collection, and verification and why? Please specify.**

		Fisheries information, including landings data, if they have been systematically collected and reported, have not been shared. This practice hinders the ability to properly assess fish stocks and develop effective catch control measures.
5	Beltraide	**What is your/your organisation's current approach to data collection/statistics /other information -i.e., types of data, technology/systems used? I.e., What type of data do you collect?** BELTRAIDE uses NEOSERRA outreach, a client management platform for data collection relating to economic impact. These include economic impact indicators classified as milestones include jobs created/ retained, capital investment, product diversification, among other factors. **4b: From where is it sourced/from whom?** As per its client management software, the SBDCBelize, BELTRAIDE creates profiles for clients using a D2- client advisory form in the system. Thereafter, through the completion of a D8- client growth assessment the information is captured in NEOSERRA for reporting. The clients sign this form to confirm the impact has been attained with the support of their business advisor. In NEOSERRA, the client management officer inputs the milestones to avoid any issues with data accuracy. **4c: How often is it updated?** Reports are prepared on a quarterly basis based on the fiscal year from April to March as per the government of Belize financial year. **4d: To what extent do you/your organisation collaborate/share with others?** We do receive referrals from stakeholder for clients to access our advisory or training services. **4e: How many staff are designated to collect data.** Both SBDCBelize and EXPORTBelize has four business advisors that collect data from their respective clients. However, only the client management officer for SBDCBelize and EXPORTBelize inputs the milestones data. **4f: What is the reporting frequency of data?** Data is reported quarterly for a report. **4f: Currently are there any challenges in relation to data, statistics, monitoring,** we utilize a data collection system since 2013, there are times when we are unable to capture updates from clients yearly.

Table 4.1.5: Interviewed Belize Blue Economy Stakeholder Risks, Issues and Concerns

Interview No	Type	Risks, Concerns and Issues
19.	Blue Bond Unit Office of Prime Minister	Nor were any risks/concerns shared by the participants as they considered the Blue Bond Initiative and related project and strengthening the conservations and monitoring capacity to still be comparatively early.
20.	FAO Belize Representatives	They further recommend more attention to assess existing skills and experiences, whilst hiring additional capacity and allocating sufficient funds for the various priorities identified under the FAO project and its deliverables including its Climate Data Information Gap Assessment. The project also conducted various Vulnerability and Livelihood Assessments for climate change, with adaptation finance with SURFACE. However only seven out of an identified twenty-seven coastal communities could receive potential funding under the FAO project, requiring potential funding support to be mobilised from other resources. A Technological Needs Assessment was similarly undertaken. In relation to climate finance, FAO aided the Belize government to design a concept note for Green Climate Fund support and to help directly address Nationally Determined Contribution requirements. However, this would require additional state co-financing to be committed

21.	National Biodiversity Office Representatives Director	There was also indication of working with PACT to improve local biodiversity monitoring, extending to data and surveillance equipment, collection and analysis via specific capacity/data needs as priorities. As part of the issues of coordinating and liaising with communities, to ensure maximum coordination and outreach awareness efficiently, there has been a current proposal for the National Biodiversity Office, as existing biodiversity towards developing a central database and clearinghouse mechanism for various data. It is also more uneven in coverage, does not address emerging threats, lacks links to NGOS, academia and other sources and was updated. They are also evaluating other Biodiversity Enabling Support. They indicated challenges where critical data gaps need to be overcome and prioritized decisively for effective decision making and implementation of the blue economy. Fisheries, Forestry, Environment and other Ministries, departments and other organisations such as NGOs and an assessment of recommendations how to fill the gap. Whilst some exist, they would urgently emphasise the need for more sustainable finance support both in general and for specific locations, working with the PFP and others when working, they would like to particularly highlight the success of existing co-management arrangements with NGOs as a best practise model that could be recommended for crowd sourcing, blue carbon and various forms of sustainable finance. Concern was expressed at there being often both internal bureaucratic barriers to freely sharing and accessing information/funding, equipment and human capacity. High staff turnovers were also markedly noted to affect performance. There has also been uncertainty about specific roles and responsibilities of the National Biodiversity Office versus PACT, the Forestry Department, Fisheries Department and Department of the Environment, often executing similar roles -i.e., mangroves/wetlands, which is legislatively unclear. General inter-agency cooperation, coordination and communication remains a concern.
22.	Reefkeeper Belize NGO	The main issue that surfaced included the challenges of accessing sustainable funding support for a smaller NGO, especially focusing on marine education that is still engaged in conservation and related initiatives but is not a formally designated marine protected area manager as expected by PACT and the Belize Fund for a Sustainable Future. Yet Reefkeeper has been active in the Southwest Marine Cays and Twin Cays. Concerns were raised about covering basic staff costs, needing a specific vehicle, new computer, more diving and water testing equipment and another ROV/drone. The inclination to develop a mangrove nursery was further prompted by challenges in gaining access to seedlings.
23.	Belize Coastguard Senior Representative	The Belize Coastguard identifies the top threats to be drug trafficking, piracy and illegal fisheries/other major crimes. Drug trafficking arises from its central position geographically via land, air and sea routes across Central America and the Caribbean. Security concerns exist of the ever-pervasive threats of powerful Mexican drug cartels seeking to infiltrate Belize. Weapons and human smuggling have also been linked to it. Piracy and Armed Robbery is mostly small scale but still a pervasive threat, especially from Guatemala. Both illegal fishing and cross border smuggling in efforts to evade customs duties, taxes and inspections has manifested in threats before from neighbouring Honduras, Guatemala and Mexico. He boasts of increased successes in prosecutions, strengthening penalties and responses. Other roles include maritime safety including search and rescue, security and Environmental Protection. Increasingly they are engaged with other stakeholders including the Environment and Fisheries Department to support enforcement, alongside communities and NGOs. Current employment capacity is five hundred, but they are looking to enlist a further five hundred to a total of 1000, from an original fifty. They mostly have smaller boats but are about to launch an international tender on procuring two new offshore patrol boats as it is the

		leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others. Periodically they try to ensure coordination with other stakeholders via scheduling Maritime Security Conferences. With neighbouring countries over decades, they have built up effective, mutually supporting relationships with Honduras and Mexico. However, there have been more potential tensions and strife with Guatemala over ownership and influence over Corona Reef with five miles of ecosystem in Guatemala and three miles in Belize submitted to the International Court of Justice. Therefore, there may be more need of specialised hydrographic capacity from abroad to train locals by 2024/2025.
24.	Office of the Prime Minister Senior Representative	It was highlighted how Belize had developed MBECA to being elevated to a specific ministry with decision making powers that could improve coordination, planning, data gathering and capacity building. There were no further recommendations from improving organisational institutional capacity strengthening. However, Belize could benefit from more blue economy centred education, technology, research and development. He proposed a need to develop a specific Investment Framework for land, labour, capital, finance and technology. Specific training for the blue economy could identify types of finance and preparation on how to access it. Stakeholders can also be looking for basic business, media M and V, project management, monitoring, sustainable finance, risk management skills and others They wish to be direct beneficiaries of any training/data etc not just rely on governments, given high turnover risk rates. Risks to implementing the blue economy from bureaucracy. There has also been a high turnover of staff in government, complicating implementation of the blue economy and the extent of effectiveness. Future priorities will include realigning budgets, training and resources to consider ecosystem valuation, biodiversity and ocean accounting.
25.	Association of Protected Areas Organisation Representatives	Stakeholders indicated concerns such as marine environmental education NGOs and others such as the Belize Federation of Fishers that would like to benefit from such a network of shared finance, conservation and technical capacity building but currently do not qualify, as APAO's mandate legally only focuses on direct protected areas. This may necessitate the need for finance/training/equipment/technology etc to be supported by other organisations such as IDB/MBECA and or looking to expand APAO's legal mandate. Moving forward, ocean accounting could learn from the specific data captured by the National Determined Contributions and climate change, for an ocean/blue economy including blue carbon equivalent. However there remains no policy or guidelines into marine bioprospecting/scientific research, data sharing and related issues/benefits
26.	Belize Fund for a Sustainable Future Senior Representative	It was illuminated that many potential grant beneficiaries but also failed applicants could benefit far more from basic capacity building, especially basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training, blue carbon, risk management and blue economy. The example of MBECA looking to develop Community Innovation Hubs in support. There is a need to ensure more sustainable businesses including structures to grant applicants the chance to improve their internal capacity to access finance as a paradigm. The perception is that many community members are not well equipped -it is not so much a need for IADB/MBECA etc to provide finding, equipment/technology etc -but access to certain human capacity building -specific training. The aim of this is so that target beneficiaries can have a chance to apply and retain funding; develop and contribute to baseline data, whilst achieving long term sustainable blue economy businesses, diversified funding, social and ecological indicators.

		Whilst other stakeholders have flagged and raised concerns about accessing financing and grants, the respondent was adamant that funding is potentially there -but issues have arisen when certain organisations are not registered and/or not grasped the basic transparency, financial, organisational and general capacity to implement and ensure adequate transparency/Monitoring/Reporting and Verification. More and more, they are looking to help bridge the gap and seeking technical capacity assistance from other entities such as Compete Caribbean/MBECA/CZAMI. Concern was raised about ensuring various integrated databases -and access to them, any ocean accounts, MRV systems etc -given various departments such as Ministry of Economic Development, National Biodiversity Office and others have attempted their own internal databases. But often these are not sustained, or very restricted data is captured and access possible.
27.	Belize Federation of Fishers Representatives	They were very sceptical with many questions related to the point of this consultancy/other project initiatives, indicating the significant issue of stakeholder fatigue, seeking local consultation and more recurring, meaningful engagement. They were highly concerned about the significant proportion of funding in their perspective was allocated to consultants, travel, data, and other costs up to "75% but very little appeared to be dedicated towards actual capital and expenditure related tangible outcomes directly aiding stakeholders. For example, around only two hundred beneficiaries were targeted out of 4,500 fisherfolk in the World Bank recent project and around $2,000,000 was claimed to be returned to the Bank by the Belize government
28.	CZAMI Senior Representatives.	They expressed potential interest and willingness to share data, information and cooperate. They would really value access to sufficient high resolution, satellite data to help monitor current risks rather than a transmission lag delay. A few staff members have been receiving GIS, ocean accounting and R software training to analyse trends and improve accuracy. There are gaps and the team would appreciate more comprehensive, updated information, along with the capacity for improved data management, monitoring and analytics. There may also be a need to hire more people.
29.	Representatives from Turneffe Atoll Sustainability Association	TASA primarily rely on grant funding, with some from donations, blended finance and ecotourism revenue. However, they remain keenly interested to find out alternative forms of sustainable finance such as blue carbon for capacity building. What they would really prioritise is the development of a customised financial management tool specifically for NGOs capable of supporting at least 15-20 separate grants. They were very specific about how it would need to range from a few thousand dollars up to $2000,000-3000,000 for Monitoring, Reporting and Verification according to their, donor and government/international indicators. This would be able to identify savings and adjust for potential reallocations where funding was specifically necessary, also allowing for the fact that certain grants are allocatable/ring-fenced for specific purposes and future years and thus cannot be always assumed as profits or disposable income/taxable revenue, in contrast to traditional organisations. Priorities relate to staffing costs such as monitoring and enforcement, then adaptation management, then research/education and outreach and finally administration before operational costs, especially fuel and vessel costs.
30.	Port of Big Creek Representatives	Their main risk concerns include trying to balance the economic, social, and environmental sustainability and thus are intrigued to find out more about how MBECA and the blue economy can directly benefit and work with them as traditionally they have not been so involved. They are keenly conscious of the need to remain virtually and physically safe, efficient and competitive such as investing in more digital rather than paper-based document submission via an online Maritime Single Window. -Hence the need for improved security/cybersecurity and risk management awareness and training. They have recently done some work on improving oil spill response capacity but have a

		significant information gap in relation to pollution, emissions and waste regenerated. They have been investigating the cost feasibility of a port waste receptor handling facility.
31.	Ministry of Economic Development Senior Representative	Concerns exist in not having databases of their own in relation to climate change data and resources but continuously relying upon other stakeholders for sharing. They mainly record climate finance investments and required monitoring legally, rather than being direct repositories of information suitable for developing ocean accounting. They would like more evidence ongoing to support any climate related rationale for their policy/investment decisions along with MRV. They would like more regular physical/online access and resource support for observatories and meteorological systems. From a human capacity perspective, more on ocean accounting and linking the blue economy to climate change -policy, finance, mitigation and adaptation research, along with the system were listed as fundamental priorities. This would need to complement existing established processes for monitoring climate related indicators along with policies such as the Medium-Term Development Policy
32.	Ministry of Labour, Rural Development and Local Government Senior Representative	Aside from this, more equipment to capture information, basic office supplies and improving transport to get out into rural/more distant areas was prioritised. The interviewee also emphasised the value of GIS/remote sensing/surveying including drones. to the blue economy, including any support for information/resource mobilisation and technical/human development capacity. They are also hoping to improve planning capacity. A final concern was the need to still note basics for many rural and coastal communities including gaps in renewable energy, education, healthcare, water, sanitation and sustainable development/ecological protection.
33.	Fisheries Department Senior Representatives	The Fisheries Department are hoping to formulate a Resource Policy for marine scientific research and associated data, including storage, collection, and management, but this requires additional implementation support at present. In terms of research prioritise they would like to assess more finfish and other species. They enjoy good work with agricultural processing but would like to expand cooperation and collaboration for more traceable, sustainable fisheries, against IUU fishing. Belize has not yet ratified the Port State Measures Agreement, but they would like to collaborate with ports and associated supply chain operators, traditionally reluctant to share information. They indicate some awareness and willingness to work with NGOs via a Coral Working Group. However, data gaps in relation towards coral reef health was still referred to as needing more institutional strengthening and capacity building along with enforcement and monitoring. More people also need to be urgently recruited.
34.	Belize Geology Department Representative	No other specific risks, issues, concerns, or priorities were subsequently identified
35.	Ministry of Public Utilities, Energy, Communication and E-Governance	For the Energy Sector there remains a need to develop the equivalent of a skills gap audit and Roadmap, whilst the maritime sector has not been investigated at all. The Ministry referred to previous IDB skills-based assessments of the education and labour market sectors, though this could link more specifically to the blue economy. For example, the logistics sector could benefit from new licensing systems including shipping and port users electronically. There is a need for more specialised software training to reduce dependency on external consultants. They would also wish to align port infrastructure and information systems to be regionally and internationally competitive.
36.	Sustainable Development Unit	Their core challenges, risks and concerns centre about trying to acquire certain data, access to certain technology and equipment along with certain fundamental human training needs. They are working with the Statistical Institute of Belize to try and coordinate respective roles
37.	Maya Forest Trust	Existing challenges of communication, consultation, and cooperation with many government departments, recommending NGOs and civil society are more

		frequently engaged to provide technical support and input on policies. In the past for example, they were included in COP delegations for climate change and other international arrangements

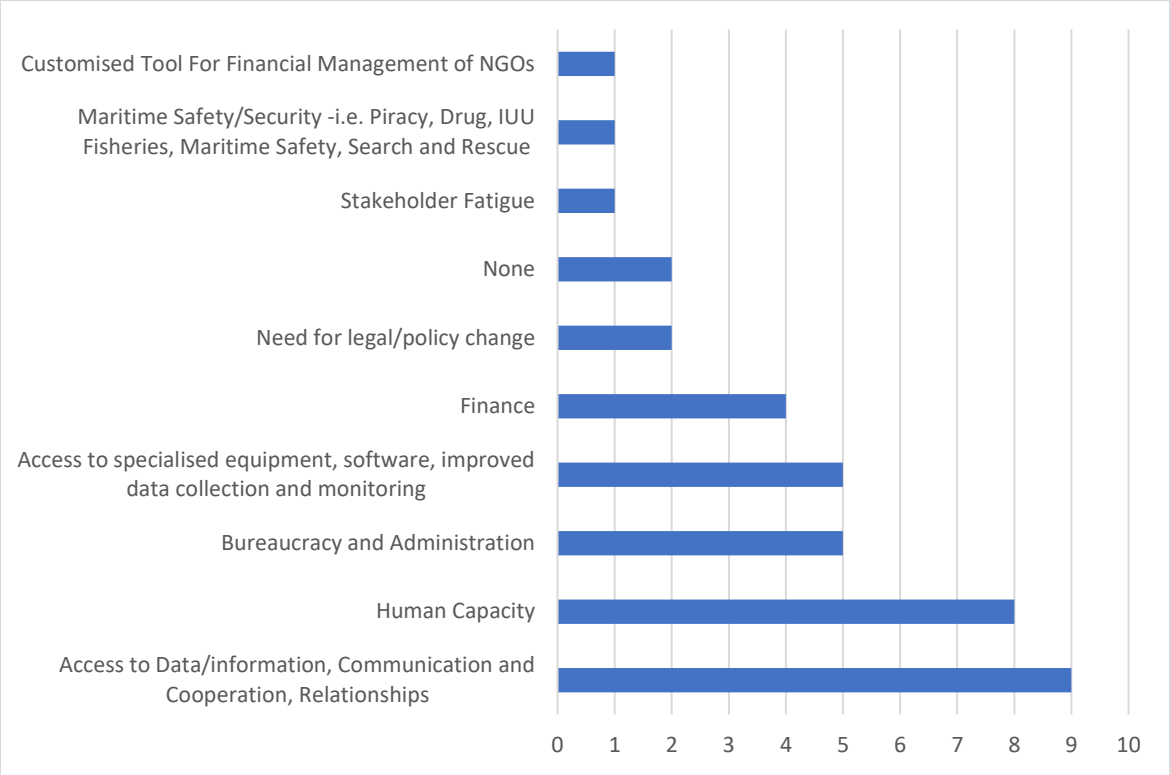


Table 4.4.5: Survey Identified Risks, Issues and Concerns in Implementing the Belize Blue Economy

Survey No	Type	Risks, Issues and Concerns in Implementing the Belize Blue Economy
17.	Belize Ministry of Tourism and Diaspora Relations	Cross cutting Issues: Sargassum affects vessels, marina, beaches and creates and unsightly and unpleasant smell on the beaches. Climate Change/ Risk- negative impacts to the ecosystem that supports the tourism industry are increase due to extreme weather events, damaging infrastructure and causing erosion. Sea level increases are predicted to increase beach and loss include areas of the caves, and impacts on urban areas.
18.	Belize Port Authority	None
19.	Climate Finance Unit	Financial and human capacity to sustain the growth of our project portfolios and to partake in more of the data collection than just the project development process. In our department specifically, it is often difficult to coordinate across ministries and departments due to the lack of human capacity, which has implications for the project development timelines.
20.	Crocodile Research Coalition NGO	There needs to be more funding to go towards organizations in hiring more people and providing them the proper education and training in scientific methods. Additionally, assisting in research funding can also be beneficial.

21.	Galen University	Not at this time.
22.	Healthy Reefs Initiative	Coastal development as well as development offshore on islands near the reef can prove to cause significant negative impacts (sedimentation, nutrient runoff, pollution etc) on reef health. Appropriate measures must be set in place across the board to ensure that development is done in an environmentally friendly manner.
23.	High Seas Fisheries Unit	The necessary budgetary constraints are serious impediments to fully implement our mandate. Simply attracting new qualified staff is difficult due to the bureaucratic process that is the government system. Limited and timely access to funds to implement projects such as our inspection scheme are some of the challenges we face. The state of the tropical tuna stocks has affected our monetary contribution to the country's economic development since the quotas we receive have been decreased which has limited our growth potential, such as registering new vessels or utilizing that same quota locally as opposed to selling it to foreign owned vessels. Utilizing these quotas for national development can have significant impact on our economic growth and overall progress. By properly integrating our high seas sector with our domestic sector, we can stimulate innovation, create jobs, and improve productivity. This can lead to increased foreign investment, a stronger domestic market, and ultimately contribute to the sustainable development of our nation. However, this type of potential will require investment and commitment from government and interested stakeholders.
24.	Ikooma Belize -seaweed entrepreneur	Seaweed supply is a concern if my intention is to expand into a regional/global brand. I am especially concerned about access to *Eucheumatopsis isiformis* as more farmers favour the Kappaphycus (macho) variety that is more resilient and easier to grow.
25.	National Biodiversity Office	Zero issues
26.	National Meteorological Department	Other considerations would be having sufficient trained and qualified personnel to collect, analyse provide products for the marine sector. Human resource issues continue to be a challenge.
27.	Office of the Prime Minister Economic Development Council	The Blue Economy is one of the fields of priority that the government has. Understanding how the ocean economy impacts growth and thus creates opportunities for improved livelihoods and sustained economic growth is important. Because the Blue Economy is a new area, there is the need for creating awareness of what it is, its importance, and how it contributes to other sectors/areas like marine tourism and services, research, trade, transportation, energy, food security, etc.,
28.	University of Belize	Funding is always needed. Time to apply for funding is also needed. It takes time to write proposals.
29.	Wildlife Conservation Society Belize	The Fisheries Management Plans and Stock Assessments should be more open, transparent and inclusive.
30.	Caribbean Regional Fisheries Mechanism	Concerns regarding the local blue/ocean ecosystem include potential marginalization of small-scale fishers in the development of the blue economy. IUU fishing is also a threat to the sustainable development and management of fisheries resources. Natural events such as hurricanes and Sargassum also threaten coastal communities and the marine ecosystems supporting fisheries.
31.	Protected Area Conservation Trust	Fifteen -0 issues
32.	Ministry of Blue Economy and Disaster Risk Management	The Blue Economy sector is dynamic and multifaceted, involving numerous actors. Therefore, a major concern and risk is ensuring smooth coordination across the other sectors that exist in the blue

		space. Additionally, as the Blue Economy is a relatively new concept, securing stakeholder buy-in and acceptance is critical. Lack of stakeholder buy-in becomes a significant risk when attempting to implement a new legislative framework for a sector that already overlaps with other sectors' mandates.
33.	Belize Tourist Board	The Blue Economy sector is dynamic and multifaceted, involving numerous actors. Therefore, a major concern and risk is ensuring smooth coordination across the other sectors that exist in the blue space. Additionally, as the Blue Economy is a relatively new concept, securing stakeholder buy-in and acceptance is critical. Lack of stakeholder buy-in becomes a significant risk when attempting to implement a new legislative framework for a sector that already overlaps with other sectors' mandates
34.	WWF Mesoamerica	-Probusiness approach at the expense of conservation -Inefficient and ineffective application of environmental regulations. Lack of coordination between environmental agencies further exacerbates this issue. -Perverse incentives which favour development -Flawed EIA regulations. EIA process, regulations and decision making needed to be strengthened. -Trend towards large scale developments in vulnerable coastal areas.
35.	Private Seaweed Aquaculture Entrepreneur	We are very interested to learn about breeding and culturing local fish species. Both Saltwater and Brackish water species.
36.	MBECA Representative 2	None
37.	Hol Chan Marine Reserve	None
38.	Central Bank of Belize	• Concern, risks, issues, trends, or developments that may pose challenges or risks to achieving sustainable growth and development within the blue economy, impacting both the local ocean ecosystem and the Central Bank include: o Climate and climate-related risks o The achievement of the remaining milestones contained in Belize's conservation commitments, as set out under the Nature Conservancy's (TNC) Blue Loan and Conservation Funding Agreements, which was signed in November 2021. o Limited interest or investment in blue economy projects and technologies, which could inhibit the sector's growth potential.
39.	NEMO	None
40.	Department of Aquaculture	Yes, there is no lead entity responsible for the compiling of aquaculture data. The country would benefit from an Aquaculture Policy that covers marine and freshwater aquaculture. We also need to have the teams from the related ministries become accustomed to working together.
41.	Oceana	The overall concern of a lack of data/science driven policy, lack of enforcement of current fisheries regulations continues to undermine meaningful efforts of fisheries management.
42.	Beltraide	Not necessarily.

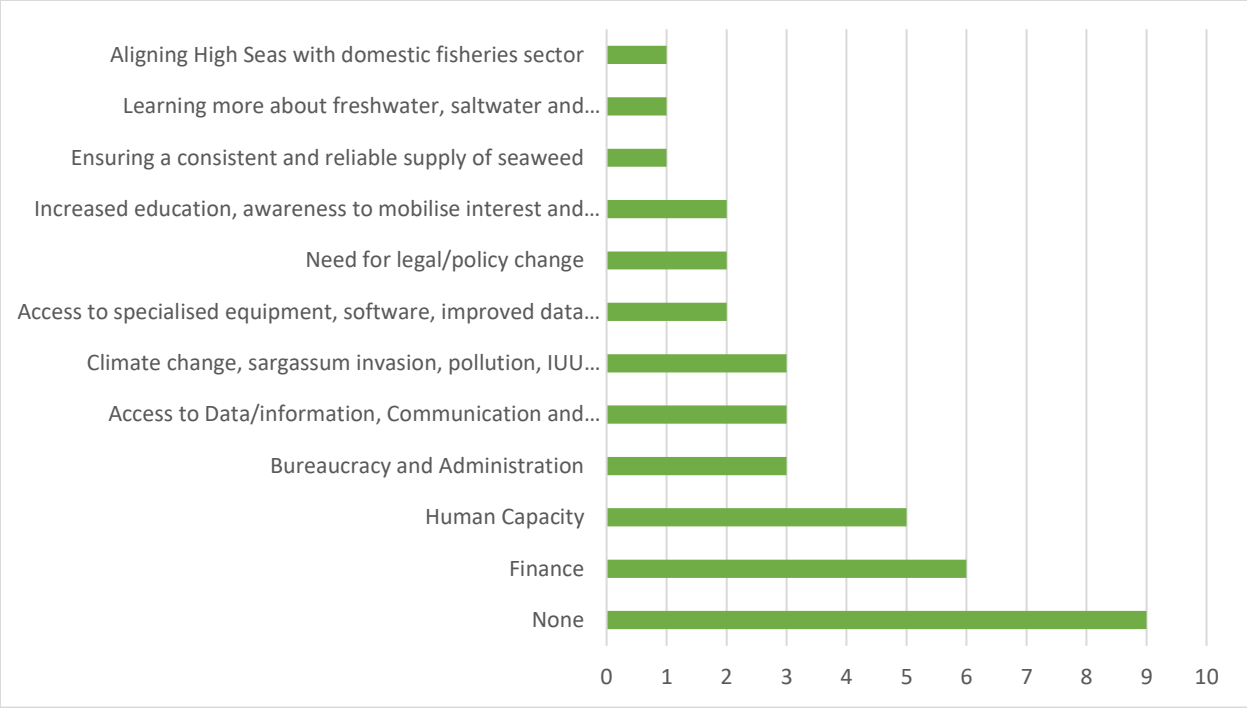


Table 4.1.6: Interviewed Belize Blue Economy Stakeholder Identified Blue Economy Opportunities

Interview No	Type	Identified Belize Blue Economy Opportunities
19.	Blue Bond Unit Office of Prime Minister	**None**
20.	FAO Belize Representatives	Stakeholders also need training and equipment. Existing data processes can be supported and extended where necessary. For example, FAO aided the Meteorological Services Department with 2 new sensors and adjusting climate data to be more valuable to fisheries. Ultimately, they considered that such projects may need to develop sustainable finance within a pre-set timeframe.
21.	National Biodiversity Office Representatives Director	The co-management system was successfully highlighted as a good model of cooperating with others to provide resources for monitoring, collecting data and enforcement -mentioned how gaining fees from airlines and cruise ships has proven successful. Whilst the Biodiversity Office wish to emphasise how very new they are; they remain willing to finding out and potentially looking at how to align ocean accounting to biodiversity and any general blue economy capacity building.
22.	Reefkeeper Belize NGO	It would be great in their perspective if government/other entities could provide fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing. For example, students/interns if compensated even nominally could help with marine, pollution, illegal sand mining/coastal erosion and illegal fisheries, sargassum and crown of thorns starfish threats. Specific related training could help. The need to locate sustainable financing sources whether through alternative livelihoods such as ecotourism or community seaweed mariculture attempted by NGOs such as TIDE and Sarteneja Alliance for Development or partnering with larger organisations such as WCS, WWF, Oceana and others; also needs investigation. This could follow GCF/GEF with its provision of budget and technical support towards developing concept notes to access climate finance.

		Few consultants exist to monitor education related initiatives -Reefkeeper Belize is currently sourcing one from Guatemala. Moving forward; providing such funding and empowering local students/potential recent graduates with such funding and capability would significantly reduce pressure on government/NGOs to directly undertake such roles of data collection, monitoring, awareness, research and enforcement.
23.	Belize Coastguard Senior Representative	They mostly have smaller boats but are just about to launch an international tender on procuring 2 new offshore patrol boats as it's the leadership's vision to not only strive for local capacity but towards contribution to regional stability such as CARICOM commitments for Haiti and any others. However, if working regionally they would still need to clarify each other's role in responding to climate and other threat or environmental monitoring They are looking to acquire aerial capacity being currently dependent on the Belize defence Force with 2 drones/Unmanned Aerial Vehicles ordered for this year (2023) and 2 others (for next year). Moving forward they identified Belize could develop a proper Maritime Training Base and School including strategy/the curriculum and skills such as diving, marine research and experiments. It could support seafarers and others seeking specific skills and training. There is a need to develop an extended or new Logistics Base and storage/supplies. Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats. Aside from that in the long term, the respondent admitted slight concerns over any potential political instability that could influence factors.
24.	Office of the Prime Minister Senior Representative	Moving forward they identified Belize could develop a proper Maritime Training Base and School including strategy/the curriculum and skills such as diving, marine research and experiments. It could support seafarers and others seeking specific skills and training. There is a need to develop an extended or new Logistics Base and storage/supplies. Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats. Aside from that in the long term, the respondent admitted slight concerns over any potential political instability that could influence factors.
25.	Association of Protected Areas Organisation Representatives	The respondent seemed quite hesitant and covert to reveal such, but they are quietly working on their own coordinated biodiversity database though only pilot stage at the moment, which could support further data. The interviewer -oneself, indicated this might offer further commercialisation and data MRV/ocean accounting support for the future, which appeared to provide some reassurance. They are also looking to try and support more marine capacity building in applying for a $11,000,000 GCF grant for technical development of protected areas.
26.	Belize Fund for a Sustainable Future Senior Representative	It was illuminated that many potential grant beneficiaries but also failed applicants could benefit far more from basic capacity building, especially basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training, blue carbon, risk management and blue economy. The example of MBECA looking to develop Community Innovation Hubs in support. There is a need to ensure more sustainable businesses including structures to grant applicants the chance to improve their internal capacity to access finance as a paradigm. The perception is that many community members are not well equipped -it's not so much a need for IADB/MBECA etc to provide finding, equipment/technology etc -but access to certain human capacity building -specific training. The aim of this is so that target beneficiaries can have a chance to apply and retain funding; develop and contribute to baseline data, whilst achieving long term sustainable blue economy businesses, diversified funding, social and ecological indicators.

27.	Belize Federation of Fishers Representatives	They are particularly concerned as to what types of sustainable livelihoods can be generated as a possible specific capacity building but also if there can be any benefits from marine protected areas and no take fishing zones. Moving forward they were very receptive towards how to regularise and improve direct communication, access to sustainable finance and support. They also cited an example of trying to ensure access to local modern boats -asking for a $170,000 grant for 10 boats and supporting 30 crew as a pilot project. They would also like to see from the Belize government/IADB/Compete Caribbean or equivalent about access to finance, modern vessels but also vocational skills such as boatbuilding, repair, artisanal, engineering/technical and other apprenticeship options available. They estimated up to 79% of artisanal fishing vessels were imported from Mexico along with high volumes of fishing gear, when it could be fabricated locally. Diversified livelihoods reducing the pressure on existing fisherfolk is perceived as one urgent way to ensure a more sustainable long-term fisheries sector. Fisherfolk could only obtain up to $10,000 each under current projects, which they considered as inadequate.
28.	CZAMI Senior Representatives.	None specifically
29.	Representatives from Turneffe Atoll Sustainability Association	Examples of such efforts include the development of specific use zones such as those earmarked for Conservation or Specific Species Management; those for catch and release/recreational fisheries, those for tourism, research, mariculture and protected as aggregate spawning sites. They also monitor certain permit allowed activities such as lobster fishing. They therefore participate in supporting fishery regulations, their monitoring and enforcement. This extends to gear/tourism developments and other various uses and activities. They have engaged with ecotourism/tourism operators to encourage sponsored donations and gifts in exchange, with a specified minimum. They are using 2-3 apps to manage tourism, conservation and the blue economy including bookings and donations, but these could be streamlined more effectively. They would like Belize Tourism Board/MBECA/investor/Compete Caribbean or equivalent support in developing investment portfolios for mariculture, eco and marine tourism, including business model opportunities for investors. To overcome existing perceived high bureaucracy and uncertainty, they proposed the need for more target government support, reviewing development/environment policies and incentive/disincentives and mainstreaming/centralising for a 1 stop investment shop. They would like more targeted research funding of around US $100,000/ other support to determine the Belize Sustainable Tourism Levels Models that the ecosystem can withstand, whilst preserving its main values and functions. They project this could yield another $500,000 to $1000,000 for the reserve/Belize's local blue economy each year. However, they have expressed challenges in trying to convince certain government/ funding entities to support such an initiative for the equivalent Rate of Return on Investment. Other high costs include those related to the provision and maintenance of ecotourism and general marine conservation, data monitoring and enforcement infrastructure, which they would highly recommend and hope for a partial funding grant support, along with basic staffing and operational costs as these areas, combined with maintenance, repairs, training and staffing are seldom easily covered by funding grants. For example, telecommunication and Internet towers cost around $250,000 BZ to install plus over $10,000 each year in basic costs. They are looking to replace solar/general powered ones lasting 5-10 years, with lithium batteries with a projected 10–20-year lifespan but costing $60-70,000 each.
30.	Port of Big Creek Representatives	They are looking at expanding/dredging out one of their main berths as the main initiative they proved willing to share. The COVID19 pandemic appeared not to create any apparent major disruptions to port operations and macroeconomic activity, with no staff terminated. It did encourage greater hygiene and

		commitments towards digitisation efficiency. They have been moving to expand neighbouring trade to Guatemala, Honduras and Mexico. They would appreciate working with Beltraide, MBECA and others via non-bind Memoranda of Understanding. They remain concerned about potential hurricane event risks and climate change adaptation There are also opportunities for drydocking, boatbuilding, repairs, maritime services, supplies, cabotage, education and trading for various incentives.
31.	Ministry of Economic Development Senior Representative	There is a need to align to existing goals and priorities. In the future they are also looking to develop a Blue Cities Programme focusing on coastal infrastructure, water and wastewater resilience to climate change, with potential implications for the blue economy but are still in design conception phases. They remain somewhat interested to support further mutual collaboration and cooperation including monitoring marine/coastal related investments and projects/target indicators.
32.	Ministry of Labour, Rural Development and Local Government Senior Representative	The Ministry is revising several plans and policies which could be mainstreamed more effectively into the blue economy. For example, these include focusing on employability skills -National Employability Strategy, the aforementioned National Rural Development Strategy and one related to the Digitisation of Municipal Services to improve support for small and medium enterprises including those in the blue economy. The Trade License Bill is currently being debated in the Senate to improve data and simplify processes for tourism and other sectors. They have updated the Labour Act and looking at an Occupational Health and Safety Act. A final concern was the need to still note basics for many rural and coastal communities including gaps in renewable energy, education, healthcare, water, sanitation and sustainable development/ecological protection.
33.	Fisheries Department Senior Representatives	Blue economy opportunities in seaweed, clams and crabs in particular were enthusiastically presented, however they would like to expand more mariculture capacity. There are also proposed preparations for a related legal review of mariculture related potential laws, policies and incentives. Moving further on, they are looking to expand training and institutional capacity for improved enforcement and monitoring on benthic marine ecosystem habitats under the UK funded Ocean Country Partnership Programme. It is also looking to expand monitoring of remote sites in partnership with the University of Belize. In the future they would also like to be more proactive in working with various NGOs, sharing infrastructure, data and human/equipment capacity as more efficient and economical. They will look to work with The Nature Conservancy in relation to developing fisheries traceability systems including a pilot project with a few fishing vessels and transitioning towards electronic logbooks and integrated Vessel Monitoring Systems. They are also looking to replace their technical services main building and improve outer island infrastructure especially fishery monitoring stations as a continuous concern. They would also need at least one larger, modern, fisheries research vessel.
34.	Belize Geology Department	They would also like to increase collaboration with the NGOs and University of Belize to develop survey, monitoring and human capacity, given the significant expense of employing expensive consultants and training people to send abroad to Mexico, the US and United Kingdom. Belize is currently revising their various laws and regulations passed around 30 years ago in 1991/1992 to modernise the industry, improving potential equity, revenue and sustainability. They are also adopting UK North Sea based safety regulations and concentrating on a triage of energy of safety, energy security and sustainable, cleaner energy production. Though climate change remains internationally an often-cited risk with major pressure for decarbonisation and renewable energy, the respondent remained convinced of the perceived necessity of this sector. It was noted how Guyana and Trinidad and Tobago prove successful examples to potentially emulate. Jamaica and Barbados are

		even contemplating opening marine areas to potential fossil fuel extraction, which may in turn present competitive risks. No other specific risks, issues, concerns or priorities were subsequently identified
35.	Ministry of Public Utilities, Energy, Communication and E-Governance	They would also wish to align port infrastructure and information systems to be regionally and internationally competitive. A future blue economy opportunity and priority would be to zoom in and sufficiently empower more related small and medium enterprises including solar/wind energy, e-mobility and decarbonisation. Budget constraints present a recurring dilemma. The Ministry has been engaging with the Ministry of Education, University of Belize and others to start exploring the need for curricula and course changes, along with more career awareness among youth. In the future the respondent cited the need to develop more expertise in generating Public-Private Partnerships such as in Barbados -including the potential to take over and convert the Port of Belize into a green port model, akin to the European Union Green Port Initiative. Other forms of technology, equipment, processes and training to improve overall logistics efficiency and port competitiveness would also be greatly appreciated. The emissary spoke of exploring waste to energy and alternative marine fuels as further blue economy opportunities, along with exploring the circular economy, processing and valorisation. To develop a truly decarbonised future for Belize supply chains, support in suitable technologies, information and human capacity needed for monitoring emissions, quantifying and converting into marketable carbon credit offsets remains a key priority. Belize is currently preparing its Carbon Credits Bill, aiming for ratification in 2024.
36.	Sustainable Development Unit	They identified Belize has significant blue economy prospects in areas such as more traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue biotechnology, ocean energy and data valorisation.
37.	Maya Forest Trust	In relation to carbon and terrestrial conservation of mangroves/wetlands, the Maya Forest Trust recently worked with The Nature Conservancy on a US $75,000,000 land acquisition investment including $15,000,000 to establish an autonomous trust. This necessitated a specialised financial agreement with the Belize government direct. The stakeholder indicated good blue economy prospects exist for protected areas including carbon and biodiversity offsets ever since the original small projects before the REDD+ initiative, including working with entities such as Verra for independent monitoring.

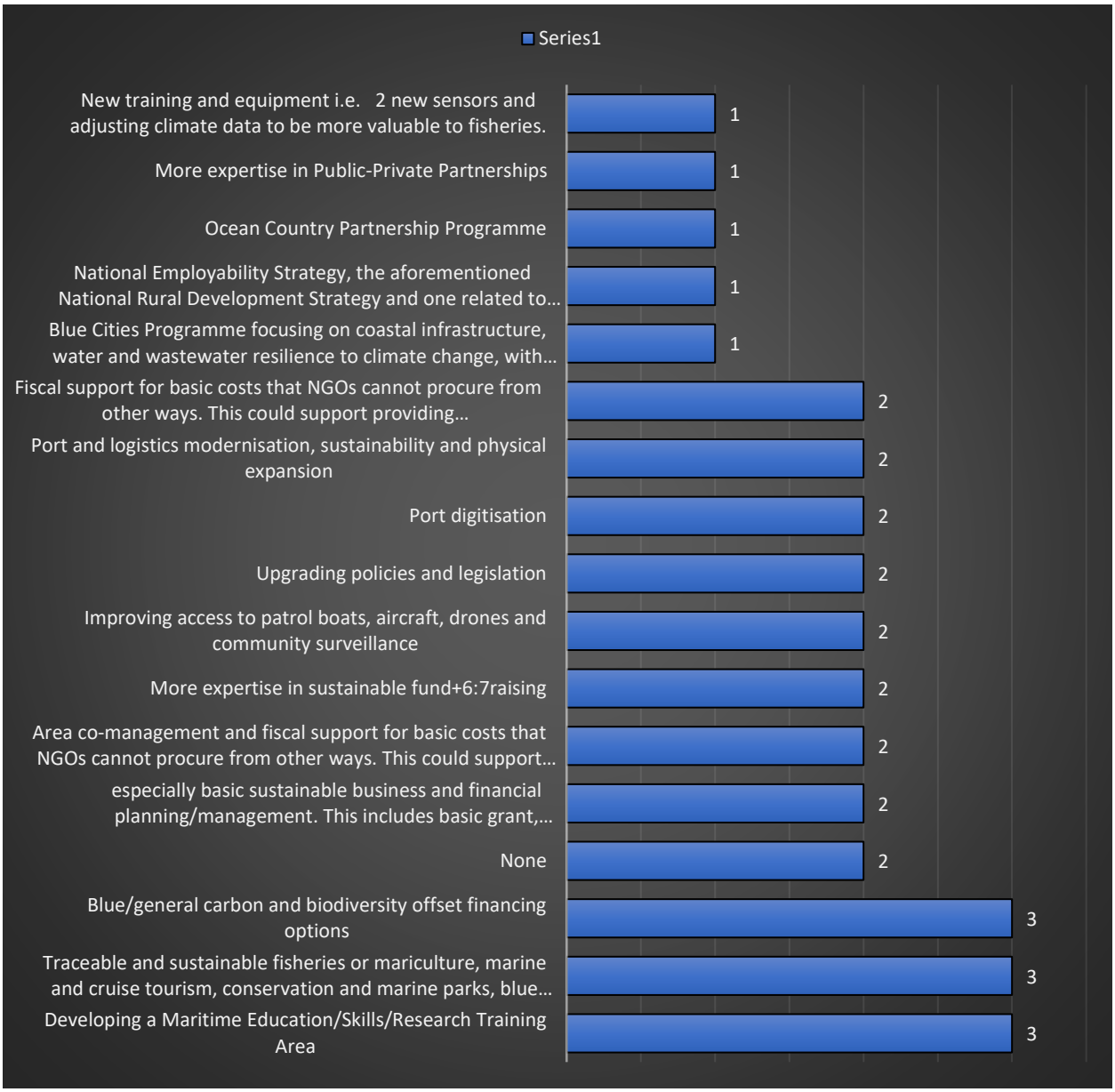


Table 4.3.7: Potential Survey Identified Belize Blue Economy Opportunities

Survey No	Type	Potential Belize Blue Economy Opportunities Identified
22.	Belize Ministry of Tourism and Diaspora Relations	Several emerging coastal destinations have the potential to become "new hub" destinations. With several unspoilt offshore islands, there are numerous opportunities for sustainable growth, development, and investment in the tourism sector, including opportunities in the ecotourism, adventure, nature, cruise and nautical tourism and the decentralization to more remote areas and outer islands.
23.	Belize Port Authority	2- Decarbonization of ports, domestic shipping.
24.	Climate Finance Unit	There are ample opportunities for the growth and development of blue/ocean ecosystems through the targets and investments done under the Blue Bond Unit, investments through GCF and Adaptation Fund projects, etc. The Blue Bond

		transaction highlighted the potential that our blue space has not only for economic development, but also for climate adaptation and sustainable livelihoods.
25.	Crocodile Research Coalition NGO	0
26.	Galen University	Opportunities would extend to the creation and implementation of a comprehensive marine ecosystem course, which can be used to annually provide skilled professionals already in the field with advanced training and information on tools, technologies, techniques and mechanisms which can improve Belize operation of the Blue Economy Sector.
27.	Healthy Reefs Initiative	To contribute to decision making on a national level based on informed science and continue to pursue initiatives that aid in the restoration, preservation and conservation of the coral reefs system.
28.	High Seas Fisheries Unit	Some opportunities for growth and development within the high seas fisheries sector, for the most part, include the strengthening of international cooperation and governance frameworks to help address the issue of IUU fishing as well as promoting sustainable management of the high seas fisheries sector. This can include improving our monitoring, control, and surveillance measures, such as implementing our electronic monitoring system program as well as our at-port inspection program and strengthening our at-sea observer program. Updating our vessel monitoring system and our data collection methods is also an opportunity for growth and development, but this will include investing in technology to upgrade our current systems. Strengthening our catch documentation scheme is also important to ensure sustainable fishing practices. In addition, providing capacity-building training and support for personnel involved in monitoring, control, and surveillance activities is essential for realizing this growth and development potential.
29.	Ikooma Belize -seaweed entrepreneur	I see a huge opportunity ahead for Belize to build a brand differentiation globally for its premium seaweed. It appears that the incentives need to be stronger to encourage farmers to commit.
30.	National Biodiversity Office	Opportunities in terms of the economic aspect: - Additional resources to be made available for marine conservation under TNC Debt-for-Nature swap. - Opportunity to contribute to national economy through implementation of BIOFIN Finance Solutions - Opportunity for job creation through greater engagement with the private sector Opportunity in terms of the social aspect - Opportunity to gain stakeholder buy-in through income diversification programs/ livelihood support. Opportunity in terms of technological aspect - Opportunity to leverage mobile technologies for greater management effectiveness, transparency and accountability across the NPAS. Opportunity in terms of environmental aspect - Opportunity to mobilize additional resources for conservation by accounting for climate change and its impacts. Opportunity in terms of policy environment Resource mobilization to ensure financial stability of NPAS ● Improve data collection to facilitate informed policy decisions
31.	National Meteorological Department	The NMS can provide early warning information and marine climate services to the Blue Economy and ecosystem once sufficient marine weather information is collected and the priorities of the sector for climate products and services are identified.
32.	Office of the Prime Minister Economic Development Council	0

33.	University of Belize	Partnerships that are funded to mobilise and meet the objectives of these partnerships.
34.	Wildlife Conservation Society Belize	4. Co-Management of MPA 5. Community engagement and Capacity Building 6. Economic Alternatives and Diversification.
35.	Caribbean Regional Fisheries Mechanism	Future opportunities are outlined in Strategic Objective 2.1- Competitive and profitable fisheries and marine resource development within the blue economic space of respective Member States through the: • Enhancement of industries' role and contribution within the blue economy by strengthening Competitive advantage and profitability of fisheries and aquaculture. • Promulgation and support implementation of regulations, guidelines and protocols on Good Fish and Fishery Product Hygiene Practices in private sector companies. • Improvement of uptake, sustainability, and economies of scale, via development of sustainability plans beyond CRFM assistance period, and via strengthened capacities, established system of documentation and sharing of lessons and best practices for building institutional memory and adaptive learning. Enhancement cross-sectoral collaboration and knowledge generation on differentiated social and cultural factors impacting gender equality and youth engagement in fisheries.
36.	Protected Area Conservation Trust	Yes, as PACT the future of sustainable growth is crucial to the areas of funding. These are often submitted to us by our stakeholders for consideration within our long-term investment strategy.
37.	Ministry of Blue Economy and Disaster Risk Management	5. The sustainable growth of future sectors such as deep-sea mineral mining, biopharmaceuticals, mariculture. 6. Blue finance 7. Greater investment in blue carbon initiatives 8. Greater investment in climate change adaptation
38.	Belize Tourist Board	Sourcing sustainable financing is critical for responsible economic growth within the tourism sector. There are major hurdles with 1) access to finance and 2) the cost of capital in Belize. As a result, micro, small, medium and large enterprises are not more proactive in their business models to further the Sustainable Development Goals. A Disaster Relief Fund for Tourism Enterprises is direly needed to respond to shocks and rebound in a shorter time span.
39.	WWF Mesoamerica	For the Organization - Continued partnership and collaboration with relevant organizations (NGOP, GOB, Private Sector and Academia) For the Blue Economy sector: - Improvement and strengthening of fisheries management - Improved livelihood diversification - Support for MSMEs in the blue economy - Government focus on people centric conservation agenda for financing ocean conservation - Blue-Green carbon framework and legislation (Under development)
40.	Private Seaweed Aquaculture Entrepreneur	Technology to grow local species on large and small scales. Aquaponic trainings for small scale farming. Combining of aquaculture and aquaponics to market value added products. To provide reliable seed production to assist small and large farmers in other species than Tilapia and shrimp
41.	MBECA Representative 2	Opportunities for the fisheries sector lie in developing new products and value add as well as exploring new fisheries diversification potential that is based on robust

		science and formal marine spatial planning regulations that help to support co-management initiatives. Adopt very effective measures to combat plastic waste-derived marine pollution. Each year over ten million tonnes of waste end up in the sea. Opportunity of piloting and showcasing new marine renewable energy technologies in Belize.
42.	Hol Chan Marine Reserve	Eco-tourism and Education: Leveraging eco-tourism opportunities within MPAs can promote sustainable economic growth while raising awareness about marine conservation. Educational programs, guided tours, and visitor centres can engage tourists and locals, fostering a deeper understanding of the marine environment. Blue Economy Initiatives: Exploring and supporting blue economy initiatives can be beneficial. This includes sustainable fisheries, aquaculture, renewable energy from ocean resources, biotechnology, and the development of marine-based products.
43.	Central Bank of Belize	The Central Bank may contribute to sustainable growth and development of the blue economy in the future through developing environmental and risk management frameworks that can help the financial sector assess risks associated with blue economy activities or encourage financial institutions to consider extending more funding to blue economy projects, as well as establishing supportive regulations for emerging blue economy businesses that can incentivise more investments in the sector, while minimising the levels of risk
44.	NEMO	0
45.	Department of Aquaculture	Diversification of shrimp farms, where ponds unfit for shrimp farming can be used for brackish water finfish aquaculture. Fresh water aquaculture receives assistance in tilapia biosecurity measures and improved broodstocks. Marine aquaculture needs guidelines established for potential producers to know the way through bureaucratic red tape. Research and investment in aquaculture feed production for the aquaculture to be able to grow.
46.	Oceana	Technology driven data – eMonitoring, eReporting, and traceability in fisheries sector which will in turn increase access to new markets for fishers.
47.	Beltraide	The following areas can be explored: -capacity building and education -policy and regulatory reform - investment related to blue spaces - blue economy business development - eco-tourism and conservation

Table 4.3.8: Summary of Survey Identified Belize Blue Economy Opportunities by No of Responses

Survey Identified Blue Economy Opportunities	Stakeholders
Traceable and sustainable fisheries or mariculture, marine and cruise tourism, conservation and marine parks, blue biotechnology, ocean energy and data valorisation, cabotage, boatbuilding, sustainable livelihoods, ecotourism, adventure, nature, cruise and nautical tourism and the decentralization to more remote areas and outer islands, sustainable economic growth while raising awareness about marine conservation. Educational programs, guided tours, and visitor centres	5
Aquaponics, seaweed farms, Integrated multitrophic aquaculture	4
Blue/general carbon and biodiversity offset financing options, Ecosystem restoration	3
None	2
Basic sustainable business and financial planning/management. This includes basic grant, administration, IT, data management, capturing MRV and other requirements, alongside more technical, sector specific training, blue carbon, risk management and blue economy.	2
Area co-management and fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing.	2
More expertise in sustainable fund raising	2
Improving access to patrol boats, aircraft, drones and community surveillance	2

Upgrading policies and legislation	2
Port and maritime decarbonisation	2
Port and logistics modernisation, sustainability and physical expansion	2
Fiscal support for basic costs that NGOs cannot procure from other ways. This could support providing stipends/internships/work experiences to Youth Ambassadors to help limited government capacity in community education and awareness, enforcement and data collection/basic testing. For example, students/interns if compensated even nominally could help with marine, pollution, illegal sand mining/coastal erosion and illegal fisheries, sargassum and crown of thorns starfish threat	2
Education	1
MPA co-management	1
Waste and circular economy, recycling, valorisation, import substitution	1
Data valorisation and early warning system -climate/meteorological products and services	1
New training and equipment	1

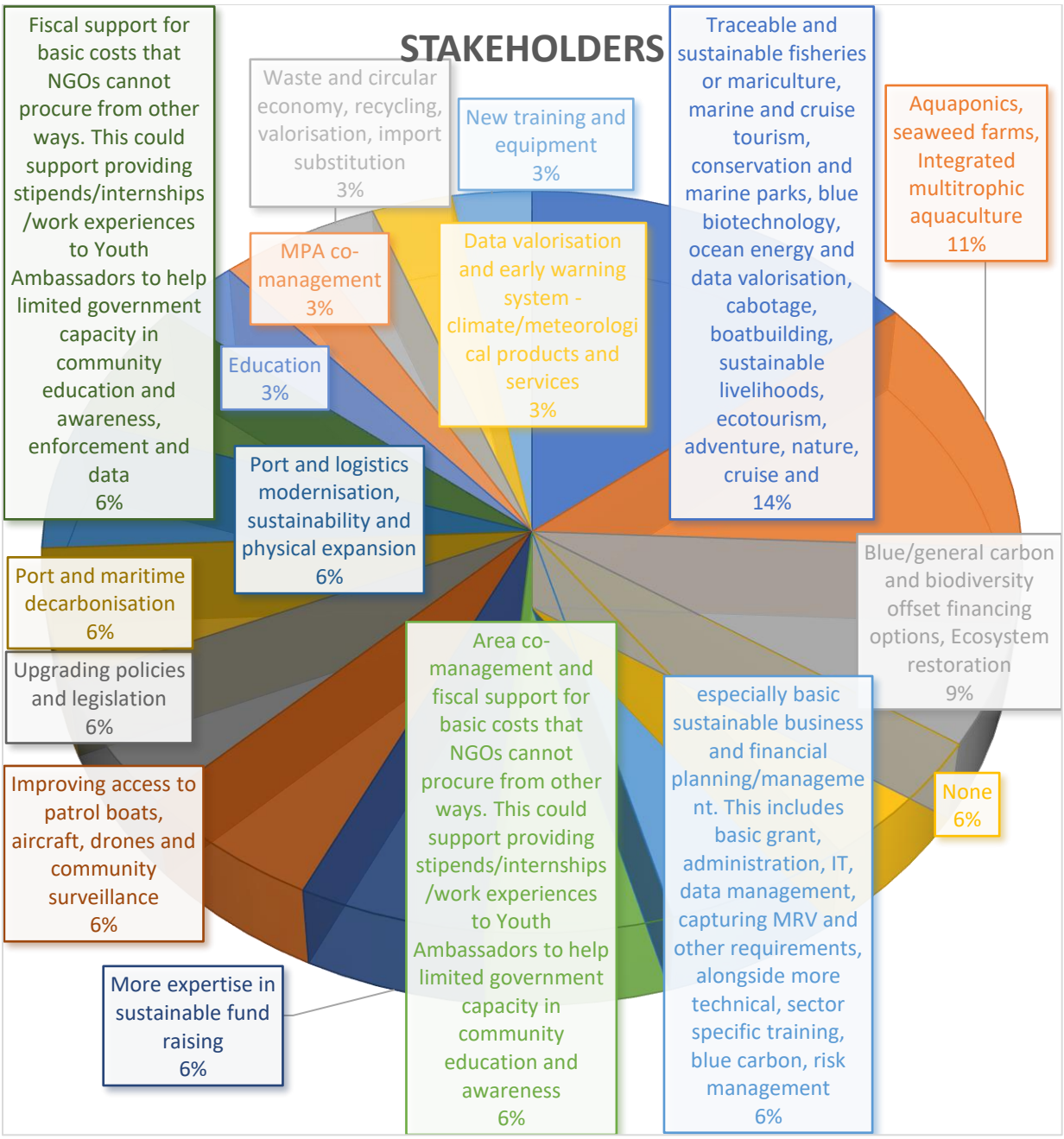


Table 4.3.9: Institutional Strengthening and Capacity Needs for the Blue Economy

Survey No	Type	Demographics
24.	Belize Ministry of Tourism and Diaspora Relations	Institutional strengthening and capacity need priorities for the MTDR: • Policy Development and Analysis in Nautical Tourism • Coastal Area and Island System Management and Development (energy and water supply, communications, sanitation, transportation, climate change resilience, building codes and emergency) 5. Ocean Accounting 6. Strengthening MTDR's ability to incorporate tourism business and entrepreneurship opportunities in the Maritime Sector

		7. Sargassum Control and Management 8. Spatial Data Collection and Analysis
25.	Belize Port Authority	2- Hydrography, safety of navigation (Aids to Navigation), legislative drafting, information technology (digitalization), port management
26.	Climate Finance Unit	3- Streamlined M&E platform, project development platform where we can interact with stakeholders and a repository for documents/project concept notes. Human capacity has been strengthened but can always be further strengthened to maximize our turnaround time for project development.
27.	Crocodile Research Coalition NGO	0
28.	Galen University	Training of our lecturers in the areas of Ocean Accounting and Monitoring Reporting and Verification/Evaluation Processes. Galen is open to all training and institutional strengthening that can be provided to the University in order to build national capacity in the given area.
29.	Healthy Reefs Initiative	Technological enhancement. Taking advantage of the various tools available to analyse data that contributes to decision making to enhance management.
30.	High Seas Fisheries Unit	As a fisheries regulator, we believe that it is important to strengthen our capacity in data collection and analysis. Accurate and reliable data is important for evidence-based decision making in our field, therefore building capacity in this area is essential. This includes investment in training programs to enhance the skills of staff members in data analysis techniques such as stock assessment models, catch and effort data analysis, fish dynamics and identification and vessel tracking as well as training in at port and discharge inspections. Additional monitoring control and surveillance tools and training to properly monitor and track the activities of our fleet on the high seas would also be essential. Development and investment in an inspection and discharge program for our distant water fleet would also strengthen our enforcement and compliance efforts. Fisheries management is a dynamic field due to its changing environment, as a result it also requires continuous research and innovation to address emerging challenges and improve management practices.
31.	Ikooma Belize -seaweed entrepreneur	iKOOMA needs at least BZD 250,000 in funding to become export ready. That should start with covering patenting and trademark fees, gaining necessary cosmetic certifications, hiring staff and expanding operational facility. Part of this funding could also be used to partner with a seaweed supplier committed to nurturing the growth of Euchuematopsis isiformis.
32.	National Biodiversity Office	Capacity Needs Outlining methods to improve NBIO's organizational capacity performance led to the identification of two important strategic objectives: improvement of knowledge and skills; and recruitment of additional personnel. Develop employee development/ training plans. Develop and implement ranger training program. Recruit resource mobilization specialist Recruit six rangers
33.	National Meteorological Department	There are several areas of institutional strengthening and capacity building, but the top priorities would be having persons trained in weather and climate forecasting, production of climate services (data analysis, modelling and forecasting) and weather station installation and repairs.
34.	Office of the Prime Minister Economic Development Council	There are several areas of institutional strengthening and capacity building, but the top priorities would be having persons trained in weather and climate forecasting, production of climate services (data analysis, modelling and forecasting) and weather station installation and repairs.
35.	University of Belize	**6b: What level or type of existing support /resources/funding do you receive (if any) from government/other organisations.** UB is a government funded university.

36.	Wildlife Conservation Society Belize	Social Science Blue Finance Training and Climate Change Resilience and Monitoring Techniques
37.	Caribbean Regional Fisheries Mechanism	Resource mobilization and implementation of the CRFM Resource Mobilization Strategy 2022-2030 and support for achieving the objective to enhance the effectiveness of development assistance for blue growth through fisheries and marine resource use, conservation and management in the CRFM States.
38.	Protected Area Conservation Trust	In relation to Blue Economy, it would be understanding the concept as well as financing opportunities that exists for the conservation sector. This would also require being in alignment with donor requirements as well as their monitoring and evaluation framework. PACT is a Trust fund and has mechanisms in place to generate funds. We are a donor agency.
39.	Ministry of Blue Economy and Disaster Risk Management	l**institutional Strengthening Needs** 5. Increased financial resources. 6. Adequate human and technical capacity to carry out the BE objectives. 7. Increased partnerships and collaboration 8. Increased BE sensitization **Capacity Building Needs** 1. Policy development 2. Project management 3. Stakeholder engagement and communication
40.	Belize Tourist Board	Important needs include: - Proposal Writing - Project Management - Recreational Management - Product Development - Sustainable Tourism Data collection, monitoring and verification: There are limited financial and human resources to collect the data and consequently, limited capacity to process, analyse and interpret the data. We can benefit from training in Statistical Package for the Social Sciences (SPSS), and Python Programming Language. Training is needed to make staff GIS savvy. BIG DATA training is needed. Staff is not trained in Business Intelligence platforms, Data Analytics or the use of Artificial Intelligence. **6b: What level or type of existing support /resources/funding do you receive (if any) from government/other organisations.** The 9% Hotel Tax which represents government revenue is collected and managed by the BTB so that its daily operations and marketing efforts can be financed. A portion of the USD $7 Cruise Passenger Head Tax which also represents government goes to the BTB. (It is important to note that 20% of the cruise head tax is obligated to go to the Protected Areas Conservation Trust (PACT), which in turn provides grant funding to a myriad of agencies, including governmental and non-governmental bodies managing the sea space.) The BTB and the MTDR source project funds through facilities such as IDB loans, Taiwan ICDF, and the World Bank.
41.	WWF Mesoamerica	-Capacity building in Ocean accounting concept and application
42.	Private Seaweed Aquaculture Entrepreneur	None specified. We receive some funds from Compete Caribbean for Sustainability Certifications for our shrimp cluster.
43.	MBECA Representative 2	To create an enabling environment (skilled staffing, equipment, materials and technology) to advance the implementation of the National Blue Economy Development Policy and Strategy and the fulfilment of the Ministry's mission "to increase the gross domestic product through a thriving blue economy development pathway that is holistic, harmonized, innovative and socially-just, supported by a robust, science-based management regime of aquatic resources and spaces to improve the livelihood of all Belizeans."

		The financial resources / support received from GoB is limited to fulfil institutional roles and functions.
44.	Hol Chan Marine Reserve	Enforcement and Compliance: Develop capacities for effective enforcement strategies, including training in law enforcement, surveillance, and compliance monitoring to ensure regulations within MPAs are respected. Policy Development and Advocacy: Build skills in policy analysis, development, and advocacy to influence local, national, and international policies related to marine conservation and sustainable resource management. Capacity in Sustainable Resource Management: Offer training in sustainable fishing practices, ecosystem-based management, and adaptive management techniques to balance conservation goals with sustainable resource use. GIS and Technology Integration: Invest in Geographic Information Systems (GIS) and other technological tools for spatial planning, mapping, and data analysis, aiding in decision-making processes. Financial Management and Fundraising: Strengthen capacities in financial management, grant writing, and fundraising to secure resources necessary for MPA management and conservation initiatives. Leadership and Governance: Develop leadership skills within the organization, fostering good governance, effective communication, and strategic planning to ensure successful MPA management. None. We are an autonomous body, and our main income comes from the park fees. On occasion, depending on projects, we have grant funding available. Currently none.
45.	Central Bank of Belize	• The capacity needs for the Central Bank could include further training of staff to build expertise in environmental economics, macroeconomics of climate change, sustainable finance, and sustainable development, among other related topics, to promote the blue economy and integrate environmental considerations into its policy and regulatory framework. • Building upon this expertise, the Central Bank can embark on the development of a policy document outlining its vision for a more climate conscious financial system and sustainable economic growth.
46.	NEMO	NEMO is slowly developing it analytical abilities. Currently the organization does not effectively analyse data which leads to ineffective reporting. NEMO is currently undergoing an institutional strengthening period. For this to be successful, it requires effective and qualified staff. It also requires more input in information technology to allow for better decision-making in disaster situations.
47.	Department of Aquaculture	We need to have better preparedness for aquatic disease outbreaks. We need the understanding of each other's capabilities and responsibilities. Annual budget from the government and at the moment no sponsorships from international donors.
48.	Oceana Belize	Oceana is committed to strengthening our internal capacity to bolster data-based decisions in national decision-making processes and supporting data collection efforts to ensure informed decision making in fisheries management, address plastic pollution, etc. Oceana does not receive government funding.
49.	Beltraide	Yes, capacity building for the team is very important. We ensure to organize internal capacity building and compliment with external training opportunities. BELTRAIDE receives its subvention from the Government of BELIZE. BELTRAIDE also seeks additional funding from funding agencies for particular projects.

Table 4.1.8: Interviewed Belize Blue Economy Stakeholder Identified Priorities and Recommendations

Interview No	Type	Identified Belize Blue Economy Priorities and Recommendations
7.	Blue Bond Unit Office of Prime Minister	MBECA could also look at what is and is not regulated and how this can be mainstreamed across various sectors of the blue economy and prioritises for ensuring

		adequate progress remains on the right track. The respondents recommended any project intervention for institutional strengthening and capacity building should be aligned to the priorities and data collection processes of the respective other government entities themselves to minimise duplication and other effort. Finally, they highlighted the role and value of needing more attention provided to awareness, communication and engagement and expressed more support and collaboration could be focused in this area. The Blue Bond Unit is currently embarked on developing its own Communication Strategy to rectify issues of poor understanding and inspire greater support.
8.	FAO Belize Representatives	To improve Belize's blue economy capacity building in the future, attention and resources should ensure each government entity should have electronic databases, hire more dedicated specialists, modernise data collection, implementation, communication, coordination and cooperation.
9.	National Biodiversity Office Representatives Director	Moving forward, any system that can prioritise streamlined process efficiency, empower real capacity building and overcome fragmentation is highly cherished by the respondents. Whilst the Biodiversity Office wish to emphasise how very new they are; they remain willing to finding out and potentially looking at how to align ocean accounting to biodiversity and any general blue economy capacity building.
10.	Reefkeeper Belize NGO	The interviewee also alluded to school educational talks, community outreach, professional teacher development to aid them in their assignments, summer camps and even showing students via a ROV/drone. The primary focus is awareness and education rather than research, though scope exists to develop that area with channelled resources. With sufficient funding/support they would like to really expand efforts given sustainability of funding remains the paramount concern. An eventual dream to aid the development of Belize's blue economy was developing a combined small aquarium and marine education centre, especially in an area such as Dangriga that does not receive many tourist visitors, that could benefit basic marine research, education, tourism and aquaculture/fisheries development simultaneously. The need to locate sustainable financing sources whether through alternative livelihoods such as ecotourism or community seaweed mariculture attempted by NGOs such as TIDE and Sarteneja Alliance for Development or partnering with larger organisations such as WCS, WWF, Oceana and others; also needs investigation. This could follow GCF/GEF with its provision of budget and technical support towards developing concept notes to access climate finance
11.	Belize Coastguard Senior Representative	Also, they are looking to develop forward southern and northern bases to respond swifter to transboundary and international water threats. Aside from that in the long term, the respondent admitted slight concerns over any potential political instability that could influence factors.
12.	Office of the Prime Minister Senior Representative	Citing an agroforestry example, it was indicated that the scope should allow for communities and others for direct stakeholder input and channelling resources. They echoed that this should extend to the choice of which ever indicators should be utilised and monitored for ocean accounting including a possible definition of the causes, the direct impact and any solutions to improve efficiency, cost-effectiveness and sustainability. Monitoring, reporting, verification and evaluation systems need to be focused more on domestic than international objectives in his experience, not generating data for the sake of doing so. Hs recurrent question remained: "To what purpose or value would this training/capacity building/information generated be deployed? This might mean adding, changing or even removing such assumptions along with analytical and research capacity. There is also the Learning component to be considered as well. For example, Belize could benefit from Sustainable Finance, though it has managed to significantly reduce its debt to GDP from 130% down to 60%. Belize also needs to focus on measuring social protection and poverty aspects of the Blue Economy including health, education and wellbeing.
13.	Association of Protected Areas Organisation Representatives	Concerns were indicated by stakeholders such as marine environmental education NGOs and others such as the Belize Federation of Fishers that would like to benefit from such a network of shared finance, conservation and technical capacity building but currently do not qualify, as APAO's mandate legally only focuses on direct protected

		areas. This may necessitate the need for finance/training/equipment/technology etc to be supported by other organisations such as IDB/MBECA and or looking to expand APAO's legal mandate. Moving forward, ocean accounting could learn from the specific data captured by the National Determined Contributions and climate change, for an ocean/blue economy including blue carbon equivalent.
14.	Belize Fund for a Sustainable Future Senior Representative	More coordinated, transparent, integrated ocean accounting/blue economy databases and capacity building could be supported.
15.	Belize Federation of Fishers Representatives	They were concerned about accessing/contributing fisheries related data and engaging with the Fisheries Department in particular, describing it as not always the warmest, open and constructive/supportive of relationships. For example, they had expressed concern that despite significant community implications of IUU fisheries, a major company Rainforest Seafood received a perceived comparatively small legal penalty given 22000 kg of illicit conch/lobsters. Moving forward they were very receptive towards how to regularise and improve direct communication, access to sustainable finance and support. They expressed a high willingness to potentially cooperate with other stakeholders moving forward and recommended that the sector and its stakeholders would be more effectively implemented through a mutually cooperative, co-designed Fisheries Development Plan especially addressing social, economic and ecological aspects and question of ultimate risks of collapse in the long run. Such a plan would need clear objectives and indicators to measure progress -as with ocean accounting and be implementable, according to their viewpoint.
16.	CZAMI Senior Representatives.	The respondents identified a major concern of ensuring long term sustainability of any databases, ocean accounts and other initiatives, the mechanisms and human capacity. However, they have some degree of confidence based on previous efforts. To roll out an effective Belize Sustainable Ocean Plan, there was a recommendation suggested to revise the existing legal framework for coastal zone management and marine spatial planning to overcome the gaps that do not provide for sufficient legal authority as a mandate. There is nothing in any law to trigger any need for implementing action or any consequences to not following CZAMI. Finally, they re-highlighted the risk that if capacity building were to be undertaken there remains the challenge of succession -of sustainability, only partly solvable by having an electronic databased but part of a high staff turnover.
17.	Representatives from Turneffe Atoll Sustainability Association	The respondents identified a major concern of ensuring long term sustainability of any databases, ocean accounts and other initiatives, the mechanisms and human capacity. However, they have some degree of confidence based on previous efforts. To roll out an effective Belize Sustainable Ocean Plan, there was a recommendation suggested to revise the existing legal framework for coastal zone management and marine spatial planning to overcome the gaps that do not provide for sufficient legal authority as a mandate. There is nothing in any law to trigger any need for implementing action or any consequences to not following CZAMI. Finally, they re-highlighted the risk that if capacity building were to be undertaken there remains the challenge of succession -of sustainability, only partly solvable by having an electronic databased but part of a high staff turnover.
18.	Port of Big Creek Representatives	Moving forward they would like more support towards improving monitoring of sea level rise, other climate risks, water, air and sediment/soil quality sampling. They are also seeking to overcome expensive investment risks in digital procurement, record and administrative systems with upgrades. The Port currently lacks gantry cranes, largely dependent on ship cranes, but otherwise has no specific equipment shortfalls. The COVID19 pandemic appeared not to create any apparent major disruptions to port operations and macroeconomic activity, with no staff terminated. It did encourage greater hygiene and commitments towards digitisation efficiency. They have been moving to expand neighbouring trade to Guatemala, Honduras and Mexico. They would appreciate working with Beltraide, MBECA and others via non-bind Memoranda of Understanding.

19.	Ministry of Economic Development Senior Representative	It was recommended that ocean accounting should also align to this forecast vision moving forward, measuring changes in ocean production socioeconomic and ecosystem value/health and wealth, accounting for changes in asset values in responses to certain risks and flows over time. It needs to factor in both government and IDB priorities.
20.	Ministry of Labour, Rural Development and Local Government Senior Representative	None
21.	Fisheries Department Senior Representatives	It was recommended that ocean accounting should also align to this forecast vision moving forward, measuring changes in ocean production socioeconomic and ecosystem value/health and wealth, accounting for changes in asset values in responses to certain risks and flows over time. It needs to factor in both government and IDB priorities.
22.	Belize Geology Department	No other specific risks, issues, concerns or priorities were subsequently identified
23.	Ministry of Public Utilities, Energy, Communication and E-Governance	From a policy perspective they believe most laws and regulations to be sufficient except for a National Cybersecurity Strategy along with the domestic implementation and enacting of supporting regulations for the various International Maritime Organisation conventions. The interviewee devised the ingenious idea of creating Technical Working Groups for the ICT/Energy sectors -though not the Maritime/Logistics sectors, to reach out to public/private stakeholders as well as even students and expatriates dwelling abroad to tap into their potential expertise and substantially diminish the need for external consultants. They also provide a mentoring role for existing government officials, to supplement experience with expertise and the converse
24.	Sustainable Development Unit	Moving forward they are working on their Voluntary National Review assessing progress against the Sustainable Development Goals and the midpoint of the 2030 Agenda despite delays by the COVID19 pandemic.
25.	Maya Forest Trust	However, developing legislation such as the Carbon Trading Bill that includes active stakeholder consultation and priorities has remained a looming cause for consternation. As NGO representatives they have asked for more time and inclusion with the Second Draft to reflect more clearly the chance for potential equitable benefit sharing so that ownership of carbon trading rights is not exclusive to the government alone but allows for NGOs and the private sector, owning many mangroves and other sources. More attention also needs to be placed in relation to developing relationships with academia and the private sector to facilitate Belize's blue economy.

Table 4.4.8: Survey Priority Recommendations for IADB/Other Funders

Interview No	Type	Priority Recommendations for IADB/Funders
23.	Belize Ministry of Tourism and Diaspora Relations	Conducting a Human Capacity Needs Assessment and train the various interconnected workforces to plan and manage sustainable tourism development in marine areas. Managing the risk of coastal hazard/ climate change to tourism facilities. Develop guidance and building codes to ensure resilience. Identifying strategic areas for tourism development. Developing a Marine tourism transport plan. Resilient Tourism Infrastructure, inclusive of shoreline stabilization initiatives. Maintaining a high quality coastal and marine environment underpins the tourism sector. To ensure tourism development is climate resilient and sustainable, the IADB and Government of Belize should prioritize: Develop tourism development and investments plans for the marine scape.
24.	Belize Port Authority	2- Digitalization, as SIDS already face a higher transport cost for shipping. Many of these costs can be tied to inefficient systems to facilitate trade such as infrastructure and the use of paper-based systems. Digitalization can be viewed as a low hanging fruit that can bring benefits to all users connected. Digitalization of ports is a convention requirement for the majority of trading nations that are signatory to FAL. Belize should not be left behind and the digitalization of ports would also aid national goals set by the national digital agenda.
25.	Climate Finance Unit	0

26.	Crocodile Research Coalition NGO	0
27.	Galen University	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats.
28.	Healthy Reefs Initiative	Priority areas looking at the following: Technological innovation, Ocean Conservation and Biodiversity, Blue Tourism and Recreation, Education and Capacity Building, Data and Information sharing. Technological innovations focusing on advanced monitoring systems for fisheries and environmental conditions. Ocean Conservation and Biodiversity would look at the MPA's and enhance management in these areas. Blue Tourism and Recreation in order to develop sustainable tourism practices and support eco-friendly tourism. Education and Capacity Building would look at offering educational programs and training in the fields of marine sciences and sustainable resource management. Enhance the capabilities of coastal communities to actively participate in and adopt sustainable practices. Data and Information sharing to enhance data collection and information sharing for informed decision making.
29.	High Seas Fisheries Unit	0
30.	Ikooma Belize -seaweed entrepreneur	8 - Having just visited Indonesia, one of the largest suppliers of seaweed globally, I believe priority needs to be given to developing regulatory bodies in the profitable industries connected to seaweed like cosmetics. We need to be able to meet international certification needs to boost our exporting capabilities. I'm assuming an IDB loan can help in this regard? Of course, as a business owner, I'm always looking for grant opportunities to develop my business growth.
31.	National Biodiversity Office	9 The areas for funding that can be prioritized include resource mobilization for implementation of strategies and plans to support the achievement of the targets and action areas outlined below. Technology transfer, capacity building to support implementation, monitoring and reporting are key for timely and informed biodiversity management in Belize. Mainstreaming of biodiversity targets across sectors is key as it is recognized that implementation of biodiversity targets will only be achieved if all sectors understand and actively do their part to adopt sustainable/biodiversity friendly practices to reduce biodiversity loss.
32.	National Meteorological Department	Marine Climate Data Collection and Forecast including the collection of marine variables and the training of personnel in Marine Meteorology and Oceanography.
33.	Office of the Prime Minister Economic Development Council	0
34.	University of Belize	Blue Economy projects where faculty and students are involved e.g., mariculture and others. Training is required. There are lots of opportunities for students, especially because there are many of them; they do not require a salary, and they need the experience. It would be great to have funded thesis projects for our BSc, MSc and MPhil students.
35.	Wildlife Conservation Society Belize	4. Exploration of Mariculture or ranching for Conch, Lobster, Crabs, Urchins 5. Development of Formal training program for Fisherfolk 6. Improved MPA Management and Enforcement and Compliance

36.	Caribbean Regional Fisheries Mechanism	Risks: Climate change and its influence on the abundance and distribution of marine resources which could impact livelihoods and productivity Opportunities: Development of climate-smart fisheries and aquacultur**e**
37.	Protected Area Conservation Trust	An area of interest, from a PACT perspective, would be investments within sustainable revenue generating mechanism for protected areas managers. As the national Trust Fund, we see gaps in PA (Protected Areas) managers covering their basic operations and often rely on restricted funds, however, with a revenue generating mechanism, emergency or extra ordinary costs can be considered. Though PACT has been able to provide capital funding for such mechanism, it would require partnerships and other investments within the blue space to develop this mechanism.
38.	Ministry of Blue Economy and Disaster Risk Management	• Greater sensitization about the blue economy is crucial as it's a newly developing sector vulnerable to poor stakeholder buy-in. • Promoting the development of new opportunities for livelihood sustainability through funding more mariculture, and seaweed and sargassum development research. The aim is to enable those who directly rely on and depend on resources within the blue space to build resilience against the changing dynamics of the ocean and its associated economy, considering the impacts of climate change.
39.	Belize Tourist Board	Belize is a natural resource-based tourism product. Many visitors flock to these areas. Tourism Product Development, Business Development and Recreational Management are training opportunities for assistance to be provided. This will create more to do and experience in Belize while supporting conservation efforts in the blue and green spaces. Many protected areas co-managers (NGOs) oversee a site or sites. Their revenue generation is handicapped by their tourism product development. Their vision is limited due to their areas of expertise, conservation. They cannot discern revenue generating opportunities such as developing relationships with universities to provide a constant revenue stream. They can make their facilities living classrooms while generating income to assist in site management and covering salaries.
40.	WWF Mesoamerica	A major priority is sustainable fisheries management based on sound science and is stakeholder driven. This should also include support to livelihood diversification and MSME development in the sector.
41.	Private Seaweed Aquaculture Entrepreneur	Potential funding/incubation support
42.	MBECA Representative 2	• Share research and know-how related to blue economy • Financial Support in the development of a green carbon - blue carbon investment policy to attract and expand investment and funding • Support in the development of sustainability criteria for incentive packages to enhance the sustainability of established economy sectors in Belize's blue space and to encourage the sustainable development of emerging sectors
43.	Hol Chan Marine Reserve	Education & Outreach, Enforcement & Compliance. Capacity building and resources to continue conducting efforts in these areas are priority
44.	Central Bank of Belize	Increased Data Collection, Capacity Building, Research and Development
45.	NEMO	In the disaster management sector, it will be important to remember the impact of the blue economy on people. In this regard, it will be very important for the bank to make investments in community-based disaster management.
46.	Department of Aquaculture	Technical training for feed manufacturing, hatchery management

47.	Oceana	Transparency and accountability in decision-making processes. Greater capacity for marine resource users to participate in management efforts.
48.	Beltraide	Develop Curriculum to support BELTRAIDE in delivery trainings to support the Blue Economy, Product Development, Financial Management, Governance, -Strategic Planning, Business Modelling

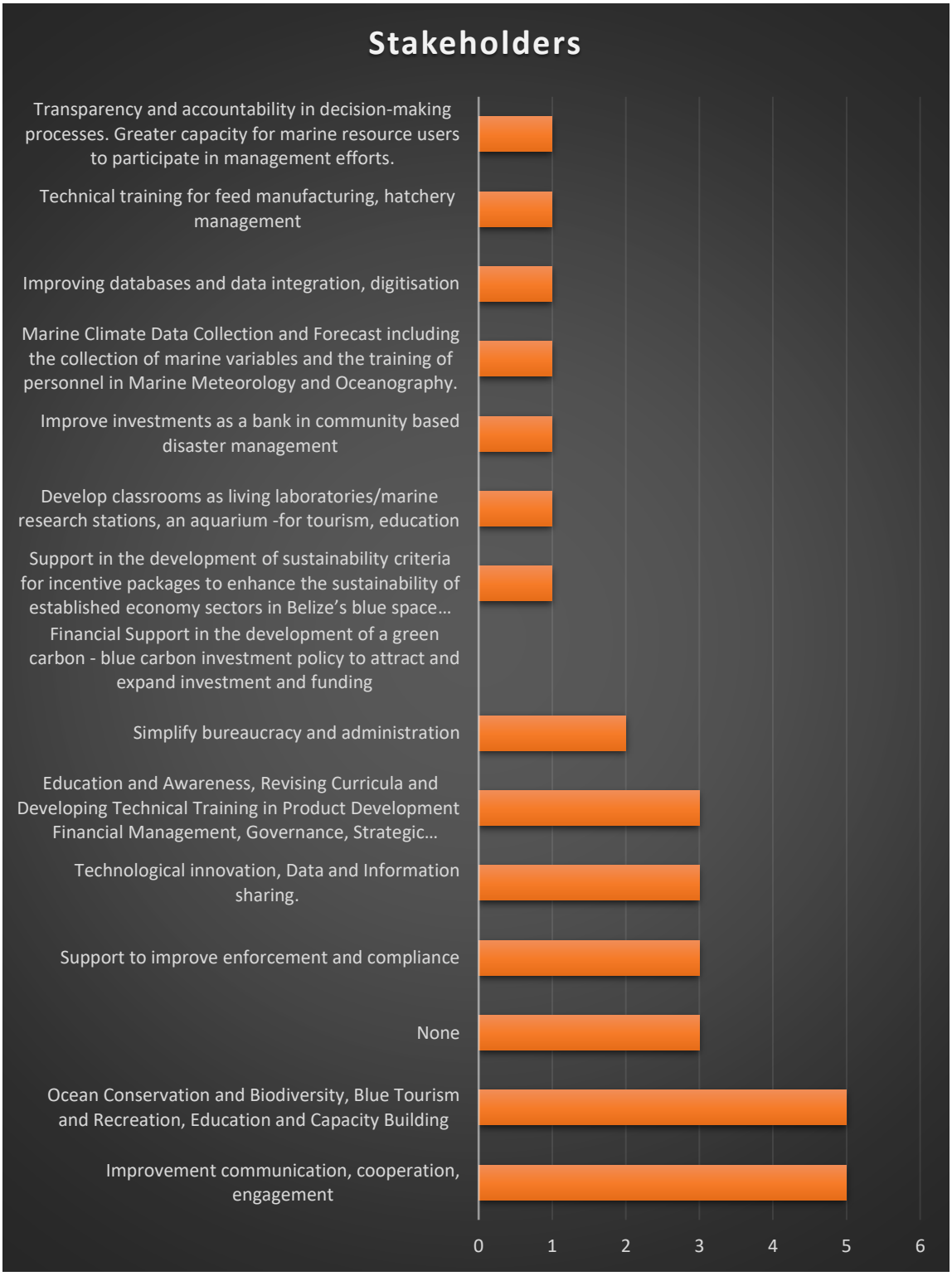


Table 4.4.9: Interview Recommendations for Belize's Government

Interview No	Type	Recommendations for Belize's Government
22.	Belize Port Authority	Port development (infrastructure both physical and digital) because our trading partners will continue to be more accessible through shipping. Additionally, with an increase in trade volumes, shipping can bring greater benefits though economies of scale. If Belize wants to reduce its trade deficit, it must not ignore the impact that inefficient ports have to the cost and burden of doing business in Belize.
23.	Galen University	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats
24.	Healthy Reefs Initiative	The risk of climate change impacting the coral reef system and fishing sector should be a priority area. The availability of funding by the government for small scale projects. Encouraging a national adaptation of a standardized method of data collection for the various marine species based on existing data verified data already in existence. Ensure that opportunities to share findings with the government are enabled to ensure effective use of the information for proper resource management and decision making.
25.	High Seas Fisheries Unit	Government priorities should be centred on the sustainable management of fisheries resources, which includes developing laws and regulations that will protect the marine ecosystem and guarantee the long-term health of fish stocks, both within the fisheries sector and overall blue economy framework. BHSFU and, by extension, Belize actively participates in three regional fisheries management organizations (RFMOs), whose mandate is to ensure the adoption of management measures to ensure the protection of certain fish stocks. Through these measures and the adoption of domestic regulations, Belize can ensure the protection of its marine biodiversity while safeguarding the steady supply of fish for both domestic consumption and export. Furthermore, Belize's active participation in these RFMOs allows for collaboration and knowledge-sharing with neighbouring countries, fostering a collective effort towards sustainable fishing practices. This not only benefits the fisheries sector but also contributes to the overall growth and resilience of the blue economy in the region. It should be noted that Belize's high seas fisheries is primarily dominated by foreign owned fishing vessels flying the Belize flag, so the potential to develop the HS fisheries sector to extend to the local fishing community exist, however this will require putting in place a system for infrastructure development, which will include, building cold storage facilities, processing plants and port facilities to enhance and develop this sector. This can support value-added processing of fish taken in the high seas and improve the overall competitiveness of the Belize seafood industry by integrating locally caught species such as tuna and tuna like species into the market and for export purposes which can have substantial economic benefits for Belize. Developing the high seas fisheries sector within its local environment presents an opportunity for economic growth through increased employment, export revenues, and value-added processing activities. Capacity building and education are also essential for the long-term success of the blue economy framework and the high-seas fisheries sector. The government should prioritize training programs for fishermen to improve their skills and knowledge of sustainable fishing practices not only in domestic waters but also in the high seas. Additionally, investing in education and awareness campaigns can help promote conservation efforts, foster a culture of responsible fishing within local communities, and increase the potential of high-seas fisheries. In terms of risks, Belize must be mindful of potential overexploitation of fish stocks, which could lead to ecological imbalances and threaten the sustainability of the fisheries sector, such as within its sport and recreational fisheries activities, which are not properly regulated and have led to the fishing of regulated species without any monitoring efforts or data collection. Additionally, climate change poses a significant risk to ocean ecosystems, impacting fish populations and altering traditional fishing patterns. Therefore, Belize should also prioritize the effect of climate change on both domestic and high-seas fisheries and the

<table>
<tr><td></td><td></td><td>impact this can have on fishing in the long term. This issue is currently being addressed at the international level and as it relates to high-seas fisheries, such as within the RFMOs. These international efforts aim to establish sustainable fishing practices and protect marine biodiversity. It is crucial for Belize to actively participate in these discussions and collaborate with other countries to ensure the long-term viability of its fisheries and the health of its ocean ecosystems</td></tr>
<tr><td>26.</td><td>Ikooma Belize - seaweed entrepreneur</td><td>Need to see a clear step-by-step process available for people to know how to start a seaweed farm. A website dedicated to the seaweed farming industry could be helpful that provides a directory to operating farms and the species and products available. Indonesia offers a good example of this. www.indonesiaseaweed.com</td></tr>
<tr><td>27.</td><td>National Biodiversity Office</td><td>The following table shows priority objectives for the National Biodiversity Office. It further shows alignment with the NBSAP Priority Targets as well as alignment with Belize's Medium Term Development Strategy.
In 2017, a prioritization exercise for Belize's NBSAP was conducted which sought to identify key objectives based on impact, urgency, contribution to national development goals and ease of implementation. From this exercise a total of nine priority goals were identified (see Table 7 below).
Table 7: Prioritized NBSAP Targets
<table>
<tr><th>No.</th><th>NBSAP Goal</th><th>Action</th></tr>
<tr><td>1</td><td>D1</td><td>By 2025, key ecosystem services are sustainably managed and resilient to threats</td></tr>
<tr><td>2</td><td>B4</td><td>Belize is restoring 30% of degraded ecosystems to maintain and improve the status of ecosystems and ecosystem services essential for increasing Belize's resilience to climate change impacts</td></tr>
<tr><td>3</td><td>B5</td><td>By 2025, Belize is addressing its trans-boundary issues, with 20% reduction in terrestrial impacts and 50% reduction in illegal fishing from trans-boundary incursions</td></tr>
<tr><td>4</td><td>E1</td><td>All relevant government Ministries, 75% of relevant civil society, and 25% of the private sector and general public are effectively involved in the implementation of the NBSAP</td></tr>
<tr><td>5</td><td>C3</td><td>Between 2016 and 2030, no species will become functionally extinct in Belize</td></tr>
<tr><td>6</td><td>E3</td><td>Belize's NBSAP is being implemented effectively, monitored and evaluated, and</td></tr>
</table>
26
<table>
<tr><td></td><td></td><td>achieving desired outcomes</td></tr>
<tr><td>7</td><td>E2</td><td>By 2020, accurate and current data on Belize's natural resources and environmental services informs relevant national development decisions</td></tr>
<tr><td>8</td><td>C1</td><td>By 2030 Belize's natural landscapes and seascapes are all functional and build climate change resilience</td></tr>
<tr><td>9</td><td>A4</td><td>100% of relevant Government, 75% of civil society and 50% of the general public in Belize have increased awareness and appreciation of biodiversity and demonstrate active good stewardship</td></tr>
</table>
To be able to better regulate access to genetic resources and secure benefits from its use, it is important to establish a Biosafety Policy for Belize to regulate the use of GMOs. It is also important for a decision to be made on how Belize should regulate access to and benefit sharing from the use of genetic resources from the use of biological diversity. With no policy, legislation or framework in place, Belize is behind in actively managing our genetic resources.</td></tr>
<tr><td>28.</td><td>National Meteorological Department</td><td>Investment in additional training and resources for Forecaster and Climate Data/ Services personnel and Climate Modelling. The NMS Legislation should be finalized and approved formally giving the NMS authority on Weather and Climate.</td></tr>
</table>

29.	Office of the Prime Minister Economic Development Council	With the use of all natural resources, ensuring sustainability for generations to come is critical. One way to do this is to build strategic and inclusive partnerships across relevant sectors to better leverage ocean opportunities. There is also the need to build capacity within the Ministry of the Blue Economy and to create awareness on the use of innovative and sustainable technologies along with recommendations on the best business models for use by private sector to avoid over exploitation, pollution, or damage to our reef our coastal zones. These if adequately leveraged, will build a strong and resilient blue economy that contributes to improved livelihoods and an improved overall economy. There is the need for financing avenues/windows to support the implementation of respective policies such as the Blue Economy Development Policy, Strategy and Implementation Plan and the Maritime Economy Plan. Additionally, government needs to prioritize on data collection and analysis across all sectors for improved decision making.
30.	University of Belize	Investments in students e.g., targeted scholarships for MSc and MPhil at the University of Belize.
31.	Wildlife Conservation Society Belize	3. Sustainable Financing form Fisheries Management and MPA Managements 4. Strengthening Value Chain for Main Fisheries
32.	Caribbean Regional Fisheries Mechanism	None
33.	Protected Area Conservation Trust	From a PACT perspective, this would be the standardization of data and data requirements – whether on biodiversity monitoring or green/blue law enforcement. Storage, analysis and availability of such data is also important.
34.	Ministry of Blue Economy and Disaster Risk Management	A governmental priority should involve exploring additional avenues that will lead to greater investment in the blue economy. This can be done by actively engage in regional and international collaborations to address shared challenges, such as climate change. Pooling resources with neighbouring countries and participating in global initiatives can amplify the impact of Belize's efforts and unlock additional support.
35.	Belize Tourist Board	Tourism must be made a national priority. This must be done through actions of unqualified public and private sector support for the tourism industry through action and not verbal or moral support. For example, public sector data needs to be provided in a timelier manner and become more accessible; the private sector must make insurance coverage more comprehensive and affordable. The tourism 'high season' starts in November. Hurricane Lisa in November 2022 showed the vulnerability of tourism establishments. Recovery efforts were slowed due to a significant portion of businesses having no or minimal insurance coverage. While funding was eventually received for national recovery efforts, the tourism high season was well underway before some establishments could get any assistance. Infrastructure, such as provision of electricity, potable water, liquid and solid waste management needs addressing. There must not be major water and electricity shortages and inadequate planning plaguing key tourism destinations.
36.	WWF Mesoamerica	- Strengthen the protection and sustainable management of Belize's ocean space - Strengthen the management and conservation of marine and coastal protected areas as well as associated ecosystems - Implement informed and targeted fisheries management in place of ad hoc approach - Major effort towards recovery of dwindling fisheries stocks (finfish, conch, lobster) - Continued commitment to co-designing and implementing Belize's coastal and marine project finance for permanence initiative, along with the design and implementation of the marine spatial plan for the broader ocean space. - Greater focus towards alignment and harmonization of national policies, plans, strategies and legislation guided by an effective monitoring and evaluation framework for impact monitoring.

37.	Private Seaweed Aquaculture Entrepreneur	0
38.	MBECA Representative 2	Priority area is the establishment of governance framework for blue economy development to establish a robust legal and policy framework and a functional and effective institutional arrangement for blue economy development and implementation that is responsive to Belize's needs and consistent with the guiding principles. This includes institutional capacity development and enacting legislation to coordinate blue economy development in Belize. Capacity building is required for institutional strengthening to aid in the execution of functions and priority areas.
39.	Hol Chan Marine Reserve	Research & Monitoring and alternative livelihood ventures for the fisheries sector
40.	Central Bank of Belize	• The Government should continue to prioritise the achievement of the milestones set out in the 2021 Blue Bond Agreement, as failure to do so can have fiscal and financial stability implications. At the same time, the Government can conduct more campaigns to attract international investors and mobilise capital for sustainable blue projects, facilitate more access to financial services and funding to businesses and communities engaged in the blue economy, develop a governance framework to oversee sustainable practices within the blue economy, and capacity building through trainings to stakeholders involved in the sector. The Government should also closely monitor climate risks and unsustainable fishing practices and increase enforcement measures and conservation efforts.
41.	NEMO	Yes, GOB must prioritize disaster risk management. If it is not given the level of importance it requires, then the impacts on the country will be severe.
42.	Department of Aquaculture	Develop Aquaculture regulations, incentives and support private enterprises in the manufacturing of aquaculture feeds to substitute some of the imported feeds.
43.	Oceana	Data/science driven policy implementation; Greater investment in enforcement of the current fisheries regulations; Monitoring/verification of existing regimes/regulations
44.	Beltraide	Financial Incentives for BLUE Economy MSMEs Capacity Building for BELTRAIDE trainers on business trainings for Blue Economy Matchmaking days for Blue Economy

Survey Recommendations and Priorities to Develop Belize's Blue Economy

Survey No	Type	Other Recommendations and Priorities
16.	Belize Ministry of Tourism and Diaspora Relations	0
17.	Belize Port Authority	Incentivize sustainable development of ports. The draft national ports policy calls for incentivizing ports to develop in line with the changes in demand for services. Port development is costly, and government should be able to create the enabling environment for the private sector to invest. These improvements at the ports have benefits for all since the end user (consumer) pays the price of an inefficient vs efficient port.
18.	Climate Finance Unit	0
19.	Crocodile Research Coalition NGO	I think there should be research on possible aquatic species that may need a moratorium for hunting, in addition there needs to be more money on enforcement to protect Belize's waters from overfishing, and other negative impacts by those who may not be following the laws and regulations. If there could be money geared towards creating job opportunities, and an educational program
20.	Galen University	We believe a technology and knowledge transfer program would be well suited for the development of a national education program that can be self-sustained. Galen University is in the process of developing new programs/certificates within the above areas inclusive of climate change. Hence, a technology and

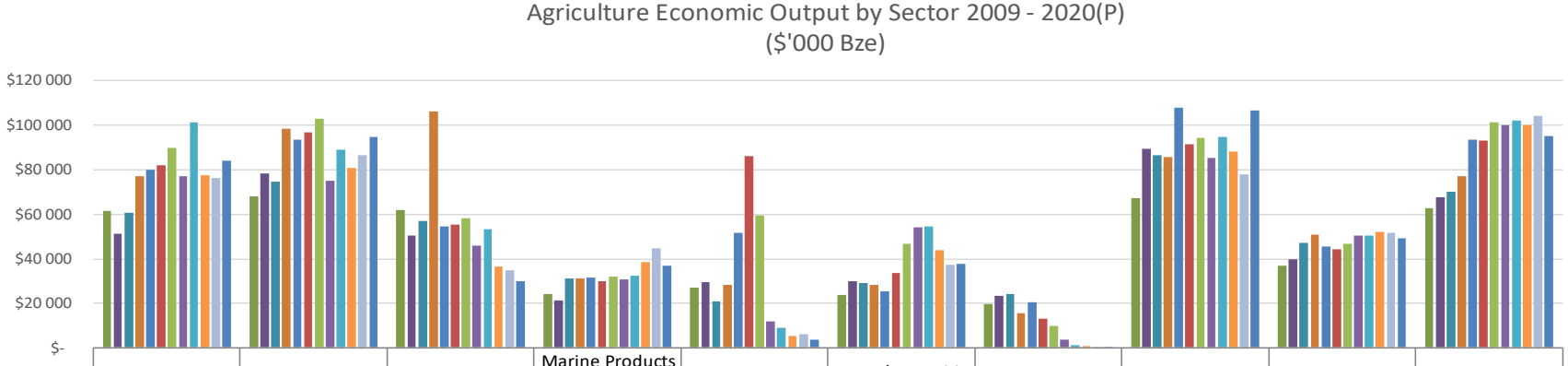
		knowledge transfer program would significantly boost the long-term sustainability and adaptability of any education program, thereby enabling the development of Belize's human resources
21.	Healthy Reefs Initiative	Training and Institutional Capacity Building should be prioritized. As well we should develop national mechanisms that can be annually assessed and modified to address potential changes and threats
22.	High Seas Fisheries Unit	Sport and recreational fishing contribute significantly to the economy; however, they are not properly regulated. There is a need for stricter regulations and enforcement to ensure sustainable practices and protect the marine ecosystem. Species that are regulated by RFMOs, such as ICCAT, are being freely caught. Data is not being collected, especially during sport fishing tournaments and in other aspects of recreational fishing, which hinders effective monitoring and conservation efforts. The BHSFU, as the focal point at ICCAT, must report all fishing operations that target ICCAT-regulated species, and this includes those taken within national waters as well, because these species are highly migratory and can cross international boundaries. Belize was identified as non-compliant for its failure to provide accurate catch data for these species caught in our local waters through sports and recreational fishing. This lack of catch data can hinder effective fisheries management and conservation efforts. The CZMAI is responsible for regulating sports and recreational fishing. As such, we recommend that the CZMAI take the necessary action to implement a catch reporting framework or strengthen its catch and reporting mechanisms to properly regulate the sport and recreational fisheries sector. This will ensure accurate data collection and enable effective management of the sport and recreational fishing activities. This organization may not have the necessary capacity to implement and enforce a data collection program and therefore will need to invest in capacity development to implement this system.
23.	Ikooma Belize -seaweed entrepreneur	Develop something like the Indonesian Food and Drug Authority (BPOM) to issue cosmetic production licenses, etc. and certifications so we can develop export ready businesses and prioritize customer safety and confidence in the local market. Along with an initiative like this, I'd want to see chemists and professionals in the field come in to certify local formulators. Another consideration is to develop a large cosmetic manufacturing lab that can help with scaling our products – so we're talking a lab that can produce for multiple Belizean businesses and help us to scale for the local and regional markets
24.	National Meteorological Department	Greater Collaboration is needed amount public and private sector entities including universities for the provision of weather and climate services. There is still a huge disconnect between the climate data and science and the policy makers and users of the information.
25.	University of Belize	Investments in students e.g., targeted scholarships for MSc and MPhil at the University of Belize. Internship opportunities for our students. They can fund thesis projects for our students – projects they are interested in. Support for faculty led research, support for thesis student projects.
26.	Wildlife Conservation Society Belize	1. Improve conditions to access funding for fisheries projects There are Gaps in 1. Gender Inclusion 2. Adequate and responsible consultations 3. Fishers Organizations need to be formalized and legally recognized by BFD 4. Updating of Fisheries Regulations
27.	Caribbean Regional Fisheries Mechanism	Develop programmes and strategies to provide sustainable and innovative financing for the SSF/A sector including supporting private-public sector partnerships. Resources to support implementation of the following:

		o Climate Change Adaptation and Disaster Risk Management in Fisheries and Aquaculture in the CARICOM Region- Regional Strategy and Action Plan 2020-2030 o Gender Analysis, Strategy and Action Plan on Gender Mainstreaming in Fisheries of Member States.
28.	Belize Tourist Board	International Agencies must understand the nature of the environment they are working in. Every time a foreign consultancy is awarded the contract must stipulate that there is a qualified local counterpart. Experience has shown that foreign consultants are awarded contracts and complete their deliverable(s) without understanding the dynamics of the local environment. This is an injustice to Belize as: 1) these are not grants. Belizean taxpayers must pay back the loan since it comes in the form of BL-____; 2) the target audience does not even qualify for programs for which they are intended to be beneficiaries; and 3) precious resources are squandered as human and other resources could have been employed elsewhere in more productive initiatives. Important needs include Proposal Writing, Project Management, Recreational Management, Product Development, Sustainable Tourism, Policy Development Waste Management is a challenge, not just in tourism destinations. This has detrimental consequences for the blue economy and area. Financing for MSMEs is critical to improve the quality of the physical facilities and for capacity building of staff so there can be a better guest experience.
29.	WWF Mesoamerica	Greater focus towards alignment and harmonization of national policies, plans, strategies and legislation guided by an effective monitoring and evaluation framework for impact monitoring.
30.	Hol Chan Marine Reserve	Investing in renewable-energy or circular economy products from marine resources. Investing in research.
31.	Central Bank of Belize	• More public and private sector sensitisation of Belize's Blue Economy Development Policy, Strategy, and Implementation Plan 2022-2027 (BEDPS) which presents the enabling framework for Blue Economy development. This would allow opportunities for open discussions and engaging more stakeholders from different sectors involved in the blue economy's development. • To build capacity, the IDB could offer technical assistance and training opportunities in sustainable finance and the blue economy. Additionally, guidance could be provided for incorporating environmental considerations into the Central Bank's policy framework.

Annex IV: In Depth Ocean Accounting

Historic data of top agricultural classified products is illustrated for comparison basis between Belize traditional aquaculture/mariculture production and other sectors over time. Whilst general marine products have increased in value from BZ$ 24,387 million in 2009 to $37,090 million estimated for 2020, shrimp production rapidly declined over time from $27,035 million in 2009 to an estimated $3,052 million in 2020.

Figure 3.1.1: Historic Aquaculture/Mariculture Production in GVA in Belize 2009 to 2020



	Sugarcane	Banana Products	Citrus Products	Marine Products (incl 5% for dom. Consump)	Shrimp (FARM)	Fruits/Vegetables	Papaya	Grains/Legumes	Livestock:	Poultry
2009	$61 616	$68 138	$61 942	$24 387	$27 035	$23 909	$19 566	$67 397	$36 941	$62 870
2010	$51 389	$78 170	$50 414	$21 187	$29 732	$30 171	$23 570	$89 361	$39 706	$67 754
2011	$60 896	$74 736	$57 094	$31 230	$20 994	$29 231	$24 185	$86 472	$47 151	$70 332
2012	$77 188	$98 576	$106 149	$31 337	$28 410	$28 332	$15 508	$85 753	$50 844	$77 297
2013	$79 989	$93 337	$54 598	$31 467	$51 564	$25 509	$20 670	$107 769	$45 404	$93 578
2014	$81 978	$96 874	$55 397	$30 109	$86 179	$33 869	$13 262	$91 374	$44 526	$92 975
2015	$90 017	$102 828	$58 176	$31 845	$59 673	$46 911	$9 750	$94 282	$46 961	$101 119
2016	$77 232	$74 960	$45 942	$30 936	$12 028	$54 298	$3 922	$85 447	$50 647	$100 126
2017	$101 145	$88 844	$53 166	$32 568	$9 138	$54 375	$1 453	$94 787	$50 421	$102 214
2018	$77 642	$80 967	$36 647	$38 702	$5 372	$43 886	$1 025	$88 220	$51 932	$100 210
2019	$76 157	$86 491	$34 755	$44 579	$6 144	$37 376	$ 316	$77 831	$51 519	$104 176
2020(P)	$84 143	$94 709	$29 846	$37 090	$3 052	$37 644	$ 406	$106 786	$49 384	$95 200

Table 3.1.2 Detailed Marine Products 2012 to 2022 Exports

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Whole Fish Quantity (Thousand Lbs)	488,87	651,88	276,71	915,31	284,40	194,80	21,17	60,56	-	5,33	22,60
Value	1489,26	2 764,53	558,19	853,28	400,11	249,29	42,71	67,71	-	57,76	94,17
Fish Fillet Quantity (Thousand Lbs)	-	0,63	-	22,48	0,03	-	0,68	-	-	-	0,85
Value	-	7,51	-	127,88	0,27	-	10,98	-	-	-	4,29
Lobster Tail Quantity (Thousand Lbs)	519,19	493,01	452,66	486,57	432,88	521,22	512,95	535,25	642,63	677,71	569,69
Value	14993,42	14 070,60	13998,78	15 309,86	12536,69	15398,99	16703,64	20020,30	21069,54	29280,45	24143,03
Whole Lobster and Lobster Meat											
Quantity (Thousand Lbs)	205,67	3,49	122,35	255,83	390,31	522,63	441,23	412,09	274,04	296,35	445,43
Value	568,91	50,47	1614,84	4035,57	5722,69	7950,18	7163,45	7096,97	4760,65	6168,45	10 17,88
Shrimps (White Farmed) Quantity (Thousand Lbs)	10250,77	14 597,76	14388,89	9 283,81	1460,83	3573,82	1191,29	1023,76	660,29	370,52	327,97
Value	28409,52	84069,90	88466,47	59 672,63	12682,62	9137,64	5371,71	6143,90	3651,95	1 718,66	1512,09
Conch Quantity (Thousand Lbs)	1119,05	986,84	758,47	696,93	889,44	595,19	882,95	1050,40	718,70	958,40	951,25
Value	11987,55	11290,55	8534,18	8024,87	10 572,23	7317,94	13097,22	15442,69	9692,80	15761,28	17526,14
Crab Quantity (Thousand Lbs)	1,40	37,54	26,35	0,92	2,85	2,44	-	-	-	-	-
Value	3,76	90,27	86,77	8,37	32,20	47,27	-	-	-	-	-
Ornamental Fish Quantity (Thousand Lbs)	99,85	256,89	447,43	3,16	3,89	7,15	5,39	2,89	11,58	8,37	7,59
Value	565,61	620,72	472,22	28,12	29,65	269,39	235,80	102,62	161,98	195,98	171,08
TOTAL LBS	**12584,95**	**16771,15**	**16025,44**	**11661,86**	**3460,75**	**2996,96**	**3050,26**	**3082,05**	**2 295,66**	**2 308,30**	**2325,38**

VALUE	**57452,42**	**112343,83**	**113259,23**	**88032,46**	**41946,82**	**40101,30**	**42389,71**	**48771,57**	**39174,95**	**52986,60**	**53668,68**

Source: Belize Ministry of Agriculture, Food Security and Enterprise 2023

3.2: Blue Carbon

According to a 2009 study by the World Research Institute and the World Wildlife Fund (WWF), mangroves and coral reefs play a significant role in Belize's economy. They fuel the tourism sector, contributing around US$173 million annually, which makes up about 13.5% of the country's GDP. These ecosystems are integral to the local fishing industry, providing around US$15 million in economic benefits each year. Additionally, they function as natural shields for the coast, saving approximately US$289 million per year in costs resulting from possible damage. Mangroves enjoy legal protection specifically under the Belize Department of the Environment, 2018 "Forests (Protection of Mangroves) Regulations." Whilst existing studies have not historically identified blue carbon valuation to provide a basis of comparison of changing values over time, coral reef and mangrove ecosystems contributed a minimum of US$477,000,000 in 2009 including ($289,000,000 in coastal protection, $173,000,000 in tourism and $15,000,000 in fisheries based on a WWF/World Resource Institute Study undertaken in 2009. Ocean accounting incorporates flows and values based on natural capital and ecosystem services including blue carbon offsetting and related values. However, unlike other sectors it can be more challenging to directly attribute employment, revenue, direct and indirect socioeconomic and ecological valuations, not being traditionally incorporated into existing Belize government statistics data collection processes/institutional capacity. Such valuations are mostly derived from recent surveys provided not by government, but the reliance and cooperation of nongovernment organisations, academia and other entities. Additionally estimates mostly focus on mangroves and to a smaller extent, seagrass. However, this does not fully account for blue carbon sequestration/offset and related ecosystem service values from tidal marshes, wetlands and other sources such as living species including whales. Such surveys may not cover all territory or may not allow for variable changes over time.

Using physical sample including sediment cores, GIS imagery, stakeholder engagement and remote sensing from September 2021, the US Smithsonian Institution and 13 institutions undertook the first comprehensive assessment to estimate Belize mangroves total national blue carbon stocks from 58,000 hectares of mangroves. This is known as the Stamford Natural Capital Project. It identified the first national comprehensive mangrove carbon stock estimate of 25.7 Tg C but with a range of 0.6 Tg C underestimate and 16.5 Tg C overestimate. This derived from a mean total ecosystem carbon stock (TECS) for the nation was 444.1 ± 21.0 Mg C ha−1, with 74.4 ± 6.2 Mg C ha−1 in biomass stocks, and 369.7 ± 17.7 Mg C ha−1 in sediment stocks. In current market price valuations average prices range from $20 to $35 per ton, this yields potential offset value of US$642,500,000 to $899,500,000 based on a total of 25.7 Tg C as a maximum income/value for Belize's first national ocean accounts. Additional revenue may also arise from climate finance and

biodiversity finance credits However, this must be caveated as the actual commercial value that can be diverted towards carbon market offsets is limited to the areas directly monitored, protected and available. Such monitoring would have to be ongoing and require collaboration of multiple parties such as the University of Belize Environmental Research Institute, the Pew Charitable Trusts, Belize Mangrove Alliance, World Wildlife Fund, Belize Fisheries Department, Belize Forest Department, National Climate Change Office, Coastal Zone Management Authority and Institute, Toledo Institute for Development and Environment, Sarteneja Alliance for Conservation and Development, the Corozal Sustainable Future Initiative, the Caye Caulker Strong Mangrove Project, and the Turneffe Atoll Sustainability Association.

Currently no one is directly employed in carbon offsets directly in Belize, but potential exists with the currently proposed and discussed Carbon Trading Bill being considered by the Ministry of Sustainable Development, Climate Change and Disaster Risk Management and the Blue Bond Unit. In determining future values, this could be influenced by an official pledge following the research by the Belize government to replant 15 square miles by 2030, whilst working to protect more effectively an existing 46 square miles of mangroves. As additional benefits this was claimed by certain research findings from the Smithsonian Institute study to boost lobster fisheries by as much as 66 %, generate mangrove tourism worth several million dollars annually, and reduce the risk of coastal hazards for at least 30% more people, according to the researchers' models. Based on this, future valuation of blue carbon stocks based on current prices could net yield an additional US$ 446,772.50 to $625,481.50 each year in value, if these additional 69 square miles or 17,870.9 hectares are fully protected. If 12000 hectares were protected this would yield anticipated benefits to safeguard BZ $800,000 for tourism and 3000 visitors on average BZ $2,500,000 for spiny lobster fisheries and ultimately total carbon stock of up to 7.7 million metric tons. This excludes additional ecosystem values. Initial estimates are summarized in Table 3.2.1.

Other sources of blue carbon offset values are mostly absent from discussions and active/proposed monitoring with the recent exception of seagrass. Whilst exact seagrass stock areas are unknown, WWF have developed Seagrass Conservation and Protection in Belize guidelines in 2022 form initial guidelines and CZAMI in their National Marine Habitat Map estimate the area at 229.14 hectares. These guidelines note a lack of current systematic data across Belize for seagrass extent, specifically long-term variables including carbon offset potential plus biomass, productivity, diversity, water quality, sedimentation rates, physical shoreline change, various ocean and climate/climate change related factors such as temperatures and currents which could influence carbon flows over time. However, actual valuations of carbon sequestration linked to those area sites are based on 2010 and 2014 values, with recent updates/initial surveys not being undertaken or accessible. The main species is Thalassia testudinum (turtle grass) whilst actual depths of seagrass range from 1 to 13 metres below the ocean surface. From 2022/2023 onwards WWF are seeking interest and support to try and quantify/value the role of seagrass for blue carbon offsets, but this may need additional funding along with support from government, the tourism/fisheries/logistics sectors, NGOs and communities. In 2022 Mar-Alliance Caye Caulker Strong: Project

Mangrove division planted 1,327 red mangrove propagules across 22 sites covering 1,480 square metres. It reached out to 697 community members. Current direct employment related to seagrass conservation is computed at 0 from a commercial blue carbon offset at present, the sector mainly relying on volunteers, as with mangroves. However, it clearly offers potential. For example, in 2019 130 Belize marine ecology student volunteers surveyed seagrass beds with the Toledo Institute for Development and Environment (TIDE) for Port Honduras Marine Reserve. There remains a need to integrate data such as these and for other ecosystems/NGOs. TIDE indicates 6 seagrass species will be monitored. Seagrass beds can store up to 237,000 tons of carbon per square mile and that it is an essential part of a manatee's diet -up to 100 pounds a day, also impacting ecosystem values and tourism. At least 121 manatees locally were observed during monitoring.

Belize has five legally recognized wetlands, two of which are Ramsar sites covering a mere 23.592 hectares: Crooked Tree Wildlife Sanctuary and Sarstoon Temash National Park. Recent projects are summarized in Table 3.2.2. This can provide further opportunity to refine the accuracy of the above estimates as more localized assessments specific to various Belize sites are accurately monitored in depth. Globally and locally, the extent to which coral reefs including the Belize Barrier Reef System may be able to be converted and quantified in terms of blue carbon offset potential, is yet to be determined. An encouraging development was the recognition of Belize's 2021 Nationally Determined Contribution (NDC) needing to capture blue carbon officially in progressing upon climate change. Further the Rio Bravo Conservation and Management Area provides evidence of some comparable experience and interest as one of the first 7 forest carbon offset projects officially accredited globally. The initiative has verified and certified 1.6 million tons of carbon dioxide equivalent since Inception. The Biodiversity Finance Initiative will receive $252,000 from 2023 and $413,000 will derive from the REDD+ initiative as compensation payments for emissions offsetting and carbon related funding.

At present Belize has been monitoring other indicators such as for the forestry sector, which could be adapted for blue economy/mangroves and marine protected areas such as the number of people directly employed in those sectors, number of staff trained, total investment on new infrastructure/areas per year, percentage increase in forestry cover, number of people reached through outreach and engagement and number of partnerships to support sustainable forestry management. The potential for further blue carbon projects and additional contributions to GDP and ocean accounting is not only restricted to government efforts but the intentions of NGOs, communities, private sector and individuals both external and internal, motivated by the potential for profits and conservation. The company Blue Finance is working with the Belize government and The Nature Conservancy towards developing Turneffe Atoll in Belize into a model pilot blue carbon, marine protected area. This focuses on approximately 1,400 km^2 of the greater Mesoamerican Reef. The 132,000-hectare reserve aims towards supporting 1000 fisherfolk households. It developed a US$1,200,000 sustainable financing facility for Belize and even where blue carbon has not yet been set up. However, the impact investing firm Mirova indicated that a proportion of those funds would be allocated towards setting up blue carbon credits with Blue Finance, IUCN and the

Blue Natural Capital Financing Facility. As confirmed from an institutional capacity perspective, the government has even formed a Blue Bonds and Project Finance for Permanence Unit towards implementing blue bonds and protection of 30% lands and seas by 2030.

Efforts towards developing Belize's blue bonds and related mangrove credits are being undertaken by the Nature Conservancy's NatureVest impact investing entity. It is restructuring its "Superbond" for a $US 364,000,000 debt for nature swap with Credit Suisse and the International Development Finance Corp over 19 years from 2019. From 2041 a marine conservation endowment fund worth US $23,500,000 will seek to support this further, whilst US $4000,000 each year for 20 years will link to a Belize autonomous conservation fund. This arrangement is piloting Blue Carbon Resilience Credits (BCRC) that will attract buyers willing to offset carbon emissions with third party-verified metrics of carbon and flood reduction benefits the endowment will continue to fund marine protected area management and conservation projects such as Hol Chan Reserve, focused on coral reefs, fisheries and more, beyond the term of the transaction, to ensure 24/7 security along other aspects. Seaweed mariculture is also being considered with the local Belize Women's Seaweed Farmer's Association and others with additional potential prospects for blue carbon revenue from commercialisation offsets.

3.3: Renewable Energy

Renewable terrestrial and marine/ocean energy as a sector has not been previously integrated with national statistics or satellite accounting practises directly for Belize. As of 2022 according to the government Department of Energy and IRENA profile Belize's installed electrical energy capacity is 7% from primarily imported fossil fuels and 93% renewable energy. It aims to supply 75% of national electricity demand by 2030. It includes peak power demand of 110.3 MW and 601.8 GWh. This directly supported 108,500 stakeholders as measured by separate accounts. The composition of installed overall capacity is illustrated in Figure 3.3.1. Whilst Figures depict 2021 this is valid for 2022 as there was no net additional increase in installed capacity during 2021 to 2022. The sector is dominated by bioenergy at 57% followed by hydro/marine at 33% of total energy produced. However, this is mostly hydropower with no currently installed floating solar, offshore wind, tidal, current, Ocean Thermal Energy Conversion, salinity gradient, wave and related true blue/marine/ocean energy. 51.5 MW derives from 4 main dams (the Mollejon Hydroelectric Plant (22.5 MW), the Vaca Hydroelectric Plant (19 MW) the Chalillo Hydro Dam (7.30 MW) Hydro Maya Limited (3.00 MW). Biomass comes from a diversity of producers, most notably the American Sugar Refinery/Belize Sugar Industry Ltd (ASR/BSI) and Santander Sugar Energy Ltd. The pioneering 250 kW solar electricity plant originated in 2018. Whilst indirect contribution to GVA and GDP is complicated to calculate directly for the blue/ocean economy and Belize, as virtually the entire economy is powered by renewable energy (93% of all energy is renewable), direct economic value of revenue/GVA from electricity sales from the sole main distributer/primary supplier -the Belize Electricity Limited reached BZ$ 249,516,000 and for revenue related to renewable sources but as gross or pre-tax, 93% of this total is equivalent to. 58% was specifically derived from hydro/marine, indicating… more directly applicable to an ocean/blue economy. It

also contributed $77,200,000 in investments primarily on improved energy infrastructure and efficiency measures. The direct cost of power cost 65% or $162,683,000. As calculated in Table 3.3.1 at least 431 people were employed in the renewable energy sector including related government unit, the main electricity company, several consultants, suppliers and manufacturers -primarily solar/hydropower energy.

3.4: Fisheries

In developing initial ocean accounts for Belize's fisheries sector; data is not uniformly and consistently available from all stakeholders given the separation of CZAMI from MBECA from the Fisheries Department, High Seas Fisheries Unit Belize's fisheries sector contribution to its blue economy includes in potential production revenue as summarised in Table 3.4.1. According to MBECA fisheries and aquaculture combined contributed an average 12% of Belize's entire GDP from 2015 to 2021. Joint fisheries and aquaculture provided a total estimated direct contribution to GDP of $ 26,971,67 for the year 2021. Belize produced 2,325,380 pounds of fisheries produce from a total value of $53,668,680.00 minus shrimp production of 327,970 pounds and value of $1,512,090 or total GVA of 1,997,410 pounds worth $52,156,590. Yet, Belize's fisheries are highly dependent on income/GVA from only lobster and conch. These make up 21% and 10% of catch compared to 7 species of snapper which collectively make up 26% (Yellowtail, Mutton, Lane, Red, Grey, Dog and Silk). 8% include mackerel species such as Crevalle jack, Horse-eye jack and King mackerel. 2% of total catch included barracuda and another 2% snook, with Goliath, Nassau and black grouper 1%. 67% of Belize's fisheries is artisanal, 22% subsistence and only 11% industrial. Yet in terms of developing a fully comprehensive ocean account for Belize's fisheries sector, this is projected to be a moderate underestimate as it does not capture many individual fisherfolk currently unregistered, communities, fishery cooperatives/associations and recreational fisheries. Monitored species primarily focus on mariculture, lobster, conch, shark, finfish and sea cucumber, rather than others. The Belize High Seas Fisheries Unit and Cooperatives/Associations also do not provide publicly or collect certain information on production, value and associated sectoral employment. From an ecological perspective, future ocean accounts could also incorporate indicators and measures to encourage more sustainable consumption of certain targeted species, whilst avoiding heavily overfished species.

Belize currently lacks a centralised fisheries database. Existing data is collected separately among units with minimal coordination, which is highly advised to be synthesised. This includes monthly catch and effort fishing logs and vessel reports. Finfish, reef fish and ornamental fisheries often lack stock assessments. Future data could capture poverty, climate resilience, marine pollution, ghost fishing gear, IUU fisheries and prosecution rates, biodiversity., sustainable technology and practises, certified fisheries. There is also a need for more specific poverty assessments. From a social perspective, females only occupied 2.7% of total employment of an estimated 20,000 of which 3,000 are direct fisherfolk and 17,000 indirectly involved in processing and related fishery supply chain activities. Of this total, a phenomenal 97.3% are estimated as male versus 60-70% of all immediate fishery processors/value adding

being female. Yet this is estimated as there are no updated assessments of the composition of fisheries and other sectors. Calculating total employment, gender composition and socio-economic dimensions for fisheries is complicated between the lack of distinction between aquaculture/mariculture and that of fishery related marine products. Given stakeholder reports of challenges in persuading fisherfolk to volunteer and register at cost, the Belize Fisheries Department identified only sixty-seven registered women with twenty-seven in Stann Creek, twenty-six in Belize, nine in Toledo, three in Orange Walk, one in Corozal and one in Cayo Province. In determining total employment, consultation needs to consider industrial fisheries, unregistered fisherfolk members of associations such as the Belize Federation of Fishers, National Fisheries Producers Cooperative, Northern Fishermen Cooperative Association and Wabafu Fishermen Association. Total fisheries employment is provided in Table 3.4.2 Socially the last national poverty rate recorded was 41.3% in 2009, 13 years ago, however both national and fisheries/blue economy specific poverty/social/gender assessments would greatly improve accuracy.

Other potential indicators that could be utilised to determine the sustainability of fisheries are summarised in the Table below. In 2022 the Fisheries Department received $619,467 in budget, estimated to increase slightly to $642,888 by 2025/2026. It aims to increase the number of vessel observers from 1 in 2021 to 5 by 2025, increasing compliant vessels from 24 to 46 and trained staff from 2 to 4. It identified an estimated 60,992 pounds for sea cucumber, 646,000 pounds of lobster tails and 950,000 pounds of queen conch.

Table 3.4.1b: Fisheries Key Performance Indicators

Key Performance Indicator	2023/23 Revised Estimate	Budget Estimate 2023/24	2024/25	2025/26
Number of enforcement inspections of fishing fleet	1,450	1,550	1,550	1,550
No of stakeholders sensitized to the fisheries laws	2,000	2,200	2,200	2,500
No of officers trained in enforcement	30	35	35	35
No of fishers engaged in alternative income sources	150	155	155	160
Number of hours of patrols	3,400	3,500	3,600	3,700
Number of persons arrested and convicted	95	150	150	150
No of fishers provided with technical assistance	23	25	30	30
Number of research projects conducted	25	30	35	40
Number of fish stock sustainability education and awareness campaigns conducted	8	10	11	12

Source: Belize Government 2023.

3.5: Marine Protection and Management

Whilst few examples exist globally in conveying the role of marine protection and management in forming ocean/blue economy accounting Belize can be at the forefront in recognising the specific revenue/income/Gross Value Added and employment contributions of its Coastguard and others summarised in Table 3.5.1. Others include. the Association of Protected Areas Management Organizations, The Belize Audubon Society, The Belize Maya Forest Trust, Healthy Reef Initiative, Oceana, Protected Areas Conservation Trust… Sarteneja Alliance for Conservation and Development, Sarstoon Temash Institute for Indigenous Management (SATIIM)…Southern Environmental Association… The Nature Conservancy, Toledo Institute for Development and Environment, Turneffe Atoll Sustainability Association, Wildlife Conservation Society, World Wildlife Fund. Others include those physically employed by various marine reserves. These include the Northern Belize Coastal Complex including the Bacalar Chico Marine Reserve, Corozal Bay Wildlife Sanctuary and Hol Chan Marine Reserve Caye Caulker Marine Reserve. Central Belize and Atolls include Glovers Reef Marine Reserve, Turneffe Atoll Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument and Swallow Caye Wildlife Sanctuary. Southern Belize Reef Complex includes the South Water Caye Marine Reserve, Laughing Bird Caye National Park, Gladden Spit Marine Reserve, Sapodilla Cayes Marine Reserve and Port Honduras Marine Reserve. There are other crown colonies and spawning aggregation site for conservation and monitoring purposes though not enforced. Effective governance includes measuring elements of management effectiveness for marine protected areas, the capacity to utilise/mobilise funding and other resources along with effective monitoring, enforcement, prosecution and evaluation. Belize's government and 2023 budget report provides the following Table 3.5.4b listed indicators.

Table 3.5.4b: Other Proposed Marine Protection and Management Indicators 2022

Indicator	Result
No of Fisheries Inspection	65
No of anti-drug seizures	4
No of marine environmental violations	4
No of safety violations	21
No of search and rescue operations	42
No of Customs enforcement operations	22
No of maritime interdiction operations	0
No of special operations conducted	12
No of humanitarian and support operations	0
No of patrols conducted	Unknown
No of lives saved	73
Fishing inspections resulting in fines	23
Anti-drug cases resulting in imprisonment	2

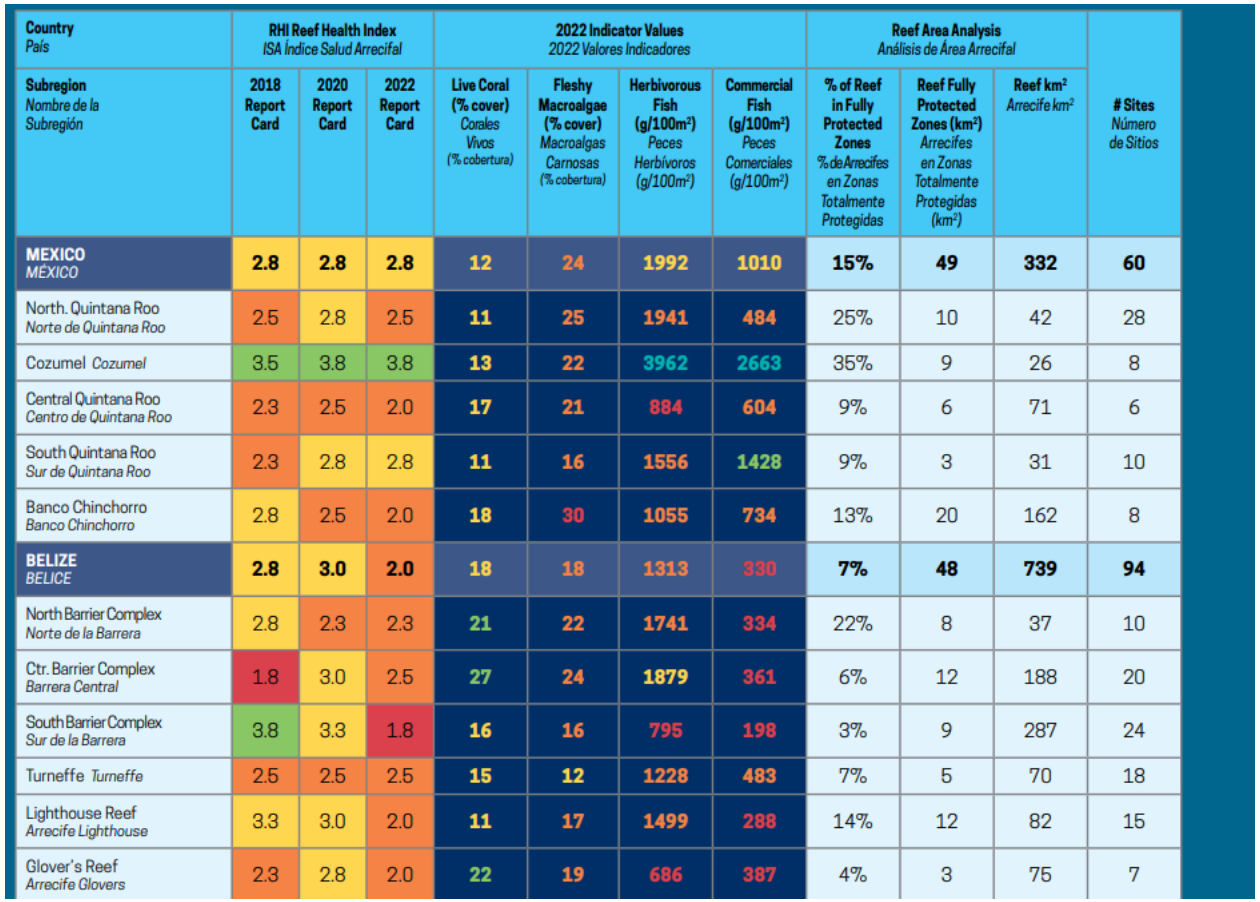
No of safety violation fines	21
No of successful Customs enforcement	12
No of seizures	Unknown
No of unsuccessful search and rescue	Unknown

Ecosystem Health can also be determined as a Measure of Marine Protection and Management i.e., Coral Reefs. For example, the Belize Audubon Society:

- 1295 Nassau Grouper at Sandbore Lighthouse Reef Atoll (1/13 sites monitored)
- 167 Caribbean spiny lobster across 23 sites
- Conch density survey Monitored in report, but no specific indicator provided.
- 40 nesting turtles Half Moon Caye and Sandbore.
- 2400 coral surveyed at 10 sites, -10.5% bleaching and 6% evidence of Stony Coral Tissue Loss Disease.

Healthy Reefs Initiative use the following Figure 3.5.1b Reef Health Index to assess periodic local reef conditions as another indicator as to how ocean accounting might be able to extract sufficient information from NGOs.

Figure 3.5.1b: Healthy Reef Initiative's Reef Health Index



Country / País	RHI Reef Health Index / ISA Índice Salud Arrecifal			2022 Indicator Values / 2022 Valores Indicadores				Reef Area Analysis / Análisis de Área Arrecifal			
Subregion / Nombre de la Subregión	2018 Report Card	2020 Report Card	2022 Report Card	Live Coral (% cover) / Corales Vivos (% cobertura)	Fleshy Macroalgae (% cover) / Macroalgas Carnosas (% cobertura)	Herbivorous Fish (g/100m²) / Peces Herbívoros (g/100m²)	Commercial Fish (g/100m²) / Peces Comerciales (g/100m²)	% of Reef in Fully Protected Zones / % de Arrecifes en Zonas Totalmente Protegidas	Reef Fully Protected Zones (km²) / Arrecifes en Zonas Totalmente Protegidas (km²)	Reef km² / Arrecife km²	# Sites / Número de Sitios
MEXICO / MÉXICO	**2.8**	**2.8**	**2.8**	**12**	**24**	**1992**	**1010**	**15%**	**49**	**332**	**60**
North. Quintana Roo / Norte de Quintana Roo	2.5	2.8	2.5	**11**	**25**	**1941**	**484**	25%	10	42	28
Cozumel / Cozumel	3.5	3.8	3.8	**13**	**22**	**3962**	**2663**	35%	9	26	8
Central Quintana Roo / Centro de Quintana Roo	2.3	2.5	2.0	**17**	**21**	**884**	**604**	9%	6	71	6
South Quintana Roo / Sur de Quintana Roo	2.3	2.8	2.8	**11**	**16**	**1556**	**1428**	9%	3	31	10
Banco Chinchorro / Banco Chinchorro	2.8	2.5	2.0	**18**	**30**	**1055**	**734**	13%	20	162	8
BELIZE / BELICE	**2.8**	**3.0**	**2.0**	**18**	**18**	**1313**	**330**	**7%**	**48**	**739**	**94**
North Barrier Complex / Norte de la Barrera	2.8	2.3	2.3	**21**	**22**	**1741**	**334**	22%	8	37	10
Ctr. Barrier Complex / Barrera Central	1.8	3.0	2.5	**27**	**24**	**1879**	**361**	6%	12	188	20
South Barrier Complex / Sur de la Barrera	3.8	3.3	1.8	**16**	**16**	**795**	**198**	3%	9	287	24
Turneffe / Turneffe	2.5	2.5	2.5	**15**	**12**	**1228**	**483**	7%	5	70	18
Lighthouse Reef / Arrecife Lighthouse	3.3	3.0	2.0	**11**	**17**	**1499**	**288**	14%	12	82	15
Glover's Reef / Arrecife Glovers	2.3	2.8	2.0	**22**	**19**	**686**	**387**	4%	3	75	7

Table 3.5.4c: Marine Protected Area Sites in Belize

MPA Name	Year Designated	MPA Area	Highly Protected HP	Fully Protected Area	% of MPA in Full Protection	Coral Reef Area in MPA	Coral Reef in MPA in FP
Bacalar Chico Marine Reserve	1996	61	19	14	22	11	5
Blue Hole Natural Monument	1996	4	4	4	100	0	0
Caye Cauker Marine Reserve	1998	39	14	6	15	5	2
Caye Glory	2003	5	5	5	100	2	2
Corozol Bay Wildlife Sanctuary	1998	727	727	0	0	0	0
Gladden Spit and Silk Cayes	2000	105	16	2	1	25	0

Glover's Reef Marine Reserve	1993	316	78	8	3	69	3
Halfmoon Caye Natural Monument	1982	40	40	40	100	5	5
Hol Chan Marine Reserve	1987	392	103	7	2	5	2
Laughing Bird Caye National Park	1996	41	41	41	100	0	0
Northern Two Cayes	2003	4	4	4	100	2	2
Port Honduras Marine Reserve	2003	4	4	4	100	2	1
Sandbore	2000	4	4	4	100	2	2
Sapodilla Cayes Marine Reserve	1996	1158	1021	35	3	58	8
South Point	2003	5	5	5	100	3	3
South Water Caye Marine Reserve	1996	505	119	119	24	62	10
Swallow Caye Wildlife Sanctuary	2002	32	32	32	100	0	0
Turneffe Atoll Marine Reserve	2012	1377	376	19	1	70	5
Zones 1-7 High protection for biodiversity	2022	1156	1155	0	0	0	0

Source: Belize Government 2023.

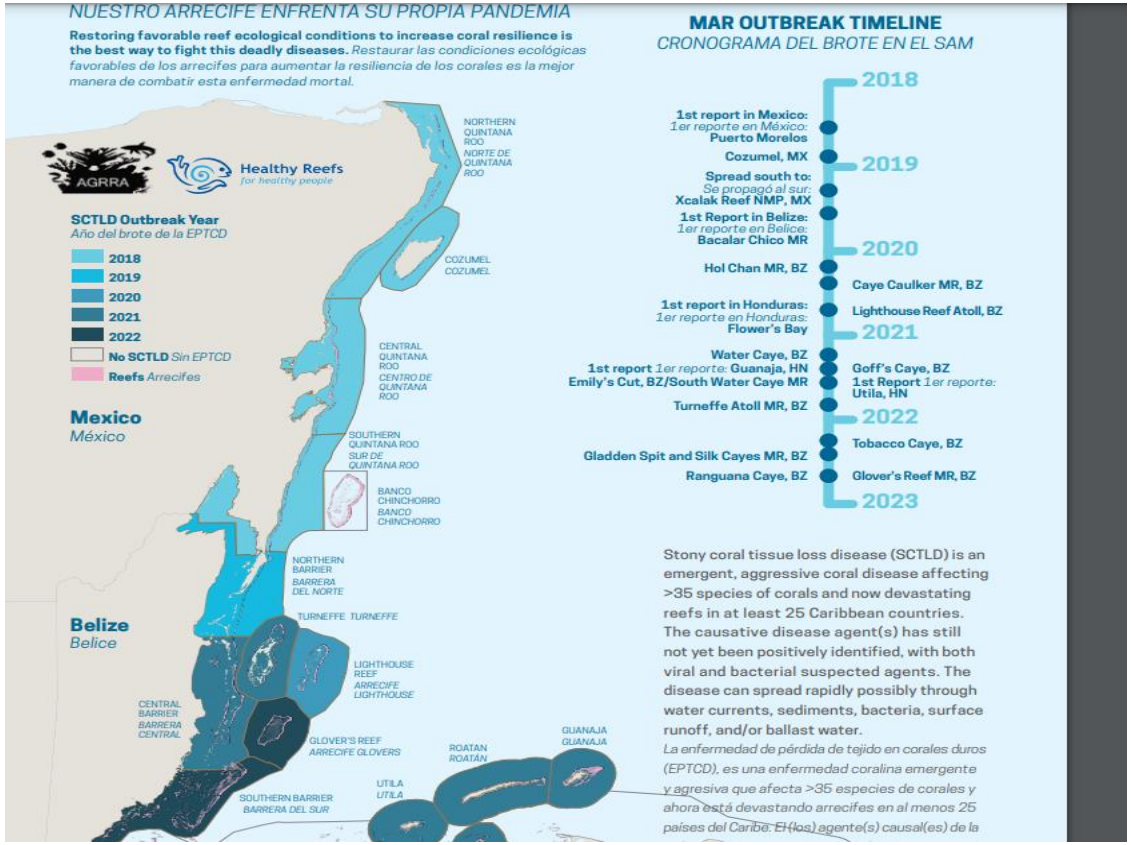
The Mar Alliance estimated Belize has 18.4% of all mangroves in Central America with 57,854 hectares in 2020. It estimated 6,387 square kilometres of marine protected area out of 19,870 for its territorial sea Alternatively, the health status of coral reefs could be measured via the outbreak of potential diseases threatening reef health such as the Mar Alliance's 2023 annual report which in Figure 3.5.2b. Mar Alliance estimated for their sites, a total of 3,858 to 13,375 nurse shark population of Belize They also measure record changes in fisheries biomass decline and health status around MPAs, along with local patrol hours, fuels, cost, staff, proportion of infractions identified and arrests made. The Turneffe Atoll Sustainability Association focused on enforcement as an indication of fisheries sustainability and success against IUU fisheries.

- A total of 1420 patrols were conducted from January 1st to December 31st, 2022.
- A total of eight-night patrols were carried out during the same time period.
- 45 infractions were logged during the first seven months of 2022.
- A total distance of 66,712.08 km was covered over 5,594.48 patrol hours.

A total of 2,678 commercial vessel inspections were conducted, with a total documentation of 1,573 commercial licenses ASA piloted a Fisheries Catch Data Program in 2022, which focused on fishing activities in Turneffe Atoll Marine Reserve (TAMR). Data was collected directly from fishermen in the General Use Zone. This data is used to determine fishing pressure, landing trends, and establish baseline Catch per Unit Effort (CPUE) data. It also serves as an indicator of the effectiveness of management strategies, including No-Take or

Replenishment Zones. The program collects information on species composition, quantity, and size of harvested products, gear type, fishing effort, vessel type, fishing crew, depth, and spatial data. In March 2022, TASA started piloting Vericatch, a customized fisheries application that collects data using specific protocols and rugged tablets. It is also monitoring the protection of major fisheries spawning aggregation sites. Wildtracks noted around 700 Antillean manatee in Belize. Oceana conducted a Fisheries Audit from 2021-2022 and measure the issue of governance for the blue economy fisheries sector through the questions of transparency, accountability and access to information. This indicated Belize's government whilst generally excellent; does not provide clear indications of industrial fisheries production, registered fishers and vessels including employment with limited or non-publicly available information. Only 2% of fisheries stocks have been actively estimated to be measured and monitored via landings for fishery condition status.

Figure 3.5.2b: Monitoring Outbreak of Stony Coral Tissue Loss Disease



Source: Mar-Alliance 2018.

3.6: Maritime Transport and Shipping Services

This Belize blue economy sector incorporates various port, shipping and logistics operators/services. Unlike other sectors the process of developing the equivalent baseline ocean accounting including contribution to GDP or Gross Value-Added income, revenue or production, the sector is marked by challenges in obtaining baseline data given a lack of annual reports from the various port authorities, operators and shipping/logistics businesses. There was a high non-response rate and poor transparency noted, despite

multiple efforts. This was further confirmed by similar efforts in the Belize Maritime Economy Plan and other previous policy/diagnostic assessments and may require MBECA/Statistics Institute of Belize or other equivalent government intervention to avert any subsequent data gaps, especially to overcome concerns over sharing potentially commercially sensitive information and persuading them of the value of an accurate rendition. Such data that does exist for a minimal baseline assessment is provided in Table 3.5.1. They are looking to develop a fishing vessel discharge inspection plan and Action Plan for national at sea fishery observers and support collecting recreational fisheries data. To improve capacity building, only IMMARBE have been transparent, but they propose to consider indicators such as hiring 2 new personnel for registrations, attending 2 maritime exhibitions for marketing and prioritising technical capacity building for the 2024 IMO Audit/16 other courses. Belize reported 390 vessels calling in its ports spending an average of 0.64 days in port, average age 19 years old and 6,955 DWT. It recorded a 40.4% growth rate in its national fleet (0.12% of the global fleet and less than 0.011% of the world's shipping fleet in 2021 to 4,516 vessels. The registered fleet includes 1,171.5 oil tankers (33%), 1,652.4 bulk carriers (37%), 1,356 general cargo, 5 containers and 330.8 other vessels. It exported $US 28,000,000 in export services but $124,000,000 for imports. The transport service trade contributes US $1915,000,000 according to the UNCTAD 2021Belize Maritime Profile. 2021 merchandise trade was valued at $1,485,000.

3.7: Ocean and Coastal Tourism

In 2019 the contribution of travel and tourism to GDP or % of GDP for Belize was 44.7 %. Of that pre-COVID target, US $604,400,000 was based on domestic visitor tourism. Contribution of travel and tourism to GDP (% of GDP) of Belize increased from 22.5 % in 2000 to 44.7 % in 2019 growing at an average annual rate of 3.99% reaching 43% in 2022. Whilst Belize provides approximations of general tourism contributions to the economy and GDP; it has not previously been disaggregated specifically in the context of the blue economy, for ocean and coastal tourism. Yet, most tourism incorporates these areas, with very few land-based tourists solely interested in just the land provinces, without beaches/marine/coastal activities. Therefore only, approximations can be provided in Table 3.7.1. Out of Belize's 6 districts, Cayo and Orange Walk are landlocked, leaving adjustments to be made for Belize, Corozal, Stann Creek and Toledo Districts. For expenditure from cruise vessels, disembarkation rates are 80 % for passengers and 15 % for crew members. The tour purchasing rate for disembarked passengers is 60%, versus a 35% regional average. Various marine reserves include the Northern Belize Coastal Complex including the Bacalar Chico Marine Reserve, Corozal Bay Wildlife Sanctuary and Hol Chan Marine Reserve Caye Caulker Marine Reserve. Central Belize and Atolls include Glovers Reef Marine Reserve, Turneffe Atoll Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument and Swallow Caye Wildlife Sanctuary. Southern Belize Reef Complex includes the South Water Caye Marine Reserve, Laughing Bird Caye National Park, Gladden Spit Marine Reserve, Sapodilla Cayes Marine Reserve and Port Honduras Marine Reserve.

Table.3.7.1: Tourism Expenditure and Tourism Contribution to Gross Domestic Product 2022 to 2022

	2020	2021	2022
Tourist Expenditure (Million BZe $)	302.6	701.5	$1,072.6
Tourist Expenditure (Million US$)	151.3	350.8	536.3
Employment in Tourism (SIB)	11,782	20,560	22,396
Total Employment (SIB)	145,155	174,237	182,084
Tourism Employment as a % of the total	8.1%	11.8	12.3
GDP -Current Prices (Million BZe $) Revised	4,160.3	4,583.9	5,140.0
Tourism Expenditure as a % of GDP	7.3	15.3	20.9

*(Belize Tourism Board/government) not specifically divided into blue economy

Source: Belize Tourism Board, Statistical Institute of Belize

Similarly, tourism estimates of employment have not been directly separated into those correlating specifically with ocean/coastal tourism. To truly identify associated employment from Belize's ocean and coastal tourism stakeholders for its blue economy, this report advises incorporating the below stakeholders at a minimum. As identified in Table 3.6.3, approximately 20,594 certain stakeholders are employed in this sector. Employment related to the cruise sector is more complicated, but Belize hosts up to 333 vessels per year, requiring bunkerage services, local supplies and tourism experiences. This excludes those visitors from yachting/recreational tourism and domestic visitors. It also excludes any Belize citizens and residents who manage to obtain work abroad and send home remittances both in tourism and in other sectors. Whilst several indicators are proposed to further develop ocean accounts and their effectiveness based on available information, this remains pending stakeholder engagement and decision making. To minimise the need for additional funding and capacity building, whilst ensuring the most effective prioritisation of resources; this Work Package and report identify recent projects and initiatives relating to Belize's ocean and coastal tourism for its Blue Economy. Examples located for this project are summarised in Table 3.7.3. Shark Ray Alley attracted 9% of all cruise ships. Out of 615,021 tourist visitors, 9.7% indicated swimming and 6.5% snorkelling/diving as their main interest. In 2021 there were 270 registered tourism operators of which 37 were not in coastal provinces or islands. 1878 tour guides of which 406 did not reside in coastal provinces. 25,502 visits to land and terrestrial marine protected areas. The Ministry of Tourism and Diaspora Relations and others measure the percentage and number of species and personnel trained as key performance indicators.

3.8: Marine Research and Development

In developing ocean accounting for Belize's blue economy sector for marine research and development it is especially important to identify and capture information on projects and initiatives for the baseline 2022 year from government, multilateral organisations, private sector, NGOS, academia and professional associations domestic, regional and international -but situated within Belize's land and marine Exclusive Economic Zone. Though subject to data limitations, estimates of potential revenue contribution to the blue economy are summarized in Table 3.8.1, and employment in Table 3.8.2. Belize received $420,543 in seabed and reserve research/prospecting licenses.