GOVERNMENT OF THE VIRGIN ISLANDS

UNDP
Empowered lives.
Resilient nations.

Virgin Islands

Strategic Blue Economy Roadmap

2020 - 2025

Acronyms

BVI	British Virgin Islands
CDB	Caribbean Development Bank
CEFAS	Centre for Environment, Fisheries and Aquaculture Sciences [UK]
CFO	Chief Fisheries Officer
CSF	Caribbean Sustainable Fisheries
DAF	Department of Agriculture and Fisheries
ECROP	Eastern Caribbean Regional Ocean Policy
EEZ	Exclusive Economic Zone
EFZ	Exclusive Fisheries Zone
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
HACCP	Hazard Analysis and Critical Control Point
HLSCC	H. Lavity Stoutt Community College
IUU	Illegal, Unregulated and Unreported [Fishing]
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Area
MTFP	Medium Term Fiscal Plan 2019-2021
NGO	Non-Governmental Organisation
NOC	National Oceanographic Centre [UK]
NPDP	National Physical Development Plan
OECS	Organisation of Eastern Caribbean States
RDP	Recovery to Development
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
SDOs	Specific Development Objectives
(M)SME	(Micro) Small and Medium-sized Enterprise
UNDP	United Nations Development Programme
USVI	US Virgin Islands
VIFC	Virgin Islands [Government] Fishing Complex

Contents

Executive Summary

The Virgin Islands, like many small island developing states, has jurisdiction over a maritime area that is significantly larger than its land area and is, therefore, dependent to a large extent on ocean resources and the sectors they support. Like many coastal and island nations, the Virgin Islands is increasingly looking to its marine waters to both diversify and bolster growth in its economy and has signalled a strong interest in the blue economy being an integral part of its way forward in terms of building resilience following the devasting hurricanes in 2017.

While many countries are pursuing blue growth strategies, it is not always clear what a sustainable Blue Economy might look like, and under what conditions it is most likely to develop. To realise such an economy, it will be important to: (i) optimize economic returns from existing sectors and resource utilization; (ii) develop new blue economy sectors; and (iii) ensure that development of resources is done with a view to minimizing potential negative impacts and restoring degraded habitats.

This *Strategic* B*lue Economy Roadmap*, developed with support from the United Nations Development Programme (UNDP), sets out an integrated approach to ocean based sustainable development which brings together economy, environment and society, consistent with the Sustainable Development Agenda (2030), Aichi Target 11 of the Convention on Biological Diversity and the Paris Agreement on Climate Change (2015).

The roadmap sets the direction and development pathways for future investment in and development of a sustainable ocean-based economy in the Virgin Islands. Specifically, the roadmap aims to create a revitalisation process that results in healthy ecosystems that are able to sustain growth in a number of economic sectors and provide an opportunity for building equitable societies. Over time this revitalisation will support the development of new sectors attracting greater investment and financial support to the blue economy resulting in a greater number of businesses supported by the blue economy. This revitalization will be supported by capable management institutions, focused on sustainable development, and enabled by an innovative and skilled private sector.

The Virgin Islands' vision for the blue economy, "*To develop the blue economy as a means to promote sustainable economic growth while protecting and enhancing the habitats and resources that underpin that growth through improved environmental governance and stewardship, better education and an improved understanding of our shared marine space"*, is implemented around the following six thematic areas:

1) Enabling conditions
2) Maritime tourism
3) Fisheries
4) Aquaculture
5) Marine information and science needs
6) New and emerging opportunities

Each of these thematic areas has a defined "Specific Development Objective" (SDO) with each SDO having a series of "Results Areas" that will be achieved through specific activities. The six SDOs and corresponding Result Areas are summarised below.

Roadmap Element	Specific Development Objectives (SDOs) and Results Areas
1. Enabling environment	**SDO 1:** Establish robust governance arrangements that both improve the management of the Virgin Islands' marine environment and attract private sector investment**.**
	Results Areas: 1.1 A healthy, resilient & productive marine environment 1.2 Integrated approaches to ocean governance 1.3 Sustainable finance & investment 1.4 Human capacity development 1.5 Public awareness & engagement 1.6 Maritime surveillance, monitoring & enforcement
2. Maritime tourism	**SDO 2:** Initiatives that deliver capacity building, innovation, and other changes that attract investment and improve the long term sustainability of the maritime tourism sector.
	Result Areas: 2.1 Manage the cumulative impacts of the charter yacht sector on the marine environment 2.2 Increase the number of young people pursuing careers in the maritime sectors 2.3 Effectively manage the impacts associated with cruise ship tourism on the marine environment and other marine users
3. Fisheries	**SDO 3:** Initiatives that ensure that marine fishing activities are environmentally sustainable and managed in a way that will achieve equitable economic and social benefits including gender responsive value chain analysis
	Result Areas: 3.1 Improve the health of the nearshore demersal and reef fisheries 3.2 Diversify the existing fisheries to include new or underutilised fish species 3.3 Restructure the existing Virgin Islands Fishing Complex business model to increase both participation of & benefits to local fishers 3.4 Reduce post-harvest losses in the fishery sector
4. Aquaculture	**SDO 4:** Initiatives that support the development of the aquaculture sector, ensuring that it is managed in a way that will enable the Virgin Islands to satisfy local demand, grow exports, provide an alternative to wild capture, and contribute to job creation.
	Result Areas: 4.1 Create incentives to allow the full-scale development of the aquaculture sector in the Virgin Islands 4.2 Ensure local participation & benefits through capacity building 4.3 Explore the opportunities for developing a coral farming system to support rehabilitation of degraded coral reefs
5. Marine information & science needs	**SDO 5:** Collect, collate and present knowledge and information about the marine environment of the Virgin Islands, its condition, current & future uses and areas of significant environmental value.
	Results Areas: 5.1 Improve the knowledge base to support evidence-based decision-making 5.2 Rebuild the institutional framework for scientific research to underpin the development of priority sectors
6. New & emerging opportunities	**SDO 6:** Initiatives that attract investment and promote innovation, capacity building, and other changes to optimize the economic and social benefits generated by more productive and sustainable utilization of the Virgin Islands' maritime waters.
	Results Areas: 6.1 Launch the UNDP Blue Lab in the Virgin Islands 6.2 Develop a "National Blue Economy Investment Strategy"

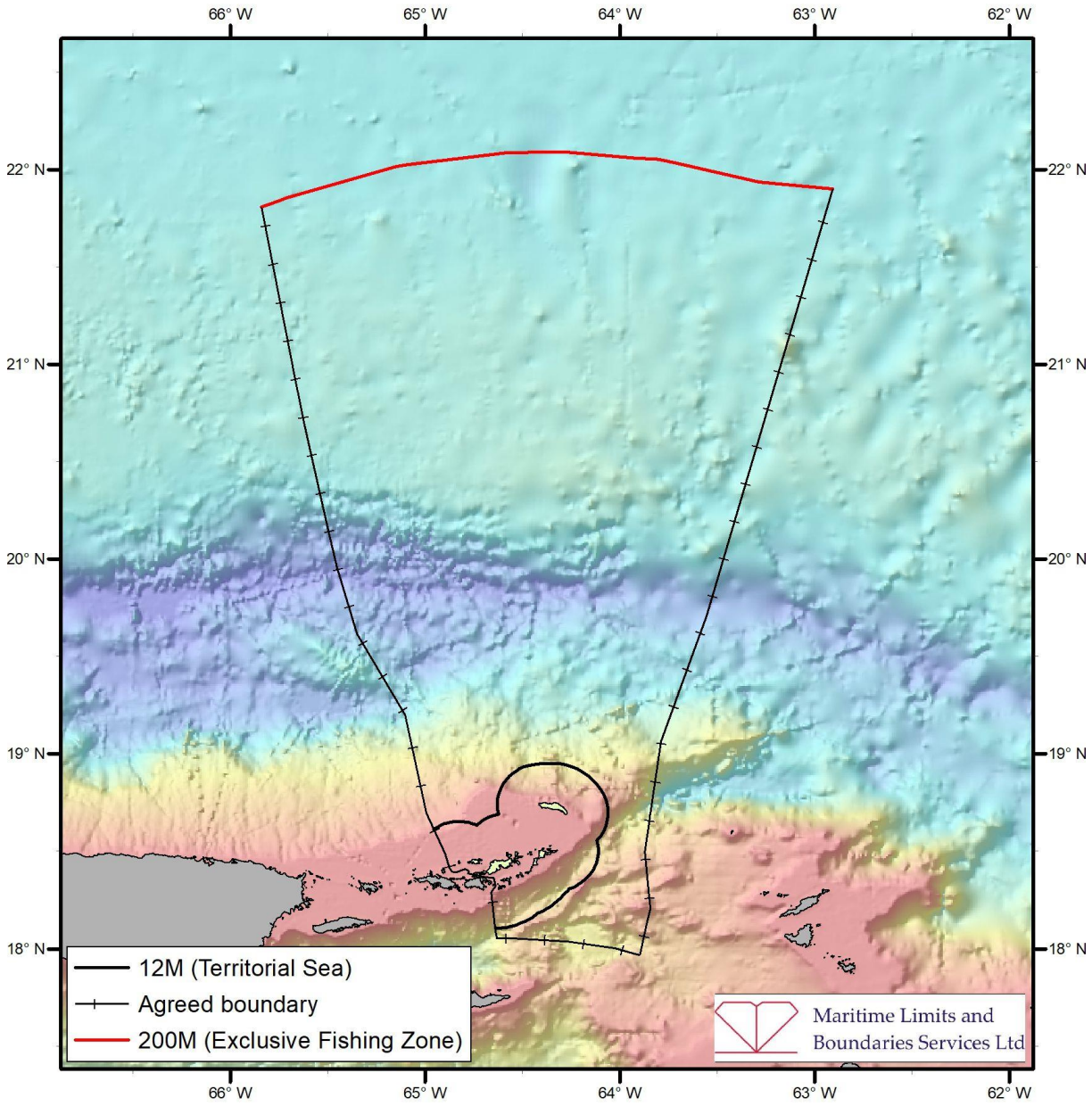
If undertaken, in conjunction with the other initiatives being pursued by the Virgin Islands Government, the roadmap will enable the Virgin Islands to develop its ocean-based economic sectors in a more integrated manner thereby contributing to inclusive, environmentally sustainable, economic growth.

PART I: CONTEXT FOR THE BLUE ECONOMY

Introduction

Background

Under international law, the Virgin Islands has rights and responsibilities over approximately 84,000 square kilometers of maritime space, a maritime area that is significantly larger than its land area.



The Virgin Islands' Maritime Space

The Virgin Islands already derives significant benefits from its maritime waters and is, therefore, dependent to a large extent on ocean resources and the sectors they support. Currently the traditional 'blue' sectors of fisheries and tourism play an important economic role and are key sectors for employment and hard currency. The importance of these, and other ocean-based economic sectors, is expected to grow in the coming decades, as the global population increases to a projected nine billion by 2050, and coastal populations continue to become denser.

Since 2012, the emerging concept of the 'blue economy' has been embraced by many SIDS as a mechanism for realising sustainable growth centred on an ocean-based economy. In that time the blue economy has emerged as a key component of a new global dialogue about the role of coastal and ocean waters in sustainable development.

Efforts by the United Nations Development Programme (UNDP) to assist countries in the Eastern Caribbean to recover from the damaging hurricanes of 2017 have revealed some major challenges in the region with the most critical being the imperative of building resilience including economic resilience with the need to diversify and transition to innovative approaches being a priority. In this regard, The Government of the Virgin Islands has signalled a strong interest in the blue economy being an integral part of its way forward in terms of building resilience through structural transformation and innovation and contributing to its national development strategy.

Defining the Blue Economy

The blue economy is an evolving development approach centred on utilizing oceans for their full economic potential. It seeks to promote economic growth, social inclusion and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas.

By conceptualizing the ocean as a development space which brings together economy, environment and society, consistent with the 2030 Sustainable Development Agenda and the Paris Agreement on Climate Change, the blue economy casts a strategic long term "blue policy lens" on national development to guide and prioritise actions and investment across sectors, based on principles of good governance, economic efficiency, sustainability, resilience, innovation and social equity.

While there is no accepted definition of the blue economy, one general interpretation is that it can maximise the economic value of the marine environment in a sustainable manner that preserves and protects the sea's resources and ecosystems. By that definition, the blue economy can be broadly defined to include "*economic activity which directly or indirectly uses the sea as an input*". The aim of an overarching blue economy framework should therefore be to assess ways and means to mitigate the cumulative impact of these economic sectors on the living marine resources and ecosystem services.

The blue economy therefore requires a shift in mind-set and transitioning from a commodity based economy to a value adding, diverse, service based increasingly more knowledge-based economy. The challenge is where to start in order to alter course to achieve a blue economy and in so doing to develop or strengthen social, economic and environmental linkages and reform current governance arrangements. This will require some fundamental changes in the way the ocean is managed to create a more harmonised and integrated approach.

Why a Blue Economy Roadmap

The Virgin Islands currently lacks a comprehensive and overarching framework within which to manage its maritime area and the associated resources and activities it supports. Despite the preparation of a number of strategies and policies relating to specific resources and activities, no single overarching strategy or policy framework exists to harmonise and coordinate these at the national level. Existing ocean governance arrangements are fragmented and inadequate to support the integrated approach needed to support the blue economy.

The Government of the Virgin Islands recognises the need to develop a more integrated blue economy framework that reflects the interrelated nature of maritime activities and the need to ensure that development goals, strategies, and projects do not operate at cross purposes. The development and implementation of this *Strategic Blue Economy Roadmap* will assist the government to achieve a number of objectives, including: economic development; safeguarding the natural environment; providing for sustainable development; and preserving a way of life that has sustained generations of Virgin Islanders.

The *Strategic Blue Economy Roadmap* sets out the new strategic direction for modern marine management in the Virgin Islands. The roadmap includes a set of strategic actions which set out the government's initial priority areas of focus. These actions will be further refined and implemented by the government in collaboration with local communities including women and youth, marine industries such as fisheries, yachting and diving interests, environmental organisations and non-governmental organisations.

The purpose of this roadmap is, therefore, to establish a framework that can guide the planning and development of maritime activities in a rational and sustainable manner for the social and economic development of the Virgin Islands. This framework is the basis for effective coordination among all government agencies with responsibility for maritime and ocean affairs and the harmonisation of national actions in relation to the Virgin Islands' maritime waters.

The Virgin Islands Marine Environment

Covering an area of approximately 84,000 square kilometres, the Virgin Islands archipelago consists of approximately 60 islands, islets and cays, that rise from the Puerto Rican Shelf. The archipelago contains the longest area of barrier reef in the Western Atlantic. The unique mix of shallow shelf area penetrated by deep water channels give rise to three distinct marine ecosystems: coastal and shallow shelf; pelagic; and deep water.

Coastal and shallow shelf ecosystems

In general, the shallow coastal waters of the submerged banks are warm and clear, lacking significant impacts from rivers or other land-based run-off. The coastal ecosystems therefore support extensive coral reefs, seagrass meadows, mangroves and areas of wetland, which combine to support the tourism and fishery sectors in the Virgin Islands.

Pelagic ecosystem

Extending to a depth of approximately 1,000 m, the pelagic ecosystem sustains an enormous food network from plankton to top marine predators such as marlin and tuna and are also attractive to deep-diving whale and dolphin species. The proximity of this deep water offshore environment creates exciting sport fishing opportunities and convenient shipping lanes for cargo and cruise ships alike.

Deep water ecosystem

The deep-sea environments around the Virgin Islands archipelago include the waters at depths greater than 1,000 m, the ocean floors of submarine canyons, and the adjacent deep Atlantic Ocean. The environment is dark, cold and has limited food supplies with the majority of the food supplies falling from the surface.

The biodiversity of these zones includes a rich diversity of reef and pelagic fish, lobsters, conch, sea turtles, algae, resident and migratory birds. Offshore waters are also home to numerous species of marine mammal and sea turtles as well as a range of deep-water pelagic fish species.

These resources are the basis for the Virgin Islands' largest industry – tourism - and also support an important domestic fishery for lobster, conch and a variety of species of reef and demersal fish.

Threats Facing the Marine Environment

The marine environment's ability to maintain its diversity and productivity, and to provide a wide array of valuable services to people, is increasingly being compromised and a number of specific threats pose a risk to the Virgin Islands' marine environment.

Climate change

Of all the threats affecting marine and coastal environments in the Virgin Islands, climate change is considered by scientist and experts to pose the greatest risk. The effects of climate change are increasingly impacting the health of a range of coastal habitats, particularly coral reefs - the most obvious impact being

physical damage from hurricanes, several of which have resulted in significant reef damage and alteration. In recent years, a number of coral bleaching events have also been observed.

Habitat damage

All of the key marine habitats are sensitive to the impacts of human activities, but the most sensitive habitats include coral reefs, seagrasses and mangroves. Damage to marine habitats arising from yacht anchor damage, removal of mangroves for coastal development and in particular the impact of ship groundings on the reef are an ongoing concern in The Virgin Islands. The increasing number of tourists visiting and enjoying key coastal sites is also a source of considerable pressure on coastal and marine habitats.

The health of coral reefs and associated biodiversity are seen as of critical importance from both environmental and economic perspectives due to the strong reliance on the tourism sector.

Sustainable use of marine resources

Significant pressure on fishery resources is caused by numerous factors including over harvesting, illegal fishing by Virgin Islands and non-Virgin Islands vessels and lack of enforcement - particularly of recreational catches. The important future potential that marine resources play in food security and supporting sustainable livelihoods is a matter of the utmost importance for The Virgin Islands.

Marine invasive species

The introduction of marine invasive species is a serious concern for the Virgin Islands. In recent years a significant threat to marine species has entered eastern Caribbean waters in the form of the lionfish. The numbers of lionfish have increased dramatically during the last decade. These fish are feeding on commercially important juvenile and adult fish species such as grunts and snapper and may significantly impact other species as well as the health of the coral reef ecosystem.

Marine pollution

Pollution is evident in coastal waters throughout the Virgin Islands, particularly in enclosed bays and harbours. The limited tidal flows around many of the islands results in very little flushing and long residence times for some contaminants. Sources of pollution include domestic sewage systems, antifouling on yachts, operational discharges from ships, storm water runoff and coastal development activities.

Context for a Blue Economy Transition

Like many coastal and island nations, the Virgin Islands is increasingly looking to its marine waters to both diversify and bolster growth in its economy by exploring new opportunities for investment and employment. If managed effectively, these waters offer the Virgin Islands opportunities to enhance its existing ocean-based economic sectors and, potentially, to develop new sectors, thereby creating employment, generating incomes and contributing to overall social and economic development.

In developing this national blue economy framework, the government of the Virgin Islands has a number of priorities:

1. Develop the existing fisheries sector;
2. Support the sustainable development of the maritime tourism sub-sector;
3. Improve the existing knowledge base around the marine environment and the capacity to undertake future research;
4. Explore new and emerging opportunities that could be developed in the Virgin Islands;
5. Explore ways in which the Virgin Islands can participate in the UNDP Blue Economy Accelerator Laboratory (Blue Lab)

Policy Context

The Virgin Islands does not currently have an operative Mid-Term Development Strategy. In the wake of the 2017 storms, the Virgin Islands Party has committed, through its manifesto, to the development and implementation of a National Integrated Development Plan to provide a roadmap for the future development of the Virgin Islands. However, this will take time to develop.

In the absence of such a development strategy, the formulation of this *Strategic Blue Economy Roadmap* must take account of the existing national development planning framework, which currently consists of:

- The interim framework for development based on outlined Social, Economic, Environmental and Direction/Governance results areas (SEED)
- The National Physical Development Plan, 2019 (NPDP)
- The Recovery to Development Plan for the Virgin Islands (RDP)
- The Medium Term Fiscal Plan 2019-2021 (MTFP)

In addition, the Virgin Islands Party Manifesto provides clear direction of the strategic priorities of the current administration.

In combination, these documents set out the national development priorities for the current government, reflecting both the post hurricane disaster recovery needs and the longer term development needs of the country, as well as the mechanism for achieving the SDGs.

When viewed together, it is clear that the development framework for the Virgin Islands reflects the need to:

a) Promote sustainable economic growth. While this should maintain a focus on the tourism and finance sectors, the development framework recognises the need to diversify the economy and to support growth in local jobs through the creation of SMEs;

b) Protect and enhance the natural environment, with a particular focus on those habitats and resources that both underpin the key economic sectors and also support the livelihoods and lifestyles of Virgin Islanders;

c) Improve environmental governance and stewardship across the Virgin Islands;

d) Transition to a more climate resilient and carbon neutral Territory; and

e) Improve and develop the existing national infrastructure to support sustainable growth.

This *Strategic Blue Economy Roadmap* recognises these national development priorities and seeks to support their implementation to the greatest extent possible.

The Roadmap also recognizes the need to conduct gender analysis including looking at the role of women in the blue economy and how better to invest in activities targeting women and youth which could result in better resource management. In the Virgin Islands National Policy for Equity and Equality, 2011 economic activity is placed as an area of focus. Taking into account gender responsive policy, there is a need to look to deeper gender responsive value chain analysis to improve equitable access to transformative livelihoods and strengthening women's resilience.

PART II – BLUE ECONOMY ROADMAP

Vision, Goals & Objectives

The Vision for the blue economy must fit within the overarching context of the Virgin Islands' national economic development framework. As such the government's vision for the blue economy is:

Vision

To develop the blue economy as a means to promote sustainable economic growth while protecting and enhancing the habitats and resources that underpin that growth through improved environmental governance and stewardship, better education and an improved understanding of our shared marine space.

Goals

In developing the *Strategic Blue Economy Roadmap*, the government's overarching goals are:

- **Goal 1** • Promote sustainable economic growth
- **Goal 2** • Ensure food security
- **Goal 3** • Improve environmental governance and stewardship across the Virgin Islands
- **Goal 4** • Transition to a more climate resilient Territory
- **Goal 5** • To achieve these goals while sustaining the ecological integrity of the marine environment

Objectives Underlying Development of the Blue Economy

For the Virgin Islands the blue economy is premised on achieving the following objectives, which should guide all future decision making. These should be considered together and should inform and guide

national and sector based policies, plans, regulations, decisions and actions affecting access to and use of the ocean and coastal resources.

1. Achieving a sustainable blue economy with the following attributes

a. Infrastructure is in place to support and promote safe, profitable and efficient marine businesses that are able to generate long-term wealth by the responsible use of the marine environment and its resources.

b. Marine businesses are taking long-term strategic decisions and managing risks effectively, such that they are competitive and operating efficiently whilst acting in a way that is socially responsible and respects environmental limits.

2. Ensuring a strong, healthy and just society

a. People appreciate the value of the marine environment, its natural and cultural heritage and its resources, and act responsibly to use the marine space in a way that benefits society as a whole, and contributes to resilient and cohesive communities.

b. There is equitable access for those who want to use the coast, seas and their wide range of resources and assets in a way that is safe and recognises, and integrates with, national interests.

3. Living within environmental limits

a. Biodiversity is protected, conserved and recovered where appropriate such that marine habitats are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.

b. The marine environment is able to maintain its role in mitigating climate change.

4. Promoting good governance

a. Marine and coastal management mechanisms are responsive, work effectively together, and allows all those who have a stake in the marine environment to have an input into associated decision-making.

b. Planning and management takes account of different management systems already in place within Government, and promotes clear, timely, proportionate and plan-led regulation.

c. The use of the marine environment is spatially planned and based on an ecosystems approach which takes account of climate change.

5. Using sound science responsibly

a. Management and development of activity should lead to scientific research and data collection that increases understanding of the marine environment.

b. Sound evidence and monitoring underpins effective marine management and policy development implemented using the precautionary principle in order to be consistent with principles of sustainable development policy.

Scope and Structure of the Roadmap

This *Strategic Blue Economy Roadmap* covers the full scope of a strategic framework, from defining a Vision, Goals and Objectives, to the development of both existing and new blue economic sectors that can underpin the Virgin Islands' transition to a more ocean-based national development framework.

The timeframe for the roadmap focuses on the current national development timetable but also establishes the enabling environment to support the long term development of the blue economy in the Virgin Islands. The various actions and tasks set out in the roadmap recognise the roles of the government of the Virgin Islands and various non-state actors as well as key stakeholders in implementing the roadmap in a coordinated and integrated fashion.

Blue Growth Pillars for the Virgin Islands

In this section, five thematic issues are highlighted, which, if pursued with the support of development partners including UNDP, can help transform the promising concept of the blue economy into a sustainable process of implementation.

Maritime Tourism

Playing a vital role in the economy, the Virgin Islands tourism product is diverse, comprising charter yachting, cruise ship arrivals, sailing, scuba diving and high end resorts. With over one million visitors in 2016, tourism is a major generator of employment, with over 2,500 workers directly dependent on tourism for their living. This includes employment by hotels, travel agents, tour operators, airlines and other passenger transportation services.

Tourism is a major and growing income earner for the Virgin Islands, and the success of the sector is based on a healthy natural environment which includes healthy marine ecosystems; the marine environment generally, and coral reefs specifically, play a crucial role in supporting economic activity in the Virgin Islands.

Fisheries

Like many other Caribbean islands, the economy of the Virgin Islands is very dependent on the marine and coastal environment and its resources. While the GDP contribution may be small, it is clear that fisheries constitute a significant pillar of the Virgin Islands' economy and a major source of livelihoods.

- The fisheries industry is important for food and recreation for both local residents and visitors.
- Fishers derive subsistence benefits too, as some portion of catches are retained by fishers for their families, although this appears not to be accounted for in official statistics.
- The tourism industry relies upon fisheries for supplying hotels and restaurants with fresh local fish, as well as for the dive and charter boat industries.
- Furthermore, the contribution of fishing to GDP also does not include much of the fish that is exchanged in the informal economy.

Aquaculture

Worldwide demand for fish and fishery products is expected to surge in the coming years across all continents. Globally, aquaculture is already a multi-billion-dollar industry, but, because the aquaculture sector is not well developed in the region, the Caribbean has yet to tap into its true potential.

The potential benefits that could be provided by the development of this sector in the Virgin Islands should not be underestimated as it can provide both jobs and export revenue. Moreover, it provides the potential to position the Virgin Islands as a key player in the development of this sector throughout the Caribbean.

Marine Information & Science Needs

Knowledge of the marine environment is a critical need for effective decision making. Planners and decision-makers require factual information about the geographical occurrence and abundance of ecosystems as well as information on how human actions affect these ecosystems. The marine environment is, however, far from being completely understood, leading to decision-making sometimes under considerable uncertainty.

Development of the fisheries sector and the development of new sectors, in particular, requires investments in data collection, research, knowledge and instruments that assist with planning. Most solutions involve investments in building knowledge and capacity, investments in infrastructure and sustainable technology. Identifying and defining ongoing strategic research and capacity needs, together with appropriate funding, resources and partnerships, will therefore be essential for achieving long term economic development through a blue economy framework.

New & Emerging Opportunities

With recent advances in technology, potential blue economy growth areas have also increased and now include aquaculture, ocean-based renewable energy, deep seabed minerals and marine biotechnology.

These future opportunities have an essential technological component that will, in some cases, require substantial capital investment. Proactive promotion by the government of the Virgin Islands is necessary because the level of investment risk is certainly well beyond the domestic capital market. Foreign investment will no doubt form an important component of the realisation of new sources of value.

Enablers for Blue Growth

Responsible private capital cannot be expected to mobilize in support of the blue economy at scale until the risks are reduced through reliable information, clear policies and improved governance (tenure, fiscal, financial, legal, etc.). Enabling this transition to a sustainable and resilient blue economy therefore requires governance and policies that integrate environmental and economic considerations.

To achieve this, the blue economy needs to provide the governing structures and platforms that will allow new and innovative collaborations to be shaped and implemented. It needs to ensure the security of the resource and the wider marine environment to ensure the long term integrity of the ecosystem.

In order to realize the Vision and the Goals for this roadmap, six key enablers have been identified that are vital for creating the conditions for growth and investment. These enablers are not prioritized in order of importance and there are strong inter-relationships and synergies between them.

Structure and Approach

The *Strategic Blue Economy Roadmap* is therefore built around the following six thematic elements:

Enabling Conditions: overarching conditions necessary to promote integrated governance and management of the Virgin Islands' maritime space and to support development of a blue economy.

Maritime Tourism: activities aimed at ensuring the future sustainability of the maritime tourism sector.

Fisheries: activities aimed at diversifying the existing fishery base and making the fishery sector more sustainable.

Aquaculture: activities aimed at promoting the growth of the aquaculture sector in the Virgin Islands.

Marine Information & Science Needs: activities aimed at improving the knowledge base and technical capacity to support growth of the blue economy.

New & Emerging Opportunities: activities aimed at assessing new opportunities for development within the context of the blue economy.

Each of these six thematic areas has a defined "Specific Development Objective" (SDO) with each SDO having a series of "Results Areas" that will be achieved through specific activities. The six SDOs and corresponding Result Areas are summarised in Table 1 below and described in the next section. The specific activities corresponding to each Result Area, and steps for their implementation, are summarised in a series of tables contained in Annex B.

Roadmap Element	Specific Development Objectives (SDOs) and Results Areas
1. Enabling environment	**SDO 1:** Establish robust governance arrangements that both improve the management of the Virgin Islands' marine environment and attract private sector investment**.**
	Results Areas:
	1.1 A healthy, resilient & productive marine environment
	1.2 Integrated approaches to ocean governance
	1.3 Sustainable finance & investment
	1.4 Human capacity development
	1.5 Public awareness & engagement
	1.6 Maritime surveillance, monitoring & enforcement
2. Maritime tourism	**SDO 2:** Initiatives that deliver capacity building, innovation, and other changes that attract investment and improve the long term sustainability of the maritime tourism sector.
	Result Areas:
	2.1 Manage the cumulative impacts of the charter yacht sector on the marine environment
	2.2 Increase the number of young people pursuing careers in the maritime sectors
	2.3 Effectively manage the impacts associated with cruise ship tourism on the marine environment and other marine users
3. Fisheries	**SDO 3:** Initiatives that ensure that marine fishing activities are environmentally sustainable and managed in a way that will achieve equitable economic and social benefits, including women and youth.
	Result Areas:
	3.1 Improve the health of the nearshore demersal and reef fisheries
	3.2 Diversify the existing fisheries to include new or underutilised fish species
	3.3 Restructure the existing the Virgin Islands Fishing Complex business model to increase both participation of & benefits to local fishers
	3.4 Reduce post-harvest losses in the fishery sector
4. Aquaculture	**SDO 4:** Initiatives that support the development of the aquaculture sector, ensuring that it is managed in a way that will enable the Virgin Islands to satisfy local demand, grow exports, provide an alternative to wild capture, and contribute to job creation.
	Result Areas:
	4.1 Create incentives to allow the full-scale development of the aquaculture sector in the Virgin Islands
	4.2 Ensure local participation & benefits through capacity building
	4.3 Explore the opportunities for developing a coral farming system to support rehabilitation of degraded coral reefs
5. Marine information & science needs	**SDO 5:** Collect, collate and present knowledge and information about the marine environment of the Virgin Islands, its condition, current & future uses and areas of significant environmental value.
	Results Areas:
	5.1 Improve the knowledge base to support evidence-based decision-making
	5.2 Rebuild the institutional framework for scientific research to underpin the development of priority sectors
6. New & emerging opportunities	**SDO 6:** Initiatives that attract investment and promote innovation, capacity building, and other changes to optimize the economic and social benefits generated by more productive and sustainable utilization of the Virgin Islands' maritime waters.
	Results Areas:
	6.1 Launch the UNDP Blue Lab in the Virgin Islands
	6.2 Develop a "National Blue Economy Investment Strategy"

Table 1: Overview of the roadmap structure and scope

The various activities correspond to different types of project output which have been categorised into a typology. The typology represents:

Capacity building

Data & knowledge

Management tools

Stakeholder engagement

Governance arrangements

Business development

The various activities have also been prioritised (High, Medium and Low priority) and afforded an indicative timeframe for implementation as follows:

Short-term	0-24 months
Medium-term	2-5 years
Long-term	>5 years

Element 1: Enabling Environment

Result Area 1.1: A Healthy, Resilient & Productive Marine Environment

A key principle of the blue economy is that the health of the oceans is inextricably linked to the sustainability of economic livelihoods for coastal communities and the economy generally. Oceans also provide a range of essential goods and services that would be extremely costly to restore or replace once lost.

Damage to marine ecosystems and depletion of marine resources are concerns felt by many Virgin Islanders with many supporting the need for active measures to protect marine habitats and biodiversity. The health of coral reefs and associated biodiversity are seen as of critical importance both from an environmental perspective and as an economic one due to the strong reliance on the tourism sector.

If our use of the ocean is well managed it can meet a broad range of economic, social and cultural aspirations. The Government of the Virgin Islands recognises that ecosystem health and integrity is fundamental to ecologically sustainable development.

There is currently no overarching legislation dealing with marine activities and the Virgin Islands does not have a marine licencing regime, other than for fishing. Despite attempts to develop one in the past, this is also currently no overarching legislation addressing environmental protection although there are new efforts to draft and adopt a comprehensive *Environmental Management and Climate Change Bill* which would strengthen the regime of marine environmental protection considerably.

Specific issues that require urgent attention include: (i) banning the use of TBT-based antifouling paints; (ii) controlling the unregulated discharge of sewage and other pollutants both from land-based and marine-based sources; (iii) measures to control discharges of ballast water from international shipping; and (iv) controls on the damage to coastal habitats such as mangroves and seagrasses.

Activities proposed:

1.1.1. Conserve and enhance the overall quality of the marine environment through protection, maintenance or restoration of habitats and the sustainable use of marine resources.	
High Priority (long term)	The Virgin Islands' marine environment and the ecosystem services it supports are a key national asset. Such essential services would be extremely costly or impossible to restore or replace once lost. If utilisation of these resources is well managed they can meet broad range of economic, social and cultural aspirations.
1.1.2. Expand the current system of marine protected areas taking into account the need to better protect key coastal habitats and the resources they support.	
Medium Priority (medium term)	The current network of MPAs in the Virgin Islands does not reflect the diversity of areas that require additional protection. Furthermore, many existing MPAs do not have comprehensive management plans. Efforts to strengthen the existing MPA system will contribute significantly to improving the overall health of the Virgin Islands' maritime waters.
1.1.3. Ensure activities undertaken in the marine environment do not cause damage or harm to environmental, social and economic values.	

High Priority (long term)	Many existing activities, particularly land-based activities, lack effective controls to avoid adverse effects to the marine environment. The government will focus on strengthening the existing legal framework, better enforcement and greater education of local communities in order to strengthen the overall protection of the marine environment of the Virgin Islands.

Result Area 1.2: Integrated Approaches to Ocean Governance

To promote an integrated approach to ocean governance, the Organization of Eastern Caribbean States (OECS) has taken a first step through the adoption of the Eastern Caribbean Regional Ocean Policy (ECROP) and its Strategic Action Plan. The ECROP was endorsed by the OECS Heads of Government in 2013 after the Heads recognized the importance of the ocean to food and livelihood security and economic development within the OECS region. The ECROP encourages the collaborative formulation of well-integrated governance frameworks capable of addressing marine user conflicts and protecting the fragile legacy of their marine environment.

Policy 4 of the ECROP highlights the need for the adoption of multiple-use ocean planning and integrated management and calls on member countries to establish legal frameworks that reflect an integrated approach to planning and management of marine space.

It is clear that the Virgin Islands needs to transition to a more integrated governance approach, that requires all uses, users and values to be considered. This is the unique key to achieving adequate management of the ocean and seas under the Virgin Islands' national jurisdiction and is one of the most important conditions for the successful implementation of the blue economy. Governance is therefore an overarching theme that is an essential part of the blue economy. The overall aim of an integrated governance framework should be to establish, strengthen, and implement effective governance mechanisms that contribute to the implementation of the blue economy.

One key issue that requires attention is the establishment of a multi-agency marine coordination committee, which includes both governmental and non-governmental stakeholders. Annex A provides a draft Terms of Reference for such a committee along with a list of those organisation that should participate.

Activities proposed:

1.2.1. Assess options for institutional reform and coordination of ocean affairs.

High Priority (short term)	Implementation of an integrated blue economy will require, and lead to, institutional changes. An important first step will be the establishment of an effective multi-sectoral coordination mechanism to progress the implementation of this roadmap. While the role of existing agencies in the administration of future maritime activities is clearly recognised, the government will establish a national coordination body that is focussed on all aspects of the Virgin Islands' marine space and its effective management.

1.2.2. Develop a National Ocean Policy (NOP) to establish a strategic framework for integrated marine planning and management of a nation's marine space and the activities that occur within it.

Medium Priority (medium term)	Planning and management for multiple ocean uses requires the full range of uses, users and values to be considered including gender responsive policies. Given this, the government is committed to the development of an overarching framework to improve governance of the nation's marine space. An overarching national ocean policy will provide such a framework defining the policy guidance for the future management of the Virgin Islands' ocean space and marine resources. It sets in place the framework for integrated and ecosystem-based planning and management and defines strategies for achieving the goals and objectives defined in the process.

1.2.3 Undertake a broad scale Marine Spatial Plan for the entire EEZ taking into account the full range of activities currently, and projected, to occur.

High priority (long term)	While there is a need to assess activities throughout the entire EEZ, it is clear that most activities, and most knowledge, is focussed in the relatively narrow coastal zone. The lack of information for offshore waters makes detailed planning more difficult, and it is clear that those areas that are subject to greater activity, and therefore pressure, warrant greater scrutiny. This notwithstanding, it has become apparent that planning and decision making is being undertaken largely in the absence of a broader understanding of national development priorities for the Virgin Island's maritime space. The undertaking of a national EEZ-scale MSP process would address this gap and provide local communities with an indication of those national development priorities that they must consider at the local planning level.

1.2.4. Establish new legislation to enable declaration of an Exclusive Economic Zone by the Government of the United Kingdom.

High Priority (short term)	The Virgin Islands is currently not able to fully realise the opportunities of its maritime space due to the fact that it has not yet declared an exclusive economic zone. To address this, the government will adopt implementing legislation that will allow the EEZ to be declared by the UK government.

Result Area 1.3: Sustainable Finance & Investment

In order to transition to a sustainable blue economy, it is necessary to have in place *inter alia* sustainable financing mechanisms that will provide long-term and reliable funding to support blue economy activities including conservation and sustainable management initiatives for marine and coastal resources, as well as the wider environment. A range of innovative finance mechanisms exist that could be applied to a range of initiatives including fishery improvement projects, habitat restoration and protection projects, valorisation of a range of marine ecosystem service values and projects that link coastal and marine ecosystems to climate change adaptation.

International development finance can play an important role and assist small states to put in place the enabling factors for an effective blue economy. A particular focus for resource mobilization could be to support the development of emerging sectors (such as ocean-based renewable energy and "blue biotechnology") by bridging the gap between the high upfront costs and uncertainty associated with such emerging sectors and the likely delayed financial returns that might be an impediment to companies investing in these sectors.

A blue economy approach presents an opportunity to potentially leverage additional resources for investments in ocean and coastal health and ecosystems, and utilise a wide variety of new and innovative financing models, for which both the public and private sector can partner to pool finances and share skills, expertise and approaches.

Activities proposed:

1.3.1. Establish a Task Force to study the range of possible sources of sustainable finance that could be deployed to support the blue economy.

Medium Priority (medium term)	A range of financial instruments are increasingly being deployed to support the blue economy, both public and private. The Virgin Islands will assess the suitability of the full range of financial instruments and determine how best to access the most suitable to support the development of existing and emerging blue sectors.

1.3.2. Reform the current governance framework (as appropriate) to facilitate the development of a blue finance fund.

Medium Priority (medium term)	The Virgin Islands currently collects a range of fees and duties from marine related activities. These are largely channelled into the consolidated national fund. Consideration will be given to establishing a dedicated "Blue Fund" to support specific initiatives aimed at developing the blue economy. In order to achieve this, a number of institutional and operational reforms will be required.

1.3.3 Diversify the existing Financial Services Sector to establish the Virgin Islands as a regional hub for blue finance services.

Low Priority (long term)	Leveraging the Virgin Islands' premier position as a Financial Services Sector could allow the Virgin Islands to attract a range of financial services companies who are increasingly focused on the blue economy and sustainable blue finance.

Result Area 1.4: Human Capacity Development

The development of a more integrated blue economy in the Virgin Islands will depend to a large extent on the availability of relevant skill sets to respond to the needs of the market. The lack of institutional capacity was a common theme during discussions with marine stakeholders across all blue economy sectors. The lack of education and training in the maritime sectors has clearly led to chronic gaps in the technical capacity to support key sectors as well as more broadly for marine research, planning and decision making.

Upgrading skills and understanding of decision makers and professionals in all sectors is therefore required in order to achieve the objectives of this roadmap in the medium to long term. Several reasons were cited for this including: a fear of water; a perception that jobs in the maritime sectors were low quality; a lack of support to promote maritime careers; and a lack of local training opportunities.

There is a need to develop the Virgin Islands' indigenous maritime education system to ensure the future availability of skilled and qualified resource management professionals. Identifying future skills needs and labour market supply and demand trends and adapting and developing existing education, vocational and professional training programmes to meet them will be essential if the blue economy is to become a reality in the Virgin Islands.

Activities proposed:

1.4.1. Study the current capacity of, and development needs for, technical training in the maritime sectors.

High Priority (short term)	In order to better understand the current capacity needs and constraints, there is a need to undertake a comprehensive Capacity Needs Assessment (CNA). Critical to the success of this will be an assessment of training provision of training at the HLSCC, to determine what reforms need to be made to address any gaps identified in the CNA. Once completed, a strategy to address those gaps can be developed between the government and the private sector.

1.4.2. Plan and make investments in the HLSCC training institution, with a focus on the charter yacht sector and marine environmental research and protection.

High Priority (medium term)	Following from the Capacity Needs Assessment a strategy will be developed setting out how the identified gaps will be filled. Primarily this will focus on the requirements to upgrade the existing educational facilities, including provision of practical-learning based facilities. This is expected to require recruitment of new technical staff.

	The establishment of a nationally accredited curriculum and scheme of qualifications, benchmarked against international best practice will provide quality assurance of the revised education system.

1.4.3 Implement a mandatory nationwide swimming programme for 5-11 year olds.

High Priority (medium term)	Fear of the water and lack of water confidence appears to be a key driver of the lack of young people pursuing careers in the maritime sectors. In order to support the development of a new cadre of young maritime professionals it is essential that this barrier be overcome by (re-)creating a national culture of using and enjoying the ocean.

Result Area 1.5: Public Awareness & Engagement

One of the main difficulties associated with the implementation of the blue economy is the limited awareness of the importance and role of the oceans and coastal environment in the economy and society more broadly.

Developing a culture of ocean stewardship takes time and a change in mindset. It requires investment in ocean knowledge and measures that increasingly mobilize society to the importance of the ocean in the nation's development. It is also about cultural values and the place of ocean in the country's psyche. While the sea is very much part of the Virgin Islands' culture, for many Virgin Islanders, the ocean extends only as far as they fish or enjoy recreation.

Raising awareness will assist in promoting understanding and stewardship by all stakeholders; ensuring that decision makers and members of the public are accountable for actions they take that affect marine resources. There is an opportunity through the blue economy to generate positive attitudes towards the marine environment and increased participation in the blue economy.

Information and education are important to promoting such understanding and enhancing personal levels of responsibility. Emphasis will be placed on sensitising the population on coastal environmental issues, introducing relevant subjects through the school curriculum by involving the Ministry of Education, as well as capacity building especially for office bearers for effective implementation of the policies and activities.

Activities proposed:

1.5.1. Build public and visitor awareness of oceans and ocean issues and promote public education on oceans.

High Priority (long term)	Lack of awareness and environmental education opportunities for local and visitors to the islands is a risk to the long term sustainable development of the blue economy. An informed public ensures the social acceptability that will enhance ocean governance decision making and implementation. Moreover, community participation is a key to promoting and instituting a duty of care for the marine environment. Awareness creation, participation and consultation will assist in promoting understanding and stewardship by all stakeholders.

1.5.2. Establish a process to identify and stimulate the engagement of local communities and local industries in stewardship initiatives and cooperating to find environmental and sustainable development solutions.

Medium Priority (medium term)	Insufficient capacity exists within government agencies to effectively monitor and manage the marine environment. A strong case can be made for greater involvement of civil society and local communities to engage in stewardship initiatives that will benefit all Virgin Islanders.

Result Area 1.6: Maritime Surveillance, Monitoring & Enforcement

Discussions with stakeholders have clearly identified the difficulties associated with the enforcement of existing rules and regulations, particularly with regard to fisheries. Poor enforcement of existing fisheries laws as well as illegal, unregulated, and unreported (IUU) fishing by neighbouring states are key concerns. Enforcement of legislation, especially in offshore areas, assumes a knowledge of illegal activity. This is often impossible due to a lack of awareness of activities undertaken in the maritime domain.

Thus, a key element of monitoring and enforcement is the effective surveillance of the Virgin Islands' maritime space and an awareness of the activities undertaken in the maritime domain. That capability does not yet exist. To this end, there is a need for the Virgin Islands, along with many other OECS countries, to enhance their capability to identify threats to their maritime space in a timely manner by sharing and integrating intelligence, surveillance, and navigation systems into a common operating picture.

Improving the procedures for monitoring and enforcement and clearly defining the institutional and organizational responsibilities for the management or marine activities and resources between the various ministries and departments is a crucial issue that must be addressed. To this end, there is a need to enhance the capability to identify threats to maritime space and resources in a timely manner.

Activities proposed:

1.6.1. Strengthen monitoring, compliance and enforcement initiatives at sea and at ports of entry/landing sites.	
High Priority (medium term)	This is necessary in order to protect the Virgin Islands' marine resources and fragile marine habitats. A range of pressures need to be addressed across all sectors. This will require greater coordination across government agencies as well as collaboration with the private sector. Critical to achieving this will be an assessment of the opportunities to deploy technological solutions (such as AIS, VMS and satellite monitoring) on vessels operating in the Virgin Islands' waters. A greater focus on monitoring and enforcement at landing sites will also be necessary.

Element 2: Maritime Tourism

Result Area 2.1: Manage the Cumulative Impacts of the Charter Yacht Sector

The Virgin Islands does not have a tourism-specific structure plan to guide the future development of the sector, resulting in concerns that development of the tourism industry will continue *ad-hoc* without any planning or consideration of where the priorities and risks lie. In this regard, a particular issue relates to the lack of comprehensive planning and assessment for the growing charter yacht sector. The lack of a comprehensive strategy for the sector has already resulted in certain sites operating well beyond their capacity with little or no knowledge of the impact of those developments.

The sector recognises that its product relies on a quality marine environment, which is acknowledged by most stakeholders as being under serious threat from a number of different but relates issues. A focus on managing the impact of yachts through a process of site diversification and managing capacity has been identified as a key need for the sector.

Activities proposed:

2.1.1. Undertake a comprehensive assessment to better understand the carrying capacity of key mooring sites around the Territory and the current level of pressure affecting those sites.	
High Priority (short term)	This is necessary to ensure that future growth in the sector can continue in a sustainable manner without adversely affecting the overall quality of the Virgin Islands' marine environment. A focus on spatial planning and cumulative environmental impact assessment should be adopted to map and better understand those areas of the Territory that are under pressure from yacht tourism/diving with a view to better managing those interactions on a site-by-site basis.
2.1.2. Identify potential new sites to install moorings to distribute yachting activity more evenly throughout the archipelago.	
High Priority (medium term)	This is necessary to reduce pressure on existing "high use" sites and also to encourage better mooring practices to reduce physical damage to reefs and other critical habitats. A focus on spatial planning and cumulative environmental impact assessment will be adopted to map and better understand those areas of the archipelago that are under pressure from yacht tourism/diving with a view to better managing those interactions on a site-by-site basis.
2.1.3. Identify critical sites where anchoring should be prohibited through the archipelago.	
High Priority (medium term)	Anchor damage is recognized as one of the main forms of physical damage to vulnerable seabed habitats such as coral reef and sea grass beds. In combination with the greater provision of moorings, identifying sites where anchoring should be prohibited should be considered as a key mechanisms to protect vulnerable habitats. A key focus should be existing MPAs in the Virgin Islands as well as critical infrastructure such as sub-sea cables. This will require legislation, education and enforcement to be successful.
2.1.4 Develop industry codes of best practice to promote sustainability.	
Medium Priority (long term)	Given the limited capacity in government to develop and monitor comprehensive environment performance standards, the private sector could play a crucial role in developing industry standards (Codes of Best Practice) and ensuring compliance with these Codes. Such codes could address

	critical issues such as anchoring (permitted and prohibited areas); pollution control; waste management practices; rules and limits for fishing etc. Adopting industry-wide standards and commensurate performance measurement systems, e.g. through some form of industry association award could lead to a general improvement in the overall environmental performance for the maritime sectors (especially charter yacht, ferry and dive operators).

Result Area 2.2: Increase the Number of Young People Pursuing Careers in the Maritime Sectors

A key barrier to enabling young people to participate in continued education and training activities is lack of funds to support participation. Examples from overseas indicate that industry that invests in training and development of workers through supporting training programmes, providing on-the-job training and creating employment opportunities will achieve strong buy-in from local communities.

A long-term reliance on an expatriate workforce is not sustainable or desirable for the Virgin Islands and efforts should be focused on increasing the proportion of Virgin Islanders working in the maritime sectors.

With the re-launching of the HLSCC to deliver a broader range of maritime training courses there are clear opportunities for the private sector and academic institutions to create partnerships that create benefits for both parties, as well as supporting the development of the next generation of maritime sector workers.

Activities proposed:

3.1.1. Actively promote careers in the maritime sectors to school leavers through greater participation of the sector at school career fairs. 	
High Priority (short term)	There is a need to demonstrate the variety of career opportunities in the maritime sector and to remove the stigma attached so perceived "low value" jobs. This will require partnerships between the private sector, government and education establishments.
3.1.2. Develop an industry-led marine apprenticeship programme. 	
Medium Priority (medium term)	The private sector has a key role to play in supporting capacity development of young people wishing to pursue careers in the maritime sector. One way to achieve this is to offer apprenticeships and sponsorship for students pursuing vocational training. Industry should explore options to partner with the HLSCC to support a number of students each year, both in terms of financial support and on-the-job training.

Result Area 2.3: Improve management of the cruise ship sector to mitigate adverse impacts on coastal and marine environments and other marine user groups

Activities proposed:

2.3.1. Develop a policy aimed at better managing the impacts of cruise tourism on other, more valuable, sub-sectors of the maritime tourism product and the wider marine environment.	
High Priority (short term)	This is necessary to ensure that the cruise tourism sector can continue in a sustainable manner without adversely affecting other, potentially more valuable economic sectors (e.g. yacht tourism). Given the critical role that the marine environment plays in the overall economy of the Virgin Islands this must necessarily include managing the environmental impacts associated with cruise ships and cruise tourism. In the long run this should be addressed through a process of multi-use spatial planning, with a view to better managing those interactions on a site-by-site basis. 

Element 3: Fisheries

Result Area 3.1: Improve the Health of Nearshore Demersal & Reef Fisheries

The nearshore demersal and reef fishery has been subject to significant fishing pressure in the past. As such, there is a need to revise the current "open-access" system of fishing, to impose stricter access controls through *inter alia*: improve knowledge of the stocks to support decision making and more targeted application of spatial and temporal access controls and the allocation of species-specific quotas. These measures should be adopted through the development of fisheries management plans for key commercial stocks.

Given that this component of the fishery represents the largest component of landings, opportunities to implement fishery management measures, to improve the health of these stocks, should be explored. The implementation of Fisheries Management Plans (FMPs) is recommended; these are detailed management plans that align fishing effort and specific regulations with (1) scientific guidance regarding the health of the stock and (2) economic objectives. FMPs should aim to reduce effort in the most flexible and least onerous ways possible. They should be developed with the input of commercial and small-scale fishers, and be implemented for key commercial species groups.

Activities proposed:

3.1.1. Develop 'Fisheries Management Plans' for key demersal/reef fish species.

High Priority (long term)	There is an urgent need to revise the current "open-access" system of fishing, to impose strict access controls through *inter alia*: the extension and expansion of existing spatial and temporal access controls and the allocation of species-specific quotas. These measures should be adopted through the development of fisheries management plans for key commercial stocks. Fisheries Management Plans will be set over a 3-5 year period with a shorter cycle of management implementation and review at the operational level. Given many of these groups are already depleted, they will also incorporate a recovery or stock re-building process.

3.1.2. Adopt and apply ecosystem-based principles and objectives for marine fisheries.

High Priority (short term)	A critical reform that the Virgin Islands needs to embrace is the ecosystem approach to fisheries (as set out in the FAO Code of Conduct for Responsible Fisheries (CCRF) and EAF guidelines), including principles such as (i) fisheries must be conducted in a manner that does not lead to over-fishing, (ii) harvesting and processing capacity commensurate with estimated resource levels, (iii) manage fishing operations to minimize their impact on the structure, function and biological diversity of the system, and (iv) application of the precautionary principle.

Result Area 3.2: Diversify the Existing Fisheries to Include New or Underutilised Fish Species

Despite its importance, a key issue facing the fishing sector relates to a lack of diversification of target species, resulting in excessive fishing pressure on a few key species (conch, lobster and certain scale fish species).

Many fishery resources, particularly those offshore and deep water resources are considered to be underexploited providing opportunities for further expansion of the fishery sector. There are a number of reasons for the reluctance to develop these resources, such as lack of access to larger vessels and the high cost of fuel. Lack of financial and human capital is preventing fishers from scaling up existing operations to take advantage of deeper water fisheries, further offshore. This includes both commercial fishing and sport fishing for tourists. There is therefore a clear need for measures to support diversification of the fishing sector to utilise a broader range of species.

The potential exists to more effectively exploit existing resources and to optimise returns from existing activities. Opportunities to further develop and utilise existing sectors as a means to create jobs and to increase the value of those sectors therefore need to be assessed. For example, the current small size of fishing vessels operating in the Virgin Islands means that local fishers are unable to fish further offshore in deeper waters. As a result, potentially lucrative fish stocks are unavailable to local fishers.

Activities proposed:

3.2.1. Develop capacity for optimizing the catches of large pelagic species inhabiting or migrating through the EEZ.	
Medium Priority (long term)	Promote the sustainable development of the commercial long line and sport fisheries for large pelagic species including through the development of appropriate regulations for the fishery.
3.2.2. Actively promote the harvesting of lionfish as an economic resource.	
Medium Priority (medium term)	In the past few years, a significant threat to marine species has entered the Virgin Islands' waters in the form of the lionfish. The numbers of lionfish have increased dramatically in the past decade and it is now thought that tens of thousands of lionfish range throughout the Virgin Islands waters. The government recognises the need to develop a Lionfish Action Plan which promotes the harvesting of lionfish. Once an economic value has been established and a market created, the numbers of lionfish are likely to fall significantly while also creating an additional industry that has yet to be developed.
3.2.3. Assess the economic opportunities to extract more value from the existing sport-fishing sector.	
Medium Priority (long term)	Sport fishing has the potential to raise more revenue than it currently does for the Virgin Islands. Although there is little sports and game fishing based in the Virgin Islands itself, over 80% of the fish taken by sports fishers from the US Virgin Islands are taken in our waters. The offshore pelagic sport fishery therefore represents a potentially significant sub-component of the maritime tourism sector.

Result Area 3.3: Restructure the Virgin Islands Fishing Complex to Increase Participation of and Benefits to Local Fishers

Concerns have been raised that the existing the Virgin Islands Fishing Complex business model is too restrictive and does not incentivise fishers or the broader value chain to maximise value creation. A number of problems have been identified in this regard including the time it takes to pay fishers, the strict requirement for 60% of fish to be sold to the complex and poor management of stock leading to a "boom or bust" situation with some key species that are imported, leaving local fishers no avenue to realise value from locally caught fish.

Furthermore, there does not appear to be a strong culture of community participation in fishery-management decision-making in the Virgin Islands. A common conclusion from international experience is that bringing stakeholders together to address governance challenges is a vital step in making sustainable management possible. However, it appears that the model of fishery co-operatives has failed to gain support in the Virgin Islands.

A new business model for fisheries and fishers is required to support the future development of the fishery sector. Such a model would allow fishers to focus more on the catching of fish with the VIFC focussing on marketing and value addition in the value chain. A key aspect of this model would be the introduction of public-private partnerships, with fishers receiving a benefit (dividend) during times of better performance.

Activities proposed:

3.3.1 Transition the VIFC from a government programme under the DAF to a Statutory Corporation.	
High Priority (medium term)	The VIFC is currently subsidised by the government in the form of subsidised fuel for fishers and low priced fish for consumers. However, the model suffers from a number of structural problems which have resulted, among other things, in a lack of support by the fishing community. Efforts to transform the facility will require institutional and structural changes to make it both more financially viable and more attractive for fishers to utilise.
3.3.2. Incentivize fishers to increase the proportion of fish landed at the VIFC through a programme of profit sharing with licensed fisherfolk.	
High Priority (medium term)	If the VIFC is to successfully transition to a Statutory Corporation there is a need for an increased and regular supply of fresh fish. At present 49% of the fish landed at the VIFC is landed by 5 fishers. There is, therefore, a need to increase the number of fishers regularly using the facility to handle and sell fresh fish. A key enabler for improved fisheries should be a shift towards more inclusive co-management arrangements, where the authority and the responsibility for making and enforcing marine management decision making and implementation are shared with local fishing communities. The VIFC should be the hub to facilitate such management arrangements.

Result Area 3.4: Reduce Post-Harvest Losses in the Fishery Sector

Fish is a highly perishable commodity and hence susceptible to high post-harvest losses. There is consistent evidence that these losses occur at all stages in the food/value chain (including: transport; storage; marketing and sales; and at the end consumer) and can be both quantitative and/or qualitative (i.e. economic and nutritional).

Improving sanitary standards for the domestic market is likely to lead to a stronger, more viable market over time. Minimizing post-harvest losses is therefore a key strategy to increase revenues and food security without the need to increase production. While many fishers do utilise ice for storage, many do not. Furthermore, storage, even on ice, in boats remains rudimentary.

Activities proposed:

3.4.1. Develop quality standards for fresh and processed fish products.	
High Priority (medium term)	The Fisheries Regulations do not comprehensively address food safety standards such as HACCP. The VIFC does not comply with HACCP norms and standards of operations and this is a limiting factor when it comes to export of fishery products. The government is committed to improving hygiene standards throughout the fisheries value chain. 
3.4.2. Improve handling and storage of fresh fish on fishing vessels to improve the quality of landed fish.	
High Priority (medium term)	This is necessary to improve the quality of fish being landed at the VIFC and landing sites around the Virgin Islands, improving the quality of fish could lead to higher prices for fishers. 
3.5.3. Encourage local investment in post-harvest activities and fisheries related services, through access to knowledge, expertise, training and finance.	
Medium Priority (long term)	At present, the only products that are traded are fresh and frozen fish. There is no culture of processing fish into higher value products. Increasing the value chain involves identifying opportunities to add value to the base product and this has not been done to any great extent in the Virgin Islands. 

Element 4: Aquaculture

Result Area 4.1: Create Incentives to Allow Full-scale Development of the Aquaculture Sector

Experience from overseas suggests that the Government enabling environment is critical to the successful launch of any new industry. Aquaculture needs to be considered as a new commercial export industry and treated accordingly. For example, the development of the full production facility will require the import of a significant amount of equipment that is not available in the Virgin Islands. The current system of import duties does not adequately reflect the realities of developing a new business from scratch.

A further challenge is the lack of skilled local workers with experience in the aquaculture sector. The future development of the sector in the Virgin Islands will rely on local workers becoming involved in a sector that is new to the Virgin Islands.

Activities proposed:

4.1.1. Assess whether the sector would benefit from being afforded "pioneer status".

High Priority (short term)	Aquaculture is recognised as a new industry sector in the Virgin Islands. To facilitate such new entrant sectors, it is common to grant certain tax concessions to support initial development. Such concessions could include duty free importation of essential equipment and goods to help to offset the cost of start-up in a capital cost heavy industry. The items could be clearly defined in the terms of any permit and be on a case by case basis.

4.1.2. Review the existing requirements in the Fisheries Act for all aquaculture products to be sold to the VIFC.

High Priority (medium term)	Aquaculture in the Virgin Islands is currently being developed as a high end export market. There is insufficient local capacity to absorb the volume of production planned from aquaculture and this would inevitably impact local fishers. The government, therefore, recognises the need to maintain flexibility in the sector to develop and sell directly to overseas markets.

4.1.3. Ensure clarity, transparency, and time-bound execution of the aquaculture licensing process.

High Priority (short term)	A critical enabler to any business development is being able to gain the relevant permits and approvals in a timely manner. Business requires certainty to ensure that its investment is not at risk. Given that this is a new industry, the permitting and approval process will to be reviewed and standardised with other business permitting processes in the Virgin Islands.

4.1.4. Establish formal export quality standards for aquaculture products (both live and processed) including a system of verification and certification that is harmonised with international standards (e.g. the UK health certification program).

High Priority (medium term)	In order to export live and fresh process products certain veterinary and hygiene quality standards must be achieved. These standards require both verification and certification as part of the export license. The Virgin Islands currently does not have a formal process and this will be required to support growth of any aquaculture export market.

4.1.5. Create a management and regulation framework based on the Ecosystem Approach to Aquaculture (EAA).

Medium Priority (medium term)	The government recognises that, in the long-term, a comprehensive aquaculture policy developed on the basis of EAA will allow the industry to develop with a framework that provides economic and environmental sustainability. Management, regulation and policy should be based on sound scientific principles and evidence.

Result Area 4.2: Ensure Local Participation & Benefits Through Capacity Building

With the potential to grow the sector across the eastern Caribbean region there will be a pressing need for training and capacity building opportunities.

In some SIDS the lack of indigenous skilled workers has been highlighted as a problem with developing new and expanding existing sectors. This is a strategic issue which requires rationalising across the Blue Economy, rather than within individual sectors, and prioritisation according to the most desirable and feasible applications

Capacity building, effective international networking and collaboration, skills transfer from foreign academic organisations and technology providers, in addition to regional co-operation is crucial due to limited in-country resources. To be sustainable the sectors that are developed need "critical mass". This can result in local synergies, sharing of resources and enhanced capacity to add value. Moreover, international interaction will be invariably easier and more equitable. A standard approach, used internationally to facilitate, is the development of technology incubators, science parks etc.

Activities proposed:

4.2.1. Develop links between Caribbean Sustainable Fisheries and the HLSCC to develop aquaculture training courses.

Medium Priority (long term)	Given that the HLSCC is being re-launched as a regional centre of excellence for maritime training and marine studies the potential exists to promote a partnership between HLSCC and Caribbean Sustainable Fisheries to develop training packages for students who wish to work in the field of aquaculture. Not only would this support the capacity needs of CSF in the future, but it would strengthen the Virgin Islands' position as a regional hub for aquaculture and maritime training.

Result Area 4.3: Explore Opportunities for Developing Coral Farming to Support Rehabilitation of Degraded Coral Reefs

After decades of scientific, small-scale, and community-based projects around the world, it has been shown that coral farming - the process whereby fragments of corals are collected from the local reefs, raised in nurseries until mature - is a viable method for restoring degraded reefs. With the advent of innovative coral farming techniques, now is the time to launch large-scale restoration efforts to revive and protect the valuable coral reef resources that are at risk.

The majority of coral farming projects today use ocean-based nurseries, which are appealing for small-scale restoration projects because they can be assembled at low cost and support fast-growing branching species. Unlike ocean-based projects, land-based farms allow for faster growth of more diverse array of corals allowing corals to be grown in a matter of months rather than years. Land-based coral farming also enables the use of techniques to improve coral resiliency to changing oceanic conditions that threaten reef health.

Farmed coral can also provide a vital and sustainable supply of coral to the tropical aquarium industry.

Activities proposed:

4.3.1. Undertake an assessment of overseas experience and best practice with coral farming and coral rehabilitation.

Low Priority (long term)	A considerable amount of overseas experience exists with respect to coral farming, both at the community level (NGO's) and at the commercial level. It is necessary to consider this experience in the context of the specific conditions and species present in the Virgin Islands waters. This would include such aspects as collection methods, methods for propagating, equipment and environmental requirements and methods for control and monitoring coral growth and health.

4.3.2. Develop, in conjunction with HLSCC, a pilot coral farming project to determine feasibility and techniques appropriate to the Virgin Islands conditions.

Low Priority (long term)	In developing the capacity at HLSCC the opportunity arises to use coral farming as a pilot project to base the future development of HLSCC's aquaculture capacity. This could form the basis of a coral farming initiative housed at HLSCC and supported by both the college and overseas institutions.

4.3.3. Review the current legal framework relating to the collection of live coral from the Virgin Islands waters to enable the collection of live coral fragments to support on-shore coral growth.

Low Priority (long term)	It is unclear whether the current legal framework will allow the live collection and transplanting of coral from the wild. It will be necessary to assess this and to include coral arming in any future aquaculture policy and legal framework.

Element 5: Marine Information & Science Needs

Result Area 5.1: Improve the Knowledge Base to Support Evidence-Based Decision Making

Governance requires factual information about the geographical occurrence and abundance of ecosystems as well as information on how human actions affect these ecosystems. The marine environment is, however, far from being completely understood and the quality of marine information is an often highlighted variable, leading to decision-making sometimes under considerable uncertainty.

Development of the fisheries sector and the development of new sectors, in particular, requires investments in data collection, research, knowledge and instruments that assist with planning. Most solutions involve investments in building knowledge and capacity, investments in infrastructure and sustainable technology. Identifying and defining ongoing strategic research and capacity needs, together with appropriate funding, resources and partnerships, will therefore be essential for achieving long term economic development through a blue economy framework.

Activities proposed:

5.1.1. Update the existing coastal habitat atlas with information collected through the current hydrographic survey programme.	
High Priority (long term)	The Virgin Islands already has comprehensive data sets of key coastal/nearshore habitat types. However, this data is considered to be out of date and requires updating and extended further offshore. In order to manage future development of the blue economy, there is a need to develop a current baseline of the state of marine habitats and the marine environment in general. This will also allow better decision making in terms of the nature and geographic scope of future maritime activities.
5.1.2. Develop a marine data capture/procurement strategy to define future research and data collection needs.	
High Priority (medium term)	Opportunities to undertake research are extremely limited due to the cost of mounting research expeditions to the area. In order to benefit fully from any future research opportunities that may occur, there is a need for the government to clearly define its future research priorities and needs to better inform future research planning activities. As one output from the overall roadmap, therefore, future research needs should be defined in a Marine Scientific Research Strategy for the Virgin Islands.
5.1.3. Undertake an audit of existing (known) research data and information that is not currently publicly available.	
Medium Priority (medium term)	A broad range of data and information probably already exists in the Virgin Islands. In order to avoid future duplication of effort, and to maximise use of the current knowledge base, there is a need to better understand what information is currently available and design a system to make that information available to decision makers and users of the marine environment. Such a process should involve all users of the marine environment and those organisations and institutions involved (both past and present) in studying the marine environment.

Result Area 5.2: Rebuild the Institutional Framework for Scientific Research to Underpin Development of Priority Sectors

Despite historically having local capacity for marine environmental research and monitoring, indigenous marine research capacity has declined leaving a strong reliance on UK marine research agencies. The original plan for the HLSCC was that it be a regional centre of excellence for maritime training and research to support the OECS. This was never achieved and, despite the fact that the HLSCC is being "re-launched" the college still has no Vision relating to marine science/research.

To date, research has been undertaken by different entities including the Department of Agriculture and Fisheries, the National Parks Trust of the Virgin Islands, a number of locally-based NGOs and overseas research and science institutions. At present, there is little strategic direction or cooperation between these different entities.

The government recognises the need to rebuild the institutional framework that had originally been anticipated, with Department of Agriculture and Fisheries and National Parks Trust of the Virgin Islands being the primary government agencies tasked with undertaking marine research and HLSCC supporting research and capacity building both within the Virgin Islands and across the OECS. Strengthening this organisational framework will provide focal points and a partner organisations for other entities wishing to contribute to marine science in the Virgin Islands. With the support of the UK marine scientific research organisations, the HLSCC, in particular, could be operationalised and provide a strong base to further develop the capacity to undertake future MSR in the Virgin Islands.

There are also opportunities to engage civil society in "citizen science" programmes if the right structures and focal points can be created to catalyse the local community to engage.

Activities proposed:

5.2.1. Undertake an assessment to determine what priority capacity gaps exist in the Virgin Islands and the priority capacity needs to support growth of the blue economy.	
High Priority (long term)	No marine scientific research can be undertaken without the requisite capacity and technical skills to perform the research. While DAF does have a limited number of officers involved in marine research this capacity is limited and constrained by the many other demands on the officers' time. If the Virgin Islands is to develop a platform to support MSR then this will need to be resourced, both within government agencies and within research institutions.
5.2.2. Develop the marine scientific research capacity of existing government agencies and the HLSCC to better support national marine research needs and to become a regional centre of excellence for marine scientific research and training.	
High Priority (long term)	At present, the Virgin Islands has extremely limited capacity to support marine environmental research (pure or applied), which is largely housed within the Department of Agriculture and Fisheries and the National Parks Trust of the Virgin Islands. HLSCC already houses considerable infrastructure and facilities to support marine environmental research. However, it lacks the capacity to undertake research or to deliver training in marine scientific disciplines. As part of the capacity needs assessment there is a need to build the capacity of HLSCC to fulfil these functions. In addition, as well as developing the capacity of the HLSCC, there is a need to develop strategic links with overseas institutions. Given the Virgin Islands' links with the UK (e.g. CEFAS), these links should be easy to establish and maintain. This capacity should be built with specific regard to making the outputs relevant to both industry and regulators and resources should be used to ensure that there is direct access for regulators and industry to the research community.

5.2.3. Develop formal partnerships with both the private sector and civil society to enhance the ability to undertake research and build capacity at the national level.

Medium Priority (long term)

The public sector in the Virgin Islands is small and cannot, alone, deliver the scientific and research capability required to support growth of the blue economy. One option to augment this capacity is to build partnerships with the private sector (in terms of the provision of research platforms, funding, equipment and technical knowledge), civil society (in terms of research expertise, potential avenues for funding and global research and science networks) and the local community (in terms of mobilising citizen science programmes).

A combination of all three could provide a mechanism to fill many of the gaps that currently exist in the Virgin Islands as well as creating a mechanism to more directly engage stakeholders in stewardship and management of the marine environment, the health of which is everyone's interest.

Element 6: New & Emerging Opportunities

Result Area 6.1: Launch the UNDP Blue Lab in the Virgin Islands

The Blue Lab recognises the importance of building a portfolio of locally sourced solutions to the challenges being faced in the British Virgin Islands. Ongoing consultations with various stakeholders will allow the Blue Lab to learn from existing local solutions that are closer to reality and communities. The Blue Lab will utilize this approach to collective intelligence that will allow for multiple solutions to be tested in parallel, and support faster learning through experiment driven testing. This will allow the Blue Lab to work in close collaboration with communities in the British Virgin Islands and determine what works and what doesn't. The Blue Lab will continuously engage with communities, innovators and other key stakeholders to find new ways of addressing challenges and scaling up the solutions that work.

The Blue Lab will launch in the British Virgin Islands with a clear focus of building on a network of key players within the blue economy space. In collaboration with the Ministry of Education, Culture, Youth Affairs, Fisheries and Agriculture, the Blue Lab will work closely in schools, the fisheries sector, as well as, other connected sectors to promote and encourage intersectoral linkages, that will help to develop and complement the blue economy in the British Virgin Islands.

Activities proposed:

6.1.1. Develop a Blue Badge for blue certified businesses framework for the BVI.

Medium Priority (short term)	The BVI "Green Pledge" initiative was adopted to encourage businesses, community organizations, and Government departments to reduce their environmental impact and make a commitment to improve on environmental practices. The Blue Lab "Blue Badge" for blue certified businesses will provide a comprehensive guide to implementing sustainable practices in the hospitality industry, by focusing on reducing single-use plastics, and highlighting important practices such as responsible waste management and recycling. The Blue Lab will also work closely with key stakeholders in the British Virgin Islands, to encourage sectoral linkages. Emphasis will be given to the distribution of local fish catch in the hospitality industry (hotels and restaurant), as well as, incorporating a "Blue Badge" to certified divers and tour operators

6.1.2. Develop a mangrove nursery in collaboration with the H.L.S.C.C.

High Priority (medium term)	In collaboration with the H.L. Stoutt Community College Marine Science and Technology Center, the Blue Lab will support a mangrove nursery that will help to restore Paraquita Bay and stabilize the coastline. There is also an opportunity to engage students and community in research to increase climate change resilience. Research will also include monitoring of flooding to create a database that can inform policy. The Blue Lab also recognizes additional synergies to utilize the research lab space at the H.L. Stoutt Community College Marine Science and Technology Center, to develop a water quality program to help in ensuring clean water is maintained for residents and visitors, and not polluted by sewage or oil from land based or marine sources. Considering the scope at the H.L. Stoutt Community College Marine Science and Technology Center, the Blue Lab also recognises the opportunity to engage with faculty, students and industry practitioners to develop a training programme on aquaculture/marine culture. This intervention will address the future needs of this fast-growing food production sector, and allow the British Virgin Islands to pioneer the capacity building needs for the Organization of Eastern Caribbean States (OECS) and

	the wider Caribbean. The Blue Lab will focus on public engagement to receive participation and feedback from key stakeholders in the British Virgin Islands.

6.1.3. Promote the use of solar powered cooling devices for fisherfolk.

High Priority (long term)	The BVI "Green Pledge" initiative was adopted to encourage businesses, community organizations, and Government departments to reduce their environmental impact and make a commitment to improve on environmental practices. The Blue Lab "Blue Badge" for blue certified businesses will provide a comprehensive guide to implementing sustainable practices in the hospitality industry, by focusing on reducing single-use plastics, and highlighting important practices such as responsible waste management and recycling. The Blue Lab will also work closely with key stakeholders in the British Virgin Islands, to encourage sectoral linkages. Emphasis will be given to the distribution of local fish catch in the hospitality industry (hotels and restaurant), as well as, incorporating a "Blue Badge" to certified divers and tour operators

Result Area 6.2: Identify Future Opportunities to Develop New & Emerging Sectors

The Virgin Islands' potential maritime space is more than 500 times its land area, and has been subject to much less exploitation. In terms of future uses of the ocean, a number of new and emerging opportunities have been identified that can contribute to the development of an 'ocean economy'.

However, while potential clearly exists, there is only limited development experience in the Virgin Islands. Many of these future opportunities have an essential technological component that will, in some cases, require substantial capital investment.

Proactive promotion by the Government will be necessary because the level of investment risk is probably well beyond the domestic capital market. Foreign investment will therefore form an important component of the realisation of new sources of value. At this stage, however, no Government agency is tasked with exploring such opportunities for development and the government does not have a business development strategy around marine resources and activities.

6.2.1. Develop a 'National Blue Economy Investment Strategy'.

Medium Priority (long term)	It is unclear which, if any, new and emerging opportunities may be either feasible or economically viable in the Virgin Islands. In order to develop any of these ideas further, there is a need for government and non-government stakeholders to determine the areas of priority interest on which they wish to focus. From there it would be necessary to undertake feasibility studies and possibly pilot projects to better assess the feasibility of specific development opportunities.

6.2.2. Develop 'pilot projects' to assess the feasibility or the highest priority development opportunities.

Medium Priority (long term)	Future development opportunities cannot be developed in isolation. They will require some degree of "proof of concept" or economic feasibility studies in order to attract investment. Having identified priority areas for development, it will be necessary to undertake feasibility studies and possibly pilot projects to better assess the feasibility of specific development opportunities.

Model for Implementation

This *Strategic Blue Economy Roadmap* provides a new momentum for sustainable economic growth in the Virgin Islands. It builds on the existing framework for managing maritime space by ensuring government departments/agencies, private sector and community organisations work together more efficiently and effectively on the diverse issues related to the marine environment, in order to sustain the values that Virgin Islanders hold dear and to generate an environment conducive to sustainable growth and job creation.

The roadmap sets out the vision, high-level goals and integrated actions that, on implementation, will ensure the long-term integrity of marine ecosystems and significantly improve the conditions for sustainable economic growth and future investment. A number of integrated government delivery mechanisms have been identified and the roadmap puts in place a process that will be used in developing an integrated marine policy and planning framework.

Overarching responsibility for delivery of this roadmap has been assigned to the Office of the Premier in order to provide a whole of government coordination function.

Implementation is based on the following mechanisms:

1. Individual departments implementing relevant policy and strategy programmes;

2. Coordination and implementation by the Office of the Premier;

3. Improved coordination across government agencies through the establishment of a multi-agency/stakeholder blue economy coordination committee that will coordinate implementation of the roadmap; and

5. Measurement of roadmap implementation, to commence in 2023, with feedback to stakeholders.

1. Individual departments

Individual ministries and agencies will continue to develop and implement policies and strategies that come within their remit, taking account of the Strategic Blue Economy Roadmap. This includes those agencies with a specific mandate relating to management of the marine environment as well as those agencies with broader roles relating to national economic and social development.

2. Coordination and implementation by the Office of the Premier

Recognising the significant national contribution the marine environment makes to the Virgin Islands development, ownership of the roadmap will be vested in the Office of the Premier. Relevant government ministries and agencies will update the Office of the Premier on progress in implementing existing and new emerging strategies and policies.

3. Improved co-ordination across government agencies

The government will establish a high level Blue Economy Coordination Committee (see Annex A) to oversee implementation of this roadmap and to ensure that ministries and agencies with a marine function work together towards the shared vision and goals of this roadmap. This improved communication and engagement will enhance the delivery of existing, emerging and new policies and strategies.

Measuring Progress

Progress in relation to implementing the strategic actions outlined in this roadmap will be reviewed annually and will include feedback to stakeholders. Strategy implementation will be monitored using the indicators provided by public sources (Table 2)

Key Figure to be Measured	Indicators
Contribution of existing sectors (tourism, fisheries, shipping, and aquaculture)	• % contribution of specific blue economy sectors to GDP (both directly and indirectly through extension of the existing value chains) • Reduced trade deficit • Estimated contribution of emerging sectors • Number of sectors with Regulatory/policy frameworks implemented
Sustainability of blue economy sectors (tourism, fisheries and aquaculture)	• % Adoption/compliance to sustainability best practice by marine sectors (e.g. 3rd third party accreditation) • Sector management plans with resources use limits • Improved resource status • Increased resource rent and value of resource access rights • Elimination of subsidies • Increased resource efficiency • Natural resource accounting (environmental wealth)
Participation in the blue economy / Education, skills development and employment / Business environment and SMEs	• Increased youth employment rate within specific blue economy sectors • Increased % of Virgin Islanders in managerial key sector posts (government and non-government; • Increased % of students achieving high education standards • Number employed in specific blue economy sectors as a proportion of total work force • Number and type of SMEs related to specific blue economy sectors
Sustainable blue finance	• % Increase in public and private finance for BE • % Increase revenue from domestic sources (taxes, fees and levies etc.…) • National Investment priorities identified • Transparent and effective resource allocation mechanisms for local and external investment in blue economy • # of projects implemented with sustainable “blue finance”
Growth of the blue economy and its significance in the national economy	• Blue economy output • Value added • # employed and their share in the national economy
Environmental benefits from the blue economy	• % improvement in marine environmental health indicators • % Increase of Carbon sinks (blue Carbon)

	• Resilient strategies for coastal protection and ocean acidification
Sustainability of the blue economy	• Indicators to be developed for ecosystem services, environmental and resource efficiency and well as natural resource accounting (environmental wealth)
Conservation targets	• % cover of MPAs • % protection of critical habitats • Monitoring and enforcement records • Increase in overall protection and quality of key coastal and marine habitats and resources
Research and Innovation	• % GDP allocated to marine scientific research by both the public and private sectors • Increased research and development capacity • % Increase of new technology • Increased regional cooperation • # of collaborations/partnerships established with overseas partners

Table 2: Suggested measures and indicators to track progress in the blue economy

ANNEX A: TERMS OF REFERENCE - NATIONAL OCEAN GOVERNANCE/BLUE ECONOMY COORDINATION COMMITTEE

Background

1) To promote an integrated approach to ocean governance, in 2013 the Organization of Eastern Caribbean States (OECS) adopted the Eastern Caribbean Regional Ocean Policy (ECROP). The ECROP encourages the collaborative formulation of well-integrated governance frameworks capable of addressing marine user conflicts and protecting marine environment.
2) Policy 4 of the ECROP highlights the need multiple-use ocean planning and calls on member States to establish governance frameworks that reflect an integrated approach to planning and management of marine space. This includes, at the national level, the establishment of coordinating agencies, together with national inter-sectoral committees, with a mandate for integrated ocean management.
3) These bodies will not only provide the functional link between the member States and the OECS with respect to matters relating to ocean governance, but coordinate the implementation of national policies aimed at more integrated management of the region's ocean space.

Nature of the Committee

4) The [Virgin Islands' National Blue Economy Committee] will provide a high level decision-making body on ocean governance and the blue economy to meet priority policy needs and help deliver the Virgin Islands' vision of: *sustainable economic growth while protecting and enhancing the habitats and resources that underpin that growth through improved environmental governance and stewardship, better education and an improved understanding of our shared marine space*.
5) The Committee will provide a strategic overview of marine management in the Virgin Islands and take the decisions required to implement the Strategic Blue Economy Roadmap effectively and efficiently.
6) To be effective it is important that the Committee has a clear mandate to: (i) engage at the OECS level; and (ii) to direct and coordinate activities at the national level. To satisfy these requirements:
    i. The Committee is established under the auspices of, and reporting to, the Office of the Premier of the Virgin Islands;
    ii. The Committee will have a clear and mandate defined (as defined in these Terms of Reference) and sufficient resources and capacity to do its job;
    iii. The Committee will be comprised of appropriate administrative heads of the agencies listed in Annex 1 below. Representation by experts and nongovernmental organisations may also necessary on an as-needs basis.

Responsibilities of the Committee

7) The Committee is responsible for coordinating the future sustainable development and management of the Virgin Islands' maritime space. In doing so the Committee will:
    i. Promote the national vision, goals and objectives for the blue economy;
    ii. Strengthen inter-agency and inter-sectoral collaboration with respect to the management of the Virgin Islands' maritime space;
    iii. Implement the Virgin Islands Strategic Blue Economy Roadmap;
    iv. Reduce conflict and provide a forum for conflict resolution among sectors and ocean users;

v. Liaise directly with key sectors (industry, NGO and research sectors) to understand their issues and needs regarding marine management;

vi. Oversee and make recommendations on the development and reform of legal and policy mechanisms relating to the management of the Virgin Island's maritime space;

vii. Identify matters of national importance and ensure that these are addressed in an integrated manager; and

viii. Make recommendations to the Office of the Premier and (his) Cabinet on the resources and actions required to manage the nation's maritime space in an integrated and sustainable manner.

Structure and Membership

8) The Committee will be comprised of senior representatives of the organisations listed in Annex 1.

9) The Committee will be chaired by a nominated representative of the Office of the Premier.

10) Each agency listed in Annex 1 should be represented by a senior official, preferably the Permanent Secretary of his/her deputy.

11) The Committee will include representatives from key marine user groups who will represent the interests of their respective sectors.

12) In addition to the core members identified in Appendix 1 the Committee may invite additional experts and observers to participate in meetings whenever the need might arise.

Meeting and Reporting Arrangements

13) The Committee will meet at least twice each calendar year or as otherwise required.

14) Meeting agendas will be approved in advance.

15) The Committee will be provided with administrative support to facilitate their work. Administration will include preparation of agendas, records of decisions and preparation and circulation of minutes.

16) At least 60% of the appointed members must be present at each meeting

17) The Committee will report directly to the Office of the Premier and will provide a record of their meetings to the Cabinet.

APPENDIX 1: MEMBERSHIP OF THE COMMITTEE

ORGANISATION
Office of the Premier
Ministry of Natural Resources, Labour and Immigration
Department of Agriculture and Fisheries
Town and Country Planning Department
Virgin Islands Shipping Registry
Department of Disaster Management
National Parks Trust of the Virgin Islands
Virgin Islands Tourist Board
H Lavity Stoutt Community College
Maritime tourism industry representative
Fishing industry representative
Others [TBD]

ANNEX B: SUMMARY OF ROADMAP ACTIVITIES AND TASKS

ENABLING ENVIRONMENT

Result Area 1.1: A Healthy, Resilient & Productive Marine Environment

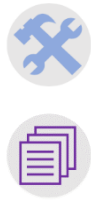
Context:

- The existing blue economy sectors are reliant on a healthy and productive marine environment.
- In particular, reef and marine related tourism and fisheries rely on the preservation of key marine habitats to support livelihoods and economic activities.
- The marine environment across the Caribbean is subject to numerous threats, some local and some regional in scale. This makes it critical that marine ecosystems are protected to ensure they are more resilient to existential threats such as marine pollution and climate change.
- Effective management of the marine environment and the maintenance and restoration of ecosystem health and integrity is therefore fundamental to a sustainable blue economy.

Desired Outcomes:

- Greater protection and sustainable use of the Virgin Islands' ocean space and resources through effective cross-sectoral coordination, application of protective measures and greater use of surveillance and enforcement tools.
- The development of a management framework that explicitly reflects the principle that the health of the oceans is inextricably linked to the sustainability of economic livelihoods for coastal communities and the economy generally.
- Better legal protection of marine ecosystems and enforcement of legal measures.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.1.1 Conserve and enhance the overall quality of the marine environment through protection, maintenance or restoration of habitats and the sustainable use of marine resources.	• Review and update as appropriate, legislation concerning the regulation of activities that affect the marine environment. • Update and expand the existing coastal resources atlas with a view to identifying critical habitats and biodiversity sites. • Prioritize specific habitats and locations to be protected, either through MPAs (which have specific ecological conservation objectives) or no take zones (NTZs). • Strengthen the system of environmental compliance monitoring and enforcement.	NOC; CEFAS; OECS; Universities; NGOs; Commonwealth Secretariat.	**National:** Coordinate across agencies to identify and collate existing data sets. **Research institutions**: Provide direct support to map and better understand the marine environment. **NGOs**: Assist with research. **Universities:** Assist with research and capacity building. **Commonwealth Secretariat**: Participate in the Blue Charter "Coral Reef Protection and Restoration" Action Group.	• Finalise and gazette the Environmental Management and Climate Change Bill. • Identify environmentally significant areas for greater protection. • Review legislation relating to the protection of marine turtles and marine mammals. • Improve environmental	

				compliance monitoring and enforcement.	
1.1.2. Expand the current system of marine protected areas taking into account the need to better protect key coastal habitats and the resources they support.	• Fully implement the Virgin Islands Protected Areas System Plan (2007-2017) ensuring that all proposed protected areas are fully gazetted. • Consult with stakeholders to define management framework for each of the MPAs. • Consult with stakeholders to develop appropriate regulation of permitted/prohibited activities within zones (e.g. fishing, anchoring, discharges). • Development management plans and regulatory frameworks for designated protected areas. • Establish monitoring and reporting programmes for protected areas throughout the Virgin Islands. • Develop partnerships with local communities and the private sector to participate in protected area management. • Prepare draft management plans for each MPA.	Local NGOs; CBF; UK Government; Commonwealth Secretariat.	**DAF:** Lead agency for MPA design and designation. **Darwin Plus Programme:** Potential source of funding. **NGOs**: Provide technical support and resources to assist with implementation. **Commonwealth Secretariat**: Participate in the Blue Charter "Marine Protected Areas" Action Group.	• Develop and adopt management plans for all existing MPAs. • Review the existing Protected Area Systems Plan and ensure all identified MPAs are designated with management plans.	
1.1.3. Ensure activities undertaken in the marine environment do not cause damage or harm to environmental, social and economic values.	• Review and revise the existing legislation addressing management of the coastal and marine environment and resources. • Strengthen planning controls and enforcement for land-based activities that impact the coastal environment (e.g. coastal development, reclamation, earthworks, pollution control). • Develop awareness of the value of the ocean at the local level. • Develop and adopt the *Environmental Management and Climate Change Bill.* • Empower government agencies to apply the law in full.	Commonwealth Secretariat.	**National:** Coordinate across agencies to strengthen capacity and empower agencies. **Commonwealth Secretariat**: Participate in the Blue Charter "Sustainable Blue Economy" Action Group.	• Ban the use of TBT antifouling paints. • Regulate the discharge of sewage from land-based and vessel sources. • Control single-use and other plastics in the Territory. • Ensure planning controls and EIA processes address impacts to the coastal environment. • Address the issue of "ghost pots" that are	

				impacting reef fisheries.	

Result Area 1.2: Integrated Approaches to Ocean Governance

Context:	**Desired Outcomes:**
• The current governance system for marine management is fragmented. • There is a lack of strategic policy vision for the development of the Virgin Islands' maritime waters at the national level. • There is a need for greater attention on the needs of coastal communities and marine users that prioritise them over non-Virgin Islanders.	• Agreement of an overarching national policy, providing a common basis for detailed future policies, strategies and action plans. • An accessible, coherent set of laws framing the sustainable development and enhancement of marine management in the Virgin Islands. • Upgrading the current Exclusive Fishing Zone to an Exclusive Economic Zone. • A multi-agency marine coordination function to coordinate implementation of the blue economy in the Virgin Islands.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.2.1. Assess options for institutional reform and coordination of ocean affairs.	• Conduct an institutional analysis to determine the capacity of key maritime agencies. • Determine options for institutional reform of ocean affairs and the blue economy. • Identify and mandate, by mid-2020, a lead agency to establish and coordinate an inter-departmental marine coordination group (National Ocean Governance Committee) to function as a high-level advisory committee to the Premier and his Cabinet. • Undertake a review and mapping of all known initiatives relevant to the development of the blue economy in the Virgin Islands in order to identify synergies, gaps and possible areas of duplication.	OECS; UNDP	**National:** Coordinate across agencies to strengthen capacity and empower agencies. **Development Partners:** Provide technical support and resources to deliver required reforms.	• Designate a cross-government Ocean Governance Committee. • Ensure broad participation with non-governmental stakeholders.	
1.2.2. Develop a National Ocean Policy (NOP) to establish a strategic framework for integrated marine planning and management of a nation's	• Agree on priorities and trade-offs for the development of the Virgin Islands' maritime space with wide stakeholder consultation. • Prepare a draft multiuse National Ocean Policy. • Undertake consultation with stakeholders. • Revise and adopt NOP.	UNDP; UK Government.	**Darwin Plus Programme:** Potential source of funding to allow the development of the policy through a UK-based institution.	• Bring in line with the OECS/ECROP requirements.	

marine space and the activities it supports.					
1.2.3. Undertake a broad scale MSP for the entire EEZ taking into account the full range of activities currently, and projected, to occur.	• Recruit key technical partners/consultants • Agree MSP methodological approach, in line with regional and international best practice • Undertake initial assessment of stakeholder interests and priorities and key user conflicts • Undertake an EEZ-wide assessment of conservation values to determine further candidate sites for protection • Prepare initial zoning plans for consultation • Undertake comprehensive stakeholder consultation • Develop legal authority to support implementation of the zoning plan	OECS; UK Government; TNC; Wait Foundation.	**National:** Coordinate across agencies to strengthen capacity and empower agencies. **Development Partners:** Provide technical support and resources to deliver required reforms. **International NGOs:** Support and technical capacity to undertake key stages in the MSP process including data capture and analysis.	• Multi-use approach involving all marine use sectors as well as conservation planning requirements.	
1.2.4. Establish new legislation to enable the declaration of an Exclusive Economic Zone by the government of the United Kingdom.	• Develop draft enabling legislation. • Consult with the UK FCO on the draft legislation. • Finalise and enact legislation. • Deposit legislation with UN DOALOS and inform UKFCO.	UK Government.	**National:** Finalise and gazette enabling legislation. **FCO:** Will declare the EEZ through the UN on behalf of the Virgin Islands government.	• Finalise and gazette draft maritime zones legislation.	

Result Area 1.3: Sustainable Finance & Investment

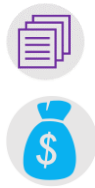
Context:

- In order to transition to a sustainable blue economy, a combination of sustainable financing mechanisms to provide long-term and reliable funding (public and private). The sustainable development of marine reserves, and related tourism sites, in particular, requires funding and, on the basis of the well accepted principle of User Pays, much of this funding should be sourced from the users.
- A blue economy approach presents an opportunity for a more strategic approach to financing, potentially leveraging additional resources for investments in ocean and coastal health and ecosystems.
- There are few sources of finance for the private sector, for either large commercial and micro-enterprises. Existing traditional credit mechanisms are likely insufficient for transformational investments in the blue economy.

Desired Outcomes:

- Financing the blue economy through a diversified portfolio of funding opportunities, taking advantage of international private sector investors' appetite for investment in sustainability; and ensuring greater efficiency of revenue raising mechanisms.
- A framework consisting of a portfolio of separate but complementary funding streams including payments for ecosystem services and user fees for marine conservation sites.
- A legal and institutional framework that can deliver targeted investment finance to the blue economy.
- Increase revenue streams for blue economy initiatives including through a review and update of the existing user fees systems.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.3.1. Establish a Task Force to study the range of possible sources of sustainable finance that could be deployed to support the blue economy.	• Define ToR for task force to include government, civil society and private sector participants. • Engage with financial institutions to develop a picture of the range of instruments available. • Assess suitable financial tools for the Virgin Islands context. • Undertake a review of existing fees charged for maritime activities in the Virgin Islands including a benchmarking exercise against regional/international practice. • Identify a portfolio of potential projects that could be eligible for concessional funding or public-private partnership investments. • Develop up to three full project proposals to take to the domestic and international markets.	UNDP; CDB; TNC.	**National:** Take the lead and demonstrate commitment to reforms. **Development Partners:** Provide technical support and advice on the most suitable reforms and development tools. **NGOs:** Bring international experience of similar initiatives in other countries.	• Assess the linkages between Climate Finance and Blue Finance mechanisms.	
1.3.2. Reform the current governance framework (as appropriate) to facilitate the development of a blue finance fund.	• Undertake a review of existing fees charged for maritime activities in the Virgin Islands including a benchmarking exercise against regional/international practice. • Seek technical assistance for review of fisheries development funding and outline the design of an investment grant system: legal measures required, institutional framework, staffing, and operational procedures, to manage disbursement, monitor investments, and ensure transparency. • Plan the type and size of investments to be supported with funding (to be validated by wide consultation); • Make required updates to legislation.	UNDP; CDB; TNC.	**National:** Take the lead and demonstrate commitment to reforms. **Development Partners:** Provide technical support and advice on the most suitable reforms and development tools. **NGOs:** Bring international experience of similar initiatives in other countries.	• Reform the current system of licence, permit and access fees.	
1.3.3 Diversify the existing Financial Services Sector to establish the Virgin Islands	• Engage with financial institutions to develop a picture of the range of instruments available. • Plan the type of financial instruments that the Virgin Islands will support/provide.	Private sector.	**National:** Take the lead and demonstrate commitment to reforms.		

as a regional hub for blue finance services	• Draft procedural rules, transparency requirements, monitoring and evaluation system; • Make required updates to legislation.		**Private Sector:** Demonstrate the desire to pursue this new area of business.		

Result Area 1.4: Human Capacity Development

Context:

- Existing training capacities in the Virgin Islands are limited and not linked to strategic needs of the private sector.
- Training capacity faces deficiencies in facilities, training content and staff.
- Greater knowledge and skills among maritime, fisheries and aquaculture operators (including production and post-harvest value addition) are required.

Desired Outcomes:

- A population that values the sea as a source of recreation and future livelihoods.
- HLSCC has capacity and resources to deliver the full range of courses need to build the local maritime capacity.
- the Virgin Islands develops links with key overseas institutions to augment the capacity of the HLSCC through formal partnerships.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.4.1. Study the current capacity of, and development needs for, technical training in the maritime sectors.	• Review of existing provision of training at national and regional training centres, and determine deficiencies vis-a-vis industry needs. • Develop a training and capacity building strategy.	UWI; Overseas Institutions (NOC, CEFAS etc); Private sector.	**HLSCC:** Lead the review into capacity needs vis-à-vis the development of programmes at the college. **UWI & overseas partners**: technical advice for the types of capacity needed to support specific activities. **Private sector**: Advice on the critical capacity gaps needed to be filled.	• Links to Element 5 relating to marine information and science needs.	
1.4.2. Plan and make investments in the HLSCC training institution, with a focus on the charter yacht sector and marine environmental research and protection	• Plan and cost educational facility upgrades, including practical-learning based facilities (e.g. demonstration aquaculture/fisheries facilities and laboratories). • Contract works for upgrading of pre-existing facilities and construction of new facilities. • Recruit new staff, and invest in staff capacity through industry experience placements and study tours. • Deliver training through formal diploma/certificates, training of trainers in Government and other extension services, and short courses for operators.		**Ministry of Education:** Support development of HLSCC. **HLSCC:** Identify the business case for developing new courses, in conjunction with local service providers.	• Needs a partnership approach between HLSCC, the private sector and overseas partners to assist with building the required local capacity.	 

1.4.3 Implement a mandatory nationwide swimming programme for 5-11 year olds.	• Develop a partnership with an international partner (e.g. RNLI). • Identify and certify swimming coaches at the national level (possibly one per school). • Review the national curriculum to include swimming as a core life skill.	Schools; Private sector; RNLI.	**Ministry of Education:** Include swimming on the national curriculum and provide resources. **Schools:** Commit to leading on the introduction of swimming lessons. **Private sector:** Possible source of sponsorship. **RNLI:** Expert consultant in the development of water safety initiatives.		

Result Area 1.5: Public Awareness and Engagement

Context:

- There is currently a lack of local community engagement in ocean issues throughout the Virgin Islands.
- Limited community-based stewardship initiatives exist in the Virgin Islands.
- The lack of community engagement leads to a lack of local interest in the protection, preservation and management of the ocean.
- Public participation is a key to promoting and instituting a duty of care for the marine environment. Local communities and local industries should be encouraged to participate in planning and management strategies and share responsibility for the management of ocean resources.
- All those who utilize the resources such as fishers, tourists, sport fishers, dive operators, resort owners and every day Virgin Islanders must be informed.
- Information and education are important to promoting such understanding and enhancing personal levels of responsibility. Emphasis should be placed on sensitising the population on coastal environmental issues.

Desired Outcomes:

- Local communities are more educated and aware of the importance and value of the marine environment to the national development and livelihoods of the Virgin Islands.
- Greater engagement of local community in environmental stewardship initiatives.
- Greater level of education of school children of the value of the ocean and the threats it is under.
- the Virgin Islands' population and key sectors are strong supporters of the blue Economy and act as champions promoting the blue economy nationally and internationally as an example of best practice.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.5.1. Build public and visitor awareness of oceans and	• Develop outreach programmes that create public awareness of the importance of the sea and its		**National:** Promote greater engagement between government agencies and local	• Develop education programmes and	

ocean issues and promote public education on oceans.	resources to our livelihood, quality of life and well-being • Implement a visitor marine awareness programme at entry points to the country (e.g. cruise ship berths, marinas, airports, Customs and Immigration). • Develop dedicated communication products and activities for local stakeholder and interest groups as well as policy makers such as: Brochures, posters, videos. • Incorporate marine education in school curricula • Work with maritime tourism operators to both develop and deliver "tourism awareness raising" programmes relating to the marine environment. • Establish an annual marine festival ("Sea Week") to engage with local communities and international partners.	HLSCC; Local NGOs; Local businesses.	communities. Prepare awareness raising material and initiatives. **NGOs:** Provide a focal point for local communities and lead community-based initiatives. **Private sector**: Engage directly with clients (especially tourists) to increase awareness.	awareness raising programmes.	
1.5.2. Establish a process to identify and stimulate the engagement of local communities and local industries in stewardship initiatives and cooperating to find environmental and sustainable development solutions.	• Government to identify a lead agency and provide resources to support local NGOs and community groups to develop small-scale community-based environmental projects around the Virgin Islands (e.g. mangrove planting, citizen science projects, beach clean-up, lion-fish harvesting competitions) • Identify a national network of "ocean leaders" to champion the importance of the marine environment in the Virgin Islands' development. • Engage with local companies to sponsor local community activities.	Local NGOs; Local businesses; UWI.	**National:** Promote greater engagement between government agencies and local communities. **NGOs:** Provide a focal point for local communities and lead community-based initiatives. **Private sector**: Sponsorship and direct support for specific initiatives. **UWI**: Could provide scientific support for research-based initiatives and support to HLSCC to build capacity.	• Identify some specific initiatives that local communities can identify with. E.g. lion fish fishing and beach clean-up activities.	

Result Area 1.6: Maritime Surveillance, Monitoring and Enforcement

Context: • Securing the Virgin Islands' maritime space and the resources therein is best achieved through a comprehensive, integrated national effort that addresses all threats and challenges emanating	**Desired Outcomes:** • Greater protection of the Virgin Islands' maritime waters from unlawful activities. • Greater awareness of activities being undertaken in the Virgin Islands' waters.

from the maritime environment through a combination of public and private maritime security activities. • To this end, the Virgin Islands must enhance its capability to identify threats to its maritime space in a timely manner by sharing and integrating intelligence, surveillance, observation and navigation systems into a common operating picture to position decision-makers to prepare for, prevent, respond to and recover from a broad spectrum of potential maritime related threats.	• Greater participation of marine users in monitoring and enforcement through industry self-regulation and reporting.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
1.6.1. Strengthen monitoring, compliance and enforcement initiatives at sea and at ports of entry/landing sites.	• Forge closer ties between the Department of Agriculture and Fisheries and the Marine Police and increase the number of dedicated fisheries/marine patrols. • Asses the utility of Automated Identification Systems (AIS) and other Vessel Monitoring Systems (VMS) as a way of carrying out surveillance for the Virgin Islands' maritime space and, in particular, existing MPAs. • Create incentives to encourage self-regulation and reporting of non-compliance by members of the public and key sector actors.	CDB; UNDP; OECS; UK Government.	**National Government**: Take the lead on coordinating and strengthening enforcement activities. **Development partners**: Provide resources and technical assistance. **UK Government**: Provide technical expertise and possibly equipment.	• Identify technical solutions to assist with MCS activities. • Link activities with activities across the OECS and with neighbouring countries. • Encourage the Barbados-based RSS to become more actively involved in fisheries and environmentally focussed surveillance activities.	

MARITIME TOURISM

Result Area 2.1: Manage the cumulative impacts of the charter yacht sector on the marine environment

Context:

- The lack of a comprehensive strategy for the tourism sector has resulted in certain sites operating well beyond their environmental carrying capacity.
- The maritime tourism sector recognises that its product relies on a quality marine environment
- A focus on managing the impact of yachts through a process of site diversification and managing capacity has been identified as a key need for the sector.

Desired Outcomes:

- Future growth in the maritime tourism sector is managed based on the capacity of the environment and local communities to support the level of growth
- Industry adopts best practices through the promotion of voluntary Codes of Conduct.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
2.1.1. Undertake a comprehensive assessment to better understand the carrying capacity of key mooring sites around the archipelago and the current level of pressure affecting those sites	• Identify and map known anchoring sites around the archipelago. • Undertake an assessment of the number of vessels utilising key anchoring sites on a regular basis. • Undertake baseline surveys of the most highly used sites to determine the state of the seabed habitats vis-à-vis physical damage. • Undertake environmental risk assessments for each of the identified anchoring sites. • Ensure maritime tourism is included in any future Tourism Master Plan.	Charter yacht operators; Local NGOs; Overseas research institutions.	**DAF**: Take the lead in mapping and assessing risks. **Private sector:** Assist with information relating to site location and usage. **Local NGO and community groups**: Assist with information relating to site location and usage. **Research institutions**: Provide technical advice and equipment to undertake baseline mapping.	• Consider overall site usage including all marine user groups including cruise tourists.	
2.1.2. Identify potential new sites to install moorings to distribute yachting activity more evenly throughout the archipelago.	• Identify possible future anchoring sites through consultation with industry and local marine users groups.	Charter yacht operators; Local NGOs;	**DAF**: Take the lead in mapping and assessing risks. **Private sector:** Assist with information relating to site location and usage.	• National consultation to determine the needs and expectations of different marine user groups. • Review the existing licence fee mechanism	

			Local NGO and community groups: Assist with information relating to site location and usage.	that pays for moorings to ensure NPTVI has sufficient resources to fund installation of new moorings.	
2.1.3 Identify critical sites where anchoring should be prohibited through the archipelago.	• Using the risk assessments undertaken in Activity 2.1.1 develop a draft list of "No Anchoring Areas" • Undertake consultation with the charter yacht sector and other marine user groups. • Agree on a list of No Anchor Area to be gazetted. • Develop By-Laws gazetting the No Anchor Areas.	Charter yacht operators; Local NGOs;	**DAF**: Take the lead in mapping and assessing risks. **Private sector:** Assist with information relating to site location and usage. **Local NGO and community groups**: Assist with information relating to site location and usage.	• Territory-wide risk assessment of anchoring for both yachts and ships)	
2.1.4 Develop voluntary industry codes of best practice to promote sustainability	• Undertake an assessment of international best practice with respect to marine and yacht operations. • Develop draft industry-led best practice guides. • Undertake consultation through the Virgin Islands Marine Association and the Virgin Islands Charter Yacht Society. • Adopt Voluntary Codes of Conduct and encourage their adoption by all operators.	Charter boat and marina operators.	**Private sector:** To take the lead in developing Codes of Practice and promote their implementation through relevant industry associations.	• TBT-antifouling. • Sewage holding tanks and pump-out facilities. • Anchoring best practices. • Waste management and education of charter yacht tourists. • Refuelling and spill control.	

Result Area 2.2: Increase the number of young people pursuing careers in the maritime sectors

Context:	**Desired Outcomes:**
• The lack of local entrants in the maritime sectors has been highlighted as a critical barrier to the future sustainability of the sector. • With the revitalisation of the HLSCC there is an opportunity to target courses aimed at developing local and regional capacity. • One inceptive to supporting local capacity building would be for the industry to develop an apprenticeship scheme aimed specifically at local young people.	• The maritime tourism sector is seen as a viable and attractive career path for young people. • Increase the number of qualified local workers to support the industry. • Partnerships between local education providers and private sector to both provide on-the-job training and also to support education with funded apprenticeships. • The potential for a guaranteed job at the end of a training course creates an incentive.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
2.2.1. Actively promote careers in the maritime sectors to school leavers through greater participation of the sector at school career fairs.	• Incorporate marine education in school curriculum and career counselling and after school activities • Actively promote blue economy job opportunities in schools and through public events to attract a new breed of maritime professionals (including women) • Undertake a business/government survey to assess workforce participation • Promote on the job formal and informal training and capacity building for young professionals, including scientists, technicians at various levels in marine science, maritime affairs, management, engineering and maritime related disciplines	HLSCC; Private sector; Schools	**National Government:** To take the lead in actively promoting maritime sectors. **Private sector:** Actively engage in career fair type activities to showcase the range of careers available. **HLSCC:** Actively engage in career fair type activities to showcase the range of careers available. Could organise open days etc.	• Perception that marine-based jobs are "low paid and low skilled". • Creation of job opportunities at the local level.	
2.2.2. Develop an industry-led marine apprenticeship programme.	• Assess future capacity and labour needs in key maritime sectors to better target quality and range of educational and training opportunities. • Develop an apprenticeship stream to capture those students not pursuing post-secondary studies • Develop partnerships between the private sector and HLSCC to institutionalise apprenticeship funding.	HLSCC; Private sector; Schools	**Private sector:** Provide the resources/funding and create on-the-job training opportunities. **HLSCC:** Ensure that places are available on courses for apprentices.	• Industry to develop a programme to support apprenticeships as a long-term programme.	

Result Area 2.3: Improve management of the cruise ship sector to mitigate adverse impacts on coastal and marine environments and other marine user groups

Context:

- Cruise tourism represents the largest sub-sector of the tourist sector in terms of visitor numbers.
- However, the aggregate value created by these tourists is limited due to the low per capita spend associated with cruise tourists.
- The large number so cruise tourists exert significant pressure on the limited number of tourist sites that they frequent, creating challenges for the government and conflicts with other marine user groups.
- At certain times of the year key tourist sites can be overwhelmed.
- The government has signalled a desire to increase the number of cruise tourists but this could be at the expense of other segments of the tourism product.

Desired Outcomes:

- Manage the number of cruise tourists visiting key sites so that they can operate within their carrying capacity.
- Anticipate, manage and mitigate the conflicts between cruise tourism and other marine user groups (e.g. charter yachts and SCUBA diving).

• Balance is required that recognises both the benefits and costs associated with cruise tourism and balances these against the benefits derived from other, less impactful, sectors of the tourism sector	

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
2.3.1. Develop a policy aimed at better managing the impacts of cruise tourism on other, more valuable, sub-sectors of the maritime tourism product and the wider marine environment.	• Undertake an assessment to identify any marine or coastal areas where additional controls should be established to mitigate the potential impacts of cruise tourism activities. • Undertake an economic assessment of the costs and benefits of cruise tourism versus other sectors of the tourism product. • Develop a draft Cruise Tourism Policy for consultation with stakeholders	UWI; UNDP; CDB.	**National Government:** To take the lead in undertaking a comprehensive assessment of the overall tourism sector and its contribution to the economy. **Development partners:** Provide resources and direct technical assistance to assess economic costs and benefits.	• Assess the costs and benefits of cruise tourism versus overnight visitors. • Develop a model that maximises the overall benefits from tourists, recognising all components of the tourism sector.	 

FISHERIES

Result Area 3.1: Improve the health of the nearshore demersal and reef fisheries

Context:

- There is no indication of what the maximum sustainable yields are for key inshore species and no comprehensive stock assessment of the fisheries has been undertaken for over 8 years.
- A key mechanism to facilitate better management of this resource would be the development and implementation of a Demersal and Reef Fishery Management Plan. It needs however to take a phased and participatory approach and be supported by sustained communication campaign to bring the local fishing community on board.
- There is insufficient capability to monitor key commercial fish stocks. This has implications for the ability to develop and implement fishery management plans.
- Lessons learnt from other island nations shows significant financial support to research and development will be required to improve the ecological knowledge base and efficiency of fishing technologies as well as developing capacity in natural resource economics and social sciences.;
- Management of straddling or migratory stocks is not well coordinated across the Eastern Caribbean.

Desired Outcomes:

- Fishing capacity and effort that is commensurate with the reproductive capacity of available stocks;
- Improved monitoring and knowledge to better support decision-making.
- Harvest strategies for key commercial stocks developed on scientific advice and the ecosystem approach to fisheries management;
- Marine fish stocks that increase in productivity over the long term (30 years).

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
3.1.1. Develop 'Fisheries Management Plans' for key demersal/reef fish species.	• Identify commercial species groups and spatial areas to be covered in each FMP. • Agree on FMP content and design, based on scientific advice. • Review and update at appropriate intervals.	FAO; UNDP; OECS; Universities.	**DAF**: Establish a common process and format for FMPs, and establish responsibilities and a timetable for FMP preparation. Could lead a pilot project producing a model FMP for replication at provincial levels. **Development partners**: Provide technical support and resources.	• Review existing catch controls (i.e. spatial and temporal controls and bag limits). • Identify key species for management intervention(e.g. Parrot Fish)	
3.1.2. Adopt and apply ecosystem-based principles and objectives for marine fisheries	• Adopt principles from FAO Code of Conduct for Responsible Fisheries (CCRF) and EAF guidelines. • Integrate principles into key fisheries legislation (i.e. update and adopt the Fisheries Act and associated Regulations.	FAO.	**DAF**: Lead this activity to provide a common framework. **FAO:** Provide technical support and resources.	• Update legislation to reflect the EATF	

	• Consider the development of a national Fisheries Policy.				

Result Area 3.2: Diversify the existing fisheries to include new or underutilised fish species

Context:

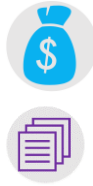
- Pelagic fishing ("deep sea fishing") occurs within the EFZ, although the fishery is limited in size and, at present, only one the Virgin Islands-licensed pelagic longline vessel operates.
- At present, there is an effective moratorium on the licensing of foreign longline fishing vessels to take large pelagic fish within the Virgin Islands EFZ.
- The development of large pelagic fisheries may provide opportunities to reduce fishing effort on near shore reef fish species.
- Some inshore species (e.g. the invasive lionfish) are not currently targeted for commercial purposes.
- The lack of locally operated sport fishing vessels is also a significant concern. It is clear that the Virgin Islands is not currently capturing anywhere near the true value of the fishery and economic leakage from the sector to outside the Virgin Islands is extremely high.

Desired Outcomes:

- An increased focus on fishing of offshore pelagic species.
- Increase the number of the Virgin Islands registered boats fishing deep pelagic waters.
- Create market demand for lionfish.
- Encourage shift to new or underutilised fish species, and other marine living resources.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
3.2.1. Develop capacity for optimizing the catches of large pelagic species inhabiting or migrating through the EEZ	• Create incentives (financial and legal) for Virgin Islanders to purchase and register larger boats capable of fishing in the offshore waters of the EFZ. • Review the Fisheries Act provisions relating to non-the Virgin Islands vessels fishing in the Virgin Islands waters with a view to supporting partnerships between Virgin Islanders and overseas vessel owners. • Further develop the use of FADs and other fishery enhancement techniques.	CDB; FAO; UK Government; UWI	**National government:** Provide support to strengthen surveillance and enforcement in the EEZ. **DAF**: Lead the reforms required to attract investors into the sector. Consult with fishers over required reforms and sector support. **Development partners**: Provide technical support and resources.		
3.2.2. Actively promote the harvesting of lionfish as an economic resource.	• Review the Fisheries Act provisions relating to commercial harvesting of fish using / SCUBA & spear guns with a view to allowing exceptions. • Develop the capacity of the VIFC to handle and process lion fish.	UWI; Local NGOs; Local diving operators; Other OECS countries; local	**DAF**: Lead the reforms required to encourage fishing of lion fish. **Local NGOs and dive operators:** Support local initiatives that promote catching of lion fish.	• Implement a strong education/promotion campaign across all sectors.	

	• Establish partnerships between fishers and restaurants/hotels to promote lion fish as an edible fish. • Organise annual lion-fish competitions throughout the Virgin Islands.	hotels and restaurants	**Tourism sector**: Promote lion fish as a high quality fish product to tourists and local consumers. **Other countries:** Provide lessons learned from similar initiatives (e.g. Bahamas, St Vincent and the Grenadines).	• Ensure the VIFC is able to handle lion fish safely. • Links to Result Area 1.5 relating to raising awareness.	
3.2.3. Assess the economic opportunities to extract more value from the existing sport-fishing sector.	• Review the existing schedule of fees for overseas vessels to operate sport fishing charters in the Virgin Islands.. • Review the existing legislation and licence arrangements to include a greater proportion of Virgin Islanders working on overseas sport fishing vessels.. • Review the existing legislation and licence arrangements to require fish caught by overseas vessels to be either released on capture or landed in a the Virgin Islands port..	CDB; FAO; Local fishers and tour operators.	**National government:** Provide support to strengthen surveillance and enforcement in the EEZ. **DAF**: Lead the reforms required to attract investors into the sector. Consult with fishers over required reforms and sector support. **Development partners**: Provide technical support and resources.	• Will require considerable engagement with the USVI to determine future relationships and governance arrangements for the Virgin Islands fisheries currently exploited by USVI vessels.	

Result Area 3.3: Restructure the existing the Virgin Islands Fishing Complex business model to increase both participation of and benefits to local fishers

Context:

- The Virgin Islands Fishing Complex business model needs to not incentivise fishers or the broader value chain to maximise value creation. Furthermore, strengthening the culture of community participation in fishery-management decision-making in the Virgin Islands will contribute to the success of the VIFC. Specific issues to address include:
  - The inability to purchase all the fish that is available from local fishers at prices that reflect the true value of the fishery.
  - The time it takes to pay fishers.
  - The strict requirement for 60% of fish to be sold to the complex
  - The lack of a marketing strategy to increase both the volume and price of sales of locally caught fish.
  - The VIFC does not comply with HACCP norms and standards of operations and this is a limiting factor when it comes to export of fishery products.
  - A greater focus on supporting the local fishing sector is needed.

Desired Outcomes:

- A business environment and infrastructure that encourages productivity-enhancing investments.
- Increase the numbers of fishers directly selling fish through the VIFC.
- Create real vale for fishers.
- Improve the returns to fishers and create incentives to actively engage in fisheries co-management.

- Incentives should be created for fishers to engage more with the VIFC and to improve management practices and compliance. One key challenge is the failure of fishing co-operatives to launch in the Virgin Islands. - Poor management of stock leading to a "boom or bust" situation with some key species that are imported, leaving local fishers no avenue to realise value from locally caught fish. • There does not appear to be a strong culture of stakeholder participation in fisheries-management decision-making in the Virgin Islands. Bringing stakeholders together to address governance challenges is a vital step in making sustainable management possible.	

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
3.3.1 Transition the VIFC from a government programme under the DAF to a Statutory Corporation.	• Implement the recommendations of the 2017 Report "*The Virgin Islands Marine & Fisheries Sector*" in full.	CDB; FAO; UNDP; Overseas development partners.	**National Government:** Political will to transition the VIFC to a Statutory Corporation. **CDB:** Financing and assistance with developing the business model. **Overseas development partners**: Provide resources and technical assistance.	• Implement the "*The Virgin Islands Marine & Fisheries Sector*" report findings.	
3.3.2. Incentivize fishers to increase the proportion of fish landed at the VIFC through a programme of profit sharing with licensed fisherfolk.	• Create a programmed whereby fishers may share in overall profits, based on the quantities of fish that they land as individuals. • Establish a competition with prizes (e.g money, fuel, gear, bait or ice) for fishers that land the most amounts of the target fish within a period to be determined. • Develop a model of fishery co-management between with all fishers in the Virgin Islands and trial it using the VIFC as the focal organisation.	CDB; FAO; UNDP; Overseas development partners	**National Government:** Political will to transition the VIFC to a Statutory Corporation. **CDB:** Financing and assistance with developing the business model. **Overseas development partners**: Provide resources and technical assistance.	• Identify the barriers preventing fishers from engaging with the VIFC.	 

Result Area 3.4: Reduce post-harvest losses in the fishery sector

Context:

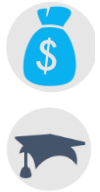
- Currently there is limited production of added-value products, and imported fish is increasingly serving this market.
- Facilities for training in productivity, added-value production, and quality are limited.
- Despite being a mature sector, considerable potential exists in the fishery sector to diversify by increasing handling and storage capacity and to provide better fish processing facilities.
- There does not appear to be a culture of processing fish into products (e.g. smoking, drying or developing fish-based products). Increasing the value chain involves identifying opportunities to add value to the base product and this has not been done to any great extent in the Virgin Islands.

Desired Outcomes:

- Creation of added value products supported by a clear brand strategy on safe, high-quality products.
- Achieve zero fish waste through processing and post-processing of fish and fish waste.
- Strengthen mechanisms for an efficient local tourism market for fresh fish.
- To support the development of product innovation in the fishery sector.
- Identify local and regional market opportunities for innovative fish products (e.g. tourism).

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
3.4.1. Develop quality standards for fresh and processed fish products.	• Develop a grading scheme of quality (for example, based on the use of Hazard Analysis Critical Control Points (HACCP) in production) for use by the sector in producing safe quality product; • Review and upgrade existing fish handling and storage facilities to comply with quality standards; • Develop the HLSCC as a national centre to be used as a best practice site for research and training, including on safety practices.	FAO; UNDP; CDB; UK Government.	**Development partners**: Provide technical advice, access to case study material and financial assistance. Particular attention should be given to the experience in Norway and Iceland that may be transferable.	• Identify standards to adopt in the VI. • Invest in infrastructure.	
3.4.2. Improve handling and storage of fresh fish on fishing vessels to improve the quality of landed fish.	• Develop basic training courses, through the VIFC, to build the capacity of local fishers to improve fish handling and storage techniques. • Investigate the opportunities to promote vessel-based and shore-based solar powered fish cold-storage facilities.	FAO; UNDP; CDB; UK Government.	**National:** Facilitate access to local vendors and fish landing sites. Establish the legal framework for the new quality standards and implement through DAF.	Elements of this Activity could be supported and led by the proposed UNDP Blue Lab. The specific example of solar-powered fish coolers should be one of the first products evaluated and trialled.	

3.4.3. Encourage local investment in post-harvest activities and fisheries related services, through access to knowledge, expertise, training and finance.	• Form a steering group with both private-sector and government representatives; • Undertake research of potential opportunities to develop fish-based products that are suitable for the Virgin Islands domestic and tourism market. This should include developing partnerships with other countries active in this field; • Invest in catalysing infrastructure to support R&D and new product development; • Develop one or two pilot projects to develop products from the existing resource base.	FAO; UNDP; CDB.	**Development partners**: Provide technical advice, access to case study material and financial assistance. Particular attention should be given to the experience in Norway and Iceland that may be transferable. **National:** Facilitate access to local vendors and fish landing sites. Establish the legal framework for the new quality standards and implement through the Fisheries Division.	Elements of this Activity could be supported and led by the proposed UNDP Blue Lab.	

AQUACULTURE

Result Area 4.1: Create incentives to allow the full-scale development of the aquaculture sector in Virgin Islands

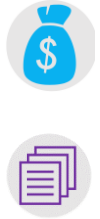
Context:

- Experience from overseas suggests that the Government enabling environment is critical to the successful launch of an aquaculture industry.
- Responsible private capital cannot be expected to mobilize in support of the blue economy at scale until the risks are reduced through reliable information, clear policies and improved governance (tenure, fiscal, financial, legal, etc.).
- To facilitate the development of any new or emerging sector, the Government must enable this through the design of policy mechanisms to allow new and sustainable marine activities to succeed.
- As a new industry to Virgin Islands, the development of the full production facility will require the import of a significant amount of equipment and skills that are not available in the Virgin Islands.
- The current system of import duties does not adequately reflect the realities of developing a new business from scratch. As such, various incentives should be considered to make the development more financially viable during the first few years of development and production.

Desired Outcomes:

- Growth of a new, sustainable sector within the context of Virgin Islands' blue economy, creating a number of benefits both for Virgin Islands and the wider eastern Caribbean.
- Creation of a significant export led market that could support the future development of a local aquaculture industry.
- Creation of new technical capacity and local jobs in the industry.
- Virgin Islands to be seen as a regional hub for future aquaculture development, both in terms of technical human capacity development and also as a regional source of brood stock for other farms.
- The potential to support diversification into other types of aquaculture venture once the key infrastructure and human capacity exists within Virgin Islands.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
4.1.1 . Assess whether the sector would benefit from being afforded "pioneer status".	• Undertake an economic analysis to determine the optimum fiscal policy to support establishment of the sector while also ensuring the government received a fair return. • Review the existing legislation and financial incentives for new "start-up" businesses to ensure that aquaculture ventures are included as one of the start-up sectors. • Ensure that aquaculture is not classified as a "domestic fishery" business • Consult with the aquaculture sector on what critical skill sets are required to support development of the sector in Virgin Islands.	FAO; CDB; Private Sector.	**National Government:** Take the lead on reviewing the fiscal regime and labour rules for new start-up businesses. **CDB:** Assist with undertaking economic analysis of business development opportunities. **FAO:** Technical assistance with requirements for growing the aquaculture sector. **Private sector**: Promote the sector and the benefits to the Virgin Islands.	• Address concerns among fishers that this will displace their activities.	

	• Develop a list of "priority skills" in conjunction with the Department of Labour and Workforce Development. • Create a "fast-track" work permit process for expert level key staff.				
4.1.2. Review the existing requirements in the *Fisheries Act* for all aquaculture products to be sold to the VIFC.	• Undertake an assessment of the capacity of VIFC to absorb aquaculture products in Virgin Islands. • Undertake an economic analysis to determine the optimum model of government control versus free-market forces to ensure aquaculture can generate the most returns. • Amend the Fisheries Act as appropriate to reflect the outcome of these analysis.	CDB; FAO; Private sector.	**DAF:** Review the legislation. **Development partners:** Assist with benchmarking and business modelling. **Private sector**: Input into economic modelling. Provide evidence from overseas experience.	• Undertake a benchmarking exercise of how other countries approach this. • Until the VIFC is functioning again it will not be able to purchase product so the law will be required to change until that time anyway.	
4.1.3. Ensure clarity, transparency, and time-bound execution of the aquaculture licensing process.	• Review the existing provisions of the Fisheries Act relating to permitting of aquaculture. • Nominate a dedicated Fisheries Officer to deal with aquaculture and to provide a focal point for the sector. • Ensure DAS officers are familiar with aquaculture operations and their specific development needs.		**Central Government:** Ensure DAF has the resources and capacity to support development of the sector. **DAF:** Ensure permitting is undertaken in a timely manner.		 
4.1.4. Establish formal export quality standards for aquaculture products (both live and processed) including a system of verification and certification that is harmonised with international standards (e.g.	• Review existing overseas models for export health/quality control relating to live and fresh packaged aquaculture products. • Review the existing institutional and legal arrangements relating to export health standards for animals.	FAO; CDB; UK Government; Commonwealth Secretariat.	**Central Government:** Political will to support the necessary reforms through DAF and VIFC. **Development partners:** Technical assistance and funding for a programme of reforms. **UK Government:** Technical assistance and knowledge transfer through UK agencies.	• Critical need for the sector in the long term, particularly if live export is to be considered, which is the most high value product.	

the UK health certification program).	• Government to nominate/appoint local veterinarian to undertake and certify health checks on live animals. • Develop the HACCP standards to include aquaculture products.		**Commonwealth Secretariat**: Participate in the Blue Charter "Sustainable Aquaculture" Action Group.		
4.1.6. Create a management and regulation framework based on the Ecosystem Approach to Aquaculture.	• Develop a draft aquaculture policy taking into account the EEA. • Develop umbrella legislation (e.g. Aquaculture Regulations) to deal specifically with aquaculture development.	FAO; Commonwealth Secretariat.	**Central Government:** Political will to support the necessary reforms through DAF. **FAO:** Technical assistance to support growth of the sector. **Commonwealth Secretariat**: Participate in the Blue Charter "Sustainable Aquaculture" Action Group.	• In the long term this will be necessary to guide the future development of the sector. • Can be undertaken as part of an overall programme of legislative/policy reform relating to the marine environment.	

Result Area 4.2: Ensuring Local Participation and Benefit Through Capacity Building

Context:

- The lack of indigenous skilled workers creates a risk to developing new and expanding existing sectors. To be sustainable the aquaculture sector will require "critical mass" of skilled workers. This can result in local synergies, sharing of resources and enhanced capacity to add value.
- With the potential to grow the sector across the eastern Caribbean region there will be a pressing need for training and capacity building opportunities.
- Capacity building, effective international networking and collaboration, skills transfer from foreign academic organisations and technology providers, in addition to regional co-operation is crucial due to limited in-country resources.
- HLSCC provides a unique local opportunity to build future capacity to support the aquaculture sector, both at the national and regional level.

Desired Outcomes:

- Local facilities to build capacity to support the industry in the long run.
- A win-win relationship between the private sector and training providers that allows on the job-training and the direct input of the industry into course design and delivery.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
4.2.1. Develop links between Caribbean Sustainable Fisheries and the HLSCC to		HLSCC; Overseas education		• Only to be considered if the sector develops	

develop aquaculture training courses.	• Identify the specific areas of focus for the development of vocational courses – HLSCC in conjunction with industry operators. • Identify potential oversea partner institutions with which HLSCC can partner to develop and deliver aquaculture training. • Develop a curriculum for aquaculture training course. • Recruit qualified lecturers of a F/T or P/T basis. • Deliver pilot training courses and evaluate success..	institutions; UK Government; Private sector.	**HLSCC:** To take the lead in developing a training programme for aquaculture development. **Private sector:** Work with HLSCC to identify key capacity needs and training requirements for Virgin Islands. **Overseas institutions**: Partner to support capacity development in the early stages. **UK Government**: Technical assistance and knowledge transfer through UK agencies.	into full scale production.	

Result Area 4.3: Explore the opportunities for developing a coral farming system to support rehabilitation of degraded coral reefs

Context:	Desired Outcomes:
• There is a global trade in live coral fragments, as well as what is termed live rock and live sand for the aquarium trade. • It is estimated that approximately 11-12 million pieces of live coral are traded annually and the live rock trade is worth $50 million annually. • Most of this trade is in wild collected specimens. However, there is significant potential for aquaculture of these corals mainly through fragmentation. • Coral farming is also a viable method for restoring degraded reefs.	• Small scale, community-based coral farms that can both create an income but also serve to assist with restoration of local coral reefs. • Diversification of the aquaculture sector. • Ability to develop community-based projects with local NGOs and HLSCC.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
4.3.1. Undertake an assessment of overseas experience and best practice with coral farming and coral rehabilitation.	• Identify relevant overseas coral farming projects that could be a model for development in Virgin Islands. • Develop links with overseas projects. • Undertake an assessment to determine the critical success factors and the optimal conditions for coral culture. • Based on this assessment, determine the optimal model for coral farming/culture in Virgin Islands.	International NGOs; FAO; UWI and overseas research institutes; Commonwealth Secretariat.	**International institutions and NGOs**: Provide technical support from overseas experience and research into local coral biology. **Commonwealth Secretariat**: Participate in the Blue Charter "Coral Reef Protection & Restoration" Action Group.	• Consider the balance between commercialisation and application for conservation and reef restoration. • Identify technical partners with expertise in this area.	

4.3.2. Develop, in conjunction with HLSCC, a pilot coral farming project to determine feasibility and techniques appropriate to Virgin Islands conditions.	• Develop a partnership with an overseas institution or organisation engaged in coral farming. • Develop a project methodology that reflects the unique situation of the Virgin Islands and its environment. • Identify a suitable site to locate the pilot project. • Secure project sponsorship/donor funding to support the development of a pilot project. • Fund and construct the required infrastructure to support a pilot project. • Recruit local partners (e.g. NGOs) and community groups to partner in the project. • Initiative pilot project.	Local NGOs; International NGOs HLSCC; FAO; UWI and overseas research institutes; Private sector; Commonwealth Secretariat.	**HLSCC:** Support development of coral farming by hosting a pilot farm which can be used for research and teaching as well. **Local NGOs:** Oversea and lead community-based coral farming and restoration projects. **International institutions and NGOs**: Provide technical support from overseas experience and research into local coral biology. **Commonwealth Secretariat**: Participate in the Blue Charter "Coral Reef Protection & Restoration" Action Group. **Private sector:** Potential source of sponsorship funding and technical capacity.	• Can existing wet-lab facilities at HLSCC be utilised?.	
4.3.3. Review the current legal framework relating to the collection of live coral from Virgin Islands waters to enable the collection of live coral fragments to support on-shore coral growth.	• Review the draft act to allow exceptions for live coral collection and culture.	FAO; Commonwealth Secretariat.	**DAF:** Review Fisheries Act to provide for activities needed to support coral farming in a sustainable manner. **Commonwealth Secretariat**: Participate in the Blue Charter "Coral Reef Protection & Restoration" Action Group.	• Necessary to ensure that coral can be legally collected and transplanted. • Ensure that monitoring is undertaken to avoid illegal coral harvesting.	

MARINE INFORMATION & SCIENCE NEEDS

Result Area 5.1: Improve the knowledge base to support evidence-based decision-making

Context:

- Critical to the success of the blue economy is gathering existing knowledge about the current conditions of the marine environment and human interactions with the environment.
- Mapping marine resources and uses by consolidating existing data allows planners and decision-makers to consider the cumulative effect of maritime industries on key features that may be particularly sensitive.
- In so doing, it provides a spatial understanding of conflicts and potential compatibilities of operations with marine ecosystems and their values – the risks and opportunities of undertaking a given activity in a given location.
- Virgin Islands already has a good base for such data but this requires updating and augmenting.
- A key focus for Virgin Islands will be to identify possible sources of data to fill the current knowledge gaps. In addition to identifying and accessing existing data, there will inevitably be a need to fill identified data gaps for Virgin Islands through research and the collection of new scientific data.
- Defining future research and data requirements for Virgin Islands' maritime space to ensure that all future scientific research both supports capacity development of local scientists and ensures that the results of any research benefit the two countries concerned should be a key outcome of this project.

Desired Outcomes:

- A full inventory and meta-database developed for existing data and information pertinent to the waters of Virgin Islands.
- Authoritative GIS data layers representing human uses and key marine environment layers.
- Develop a network of researchers and institutions with research interests in Virgin Islands who may have data that can be shared.
- Identification of future data requirements to support decision making and management of Virgin Islands' maritime space.
- Definition of a prioritised strategy for future marine research and data acquisition for Virgin Islands' maritime space.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
5.1.1. Update the existing coastal habitat atlas with information collected through the current hydrographic survey programme.	• Collect & map information about ecological, environmental & oceanographic conditions • Collect & map information about human activities • Identify potential conflicts & compatibilities.	NOC; CEFAS; Darwin Plus Programme; UWI; HLSCC.	**Overseas research institutions:** Provide technical support, capacity development and equipment for mapping. **UWI:** Capacity development. **HLSCC:** Develop long term technical capacity to support research in the future: **Darwin Plus:** Potential funding for future work.	• This will require GIS-trained technicians to undertake the data collation and mapping activities.	

5.1.3. Develop a marine data capture/procurement strategy to define future research and data collection needs.	• Combine the outputs from Activities 5.1.1 and 5.1.2 to determine the critical data needs and gaps that will need to be filled over time. • Identify possible sources or mechanisms through which to procure the data • Develop a strategy that identifies, as a minimum, key data needs, where the data exists or can be obtained from, the mechanism for obtaining/procuring the data	NOC; CEFAS; Darwin Plus Programme; UNDP; Commonwealth Secretariat	**Overseas research institutions:** Provision of technical support, capacity development and equipment for mapping. **Darwin Plus:** Potential funding for future work. **UNDP:** Technical support and capacity to develop the strategy. **Commonwealth Secretariat**: Participate in the Blue Charter "Ocean Observation" Action Group	• This is necessary to ensure the limited resources that are available are targeted at the highest priority areas.	
5.1.3. Undertake an audit of existing (known) research data and information that is not currently publicly available.	• Engage with key agencies, researchers and environmental organisations with a history of research and marine data collection in Virgin Islands. • Prepare an inventory of known data sets/information that is available in Virgin Islands. • Assess the feasibility of digitising key marine datasets and making them publicly available. • Identify possible researchers (e.g. MSc students) who may undertake data analysis and digitisation.	NOC; CEFAS; Darwin Plus Programme; UWI; HLSCC.	**Overseas research institutions:** Provision of technical support, capacity development and equipment for mapping. **UWI:** Capacity development: **HLSCC:** Develop long term technical capacity to support research in the future. **Darwin Plus:** Potential funding for future work.	• This would be an ideal project to engage students in so a joint project with UWI or a UK institution might be a possibility.	

Result Area 5.2: Rebuild the institutional framework for scientific research to underpin the development of priority sectors

Context:

- Virgin Islands has limited indigenous marine scientific research capabilities and relies heavily on UK research institutions.
- Most of the current research is undertaken by DAF and the National Parks Trust of the Virgin Islands, which have limited capacity, both in terms of human capacity and research platforms.
- Virgin Islands does host impressive research facilities at the HLSCC but these have not been operationalised.
- There is, therefore, a need to rebuild the capacity of the HLSCC and to create stronger linkages between government, HLSCC and overseas research partners.

Desired Outcomes:

- Capacity building of scientific staff to enable more in-country processing of marine data that can be integrated into the overall knowledge base for Virgin Islands.
- HLSCC has the funds and staff to support research both in Virgin Islands and throughout the OECS.
- Strategic partnerships established with overseas research institutions such as UWI, CEFAS and NOC.
- Local civil society groups engaged in marine environmental research are seen as key partners in the national research network.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type

5.2.1. Undertake an assessment to determine what priority capacity gaps exist in Virgin Islands and the priority capacity needs to support growth of the blue economy.	• Assess the capacity need to deliver the marine research strategy and marine management needs in Virgin Islands. • Assess existing capacity against the capacity requirements. • Identify the capacity gaps and prioritise capacity building needs. • Define and review options for filling the capacity gaps (Capacity Building Plan).	NOC; CEFAS; UWI; HLSCC.	**Overseas research institutions:** Provision of technical support to determine priority capacity needs. **UWI:** Provision of technical support to determine priority capacity needs. **HLSCC:** Participate in the capacity needs analysis.	• This assessment should be realistic and identify achievable capacity caps rather than focus on identifying all the research gaps and needs. • The focus should be on improving the understanding of the marine environment and the resources therein.	
5.2.2. Develop the marine scientific research capacity of HLSCC to become both a national centre and a regional centre of excellence for marine scientific research and training.	• Undertake an assessment of the technical/research needs to support development of the blue economy in Virgin Islands and throughout the OECS. • Identify key resource needs (human, financial and equipment). • Develop formal partnerships with regional and international academic and research institutions to enhance the ability to undertake research and build capacity at the national level. • Develop formal partnerships with both the private sector and civil society to support research in Virgin Islands.	NOC; CEFAS; UWI; HLSCC; OECS.	**National government:** Political commitment to support the development of HLSCC and to secure resources to enable this. **Overseas research institutions:** Provision of technical support to develop and maintain capacity. **UWI:** Provision of technical support to develop capacity. **HLSCC:** Seek necessary resources and champion the need to develop the centre as a regional centre of excellence. **OECS:** Promote HLSCC as the regional centre of excellence.	• This is a long term need and will need to be developed over time in order to secure resources and ensure the long term sustainability of the facility. • This is best achieved by developing strategic partnerships with regional and international institutions who can support capacity development and complete the local capacity.	

NEW & EMERGING OPPORTUNITIES

Result Area 6.1: Launch the UNDP Blue Lab in BVI

Context:

- UNDP is keen and ready to assist Caribbean SIDS to evaluate and develop blue economy focussed development opportunities.
- To assist in this transition, the Barbados and the OECS sub regional office has been selected to host the UNDP Blue Economy Accelerator Laboratory with a specific focus on the blue economy and sustainable management of ocean degradation (Blue Lab).
- The primary objective of the Blue Lab is to promote out-of-the-box thinking and experimentation to support Small Island Developing States (SIDS), with a focus on Caribbean countries, in the sustainable development of its ocean-based economic sectors.
- To date the Blue Lab has identified several key areas to support including:
  - Renewable energy and fisheries: e.g. solar panels for small cooling devices and electrical engines;
  - Bio-technology and waste management: e.g. reuse of seaweed for fertilizer, bioenergy or cosmetics or fish waste for clothing or fertilizer;
  - Tourism: e.g. blue seal for Blue certified business; and
  - Innovative financing and Blue Social Impact Bonds.
- UNDP is keen and ready to assist BVI to evaluate and develop blue economy focussed development opportunities. This includes developing pilots through the Blue Lab to be scaled up to national-level activities.

Desired Outcomes:

- Identify possible solutions to critical challenges facing BVI and the development of the blue economy.
- Identify two or three pilot projects that can be supported by the UNDP Blue Lab.
- Mobiles third party resources to further develop project ideas.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
6.1.1. Develop a Blue Badge for blue certified businesses framework for the BVI	• Undertake a detailed assessment of the governments Green Pledge initiative	National Government; Tourism and hospitality	**Government:** Implementing partner **Private Sector**: Change agents and key stakeholder/collaborator	• Identify existing synergies, lessons learnt	

	• Identify hospitality businesses and establish an enabling environment needed to encourage sustainable tourism • Actively promote and encourage the distribution of fresh local fish catch in the hospitality industry • Encourage and incorporate divers and tour operators into a responsible BVI tourism brand	sector; Fisherfolk tourism and hospitality stakeholders			
6.1.2 Develop a mangrove nursery in collaboration with the H.L.S.C.C	• Conduct study on the restoration of Paraquita Bay • Actively support research on climate change resilience and encourage supplementary research in monitoring of flooding and water quality at the H.L.S.C.C • Develop training programs for emerging blue economy sectors	HLSCC.	**HLSCC**: Implementing partner	• To create a database • Research evidence to inform policy	 
6.1.3 Promote the use of solar powered cooling devices for fisherfolk	• Actively engage with fisherfolk and receive feedback on pre and post-harvest fish loss • Develop and actively promote solar powered cooling devices to be used in the BVI fisheries sector • Collect pre harvest and post-harvest data of fish stock	National Government; Fisherfolk.	**Government:** Implementing partner **Private sector:** Key stakeholder/collaborator	• Utilize alternative sources of energy (renewable energy) for more efficient and effective harvesting	

Result Area 6.2: Develop a 'National Blue Economy Investment Strategy'

Context:

- A broad range of new and emerging uses of existing marine resources can be identified that could contribute to the development of the 'blue economy'.
- Such resources present such a significant opportunity that the Government should proactively promote.
- At this stage no Government agency is tasked with exploring such opportunities for development and the government does not have a business development strategy around marine resources and activities.
- Proactive promotion by the Government of BVI is necessary because the level of investment risk is probably well beyond the domestic capital market.
- Foreign investment will no doubt form an important component of the realisation of new sources of value.

Desired Outcomes:

- Identify and develop at least one new sector that can directly contribute to the government's development and sustainability objectives.

Recommended Activities

Activity	Key elements or steps for implementation	Potential partners	Roles	Issues to Address	Output Type
6.2.1. Develop a 'National Blue Economy Investment Strategy'	• Consider the establishment of a high level task force or Commission. • Identify sectors and types of activities that BVI wishes to develop. • Develop the enabling environment needed to encourage investment in such activities. • Actively promote BVI as a destination for the development of new maritime sectors.	CDB; UNDP; Carbon War Room; IRENA; Commonwealth Secretariat.	**National Government**: Lead the initiative directly through the Office of the Premier. **Development Partners**: Provide technical assistance on specific development opportunities. **Commonwealth Secretariat**: Participation in the Commonwealth Blue Charter could provide links to other, like minded countries to facilitate transfer of knowledge on key development opportunities.	• This function could be undertaken as part of a broader Coordination Committee established to coordinate ocean governance and implementation of the blue economy in BVI.	
6.2.2. Develop 'pilot projects' to assess the feasibility or the highest priority development opportunities.	• Identify one or two candidate areas to develop further into pilot projects. • Undertake desk-top studies of overseas experience to determine the enabling conditions and critical success factors needed for sector development. • Develop project proposals to attract development partners and funding. • Undertake pilot projects, review results and determine future development potential.	CDB; UNDP; Carbon War Room; IRENA; Commonwealth Secretariat.	**Development Partners**: Could provide technical assistance on specific development opportunities. **Commonwealth Secretariat**: Participation in the Commonwealth Blue Charter could provide links to other, like minded countries to facilitate transfer of knowledge on key development opportunities.	• This will need a strong technical partner as well as financial backing. It is unlikely that the government can pursue pilot projects on its own • Hence, creating a strong enabling environment will be critical to demonstrate the government's commitment to a blue economy transformation..