

Commonwealth Marine Economies Programme

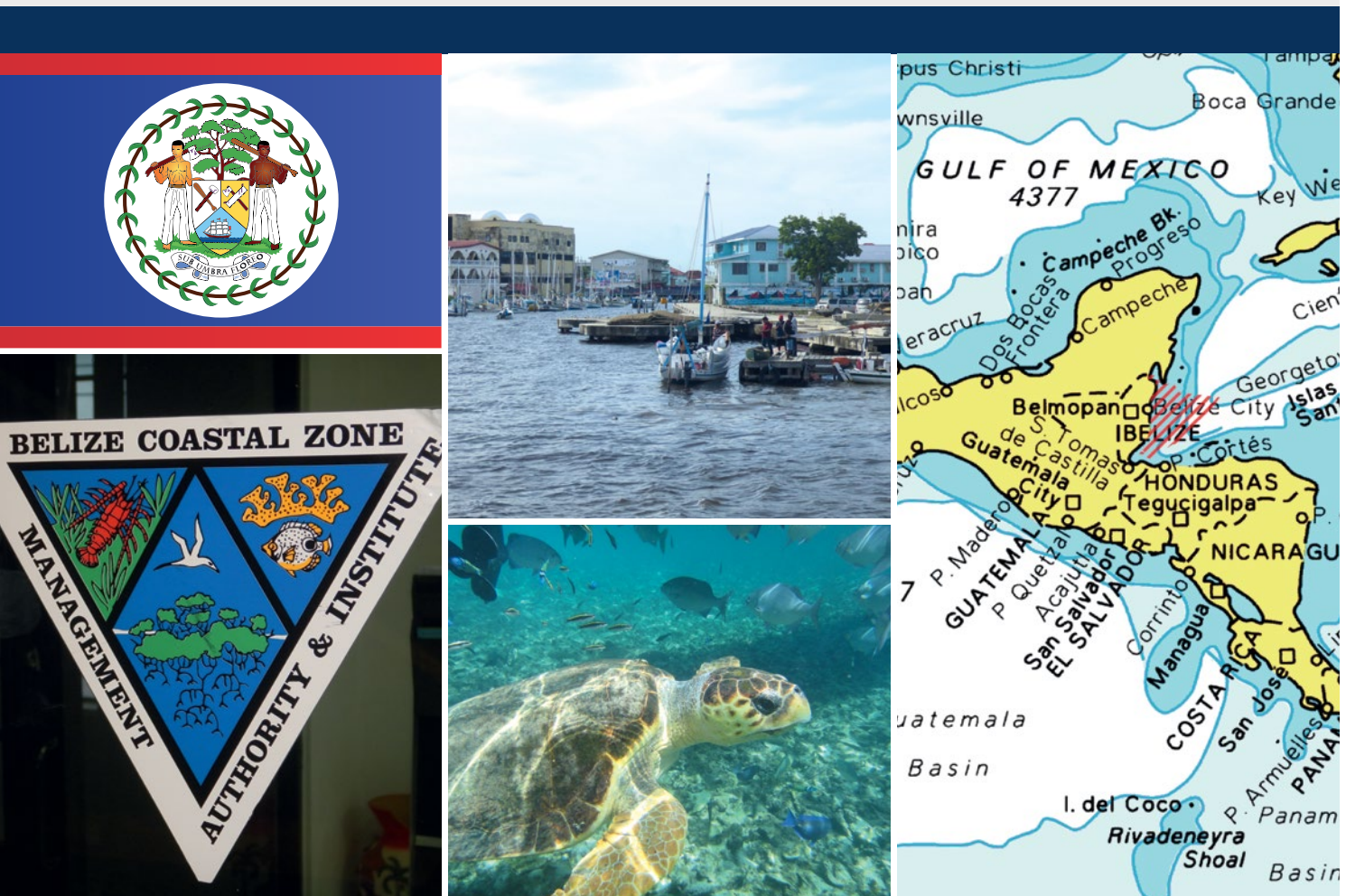


Funded by
UK Government

Enabling safe and sustainable marine economies
across Commonwealth Small Island Developing States

Belize

Country review



Centre for Environment
Fisheries & Aquaculture
Science



UK Hydrographic
Office



National
Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL



Foreign &
Commonwealth
Office



The CME Programme is designed to support sustainable, growing marine economies that create jobs, drive national economic growth, reduce poverty, ensure food security and build resilience against forces of nature. Funded by the UK Government and delivered by a partnership of world-leading marine organisations from the UK, the programme aims to ensure marine resources in Commonwealth SIDS are better understood and managed.

This review highlights opportunities where the UK can apply and leverage its world-leading expertise to make significant, cost-effective and lasting positive impacts on each country.

Relevant strategic plans

International – Belize is subject to international requirements and obligations as listed under the UN Convention on the Law Of the Sea; Safety of Life At Sea; Conservation of Biological Diversity (Aichi Targets); the SIDS Accelerated Modalities of Action (SAMOA) Pathway; the 2030 Agenda for Sustainable Development (including Sustainable Development Goals; 2 – Zero hunger; 9 – Industry, innovation and infrastructure; 13 – Climate action; 14 – Life below water); the Ramsar Convention on Wetlands of International Importance; the International Coral Reef Initiative; the World Heritage Convention; and the Regional Seas Convention.

Regional – Relevant regional mechanisms and bodies within the Caribbean include the Caribbean Regional Fisheries Mechanism; Caribbean Community Common Fisheries Policy; Caribbean Large Marine Ecosystem Programme; and the Caribbean Regional Oceanscape Project.

National – National strategies for enabling the safe and sustainable development of Belize marine environments include the Belize Integrated Coastal Zone Management Plan (2016) and the Belize Marine Conservation and Climate Adaptation Project (MCCAP).

Challenges faced

Management of coastal and marine environments – Although detailed coastal zone management strategies are in place, the lack of up-to-date, modern data has a number of impacts on the successful management of Belize's marine estate. For example, Belize wish to develop their deep-water fisheries, but lack information about the seabed habitats and bathymetry in these areas to define management strategies. This lack of data extends to data to support future planning and adaptation activities to climate change e.g. coastal areas vulnerable to inundation or the presence of ecosystems that may support coastal defence.



Safety and Security – Very little of Belize’s seabed has been surveyed to modern standards. This is having an impact on the wider marine economy by hindering the shipping of key imports and exports. It is also restricting tourist access by cruise ships. To enable and encourage safe navigation for ships in Belize’s waters, official navigational charts need to be updated.

Hydrographic coordination and data collection – As the lead authority for SOLAS within Belize, Belize Port Authority are fully aware of their hydrographic responsibilities, and of the many other applications such data may support, but have very limited capacity to undertake seabed mapping work or obtain data from other parties. There is also strong potential for improving hydrographic governance, so that requirements and data are appropriately shared to derive the maximum value and benefit.

Sustainable use of marine resources – The Belize government recognises the need for an improved environment and natural resource management scheme, and its priorities identified to address these challenges include: strengthening environmental institutions, governance and regulation; valuing the environmental contribution to economic growth, and making the protection and sustainable use of natural resources an integral part of the development strategy; and improving the country’s economic and natural resource resilience to the effects of climate change and natural disasters.

Protection and preservation of the marine environment – Belize faces several environmental problems that adversely affect the poor and economic growth prospects. These include: (i) unsustainable management of solid waste and liquid effluents; (ii) unregulated development of urban and coastal areas and the rising pollution from cruise ship tourism leading to the degradation of mangroves and coral reefs; (iii) overfishing, resulting in recent declines in catch levels and species varieties; (iv) mitigation of environmental risks from oil exploration in environmentally sensitive areas. The short-term impacts of natural disasters and the long-term effects of climate change are expected to undermine the resilience of the natural ecosystems and human vulnerability, increasing the urgency of tackling these challenges.

Climate change impact assessment – Marine environments are particularly vulnerable to the impacts of climate change, most notably through factors such as ocean acidification, sea-level rise and invasive species. Understanding, quantifying and monitoring those factors and their effects on local marine ecosystems is essential for developing appropriate risk mitigation and coastal planning strategies.

Natural and environmental disasters – Belize is highly vulnerable to natural hazards and climate change, with low lying coastal areas being especially vulnerable to intense and frequent tropical storms and hurricanes, flood damage, and rising sea levels. Improved protection of coastal infrastructure and marine environments from the impact of these hazards, coupled with building resilience into coastal systems are important mechanisms for mitigating these risks.

Training and capacity building – Improved awareness, skills and knowledge are required across marine sectors to enable Belize to implement integrated ocean governance. There is also a need to increase both national and regional cooperation through the sharing of assets and knowledge in order to help reduce costs and improve decision makers’ understanding.

Belize – Activities and benefits

By providing data, training, advice and support, the CME Programme is designed to help address economic and environmental needs, leaving a lasting legacy of self-sufficiency in marine management.

Programme activities are split across six core themes, though potential action is not identified in every category in all Small Island Developing States.

Priority projects identified for Belize include:

Marine data collection for environmental resilience, and safe and efficient trade (core output 1)

Activity – High quality hydrographic data collection with provision for later augmentation for habitat mapping, leading to new modern editions of navigational charts, improved compliance with international obligations and data supplied to local states to inform onward management of the marine environment. Areas of highest priority are the key port approaches, the inner channel (inside barrier reef), and the Cays and inshore waters between Belize City and the Mexican border.

Benefits – Improving overall safety of navigation – reducing risk to lives and the environment. Enabling cargo ships to reduce their underkeel clearance with confidence, therefore reducing costs and thereby increasing profit. Helping encourage cruise ships to visit.

Activity – Integrated assessment of the impact of on-going and future land-use changes on water quality and the subsequent trade-offs for socioeconomic health and economic potential of the marine component of the Belizean coastal zone.

Benefits – Supporting coastal zone management in Belize by determining the trade-offs of land-use change for the sensitive marine habitats upon which a number of key marine-based economies (including fisheries and tourism) are dependent. This information will facilitate evidence-based holistic decision making in the management of valuable and sensitive resources.

Monitoring and risk assessment to increase climate change resilience (core output 2)

Activity – Regional Climate Change Report Card.

Benefit – To provide climate change information to support effective climate change adaptation.

Activity – Installation of Ocean Acidification sensor equipment and carbonate chemistry samples, and provide training, support and service.

Benefits – A state-of-the-art monitoring system will be established that provides real-time biogeochemical data to scientists and other stakeholders nationally and internationally, and directly supports UN SDG 14.3 ‘Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all level’ through indicator 14.3.1 ‘Average marine acidity (pH) measured at agreed suite of representative sampling stations’.

Activity – Determining impacts of Ocean Acidification on commercial fish species.

Benefits – Advice to managers on long-term sustainable management of marine resources in the context of ocean acidification.

Activity – Installation of a solar-powered tide gauge equipped with dual radar measurement technology, data logging equipment and satellite-linked data transmission system at the Port of Belize, plus the survey and provision of design advice for a second tide gauge installation on an offshore reef at Half Moon Caye. Training will be provided in tide gauge maintenance as well as in the use of levelling equipment to determine long-term sea-level trends and establish a national datum.

Benefits – Facilitates the production of accurate tidal forecasts that reduce hazards to shipping, monitor the impacts of sea-level change and coastal hazards such as storm surges, and contribute to the regional tsunami warning system.

Science infrastructure development, training and knowledge exchange (core output 6)

Activity – Provision of modern seabed mapping equipment to the Government of Belize.

Benefits – In line with those described under Output 1, and in addition will allow for these benefits to be maintained into the future and additional mapping to be undertaken in areas of secondary priority.

Activity – Work with key maritime personnel to develop local hydrographic governance and create a National Hydrographic Committee or similar.

Benefits – Key elements of governance in place in line with IHO Phase 1 compliance, reducing potential barriers to international trade.

Activity – Seabed mapping data handover workshop.

Benefits – Ability of local personnel to understand and utilise acquired seabed mapping data in country.

Activity – Training on sea-level data quality control, analysis and applications for the tsunami and other coastal hazards early warning system for the Caribbean and adjacent regions (CARIBE-EWS).

Benefits – Provision and training on the TASK (Tidal Analysis Software Kit) that facilitates quality control, harmonic analysis, tidal prediction, data manipulation and the calculation of daily and monthly means. Development of stronger relationships with regional sea-level station professionals and tsunami warning national contacts, and with the Intergovernmental Oceanographic Commission.

Programme outputs

If all of the potential activities were to be delivered, the CME Programme, working with key departments in Belize, would result in the following development of marine capacity by the end of the scheduled Programme.

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Limited, or no, characterisation of physical parameters in marine and maritime sectors.	The physical parameters of the key marine and maritime environments and sectors are mapped and quantified.	The physical parameters are analysed in terms of the biological, sociological and economic context, resulting in a more in depth appreciation of their vulnerabilities and opportunities/limitations for sustainable use.	Defensible policy is produced for the marine and maritime sectors that details consideration for the sustainable development of the ocean economy.	Full competency in undertaking the previous phases is developed and sustained across multiple sectors, leading to the safe and sustainable development of marine and maritime economies.

Output 1 – Marine data collection for environmental resilience and safe and efficient trade.

Output 2 – Monitoring and risk assessment to increase climate change resilience.

Output 3 – Decreasing pollution and improving human health.

Output 4 – Sustainable fisheries development.

Output 5 – Natural capital assessment.

Output 6 – Infrastructure development, training and knowledge exchange.

Expected impact

Through delivering these activities, outputs and benefits the CME Programme would help to facilitate:

Output 1 – Adherence to the UN convention on the Law of the Sea and Safety of Life at Sea; Reduction in the cost of imports and increase in the profitability of exports; Reduction in the risk of maritime accidents and damage to the environment.

Output 2 – Identification of communities and environments vulnerable to the impacts of climate change; Integration with regional and global hazard monitoring networks; Informed coastal management and planning decisions.

Output 3 – Characterisation of the dispersion of sewage and industrial outfalls and their effects on water quality; Identification and prioritisation of pollution control mechanisms; Improved health of humans and marine ecosystems.

Output 4 – Reduced pressure on existing fish stocks and marine environments; Development of new opportunities for aquaculture diversification; Enhanced economic potential of existing products; Access to insurance services following climatic events.

Output 5 – Enhanced awareness of the social and economic value of marine ecosystems; Quantification of the cost/benefit ratio of existing policy options, supporting decision making.

Output 6 – Confidence and ability to make sound independent decisions regarding the development of marine environments; Access to state-of-the-art marine equipment, models and techniques; Development of national and international networks.

Strategic outcomes

By better understanding and managing the marine resource potential within Belize the CME Programme will help create jobs, drive national economic growth and reduce poverty through:

Prosperity – Diversifying revenue potential by opening up new economic opportunities.

Sustainability – Ensuring all marine and maritime activities are environmentally safe and sustainable.

Security – Making infrastructure and human capital resilient to natural disasters and climate change.

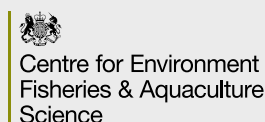
Legacy – Building the capacity of national authorities to plan and optimise their marine spaces.

Commonwealth Marine Economies Programme

The CME Programme is being delivered on behalf of the UK Government by a partnership of world-leading marine expertise.



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