

# Commonwealth Marine Economies Programme

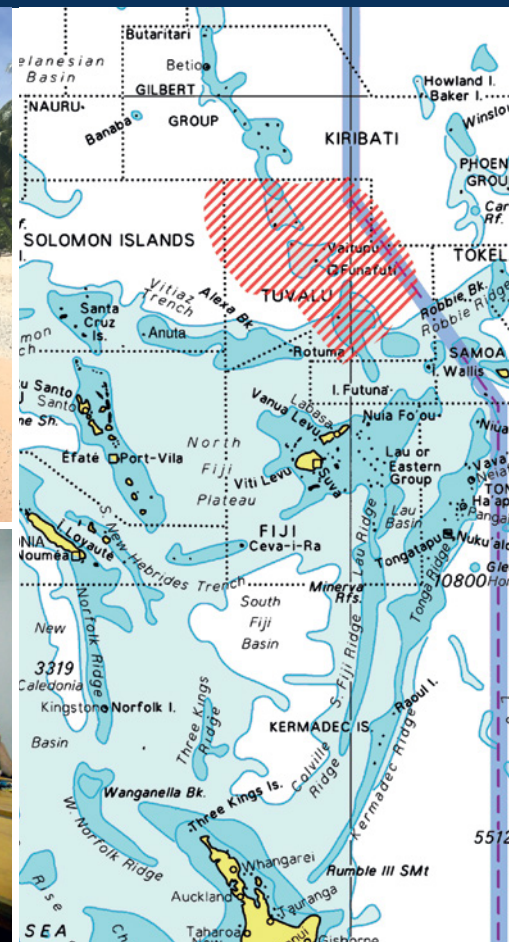
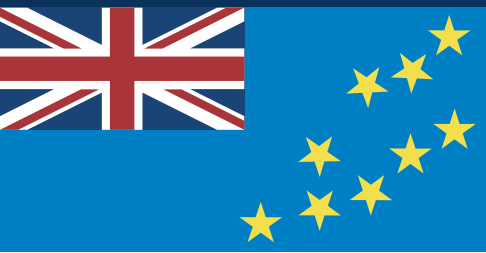


Funded by  
UK Government

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

## Tuvalu

Country review



Centre for Environment  
Fisheries & Aquaculture  
Science



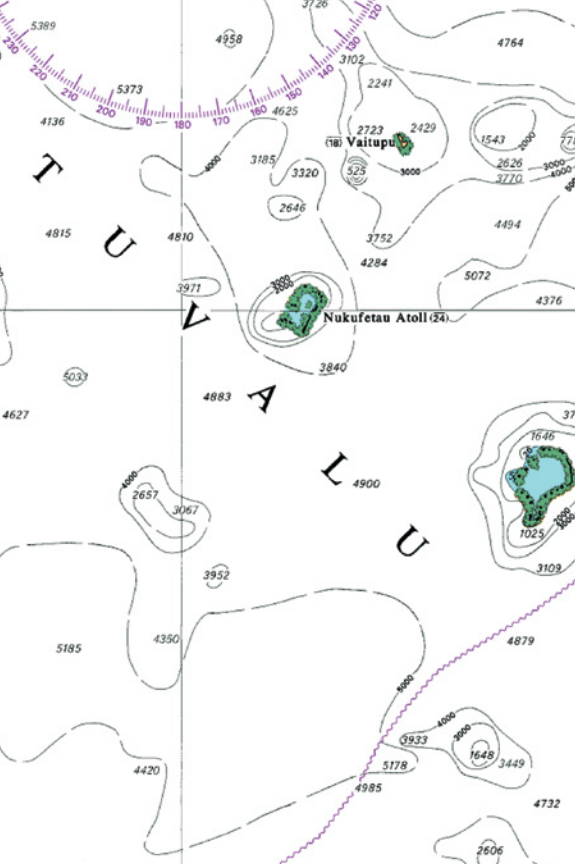
UK Hydrographic  
Office



National  
Oceanography Centre  
NATURAL ENVIRONMENT RESEARCH COUNCIL



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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.

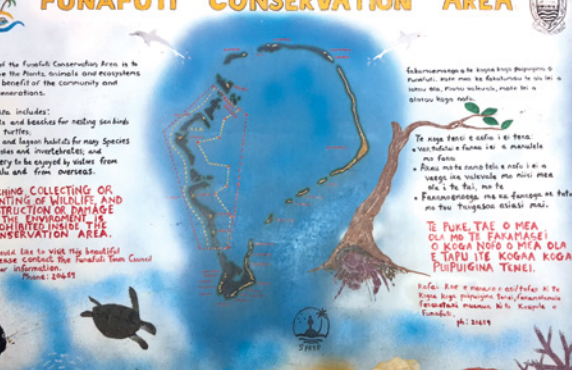
## Relevant strategic plans

**International** – Tuvalu 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; and 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).

**Regional** – The two main regional organisations delivering geospatial outputs that operate in the Pacific are the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP), both of which are active in Tuvalu. Through its Economic Development Division (EDD), SPC provides assistance to Tuvalu’s Maritime Transport and Search and Rescue (SAR) sector, primarily comprising regulatory and institutional advice. The SPC Geoscience Division has undertaken numerous geophysical and surveying activities for Tuvalu and is an implementing partner with Land Information NZ (LINZ) in the Pacific Regional Navigational Initiative (PRNI) that has safety of navigation improvement outcomes.

**National** – The Marine and Port Services Department, who fall under the Ministry of Communications and Transport, are both the government maritime administration and port operator.





## Challenges faced

### Management of coastal and marine environments –

The lack of up-to-date, modern data has a number of impacts on the successful management of Tuvalu's marine estate and coastal protection. In particular, there is a paucity of fisheries data and advice, including data collection, stock assessment and policy development for fisheries management. In the aquaculture sector, there was a requirement for advice on Milkfish production. For pollution mitigation capacity development, there were major gaps in the availability of core skills and knowledge areas (monitoring and modelling). There was also institutional and governance issues with uncertainty over roles and responsibilities, and little or no links between the responsible bodies. For biodiversity, there was a requirement for capacity development in implementation of international agreements and local strategies to meet existing commitments.

**Data collection capabilities** – Tuvalu does not possess indigenous capabilities to collect marine science or mapping data without outside assistance. It does have capabilities to manage and utilise such data once collected.

**Climate change impact assessment** – The UN lists Tuvalu as one of a number of island groups most likely to disappear beneath the sea in the 21st century because of global warming. Its marine environments are also vulnerable to the impacts of climate change through factors such as ocean acidification 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.

**Protection and preservation of the marine environment** – Maintaining the health and biodiversity of marine ecosystems within Tuvalu is key for sustainable development. In particular, the protection and preservation of coral reefs is of critical importance from both an environmental perspective and for their role in the tourism sector. Characterisation of the impacts of marine pollution on the health of the marine ecosystems and water quality is needed to help improve wastewater management practices, and to identify regions most at risk.

**Natural and environmental disasters** – Tuvalu is at risk from tropical cyclones, with Cyclone Pam displacing 45% of the country's population and resulting in USD \$92m of damage in 2015. The storm caused significant damage to agriculture and infrastructure, and some islands were completely flooded. Marine infrastructure and environments need to be better protected from the impact of storms and other natural hazards, and resilience built into coastal systems as a mechanism for mitigating these risks.

**Training and capacity building** – Improved awareness, skills and knowledge are required across marine sectors to enable Tuvalu to implement integrated ocean governance. There is also an opportunity 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.

## Tuvalu – 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 Tuvalu include:

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

**Activity** – High quality hydrographic data collection, alongside use of satellite derived bathymetry in certain areas, 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 include the key entrances and anchorages of the Funafuti Lagoon.

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

**Activity** – Geodetic surveys and tide gauge deployments. Converting all of the old island grids to WGS 84 and therefore all historical data held on those grid coordinate reference systems. This requires geodetic survey activity to establish local transformations for each island. Also establish tidal observations on each island to establish new vertical datums.

**Benefits** – This activity will allow all existing geospatial data held by the Tuvalu Government to be properly georeferenced using modern coordinate reference systems, and therefore incorporated with modern data collected. This will enable the full value of historic data to be realised and provide the geodetic foundations for all future data collection. Sea-level information, and the derivation of vertical datums is a key element of both future data collection activities and the modelling and engineering required to enable coastal protection activities to reduce impacts of sea-level rise. Improved information regarding vertical datums will also improve navigational

products in the area, which will either improve safety or increase efficiency.

### Sustainable fisheries development (core output 4)

**Activity** – Fisheries management activities to include supporting relevant regional agencies in data collection, stock assessment and support in policy development. In the aquaculture sector there was a requirement for advice on Milkfish production.

**Benefits** – Fisheries practices developed in a sustainable manner for both capture fisheries and aquaculture.

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

**Activity** – Work with key maritime personnel to develop local hydrographic governance.

**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 staff to understand and utilise acquired seabed mapping data in country.

**Activity** – Pollution management capacity development including key knowledge areas of monitoring and modelling.

**Benefits** – Enable local staff to effectively and efficiently monitor the coastal environment.

**Activity** – Capacity development to understand and implementation of international biodiversity commitments.

**Benefits** – Meet international commitments (e.g. Aichi Targets).

## Programme outputs

If all of the potential activities were to be delivered, the CME Programme, working with key departments in Tuvalu, 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 through delivery of a Pacific Climate Change Report Card.

**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 through collaborations with Pacific partners.

**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 Tuvalu 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.

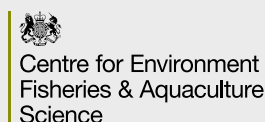
**Legacy** – Building the capacity of national authorities to plan and optimise their marine spaces.

## 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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