

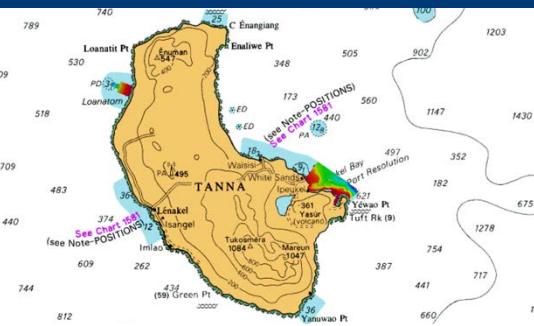
# Commonwealth Marine Economies Programme



Funded by  
UK Government

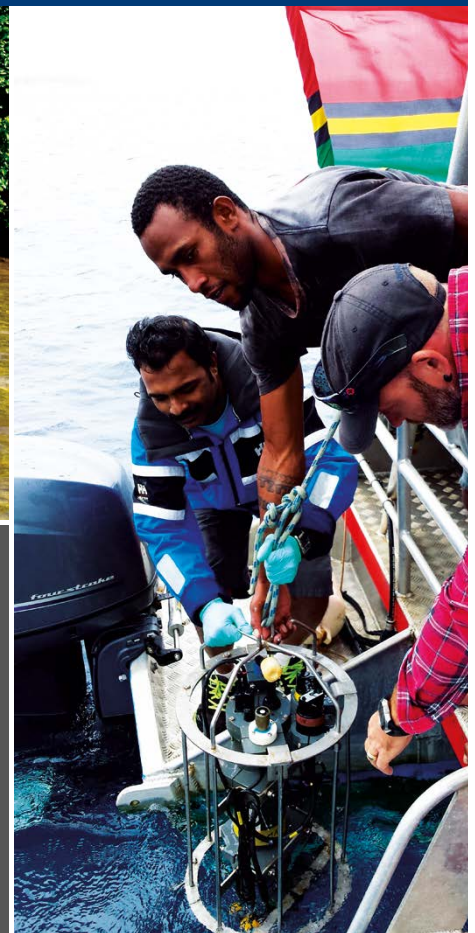
Enabling Safe and Sustainable Marine Economies  
across Commonwealth Small Island Developing States

## Vanuatu case study



*“The Blue Economy is of vital importance for the future prosperity of Vanuatu.”*

– Yvon Basil, Acting Director General, Ministry of Foreign Affairs, International Cooperation and External Trade, November 2016



Centre for Environment  
Fisheries & Aquaculture  
Science



United Kingdom  
Hydrographic Office



National  
Oceanography Centre  
NATURAL ENVIRONMENT RESEARCH COUNCIL

## Priority projects

- An assessment of water quality and the impact of pollution in Vanuatu that will enable the government to preserve and develop its fisheries, aquaculture and tourist industries
- To facilitate trade and infrastructure development in a sustainable manner by significantly improving hydrographic data and maritime navigation charts



## The opportunity

*The marine area under the jurisdiction of Vanuatu is over 50 times its land area, offering huge potential for creating long term employment, generating incomes and contributing to overall social and economic development when exploited in a sustainable manner. However, the social and economic potential of this resource remains underutilised.*

## Key areas to benefit from the CME Programme

**Tourism** – is a major driver of Vanuatu's economic growth and a mainstay of its economy. It accounted for around 40% of national GDP in 2014, generating over 29,000 employment opportunities in 2015/16 and approximately 10% of the country's exports. Each cruise ship voyage brings in on average AUD 260,000 to the Vanuatu economy, so work being done by the CME Programme and local partners will help balance the economic benefits of tourism and maintaining the healthy and sustainable marine environment, which helps to attract visitors.

**Water quality** – can be improved by greater information gathering, management and decision making. This can support and improve the health of coastal communities, fisheries and biodiversity, and enhance tourist experiences and recreational opportunities.

**Transportation** – development is integral to the Vanuatu Government's economic strategy. Hydrographic survey work facilitates the safe transport of goods to market, and surveys of coastal areas supports the development of ports and harbours essential for economic growth.

**Fisheries** – marine sciences data is vital for mitigating damage to the environment and key eco-systems and it also enhances food security for the poorer communities. In Pacific SIDS 50 to 90% of animal protein in coastal community diets comes from fish.

**Climate change** – surveys will help countries adapt and mitigate effects of climate change, which include sea level rise, extreme weather events, coastal erosion and other processes.

**Future opportunities** – may exist to further develop existing sectors, and also develop new activities such as aquaculture, bioprospecting (pharmaceutical products), offshore oil and offshore renewable energy.

*“This Programme is an opportunity to support the Pacific region's ongoing efforts to balance environmental resilience with sustainable development – a means for shaping a prosperous blue economy.”*

– Melanie Hopkins, British High Commissioner and Head of the South Pacific Network, Fiji



# Water quality

*Expansion in Port Vila has led to an increase in discharges of raw sewage and industrial contamination and requires innovative monitoring techniques to assess the full extent of these coastal pollution issues. Cefas modelled the area to inform integrated assessment of water quality issues to enable future actions.*

Combining data from high-resolution bathymetric surveys with field water quality and earth observations, Cefas has provided the evidence required for an integrated assessment of water quality issues in Port Vila. Modelling Port Vila bay, followed by the Mele (the larger bay beyond), will become increasingly important as the population and tourist numbers continue to increase.

To address the concerns identified in collaboration with national and regional stakeholders, this project focused on the integration of in-field and satellite data, using a 2D modelling approach to demonstrate the flow and extent of the pollutants from the multiple storm water drains entering Port Vila.

Integration of environmental data at the right scales can provide a robust assessment of the 'health' of the marine environment, and has been proven to be a successful long term management strategy for tropical marine systems. In Vanuatu, Cefas combined the mapping and modelling of chemical and biological pollutants to create multi-layered data which will be used to inform management of the bay area.

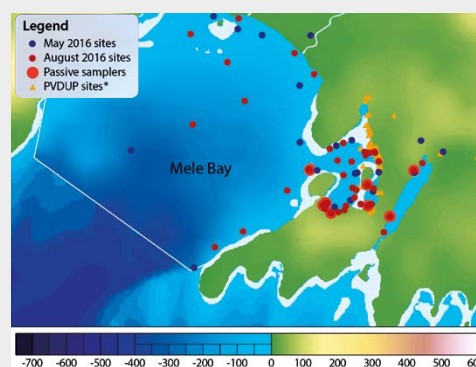
Integrated analysis of the water quality data identified the coastal hot spots for Port Vila, and showed that urban run-off is a serious issue in the coastal area. Outputs of the modelling showed that the movement of the pollutants is influenced by the location of drains, providing evidence to inform environmental managers of actions that could be taken to reduce the pollution inputs into the bay.

Modern and highly accurate water quality data also enables national decision makers and local stakeholders to plan how to use and manage the bay's natural resources for sustainable marine economic development for a range of purposes, such as dive or aquaculture sites, whilst protecting the marine environment.

The integrated assessment provided information that allows evidence-based management decisions to be taken which consider pollution exposure, resilience to climate change, and increase regional scientific capacity to protect Vanuatu's marine economic benefits and environments.

*Cefas and SPREP will bring better science and thus enormous leverage and effectiveness to our work on the ground to implement ecosystem based adaptation to climate change and to secure more resilient ecosystems, communities and economies in the Pacific.* ”

— Mr Kosi Latu, Director General of the Secretariat of the Pacific Regional Environment Programme (SPREP)



# Hydrographic surveying

*The UKHO-contracted bathymetric surveys and tidal observations on the island of Tanna, Vanuatu will be used for updating chart coverage to support safer navigation of the area, and for informing future developments and infrastructure.*

Assessing Port Resolution as a suitable anchorage on Tanna Island, tidal gauges and tidal poles were installed in February 2017, and tidal data was logged for 30 days. In cooperation with local communities, two permanent geodetic stations (control points) were also set up close to the tidal gauges to record data for the duration of the survey. This geodetic data links the tidal data to the Global Navigation Satellite System (GNSS) reference frame, allowing for future surveys and monitoring to be more easily referenced against this work.

Bathymetric surveying commenced early March 2017, and full seafloor coverage data was captured using a multibeam echosounder (MBES) on a twin motor catamaran.

After further discussions with the Vanuatu authorities, a second bathymetric survey in the North West of Tanna was also done. This area was again a potential site for cruise ships to anchor closer to the main population centres of the island, and again tidal data was gathered and linked to the GNSS reference frame.

Once the data is verified by the UKHO, it will be used to update the existing ADMIRALTY tide tables and chart coverage of Vanuatu, and inform future projects. Updated charts and publications will support safe passage, enabling larger ships (particularly cruise ships) to visit Tanna Island. This will further support trade, tourism and the sustainable economic development in Vanuatu.

# 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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## About the CME Programme

*The UK Government is supporting the development of Commonwealth Small Island Developing States' (SIDS) marine economies through the Commonwealth Marine Economies (CME) Programme.*

Through the provision of world-class multi-disciplinary marine expertise, the programme aims to support the creation of prosperous, secure and resilient states to unlock the huge marine resource potential within their exclusive economic zones (EEZs).

### The CME Programme aims to help SIDS in-scope to:

- Expand trade capacity and security by accurately charting ports and shipping lanes
- Identify and assess critical ecosystem health so they can be maintained for economic benefit
- Provide information to model disasters and climate change impacts to improve resilience
- Train SIDS to acquire and optimise information to ensure programme legacy

This will enable countries to realise their potential in a sustainable manner that conserves their oceans and marine resources in accordance with United Nations Sustainable Development Goals.

### Planned strategic outcomes include:

- **Prosperity** – Diversifying economies by opening up new ocean economy opportunities
- **Sustainability** – Making existing and new ocean economy activities sustainable
- **Security** – Making infrastructure and human capital resilient to natural disaster / climate change
- **Legacy** – Building capacity of national authorities to plan and optimise their marine spaces

For more information on the Commonwealth Marine Economies Programme, please contact us via:

[www.gov.uk/guidance/commonwealth-marine-economies-programme](http://www.gov.uk/guidance/commonwealth-marine-economies-programme)

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