

ASSESSMENT OF COSTAL INUNDATION VULNERABILITY IN NAKOROTUBU, KUBULAU AND BUA DISTRICTS OF FIJI

Issue date: 13 August 2025

Closing date and time: 27 August 2025

Available budget: USD 40,000

Background

The Wildlife Conservation Society (WCS) is an international non-governmental organization committed to working with communities, the government, and other partners to safeguard Fiji's biodiversity and sustainably manage natural resources. This is achieved through an integrated approach to land- and seascape management, underpinned by applied research. WCS has been working in the country for over two decades.

Project description

Fiji is increasingly vulnerable to the impacts of climate change. To support the resilience of communities and nature, as well as to guide nature-based adaptation strategies, WCS is conducting district-level climate vulnerability assessments in Nakorotubu, Kubulau, and Bua. The analysis will highlight the exposure, sensitivity, adaptive capacity, and overall vulnerability of communities within these districts from a range of different climate threats and natural hazards. The assessment will allow for targeted interventions to address these threats using nature-based approaches to bolster climate resilience.

As a key component of this analysis, WCS is seeking a consultant to develop a high-resolution (i.e., ~10-100 m) coastal inundation model for the relevant districts. This will accurately reproduce the most severe historical inundation events, account for various climate change scenarios (SSP1, SSP2, SSP3, etc.), and assess the potential role of coastal ecosystems to mitigate the potential impacts.

Scope of Work

The objective of this consultancy is to develop high-resolution coastal inundation modelling accounting for waves and storm surges and associated extreme weather events in the three districts. The model should provide spatial and temporal projections of inundation under different climate change scenarios for multiple time horizons (e.g., 2030, 2050, 2070, etc.) and for multiple return intervals (1-in-10, 1-in-50, 1-in-100, 1-in-500 years, etc.).

The consultant will undertake the following tasks:

- Data collection and review - gather relevant topographic, bathymetric, and meteorological data as well as land cover and benthic habitats.
- Develop a coupled wave-hydrodynamic model to simulate coastal inundation, considering waves, tides, storm surges, and other parameters.
- Calibrate and validate the model using historical inundation events.

- Analysis and risk assessment, producing maps illustrating inundation extent under different climate change scenarios.

Deliverables and timelines

Deliverable	Timeline (after contract signing)
Preliminary report outlining the proposed methodology, to be reviewed by WCS for approval	14 days
Presentation of the preliminary results of the models at a review meeting	30 days
Final project report describing methodology, models chain, intermediate, and final results	60 days
Scripts and input files for modelling, maps, and spatial datasets showing inundation extents for different return intervals under different scenarios, and oceanographic drivers (sea levels, wave parameters, etc.) leading to those extents	60 days

Requirements and qualifications

The ideal candidate should have:

- PhD in Oceanography, Coastal Engineering, or a related field.
- Proven experience in hydrodynamic and wave modelling and coastal risk assessments.
- Demonstrated experience with storm surge, wave and inundation modelling in island settings.
- Experience working in the Pacific Islands or similar coastal environments.
- Strong written and verbal proficiency in English

Submission requirements

The following must be submitted:

1. Brief technical statement outlining previous experience conducting hydrology work related to this consultancy (maximum one page). Proposers are encouraged to submit examples of previous assessment reports they have prepared.
2. CV
3. Financial proposal

Submitted rates are deemed to include all costs, insurances, taxes, fees, expenses, liabilities, obligations, risk and other things necessary for the performance of the requirement. Any charge not stated in the Proposal as being additional, will not be allowed as a charge against any transaction under any resultant contract. All rates and prices submitted by proposers shall be in US dollars.

All proposal documents should be emailed directly to jalbert@wcs.org by the closing date. Late submissions will not be considered.

Evaluation criteria

The following criteria will be used to evaluate proposals:

Evaluation criteria	Weighting given
Financial proposal	30 %
Technical experience and capacity	60 %
Experience working in a Pacific context	10%