

PRE-FEASIBILITY STUDY AND ASSESSMENT FOR COASTAL PROTECTION OPTIONS

JALUIT ATOLL, REPUBLIC OF MARSHALL ISLANDS



(top row L to R): Overview of available options for coastal protection at Jabor, Jaluit Atoll, overtopping of the seawall during a high wave event and subsequent flooding in the village. (bottom row, L to R): The ageing WW2 era seawall, Jabor from above, the north coast of Jaluit, Jaluit and the vital, yet highly vulnerable airstrip.

PROJECT INFORMATION:

Location: Jaluit Atoll, Rep. of Marshall Islands

Client: World Bank

Project Date: June 2025 – Feb 2026

SCOPE OF WORK:

- Background investigation and literature reviews
- Site visit, community meeting
- Analysis of coastal vulnerability
- Report preparation and delivery
- Presentation to clients

PROJECT DESCRIPTION:

Jaluit, Republic of the Marshall Islands (RMI) (6° S, 169° E) is a low-lying coral atoll vulnerable to coastal inundation and erosion, and this vulnerability is increasing as global sea levels rise. Jaluit has been identified as an 'intermediate centre' with low to medium settlement densities and a mix of land uses. It is an administration centre for neighbouring atolls and is home to a large boarding high school used by students from the region. The most populous settlement is Jabor located on the southeast side, adjacent to a deep reef pass. Jabor is home to the atoll's most important infrastructure components including the high school, a public wharf and the air strip, which is situated on a long, narrow strip of land extending southward from Jabor.

The wave, wind and tidal climate of Jaluit is dominated by easterly trade winds which are strongest in the northern hemisphere winter (December – March) and give rise to persistent easterly waves. Strong storms in the north Pacific can produce swells that propagate southward to the Marshall Islands. Under extreme conditions, these longer period (14-18+ sec) swells can produce wave driven runup and overtopping leading to large scale coastal flooding. Jaluit has also been affected by typhoons at least twice in recorded history with the most recent event occurring in 1957.

Based on the assessment additional coastal protection initiatives are necessary at Jaluit, most acutely at Jabor and the airstrip. While the initial goal of this assignment was to assess the feasibility and potential utility of 'Nature Based Solutions' for coastal protection, upon visiting the site it was apparent that more robust, hard engineering solutions are required to provide immediate improvement to the situation. Given that Jabor is an administrative centre for the RMI and that there are substantial infrastructure and investment already in place on the island, it seems logical to opt for protection of these assets in the short to medium term. Taking this route will allow for planning in search of a longer-term solution.