

Dramatic tectonic uplift of fringing reefs on Ranongga Is., Solomon Islands

Received: 15 August 2007 / Accepted: 20 August 2007 / Published online: 14 September 2007
© Springer-Verlag 2007



Fig 1 Children standing on recently uplifted *Porites* coral near Lale village, southern Ranongga. A rich cover of green algae marks the intertidal zone

An 8.1 Richter magnitude earthquake on 2 April 2007 raised the fringing reefs of Ranongga Island, Western Province, Solomon Islands about 1 m above the high water mark (HWM) in the north, and up to 2–3 m in the south (Fig. 1).

Ranongga Island is 28×7 km in size, and is surrounded by a fringing coral reef, which was previously about 100 m wide and drops steeply into deep water. Following the uplift, up to 80% of the reef is now above sea level. Only a very narrow reef remains submerged. The quake also toppled large *Porites* and *Acropora* colonies underwater. Mangrove forests and seagrass meadows now above HWM are dying. The island's fringing reefs, once among the best in the western Solomons were a critical food source for the population of 6,000.

In the first weeks following the earthquake, local fishers reported unusually good catches. Fish apparently were biting hungrily on baitless hooks, and spearfishermen were finding it easy to approach disoriented fish. It appears that the loss of reef habitat had displaced fish into the small remaining reef areas.

Many local people remain convinced that their reef has not uplifted but that the sea has subsided, and that it will return again. By mid-July the few fishers brave enough to come down from high ground to fish from the edge of the reef were reporting poor catches.

This is not the first time Ranonggans have dealt with major geologic change. Landslides following a 1952 earthquake led to a major relocation of the population, and reefs in the north subsided, creating opportunities for a surge of coral development. However, the scale of damage to the island's land and reef in 2007 is unprecedented, and the landscape is yet to stabilise. Runoff from heavy June rains built up behind natural dams created by landslides from the earthquake. These dams burst and large boulders and huge volumes of sediment were carried to the coast. Despite a renowned capacity to cope with adversity, these traditional Melanesian communities are not well equipped to deal with such dramatic environmental changes. Researchers, governmental, and non-governmental agencies seeking to assist Ranongga communities and their natural resources to recover are faced with an unusual challenge.

S. Albert (✉) · J. Udy
Environmental Engineering, The University of Queensland, Brisbane, Australia
e-mail: s.albert@uq.edu.au

G. Baines
Bergen Pacific Studies Group, University of Bergen, Bergen, Norway

D. McDougall
Social and Cultural Studies, The University of Western Australia, Perth, Australia

Reef sites

Coral Reefs (2007) 26:983
DOI 10.1007/s00338-007-0307-x