



Introduced green snail (*Turbo marmoratus*) at Elepa Island, Efate, Vanuatu. Photo by SPC

Revival of a disappearing resource

SPC and partners work to rebuild green snail fishery in Vanuatu

HUMAN ACTIVITY HAS HAD PROFOUND EFFECTS on the productivity of fisheries resources. In the future, climate change could have similarly devastating impacts on some fisheries, including the coastal fisheries many Pacific Island communities rely on for food and livelihoods.

Resources that have limited geographical presence, and stocks that have been fished to near local extinction, stand a much higher chance of early disappearance. One such resource is the great green turban shell, *Turbo marmoratus*, commonly known as green snail in the Pacific Islands.

Green snail can grow to over 20 cm and weigh up to 3 kg in live weight. Adults live in shallow waters and can be easily caught by free diving and hand picking. The mottled green outer shell and silver pearly interior makes great inlay decoration, buttons, jewellery and souvenir products popular in Asian markets.

In the 1970s and 1980s, 80 to 100 tonnes of green snail were exported annually from Papua New Guinea, Solomon Islands and Vanuatu. However, the fishery has now collapsed. Assessments conducted across the Pacific Islands by the

Secretariat of the Pacific Community (SPC) and others since 2003 have located living specimens only in Vanuatu and French Polynesia. The collapse of the green snail fishery can fairly be blamed on lack of management.

High prices – US\$ 40–50 per piece for whole shell and US\$ 20–25 per kilo of processed shell – contributed to its demise, as did several other factors. Green snail does not occur in the same high numbers as other large shellfish. Only one in every hundred juvenile green snails grows to adult size, so it is highly vulnerable to breeding failure when stocks fall too low.

This is exactly what happened in the Pacific Islands – with overfishing of adult stocks in the 1970s, reproduction failed and the resource could not recover.

While small numbers of green snail are likely to be alive in remote areas of Solomon Islands and Papua New Guinea, which along with Vanuatu form the easternmost extent of the resource's natural range, it is considered to be locally extinct in many traditional fishing grounds. A source of food security and one of the few opportunities for

income have been lost. New generations now have little idea what a green snail is and it is questionable whether they will see a living specimen in their lifetime. Its co-existence with people for generations has helped shape customary resource management in these islands. Its loss also means the loss of this cultural value.

After the collapse of the green snail fishery in Vanuatu became evident, a national ban on commercial fishing and export was introduced in 2005 for 15 years.

As part of the recovery plan, there was some re-introduction of wild stock through the assistance of the Japanese Government, but finding local stock is challenging.

SPC carried out a study in 2013 to assess the recovery of the resource. The results of the study, funded by the European Union, showed positive signs – green snail is beginning to bounce back on Efate Island in Vanuatu. The resource, which had declined due to overfishing, has re-appeared on the reefs of the north, west and south of the island.

In the southern island of Aneityum, the same study revealed a rare stock that has been spared from the overharvesting that occurred in the rest of Vanuatu. Isolation from market access, effective community management and alternative livelihoods available through eco-tourism have worked over the years to lessen fishing pressure on this stock.

SPC is now working with Vanuatu Fisheries Department and the Climate Change Initiative of the South Pacific funded through the Secretariat of the Pacific Regional Environment Programme (SPREP) to develop measures to protect the stock of green snail in Aneityum and provide education to assist the recovery of the resource in the country. Assessments are needed elsewhere in the region to locate existing stocks so they can be protected.

Green snail is a useful resource and species introductions offer an opportunity to support food security and provide livelihoods, as long as proper biosecurity protocols and effective management measures are put in place. French Polynesia has benefited from the introduction of green snail in the 1960s.

Tonga successfully introduced the species in the 1990s and is monitoring its recovery. Several other countries are interested in developing this resource or building the resilience of existing stocks.

The challenge now is to protect existing natural stocks from extinction and to allow the stock to recover to sustainable levels to ensure there is sufficient stock to distribute.

SPC will continue supporting this work through its Fisheries, Aquaculture and Marine Ecosystems Division, which provides member countries and territories with the scientific information required to manage and develop their oceanic and coastal resources and the technical support and tools needed to put management decisions into practice. [E]

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