

Management state of Pacific sea cucumber fisheries

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Many of the sea cucumber fisheries in Pacific Island countries and territories (PICTs) are in a poor state and in need of rehabilitation. Many are closed as countries attempt to take drastic action to prevent further collapse. Persistent pressure from buyers to supply sea cucumber products is creating an uphill battle for many PICT fisheries as they try to control sea cucumber exploitation. There is also a lack of effective fisheries management frameworks, regulatory measures and enforcement capacities in many countries. In this article we summarise the current state of sea cucumber fishery management in several countries as of March 2013, and progressive action being taken, with SPC collaboration, to establish formal fishery management frameworks. In Figure 1, a coloured code is used to indicate the state of sea cucumber fisheries in the Pacific Islands region.

Vanuatu extends closure to ten years

The Vanuatu Fisheries Department, sea cucumber resource owners and those interested in rehabilitations of stocks are relieved: the fishery will remain closed for another five years. There was mounting pressure to open the fishery towards the end of the first five-year closure (2008–2012), the national general election added fuel to pressures to open the fishery as traders tried to influence decisions to lift the ban on harvest and exports. The Fisheries Department organised an awareness meeting that targeted interested politicians who at the end understood the low status of the resources in the country and the need to keep the fishery closed to allow full recovery of stocks. Vanuatu Fisheries followed SPC's advice, based on the results of surveys undertaken in 2011 and 2012, to extend

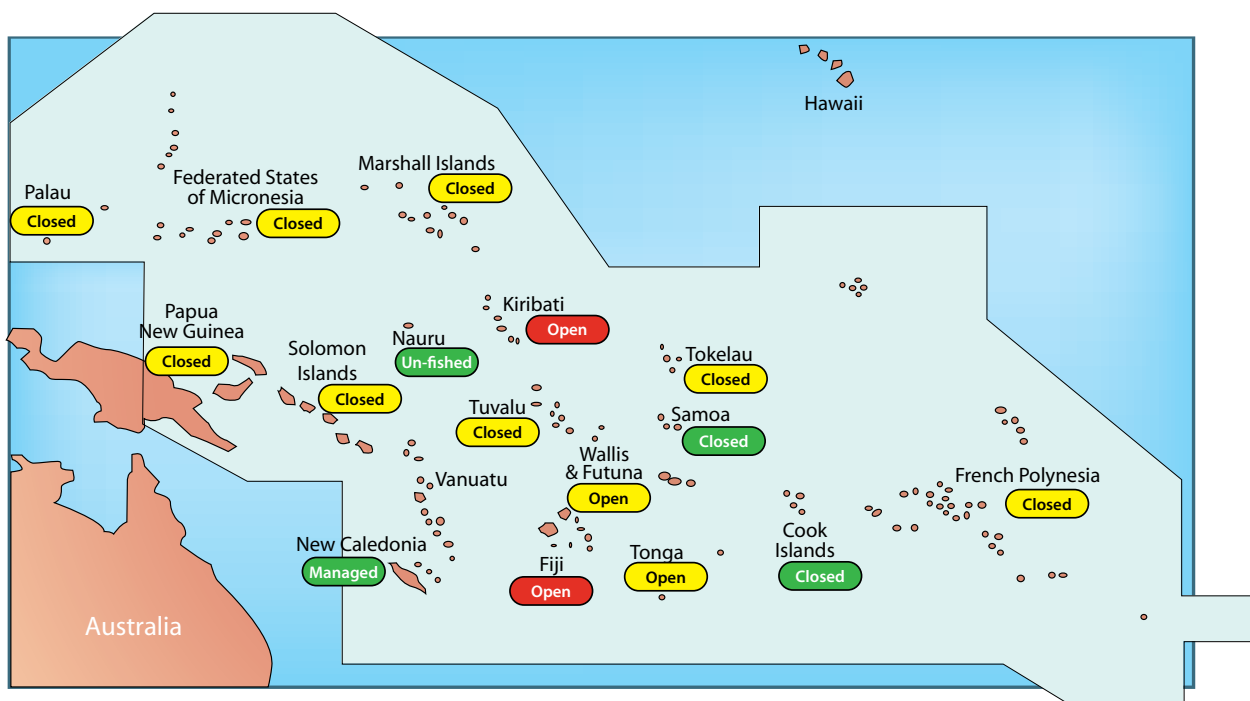


Figure 1. State of sea cucumber fisheries in PICTs.

Red: countries that have relatively few measures in place to control the fishery ; Yellow: fisheries closed in the past five years or where an open season is implemented with management plans being developed or reviewed; Tonga and Wallis-Futuna implement annual open seasons; Green: relatively well-managed fisheries, fisheries that have been closed for the last 20 years and the unfished fishery of Nauru.

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the five-year ban. This new amendment, dated 19 December 2012, took effect from 1 January 2013. SPC had, in 2006, advised Vanuatu Fisheries to close the fishery, based on 2003 assessments. This resulted in the decision to close the fishery in 2008. This extended ban is necessary to allow stocks to recover, and other assessments will be undertaken during the next five years to evaluate the status of the resource. It will also give time to finalise the draft national fishery management plan and prepare the opening of the fishery. Trials will also be conducted to assess the value of other products besides the traditional boiled and dried beche-de-mer.

Papua New Guinea extends current moratoria for another three years against pressure to lift the ban

Papua New Guinea (PNG) was the region's largest sea cucumber fishery and contributed around 10% of global sea cucumber production. In the 1990s, PNG developed and introduced a national sea cucumber fishery management plan, but, catch rates of some species continued to decline and localised depletions were observed. A three-year moratorium was therefore enforced in 2009. A survey undertaken by the National Fisheries Authority (NFA) in 2012 showed that resources had not yet fully recovered. NFA decided in early 2013 to keep the fishery closed for another three years, during which the status of stocks would be monitored. The current management plan is under review, and will probably include a modified total allowable annual catch and the allocation of species-specific quotas.

Solomon Islands opens its fishery for three months to allow export of stockpiled products

Solomon Islands closed its fishery in 2005. Two years later, the ban was lifted for the Western Province as economic relief for victims of the tsunami and earthquake that hit the area. It turned out to become a nationwide open season, as fishers from other provinces also went fishing for the valuable product. In 2009, the moratorium was re-enforced for the whole country, but incidents of fishing activities and stock piling have taken place during the last four years. In 2011, SPC assisted the Solomon Islands Ministry of Fisheries and Marine Resources with resource survey training in Marau and Ngella. The ministry then went ahead to complete assessment surveys in two sites in each of the seven provinces and it is now working on the data analysis and reporting. In 2012, SPC assisted the ministry with the drafting of a management plan, which needs to be discussed with the provinces and finalised. Stockpiling of products has resulted in pressure to lift the moratorium to allow exportation of

the stockpiled products. The fishery was opened on 1 March 2013 for three months.

Cook Islands puts management measures in place before opening its fishery

In Cook Islands, commercial sea cucumber fishery was a very minor activity in the 1990s, and it did not last. Interest recently increased when investors expressed their will to exploit the resources. SPC is working with the Ministry of Marine Resources to train local officers in assessment of the resources and provide advice on harvestable quotas. One site has been assessed; training on the analysis of data will be completed in the first quarter of 2013, which will provide further advice on resources in other areas. SPC is also assisting with the formulation of sea cucumber fishery regulations that the government is working towards establishing prior to allowing exports of sea cucumber products.

Samoa puts management measures in place but is already experiencing illegal harvests

In Samoa, the fishery was closed in mid-1994 after commercial fishing threatened stocks of subsistence species important for food security (*Bohadschia argus*, *B. vitiensis*, *Holothuria atra*, *Stichopus herrmanni*, *S. horrens*). SPC assessments in 2005 recorded the density of two main species. Resources in the two main islands of Samoa were assessed during the second half of 2012 and results are being compiled, while, at the same time, a fishery management plan is being developed. Interest in opening the fishery is high; several illegal harvests have already been reported in the last two years, one of those involving a consignment intercepted at the airport. The situation also put pressure on the Fisheries Department to have in place a management plan and the necessary regulations to control the fishery. SPC is assisting the department to put in place formal management measures for the fishery.

Tonga experiences "boom and bust" production

Tonga's sea cucumber resources have been well studied, with SPC assistance. The first survey took place in 1990, followed by a recommendation to develop the fishery. Six years later, in 1996, a new survey showed a sharp decline of stocks, which, in 1997, led the local authorities to impose a ten-year closure. A further SPC-coordinated survey in 2004 revealed that most resources had recovered and the fishery was re-opened in 2008. Export production rose from 15 tonnes (t), to 370 t and 312 t in the following years. In 2011, a new assessment recommended another closure for three to five years, but instead the quota was reduced from 200 t to 100 t, following pressure to keep the fishery open. The final 2011 production (80 t) fell short of reaching

the quota. The fishery management plan in place was not fully implemented and respected, allowing catches to reach the unsustainable levels of 2009 and 2010. Furthermore, despite a ban on the use of underwater breathing apparatus for this fishery, several sea cucumber fishers died from accidents related to scuba diving. The fishery is currently pending assessment, and at the end of 2013 a decision will be made on whether new management measures, including a possible new closure of the fishery, are needed.

Fiji experiences increasing interest to harvest and moves to regulate the use of UBA

Fiji has a significant fishery in the region, which has remained open ever since the boom period of the 1990s. The beche-de-mer exploitation guideline developed in 1998 is the only formal guideline on the management of the fishery, as emphasised by the Fiji Trade and Investment Board policy to promote private sector-led development of the fishery. There is currently no quota on the number of export licenses or the export quantity – by exporter or by area – so, as many other fisheries in the region are closed, there is an increasing number of interested exporters seeking a license to exploit the resource. In addition, the current size limit regulation of 7.6 cm is incorrect and cannot be implemented for all sea cucumbers, the lack of control measures making effective control difficult. Permitting underwater breathing apparatus (UBA) in the fishery has allowed access to stocks in deeper water and resulted in many UBA-dive related accidents. SPC re-engaged with the Fiji Department of Fisheries and NGOs in 2012 to address the situation; resource assessments have been conducted in Bua, one of Fiji's prime production areas, and the trained local teams have continued assessments in several other sites. They are now going through training on how to turn the information into fisheries management advice. Community management is strongly encouraged in Fiji; however, the declining trend of resources indicates the need to strengthen the upper level management systems to support local management at community level. SPC is assisting with the formulation of a national sea cucumber fishery management plan and with advice on resource assessments in other areas. At the same time, based on the assessment of the Bua Province stocks, which indicate the negative impact of UBA fishing on sea cucumber stocks, and based on similar findings from other areas in the Pacific region, SPC has collaborated with the Fiji Department of Fisheries to assist with a cabinet decision on UBA fishing in Fiji.

Marshall Islands implements new regulations

Two years ago, Marshall Islands did not have a sea cucumber fishery management policy, nor

regulatory measures, and fishing and exporting of the product was taking place without any monitoring and control system in place. A total ban on export was enforced in early 2011, and work on the establishment of a management framework was initiated, with SPC collaboration. New sea cucumber fishery regulations were gazetted at the end of 2012. Preparation is now under way to open the fishery under these new regulations.

Palau has control measures in place but experienced unsustainable practice and wants to put in place more effective measures

Commercial fishing of sea cucumber ended in 1994 when the Palau Government banned the harvest of the six top commercial species of the 1990s boom fishery period. Sandfish (*Holothuria scabra*), white teatfish (*H. fuscogilva*), black teatfish (*H. whitmaei*), surf redfish (*Actinopyga mauritiana*), hairy blackfish (*A. miliaris*) and prickly redfish (*Thekenota ananas*) were banned from commercial harvest, but subsistence use of some of the banned species and non-regulated species were exempted from the ban. Sandfish, curryfish (*Stichopus herrmanni*) and hairy grayfish (*Actinopyga* sp., an unidentified species) are consumed locally so they are harvested for the local market sale and can be exported for home use to Palau nationals living abroad. These loopholes in the current regulation have resulted in illegal harvesting of protected species in recent years. In 2011, the fishery was opened for one species (hairy grayfish) only for the State of Ngardmau for 48 fishing days (two fishing days a week) over a six-month period. Monitoring of landings by the Bureau of Marine Resources allowed the collection of useful catch and price data from buyers. The data showed that the current practice of selling live cucumbers by 20 litre buckets was unprofitable for fishers, and that product valuation methods were needed. As in the Solomon Islands case, fishers from other states close to Ngardmau State also went fishing and incidents of harvesting non-prescribed species were a cause of concern that led to the decision to close the fishery again in 2012. A more comprehensive management arrangement must be in place before the fishery opens again in future. The Bureau of Marine Resources staff and SPC have developed a draft sea cucumber management plan for Palau; further consultations with stakeholders are required and resources in other States need to be assessed.

The Federated States of Micronesia are under pressure to open their fisheries

The fishery in Yap State has remained closed since 2007 but pressure from sea cucumber hatchery operators in the main island of Yap could influence decisions to lift the current closure. Assessment of the resources in 2009 by SPC led to the

recommendation to keep the fishery closed to allow full recovery.

The fishery in Pohnpei State has been closed for nine years and the resources have not been assessed. Pohnpei is currently experiencing pressure from interested traders to open the fishery. SPC will be assisting Pohnpei State in 2013 to assess resources and formulate a fishery management plan for the fishery.

Tuvalu and Tokelau sea cucumber fisheries are closed

Both Tuvalu and Tokelau have small but important sea cucumber resources for the inhabitants. Traders entered Tuvalu in the 2009–2010 period and encouraged fishing for white teatfish and prickly redfish using UBA at depths reaching 50–70 metres. The use of UBA caused the loss of a few lives in Funafuti so access to areas outside Funafuti Atoll was denied by the Island Council to protect their resources and the lives of their people. The fishery in Tuvalu was closed at the end of 2010.

Sea cucumber fishing began in Tokelau in December 2011 through a joint venture arrangement with a local Tokelauan. Concern by the Island Council resulted in the suspension of the fishery until resource assessment and management measures were in place. The resource assessment was done by SPC in April 2012 and a management plan was drafted and delivered to the Island Council, which allowed Asian traders to process and export a limited amount of resources from Nukunonu Atoll.

Nauru has received interest from traders to harvest surf redfish resources

The Ministry of Fisheries has requested SPC assistance to assess and advise on the state of the surf redfish resource before deciding if the fishery can be opened.

French Polynesia closed its fishery while putting in place a management system and the assessment of its sea cucumber resources

As in Cook Islands, sea cucumbers of French Polynesia have not been fished commercially in the last 20 to 30 years (some fishing may have occurred in the early 1990s, but reliable data are lacking). Only recently did commercial fishing for export start, and it steadily increased from three tonnes in 2008 to 125 tonnes in 2011. As the status of the sea cucumber stocks was unknown and no specific management measures were in place, this rapid increase in production, which could have a great impact on natural resources, led to the closure of the fishery in 2013. The assessment of sea cucumber resources in fished and un-fished areas, as well as the drafting of a management plan and regulations, is being undertaken.

Wallis and Futuna sea cucumber fishery stays open

Fishing and export of sea cucumber in Wallis has been in an on and off trend, coinciding with the state of resource recoveries. Exporting took place in the 1990s for a few years, ceased for some years, resumed in 2001, ceased again and resumed once again in 2010. Fishing and export is undertaken by a local business interest in a joint venture with a Fiji-based company; divers from Fiji were brought into Wallis to collect sea cucumbers. In Wallis and Futuna, the Department of Environment issues the fishing license under the Environment Act, while the Department of Fisheries monitors the resources. In 2012, around seven tonnes were exported. The fishery is currently open and it is not known if it will need to be closed to allow recovery of stocks at the current level of exploitation.