

A publication of the Market Information Service (MIS) - Ministry of Agriculture and Fisheries
"Linking the market and Primary producers"

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Trochus ('aliao)



Coastal fisheries play an important part in the Samoan way of life. Traditionally, the coastal environment has been the main source of protein for the Samoans daily livelihood.

Introduction

Establishing *Tectus niloticus*, commonly known as trochus was introduced to Samoan waters in 1990 which was later found to be unsuccessful. From 2003 to 2006, a project by Samoa's Ministry of Agriculture and Fisheries (MAF), with expertise and funding from the Australian Centre for International Agricultural Research (ACIAR), introduced trochus from Fiji and Vanuatu to several sites in Samoa. Potential sites for the introduced trochus were selected, based on habitat suitability and coastlines favoring

participating villages in the Community-Based Fisheries Management Program (CBFMP). Its introduction was aimed at establishing a fishery that would enhance the availability of marine resources for utilization, providing food security for local communities as well as a potential commodity for income-generation.

¹In total, 1326 shells were transported to Samoa from Vanuatu and Fiji between 2003 and 2006. Trochus population surveys conducted by the Fisheries Division in 2010 at six sites indicated that there were 100–200 trochus per hectare. In late 2019, there were slightly over 1000 people harvesting introduced trochus in Samoa. ²Socioeconomic surveys in 2018 showed that about 263 t of export-sized shells were harvested across 170 villages during the year, but none were exported.

Trochus inhabit coral reef systems; juveniles are found in shallow areas amongst coral rubble and boulders along intertidal reef areas and adults are found on fringing reefs, crest reefs and reef slopes down to a depth of 30 meters, but generally in waters less than 8 meters deep. Trochus feed by grazing on encrusting fleshy and coralline algae.

Table 1: Advantages and Disadvantages of Trochus

Advantages	Disadvantages
High value for both shell and meat	Motile shellfish
Very relevant for restocking programmes	Slow-growing
Local expertise/knowledge is available	Cannot be grown intensively in enclosed space
Low mortality during	

¹ (Purcell 2019; Steve Purcell, Associate-Professor in Fisheries and Aquaculture at Southern Cross University, pers. comm.)

² Trochus in the Pacific Islands: a review of the fisheries, management and trade / Robert Gillett, Mike McCoy, Ian Bertram, Jeff Kinch and Aymeric Desurmont, SPC, 2020

translocations	
Easy to breed	

Source: Samoa Aquaculture Management & Development Plan 2013-2018, SPC

Possible impacts of trochus on coral community that have been impacted by climate change. Much of the coral in Samoa has died recently from increases in sea temperature. Because trochus grazes on algae that cover dead coral there is the possibility that trochus could help control algal overgrowth and promote coral settlement.

Trochus are collected by gleaning, wading or free diving in intertidal and shallow areas, and are therefore susceptible to heavy fishing pressure. This marine snail is harvested for subsistence use and for its commercial value. Trochus have a thick pearly shell, and have been harvested commercially for the shell, which is used to make mother of pearl buttons and handicrafts.

Market Information

'Ali'ao can be found abundant on reefs around both Upolu and Savaii. Currently, the main value of trochus in Samoa is its flesh for consumption.³ Over 1000 fishers collect trochus in Samoa. Most fishers eat trochus themselves or give away a majority of the catch. About one-third of fishers sell trochus flesh. The extra cash is most often spent on food, school fees and church tithing.

Samoa does not export trochus but its main marketing is where the meat is extracted and placed in plastic bottles of various sizes with sea water. Bottled trochus meat is sold fresh and raw, either on its own or mixed with other invertebrate meat, such as giant clam (*Tridacna* spp) or the gonads of the blue-black urchin (*Echinothrix diadema*). These are commonly seen selling alongside the road. On average, one trochus (whole meat excluding kidneys) makes 50 ml, and is valued at between WST15.00-30.00 per bottle.



Figure 1: Fisher with bottles of trochus flesh near Fusi, Savai'i.

Source: SPC Fisheries Newsletter #160 - September–December 2019

Export trade of trochus shell has declined over the last two decades due to heavy fishing pressure in countries that were the main suppliers of trochus shell, and also due to the replacement of natural shell material with plastics for the manufacture of buttons.

World Trochus Production

⁴In the last 25 years, world trochus production is estimated to have fallen from about 3900 t to 2020 t, a drop of almost 50%. The Pacific Islands region is responsible for about 69% of the global production of trochus. The average annual world harvest for the early 1990s was estimated by the World Bank trochus study. In the present study, an attempt was made to replicate that estimate for the late 2010s. Trochus production estimates for PICTs, Australia, Indonesia, and the Philippines.

Table 2: World Trochus Production in tonnes

Area	Average annual harvests (in tonnes)	
	Early 1990s	Late 2010s
Pacific Islands	2,300	1,400
Australia	500	10
Indonesia	475	400
Philippines	200	10
Okinawa	200	100
Minor areas	225	100
Total	3,900	2,020

Source: Trochus in Pacific Islands: A review of the fisheries, management, trade 2020 (Robert Gillet)

³ Tiitii, U, Samoa Policy Brief-Trochus

⁴ Trochus in the Pacific Islands: a review of the fisheries, management and trade / Robert Gillett, Mike McCoy, Ian Bertram, Jeff Kinch and Aymeric Desurmont, SPC, 2020

Table 2 shows that over the 25-year period, world trochus production fell by almost 50%.

Value-adding of Shells

Apart from its meat, 'aliao shell has also put value on the market, which is used for making jewelry and handicrafts. Overseas countries such as China and Vietnam use the shells to produce expensive high-end buttons. Locally, trochus shells are now turning into another source of income for the locals where they are polished into attractive ornaments and jewelries. With great assistance from ACIAR, a specialized equipment was purchased for shell polishing and jewel-making which MAF makes available to artisans. Workshops were conducted in both Upolu and Savaii on how to utilize the trochus shell. The equipment will be set up permanently at Asau, Salelologa and Apia.

Figure 2: Artisan trainees at a workshop in Salelologa



Source: SPC Fisheries newsletter #160 Sept-Nov 2019

Other Pacific Island countries, such as Fiji, Vanuatu and Solomon Islands, factories for processing and preparing the shells for export are well established.

Figure 3: Polished jewelries from Samoan trochus shell



Source: Samoa Observer

⁵Currently, the average price paid to fishers in neighboring Pacific Island countries for cleaned, dried shell is around USD 3.10/kg (WST 7.00). This equates to three or four cleaned and dried trochus shells of between 90–120 mm basal diameter to make up one kilogram of shell, with an average of WST 0.40–WST 0.55 per piece. This is seen as additional value if fishers are able to extract the trochus meat without damaging the shells.

⁶The potential value of shell exports from Samoa is estimate at \$1.3 million Tala.

Recent Trochus Study Conclusion

⁷According to the fisheries, management and trade of trochus report in the PICs, the study concludes that in the last 25 years, the global demand for trochus has fallen substantially. During that period, prices paid to fishers for trochus – and the volume of annual harvests – have dropped in all PICTs involved with in the fishery. Taken together, the lower prices and smaller harvests result significantly less income to trochus fishers. Further up the value chain, over 30 trochus processing operations have been established in the region, but only 1 is currently operating – and that one is likely to close soon.

Although the situation could improve, there are no indications of positive developments on the horizon. The most likely scenario is, therefore, a continuation of trends that have been going on for decades: continued decline in demand and prices.

Because global demand for trochus drives this decline, there are limited ways in which government fisheries agencies in the region can halt the downward trend. In most PICTs mitigation measures are largely limited to small interventions that could improve the price of trochus to fishers and striving for well-managed trochus fisheries.

⁵ Assessment of Samoa's Trochus (*Tectus niloticus*) Fishery: history, Status and Recommendations for Management / by Ulusapeti Tiitii and Justin Ai'afi, 2016

⁶ Tiitii, U, Samoa Policy Brief Trochus

⁷ Trochus in the Pacific Islands: a review of the fisheries, management and trade / Robert Gillett, Mike McCoy, Ian Bertram, Jeff Kinch and Aymeric Desurmont, SPC, 2020

Average Prices at the Fugalei Market

Commodities (SAT\$/kg)	May 2020	June 2020	Lowest Price for 2020 to date	Highest Price for 2020 to date
Taro	2.52	2.99	2.27	2.99
Banana	1.28	1.36	1.05	1.36
Ta'amu	4.34	4.82	4.34	8.78
Coconut	1.01	0.99	0.89	1.01
Breadfruit	1.94	2.25	0.90	2.25
Yam	3.97	4.17	3.54	5.30
Head Cabbage	9.90	8.80	8.80	14.71
Tomato	17.92	17.08	14.82	19.92
Chinese Cabbage	6.35	5.80	5.80	9.82
Cucumber	4.85	4.85	4.45	5.97
Pumpkin	4.44	3.88	3.56	5.32

Source: Samoa Bureau of Statistics-Local market survey

Foreign Currency per Tala (SAT\$)

May-June 2020	USD\$	NZD\$	AUD\$	YEN\$	FJD\$	EURO
1 Samoan Tala SAT\$=	0.3754	0.5526	0.5078	38.9700	0.7790	0.3085

Source: Bank of South Pacific

Market Link Newsletter

This newsletter is published bi-monthly and it seeks to assist stakeholders (farmers, consumers, wholesalers, policymakers) make informed market and marketing decisions based on credible, relevant price and supply information. Help us help you by providing constructive feedback on market information issues that will improve the service which will lead to growing a healthy and wealthy Samoa. For more information, contact the Policy, Planning and Communication Division and ask for Losan Madar.

Disclaimer

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Ministry of Agriculture and Fisheries
 P.O Box 1874
 Phone: (685) 22 561 Fax: (685) 28 097
 Email: losan.madar@maf.gov.ws

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