

UTILIZATION OF SHELL RESOURCES IN THE SPERMONDE ARCHIPELAGO, INDONESIA

By Gunarto Latama

Department of Fishery, Faculty of Animal Husbandry and Fishery, Jl. Perintis Kemerdekaan Hasanuddin
University, Ujung Pandang, Indonesia

ABSTRACT

A total of 59 mollusc species were encountered in markets of the Spermonde Islands. Gastropods dominated (95%). Only processed shells have noticeable market value. Shells of *Tectus pyramis*, *Pinctada maxima*, *Pinctada margaritifera*, and *Pinna bicolor* are used for ornamental handicraft and for making buttons which are exported. *T. niloticus* has become very rare in the area, so the button factory has stopped using this species. The value of shells will increase 3 times after processing, thereby making shell buttons an important source of income.

INTRODUCTION

The Spermonde Islands, southern Sulawesi, consist of more than four hundred small islands fringed by coral reefs with abundant shell resources. Local traders buy and sell shells, but the business is obviously small-scaled, aiming at tourists and the local market. The only major enterprise is a button factory. However, lack of raw material has caused the factory to stop the production based on top shell, *Trochus niloticus*.

Since very little is known about shell trade in the Spermonde Archipelago, I made the present survey based on interviews. I have talked to shell collectors, shops, middle men, and the button factory in Ujung Pandang. Statistical data were provided by the Statistical Department, Industrial Department in Ujung Pandang.

RESULTS

Professional collectors. The target species of professional collectors are 4 gastropods (*Pinctada margaritifera*, *P. maxima*, *Trochus niloticus*, *Tectus* spp.), and 2 bivalves (*Pteria penguin*, *Pinna bicolor*). These species are used for ornamental handicraft and for making buttons. Other shells of value are collected upon encounter.

Fishermen. They are opportunistic collectors. Shells can be considered as a bycatch. They collect a variety of sea shells, but only in small numbers.

Children collectors. The fishermen's children collect shells when they play on the beach during low tide. They find shells washed ashore by currents and wave action, and also shells inhabiting very shallow water. The main species are *Cypraea* spp., *Lambis* spp., *Mitra* spp., and *Strombus* spp. Middlemen purchase the shells (usually in exchange for candy). The amount of shells traded this way is small.

Food value. The soft bodies of gastropods and bivalves have almost no market value in spite of a high protein content. Only Tridacnidae can be sold; fresh or salted dry. The flesh of species like *Chicoreus ramosus*, *Cassis cornuta*, *Lambis* spp., and *Strombus* spp., is consumed by the fisherman's family. The shells are usually boiled, and the flesh removed, but live *Cassis cornuta* may be hung by the foot. The muscle then comes out because of the heavy weight of the shell, and can be cut.

Processing. Most of the shell cleaning is done by the middlemen. The flesh is allowed to rot, and the remains removed by washing in sea water. Fouling organisms are cleaned from the surface with acid treatment and scrubbing. The shells are dried, polished, and processed.

The species of molluscs collected by professionals, fishermen and children are shown in Table 1.

Contribution to economy. There are two types of middlemen. The first type will only buy shells from collectors and sell them again to the handicraft or but-

ton industry. The second type will also buy shells from collectors but they have their own business (home industry) which can process shells and sell them in shops. The price of a shell depends on the rarity, beauty, size, and completeness. The most expensive handicraft is made from *Pinctada* spp. A flow chart of the routes of shell trade is shown in Figure 1.

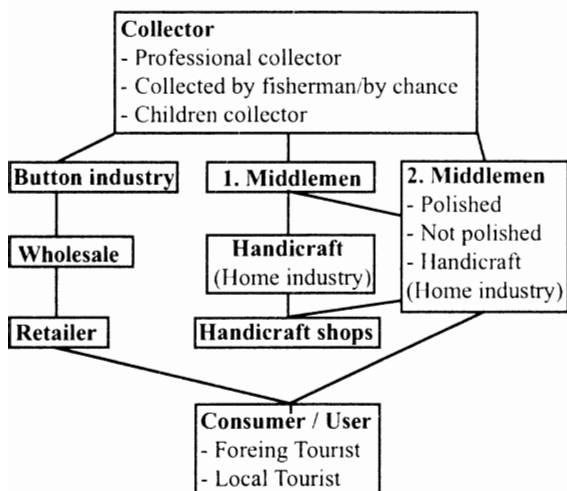


Figure 1. Marketing system for shells traded in the Spermonde Islands.

The main customers are foreign tourist. I estimate that 80 % of the shells processed by home industries are sold to foreign tourists, and 20 % to local tourists. This situation is opposite compared to Thailand where the main customers are Thai people (Aungtonya & Khokiattiwong 1992). The value of sea shells is shown for a 3-year period in Table 2. From 1991 to 1992 the shell value increased markedly due to a button factory established in Ujung Pandang. This factory also created new jobs for the local people.

The button factory has produced around 6,600,000 buttons per year, but this is only about 25 % of full capacity. In the beginning this factory used *Trochus niloticus* to produce the most expensive buttons. Today, *T. niloticus* is rare, and the factory decided to stop using this species. The production is currently based on *Tectus pyramis*, *Pinctada maxima*, *Pinctada margaritifera*, and *Pinna bicolor*. All buttons are exported to Japan, Hong Kong, and Korea.

Table 1. Sea shells (59 species) encountered in markets of the Spermonde Islands. Class is marked with bold, family with plain text, and species in italic.

Class/Family	Species
Cephalopoda	
Nautilidae	<i>Nautilus pompilius</i>
Gastropoda	
Cassidae	<i>Cassis cornuta</i> <i>Cypraeacassis rufa</i> <i>Phalium fimbria</i>
Conidae	<i>Conus aulicus</i> <i>C. betulinus</i> <i>C. episcopus</i> <i>C. episcopatus</i> <i>C. flavidus</i> <i>C. geographus</i> <i>C. marmoreus</i> <i>C. omaria</i> <i>C. quercinus</i> <i>C. virgo</i> <i>C. textile</i>
Coralliophilidae	<i>Rapa rapa</i>
Cymatiidae	<i>Charonia tritonis</i>
Cypraeidae	<i>Cypraea caputserpentis</i> <i>C. mauritiana</i> <i>C. testudinaria</i> <i>C. tigris</i>
Bursidae	<i>Bursa bubo</i>
Melongidae	<i>Syrinx aruanus</i>
Mitridae	<i>Mitra mitra</i>
Muricidae	<i>Chicoreus ramosus</i> <i>Murex haustellum</i> <i>Rapana rapiformis</i> <i>Thais</i> sp.
Olividae	<i>Oliva</i> spp.
Ovulidae	<i>Ovula ovum</i>
Strombidae	<i>Lambis chiragra</i> <i>L. lambis</i> <i>L. scorpius</i> <i>L. truncata</i> <i>Strombus latissimus</i> <i>S. sinuatus</i>
Terebidae	<i>Terebra chlorata</i>
Tonnidae	<i>Malea pomum</i> <i>Tonna olearium</i>

Table 1 continued

Class/Family	Species
Trochidae	<i>Tectus fenestratus</i>
	<i>T. pyramis</i>
	<i>Trochus maculatus</i>
	<i>T. niloticus</i>
Turbinidae	<i>Turbo bruneus</i>
	<i>T. chrysostomus</i>
	<i>T. marmoratus</i>
Volutidae	<i>Cymbiola chrysostoma</i>
	<i>C (Aulica) innexa</i>
	<i>C (Aulica) nobilis</i>
	<i>Melo (Melo) melo</i>
	<i>Melo (Melocorona) aethiopicus</i>
	<i>Melo (Melocorona) amphora</i>
	<i>Melo (Melocorona) umbilicatus</i>
Bivalvia	
Pinnidae	<i>Pinna bicolor</i>
Pteriidae	<i>Pteria penguin</i>
	<i>Pinctada margaritifera</i>
	<i>P. maxima</i>
Tridacnidae	<i>Hippopus hippopus</i>
	<i>H. porcellanus</i>

Table 2. The number of persons working in shell business, the value in Indonesian currency (rupiah), and converted to US dollars. Data from the Industrial Department in Ujung Pandang.

Year	Persons	(Rupiah)	(US\$)
1991	288	89,750,000	42,738
1992	380	541,050,000	257,642
1993	385	561,530,000	267,395

After processing the value will increase 3 times as shown by recent figures: raw material purchased from middlemen cost US \$ 70,476. The exported buttons earned US \$ 214,761 (Industrial Department of Indonesia in Ujung Pandang, 1993). It is obvious that this button factory has dramatically increased the value of shell products from the region.

REFERENCE

- Aungtonya, C & S. Khokiattiwong. 1992. Survey of *Chicoreus* Landing and Trade on Phuket Island, Thailand. - Phuket mar. biol. Cent. Spec. Publ. 11: 34-36.