

## Teripang fishing activities at Barang Lompo Island, Sulawesi, Indonesia: An update 20 years after a visit in 1996

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### Abstract

The current situation regarding *teripang* (dried sea cucumber) activities at Barang Lompo Island is presented in this article, and is based on interviews and visits to processors. The comparison with a visit 20 years ago shows that this activity is still important as fishermen continue to go for long trips far from the island to collect *teripang*, but there have been noticeable changes in the depth of the dives, the species collected, the catch volume and processing methods. The present high prices paid for processed product compensates fishermen for the decrease in capture volume.

### Introduction

Indonesia has been and still remains the top producer of dried sea cucumber (*teripang*) on a global scale (Conand 1990; Choo 2008; Conand in press). The *teripang* fishery and trade have already been described from several islands in Indonesia (e.g. Tuwo and Conand 1992; Moore 1998; Navarro et al. 2014; Setyastuti and Purwati 2015). Barang Lompo is a small island in the Spermonde Archipelago near Makassar, South Sulawesi where this fishery has traditionally been important. Following a first visit in 1996 (Conand and Tuwo 1996), the current state of activities was assessed during a visit in 2016, where the authors were able to hold interviews and make observations.

### Material and methods

Interviews were conducted with a *teripang* diver at the University Hasanuddin's Marine Station and at two different *teripang* processing centres on Barang Lompo Island. Samples of several species were observed, collected and measured.

The results are discussed in comparison with observations made during a visit to Barang Lompo 20 years ago. The Food and Agriculture Organization guide (Purcell et al. 2012) was useful for identification, although more species need to be included to allow for changes in target species.



**Figure 1.** Barang Lompo Island with some fishing boats moored around the island. (Google maps: <https://www.google.co.id/maps/>).

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## Results

### Interview with a teripang fisherman

#### Fishing trips and crew

“PK” is 41 years old. He has spent 25 years diving for sea cucumbers and arrived in Barang Lompo from another island 10 years ago because he found a “boss” here. His fishing grounds include different sites in the Sulawesi Sea, Java Sea, the coasts of south and west Borneo, Makassar Strait, and the Moluccas to the Australian offshore reefs of Cartier Island (called Pasir Putih by Indonesians). He usually goes on fishing trips that last about a month, and generally makes seven trips per year, with 5–10-day breaks to rest between trips.

The boat is owned by a Barang Lompo resident, and the official registered tonnage is around 7 gross tons. The crew of 10 comprises 6 divers, the captain, the compressor operators, and the engineer. Bottled gas is used on the boat for cooking and for *teripang* processing. There are several dozen vessels that go to the same sites, some of similar size and others slightly smaller with eight crew members, five of whom are divers.

The crew, including the divers, may switch between boats; for example, PK has worked on 20 different boats successively. The provisions loaded on the boat are calculated to enable the crew to remain at sea for up to 40 days. Provisions include rice and fuel, as well as the cigarettes (around 200 multi-pack boxes), which represent an important part of the crew’s remuneration. There is a complex system for the division of profits, with the divers only receiving a small percentage.

If a diver suffers a decompression accident, he will generally go back down with another diver who will give him an underwater massage, before they both return very slowly to the surface. The family

receives a one-off payment in case of death but there is no such compensation in the event of permanent disability.

#### Hookah diving

Diving activities last for around eight hours each day (from 08:00 to 16:00). The three pairs of divers take turns going down, with each pair collecting for 30 minutes then resting for an hour. They dive three times per day using hookah gear, mostly to depths of 20–30 m (sometimes deeper, to 40 m or more). The twin hoses are 140 m in length and fitted with regulators. The divers are aware when they go deeper than 20 m because the regulator makes a special noise below when the diver goes below this point. The boat has been equipped with an echosounder for five years, so the crew can “see” the bottom depth and profile; previously, they used a weighted rope to determine the depth. The divers pick the sea cucumbers up by hand and place them in a mesh bag.

#### Species targeted and processing onboard

The main large species currently being collected include *teripang biba* (probably *Holothuria lessoni*) referred to as the “big taikongkong” (TKK). Current onboard processing techniques comprise several steps. Sea cucumbers are first “sanded” until they are white in order to remove the surface spicules, then cooked for 15 minutes in sea water. They are then cut open on the ventral side for evisceration and cleaning; they are then salted (with salt pushed into the body cavity and packed between individuals to prevent contact between them) and stored in a polystyrene box for 24 hours. The next day, they are cooked again, drained and put in a drum with salt where they can be stored for several months.

The other species, *teripang gondrong* (meaning long-haired sea cucumber, probably *Stichopus naso*), is much smaller. These are not sanded but are eviscerated, cleaned and cooked onboard. On return to



**Figure 2.** Processed *teripang* at the first processor. A: *teripang biba*, *Holothuria lessoni*; B: several well-processed species. (images: C. Conand)

Barang Lompo, the buyer cleans the semi-processed *teripang* once more, and proceeds to the final cooking stage just before they are taken to Makassar.

**Sampling at the first processor:** The (recently arrived) catch observed consisted mostly of *teripang biba* (probably *Holothuria lessoni*), which were around 30 cm in length after the final (third) cooking. Other species observed were *Stichopus hermani*, or big *taikongkong besar*, where were around 17 cm in length, *Thelenota ananas* and *H. whitmaei* (Fig. 2). Processing is done by the brother-in-law of the owner who has 20 boats. Products from this processor are mostly sent to Hong Kong.

**Sampling at the second processor:** Many TKK *gondrong* (probably *Stichopus naso*) were observed. This species has been described in detail by Mas-sin (2007). It shrinks significantly during processing and is soaked in fresh water giving it the name of *teripang rendam* (soaked *teripang*). It used to have very little value but is now in high demand. In a batch recently landed from a *teripang* fishing boat, the mean observed length was 12 cm.

At this processor, many different species were observed in baskets that had not been sorted by species. Species included: teatfish *Holothuria whitmaei* (few specimens from 17 to 20 cm), *Thelenota ananas* (few specimens 21 to 25 cm), *H. edulis* (15 to 19 cm), *H. fuscopunctata*, *H. scabra*, and finally the dendrochirotid *Pseudocholochirus* sp. (around 9 cm), locally called *teripang kurma* (meaning date *teripang*), which was never observed before as a processed product (see other communication in this issue).

## Discussion

Sea cucumbers represent the most important target species for fishing boats of Barang Lompo Island. Any additional catch is considered to be the individual property of the collecting diver, thereby providing non-predictable but welcome additional income. Typically, this might include lobsters (*Palinurus* sp., *lobster bamboo* and *mutiara*) which are kept alive long enough to be sold, usually before making

the return journey; some gastropods, including trochus, *Charonia tritonis* (very rare) and *Cassus cornutus* (*kepala kambing*), all three of which are protected species; and the bivalve *Pinctada margaritifera*.

There are presently 4 main processors, 30 boat owners (1 to 5 boats each), and 20 traders taking product to Makassar. In a typical trip, one boat may catch up to 2 t of wet sea cucumbers. In 1996, boats only carried compasses to find the fishing grounds, but now most use a GPS.

The comparison with the situation observed in 1996 (Conand and Tuwo 1996) is based on an interview with the diver in 2016 who noted the following:

The fishing grounds today are about the same distance from Barang Lompo as they were before, but are not in the same area. Now, many fishers come from different places (e.g. Madura, Java, Sulawesi, West Nusa Tenggara and others) and venture out the same distance from Barang Lompo as before but to different sites, so there is no conflict among the fishers.

There have been changes in the fishery over the last 20 years, including a decline in sea cucumber catches but an increase in prices, where the income earned is roughly the same as it was 20 years ago.

Divers still go down to about the same depth as before, but are spending more time in deeper water.

Divers used to dive in Australian waters (near Cartier Island), but now fish just outside of this area.

From our previous observations, it appears that the overall sea cucumber fishery on the island has declined since 1996.

We observed 30 fishermen on 30 boats who did not process the catch onboard but instead, kept the catch in salt. The



**Figure 3.** A: The last step of cooking TKK *gondrong*; B: TKK *gondrong* *Stichopus naso* (?); C: several species, including the orange "date *teripang*", *Pseudocholochirus* sp. (images: C. Conand)

divers were mostly Barang Lompo inhabitants but recently, they have been coming from other islands, such as Bima Sumbawa, Banggai, Buton, Wakatobi and Flores Islands. Some of them bring their families and stay at Barrang Lompo, which means the island has become quite crowded.

60 processors used to be on the island, now there are much fewer (reportedly only 4);

the dominant holothurian species collected used to be *Actinopyga* sp. and *Thelenotanax* (not observed in 2016); however, on this recent visit, the dominant species had changed and varied between processors. At one processor, *Holothuria lessona* (formerly *H. scabra* var. *versicolor*) was predominant, while *Stichopus* sp. (probably *S. naso*) was predominant at another processor.

processing used not include the first cooking onboard, as it does now.

Previously, all of the streets on the island were covered with sun-drying sea cucumbers on blue plastic sheets. Now the roads are sealed and heavily used by numerous motorbikes.

In conclusion, it appears that such repeated surveys over a long time period are useful. This example shows that changes are evident in the fishing-processing-marketing chain for sea cucumbers in Sulawesi. It will be interesting to re-examine the activities in the other islands where such activities have been described in the past, such as Wakatobi (Moore 1998) and Pulau Misa (Navarro et al. 2014).

At the larger scale of Indonesia, Choo (2008) refers to 38 species, and the recent synthesis by Setyastuti and Purwati (2015), based on sampling at four sites in Indonesia, indicates 33 species, which have been taxonomically confirmed. This list does not include *Stichopus naso* but several *Stichopus* spp. are listed, and this genus deserves further investigation.

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