

Holothurian Exploitation in the Philippines: Continuities and Discontinuities*

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ABSTRACT In this paper I will discuss variation in holothurian resource exploitation in the Philippines generally and trepang fishing especially on Mangsee Island, in the southern part of Palawan Province, where people fish in the Spratly Islands. Holothurian has been a major exporting product from maritime Southeast Asia to China for, at least, three hundred years. Many scholars working in Southeast Asian maritime societies have noted the dynamic human networks involved in pursuing dried sea products like trepang or shark fins. However, few scholars have dealt with the actual materials of the trade. This paper will establish that 22 species of holothurian are traded in the Philippines at present, and that the price of the most expensive is some 80 times greater than that of the cheapest. Moreover, in recent years, lower quality trepang has been acquiring more commercial value. Holothurian is not just an exclusive expensive foodstuff as mentioned in historical records. It is also an ordinary material used in the present. The cheaper trepang species are consumed more than ever before in the Philippines and elsewhere. One of the most important aspects of the Philippine trade is that the country exports a huge volume of trepang of lower commercial value. There is a vast difference in the industry in the past and the present and we have to pay careful attention to the continuity and discontinuity in the industry.

Key words: holothurian resources / maritime society / trade networks / the Philippines / Spratly Islands.

Holothurian (trepang, beche-de-mer or sea cucumber) is known as *balatan* (*balat* or also *bat*) in the Philippines. Dried balatan has been a delicacy among the Chinese community for at least 400 to 500 years and has been an important exporting commodity from the Philippines.

The Sulu Sultanate in the southern Philippines prospered in the late 18th century as a result of balatan trades with Spain, Britain and China (Warren 1985). Balatan trade in the South Pacific region flourished during the early 19th century and Manila was an active entrepot for the balatan trade between the Pacific and China in those days (Ward 1972). During the 19th century, however, the trade pattern of the Philippines shifted from China-oriented to United States or Britain and its colonies orientation. During the latter part of 19th century, thus, sugar, abaca, and tobacco became the major exporting products from the Philippines. Regardless of the trend, balatan remained as one of the major important natural resources in the Philippines traded with China in the early 20th century (Seale 1911, 1917).

Having compiled large volumes of records on balatan production and trade throughout Japan,

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Southeast Asia, northern Australia, and the South Pacific region, Tsurumi (1999) noted that the peasantry fishermen have always been engaged in the balatan industry during the colonial era. Schoppe (2000:10) observed a peaceful and stereotyped division of labor practiced in current Philippine balatan fishery whereby women are primarily involved in the collecting of balatan from shallow areas while men skin-dive or use air compressors for deeper waters.

These two studies miss an important viewpoint. As they point it out, balatan fishery is very "traditional" in the Philippines. However, there is continuity and discontinuity in history of balatan industry. Mass production, mass trade, and mass consumption are key to understanding the current balatan industry in the Philippines (Akamine 2000). There are several communities that mainly depend on balatan fishery in the Philippines, which make the Philippines the second largest producer in the world having exported 1,125 metric tons of balatan in 1999 ¹⁾.

In the case of Mangsee Island, the southern Palawan, balatan has been exploited in the last thirty years and as a result, there are little balatan resources left in nearby seas. Women are no longer involved in balatan fishing on Mangsee Island because fishing grounds are reaching remote coral reefs. Balatan fishing is commonly conducted in the Spratly Islands in the South China Sea or even illegally within Malaysian waters. About 10 to 15 fishermen spend several weeks at sea employing hookah type air-compressors.

Balatan fishing on the Mangsee Island is in pursuit of better living but never for subsistence. It, therefore, has been changing in scope with resource decrease and technical innovation. In this sense, Schoppe's observation is naive and idealistic. Rather, we need to investigate fishermen's adaptation to resource depleting in order to appreciate the dynamics of the fishing community in the Philippines.

Purpose and Organization of the Study

This study aims to address three interrelated issues. First, the paper briefly explores the history of balatan resource exploitation in relation to species exploited during colonial times. Although the origin of balatan dishes in China is beyond the scope of the present study, one needs to examine balatan fishing origins in Southeast Asia and the kinds of balatan exploited during colonial times. From what is known, consumption of balatan in China became popular during the 15th century and expanded during the 17th century, being considered an expensive and aristocratic food served at court (Tsurumi 1999). The study will explore historical trade records to identify the species traded in the 19th and early 20th centuries and point out their economical values.

Secondly, the study will report the present condition of balatan domestic trade in the Philippines. As of September 2000, there were at least 22 species being commercially exploited in the Philippines and the most expensive kind was worth 80 times the value of the least. Not only has balatan prices increased, but the number of commercially valued balatan has almost doubled in the last several decades. The expansion of the exploited species in such a short time is particularly noteworthy considering that balatan trade has had a long history. In order to interpret the current expansion of balatan production, it is necessary to gain insights into the domestic and international balatan trade from the viewpoint of the global market economy.

1) In 1985, the Philippines exported about 3,500 metric tons of balatan, which was estimated as six times much as the peak of exports in the 19th century from the Philippines.

Thirdly, the paper will discuss balatan resource depletion in the Philippines and how the fishermen on Mangsee Island have adapted themselves to the changes. According to export statistics, the volume of balatan exported from the Philippines has decreased since 1985 and the present export volume is only one thirds of its peak level. Over-exploitation of balatan on Mangsee Island is becoming more evident as divers increasingly complain of decompression sickness. Fishermen target the more profitable species and consequently dive at deeper levels, resulting in an increase in incidence of paralysis and death. In order to avoid decompression diseases, some fishermen have switched their targets to more accessible, albeit less profitable populations, which are abundant in shallow waters. As a result, a greater fishing quota is required to assure adequate financial income.

The paper will explore several phenomena occurred in the Mangsee Island relating to resource depletion and appreciate the changes in fishing practices as the active response of the fishermen to outer circumstances.

History of Balatan Exploitation

Balatan is a Chinese traditional aristocratic foodstuff. It is not only nutritionally investigated for their high protein content and absence of cholesterol (FAO 1991:49) but also, according to Chinese beliefs, empowers physical and sexual energy ²⁾.

Balatan may be dried for at least a month for storage, and processed through complicated methods before consumption. The dried form must be soaked in water overnight and be repeatedly simmered for about a week until re-hydration. This is one of the reasons why balatan is considered a delicacy. After re-hydration, the body is either chopped and braised or sliced and served in soup.

The popularity of balatan increased in China from the 15th to the 17th century. The Shogunate government at Edo (or Tokugawa's Japan, 1601-1867) began exporting balatan to the Ching dynasty (1644-1912) during the late 17th century in exchange for Chinese silk. During the same period, balatan, harvested from tropical waters, was also one of the important trade items that European countries brought into China in search of tea, silk, and porcelains.

There are no explicit historical records that indicate when balatan fishing in Southeast Asia began prior to the early 18th century. A fleet of 40 boats searching for balatan in Timorese waters was reported in 1728 (Fox 1977:460). Flinders, a British captain, witnessed the balatan fishery in the Bay of Carpentaria, northern Australia in 1803 (Flinders 1814). Macknight, who wrote an exhaustive study on Macassan balatan fisheries in northern Australia, assumed the beginning of this industry between 1650 and 1750 (Macknight 1976). Macknight's interpretation is consistent with the history of the Sulu Sultanate, in the southern part of the Philippines, which dramatically prospered in the late 18th century due to balatan trades (Warren 1985).

In Southeast Asian waters, balatan production most-likely became popular during the 18th century. There are only a few records of indicating the particular species exploited during these times. Flinders recorded two balatan vernacular names: *koro* and *baatoo* (Flinders 1814:231), which most likely would be *Holothuria fuscogilva* and *H. nobilis* respectively. In the 1810s, Crawford, an officer of the British East India Company, recorded 15 kinds of balatan traded at Makassar in south Sulawesi

2) In Chinese, holothurian is called 海参 *hai-shen*, after herbal 人蔘 *jinseng* or *ginseng* because Chinese believe the holothurian has similar medical affect as *jinseng*.

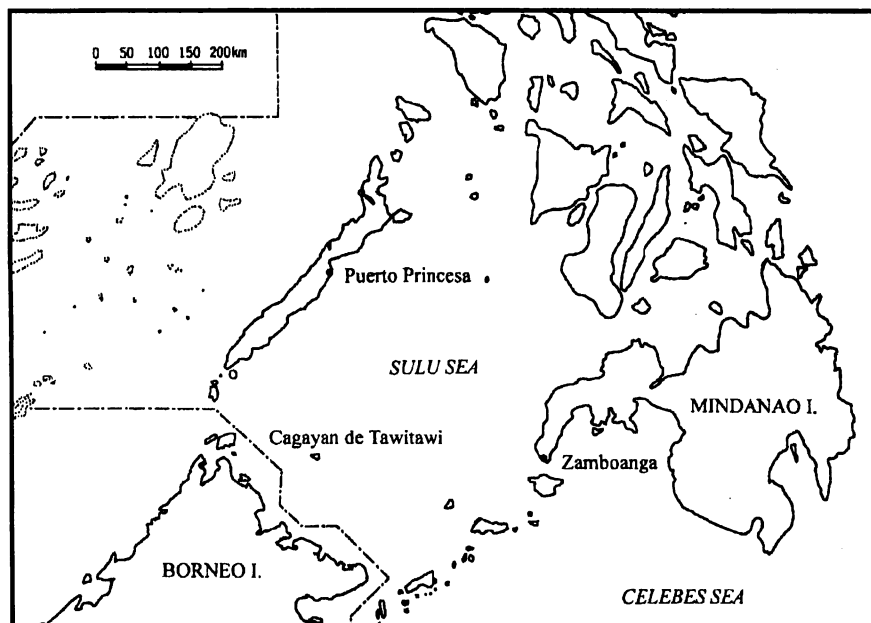


Fig. 1. Puerto Princesa and Zamboanga.

(Crawford 1820:442-443), although identical species were named differently according to the length and place of harvest. Employed currently used names, there are at least six species identified: *Bohadschia graeffei*, *H. fuscogilva*, *H. fuscopunctata*, *H. nobilis*, *H. scabra*, *Stichopus chloronotus*, *S. hermanni*, and *S. horrens*. *Itam* in his record is probably *Actinopyga* spp. and *kawasa* probably *Bohadschia* spp. Four types of balatans, *tacheritang*, *tundang*, *mosi*, and *pachang goreng*, are as yet unidentified³⁾.

The current commercial value of balatan in the Philippines is an important consideration in relation to past trends (Table 1). Among them, *H. fuscogilva* and *H. scabra* are currently the most valuable, and *H. nobilis*, *S. chloronotus*, *S. hermanni*, *S. horrens*, and *Actinopyga* spp. follow in descending order. The unidentified *tacheritang* and *tundang* were considered as valuable as *H. fuscogilva* and *H. scabra*, in contrast with the less valuable *mosi* and *pachang goreng*. While *itam* (*Actinopyga* spp.) is considered valuable, *kawasa* (*Bohadschia* spp.) is in the middle and *B. graeffei* and *H. fuscopunctata* are in the lower price range. The top two third balatans in Crawford's list are considered valuable species today. In addition, the difference between the top and lowest priced species were 14-fold, which is much smaller than that of the present 80-fold difference.

About a century later, only six kinds of balatan were traded in Manila, that is, *Actinopyga* spp., *H. fuscogilva*, *H. nobilis*, *H. scabra*, *Thelenota ananas*, and *S. chloronotus* (Seale 1911: 284-285). There was no mention of *S. hermanni* and *S. horrens*, although *T. ananas*, which did not appear in the Crawford's list, was listed. *T. ananas* the eighth most valuable species in the current Philippine market.

3) On Indonesian balatan vernacular names, scientific names, and the present commercial values, see Akamine (2000:64-67).

Table 1. Balatan names and prices in Puerto Princesa City (per kilogram).

No. vernacular	scientific name ¹	size assesment		size label ⁴¹	PHP	USD ⁵
		weight ²	length ³			
1 putian	<i>H. scabra</i>	15		XL	1,650	36.7
		20		L	1,400	31.1
		40		M	1,100	24.4
		60		S	750	16.7
		80		XS	550	12.2
2 susuan	<i>H. fuscogilva</i>	3-4		XL	1,600	35.6
		5-6		L	1,550	34.4
		7-8		M	1,200	26.7
		8-10		S	800	17.8
		11-15		XS	560	12.4
3 buliq-buliq	<i>Actinopyga</i> spp.		3" up	L	1,100	24.4
			2.5"	M	700	15.6
			1"-2.5"	S	520	11.6
			(<1")	XS	470	10.4
4 bakungan	<i>H. nobilis</i>	5-6		L	1,200	26.7
		7-8		M	1,000	22.2
		8-10		S	800	17.8
		11-15		XS	500	11.1
5 katro kantos	<i>S. chloronotus</i>		na		1,050	23.3
6 hanginan	<i>S. horrens</i> <i>S. hermanni</i>		3.1" up	L	950	21.1
			2.5"-3"	M	650	14.4
			2"-2.5"	S	520	11.6
		(<2")	XS	300	6.7	
7 hudhud	?		na		700	15.6
8 tinikan	<i>T. ananas</i>		5" up	L	650	14.4
			4"-5"	S	450	10
9 khaki	<i>A. mauritiana</i>		3" up	L	650	14.4
			2.5"	M	500	11.1
			1.5"-2.5"	S	360	8
			1"-1.5"	XS	180	4
10 leopard	<i>B. argus</i>		na		380	8.4
11 lawayan	<i>Bohadschia</i> spp.		4" up	L	310	6.9
			2.5"	M	280	6.2
			(<2.5")	S	180	4
12 white beauty	?		na		250	5.6
13 patola red	?		na		250	5.6
14 black beauty	<i>H. atra</i>		5" up	L	240	5.3
			4"-5"	M	140	3.1
			2"-4"	S	100	2.2
15 brown beauty	?		na		240	5.3
16 red beauty	<i>H. edulis</i>		na	L	240	5.3
				S	220	4.9
17 legs	<i>T. anax</i>		na		220	4.9
18 patola	<i>H. leucospilota</i>		na		220	4.9
19 sapatos	<i>H. fuscopunctata</i>		na		130	2.9
20 bulaklak	<i>B. graeffei</i>		na		110	2.4
21 labuyuq	?		na		75	1.7
22 patola white	?		na		20	0.4

Source: Price list of Exporter A (as of Sept. 2000).

1: A, H, B, and T in the third row are *Actinopyga*, *Holothuria*, *Bohadschia*, and *Thelenota* respectively.

2: The nominal number of individuals needed for one kg; this is assessed by weighing one by one in the hand.

3: Assesment in relation to length of middle finger. The brackets indicate figures inferred by the author. Not applicable (na) indicates size not assessed.

4: This labelling follows the American clothing classification.

5: At the date of research, USD 1 equals to PHP 45.

It can be assumed that the balatan trade during the colonial era involved the more valuable, which is consistent with the general perception that balatan is an expensive and aristocratic delicacy.

Commercially Traded Species in the Philippines

Of the 1,200 holothurians known today (Conand 1990), there are at least twenty two commercially exploited species in the Philippines (Table 1). Of those identified, almost half of them belong to the genera *Holothuria*. Other genera traded in the Philippines are *Actinopyga*, *Bohadschia*, *Stichopus*, and *Thelenota*.

Almost all of the islands in the Archipelagoes produce the balatan products. Among them, Zamboanga City in Mindanao and Puerto Princesa City in Palawan are the largest entrepots in the Philippines (Trinidad-Roa 1987, Fig. 1). There are four major balatan exporters in the Philippines (Akamine 2000, Schoppe 2000), all of whom are Chinese-Filipino, and they deal with other dried marine products, like shark fin and dried sea horse whose main market is China as well ⁴⁾. They have branches or agents in the other parts of the Philippines (henceforth, mnemonically called A, B, C, and D). The exporter A, B, and C have their branches in Puerto Princesa City (shown middleman A', B' and C' in this paper). Strong business ties exist between the exporter D and the middleman D' in Puerto Princesa City ⁵⁾.

The purchasing value of the four middlemen remains competitively similar. Generally, larger balatan with a thick body wall is preferred. The prices listed are for top-quality specimens. In addition to the categories indicated in the list, there is a common practice to categorize those considered as "reject" or "class B" in real transactions. Wet, ill-shaped, or half-cooked product is classified as "reject", which only values about 40 percent against the maximum price.

However, not all species are categorized this way. Of the 15 purchase receipts from middlemen A', B', and C', only *H. fuscogilva*, *H. nobilis*, *H. scabra*, *S. hermanni*, *S. horrens* and *Actinopyga* spp. have the "reject" category. All of these are considered expensive species.

Balatan is further categorized into 3 classes according to size. Only *H. scabra*, *H. fuscogilva*, and *H. nobilis* are classified by individual weight estimated by weighing by hand. The second type of classification is according to length, as measured against one's middle finger. Less valuable species are not classified either by weight or length. For weight and length, clothing size classifications XL, L, M, S, and XS are used. The common categorization uses a quartile classification. Only the top two most valuable species have five levels of classification. Three categories are employed to classify *lawayan* (11) and *H. atra*, while two are used for *T. ananas* and *H. edulis*.

Table 2 shows individual balatan weight measured from twenty samples. In all sized species, the L-sized balatans have a wider weight range. Although *sapatos* (19) and *legs* (17) are heavy, their commercial values are low. *Patola white* (22) and *labuyug* (21), on the other hand, are not only the least valuable but also the lightest, necessitating at least 160 individuals to make up one kilogram.

Table 3 shows a price increase from 1998 to 2000. Surprisingly, *patola red* and *patola white* gained new commercial values by 2000, while *tinikan* (7) and *red beauty* (15) were assigned a binary

4) According to a major exporter branch in Puerto Princesa City, they bought 12 metric tons of dried balatan, sharks fin, dried sea horse and sea shells during a month in September 1999, which had a value of 5 million pesos, equivalent to 125 thousand US dollars.

5) There are innumerable small-scale balatan buyers in Puerto Princesa City, locally called "buy-and-sell", who resell their stock with a little margin to the major middlemen in the City.

Table 2. Weight per individual balatan.

No.	Vernacular name	Scientific name	Size ¹	Mean (g)	SD	N
3	buliq-buliq	<i>Actinopyga</i> spp.	L	105.3	15.1	20
			M	29.5	5.8	20
			S	11.7	4.6	20
			XS	5.5	2.6	20
5	katro kantos	<i>S. chloronotus</i>	na	21.2	11.4	20
6	hanginan	<i>S. horrens</i> <i>S. hermanni</i>	L	61.3	27.3	20
			M	17.3	4.5	20
			S	6.3	1.4	20
8	tinikan	<i>T. ananas</i>	XS	2	1.2	20
			L	136.4	50.3	20
			S	35.6	18.3	20
10	leopard	<i>B. argus</i>	na	63.5	15.6	20
11	lawayan	<i>Bohadschia</i> spp.	L	57.3	14	20
			S	10.1	2.8	20
12	white beauty	?	na	24.6	8	20
13	patola red	?	na	7.3	1.8	20
14	black beauty	<i>H. atra</i>	L	59.2	14.6	20
			M	16.6	4.9	20
			S	8.2	2.5	20
15	red beauty	<i>H. edulis</i>	L	38.1	12.1	20
			S	10	5.5	20
16	brown beauty	?	L	23.9	9.1	16
			M	17.3	4.5	20
			S	11.9	4.2	20
17	legs	<i>T. anax</i>	na	210.1	104.8	20
18	patola	<i>H. leucospilota</i>	na	13.9	9.2	20
19	sapatos	<i>H. fuscopunctata</i>	na	227.4	101.5	20
20	bulaklak	<i>B. graeffei</i>	na	38.4	11.2	20
21	labuyuq	?	na	5.3	2.5	20
22	patola white	?	na	6.2	1.9	20

Source: Akamine (fieldnotes)

1: Not applicable (na) indicates no size given. This classification follows that of given by the middleman A' in Puerto Princesa City in September 2000.

classification based on body length. Evident in Fig. 2 is an 84 percent increase in value over the past three years, particularly among cheaper species. This tendency is more explicitly illustrated in Fig. 3.

Furthermore, the observed trend should be examined in a broader perspective. Trinidad-Roa, a marine biologist, reported in 1986 that only sixteen balatan species were traded in the Philippines (Trinidad-Roa 1987), with no mention of *white beauty* (12), *red beauty* (16), *bulaklak* (20) and *labuyuq* (21), possibly because they had no commercial values at that time. Currently, *white beauty* (12) is a relatively valuable species, while the other three species are considered lower grade.

From the present survey and Trinidad-Roa's observations, we can, therefore, assume that the lower-valued species have been intensively exploited for the last decade or so in the Philippines, which exhibits a striking contrast to a long exploited high-valued holothurians.

Balatan Exports from the Philippines

Balatan appeared in the trade statistics of the Philippines in 1970 for the first time since World War II. Export statistics from 1970 to 1999 is illustrated in Fig. 4.

Table3. Balatan prices in PHP and USD: 1998 - 2000 (per kg.).

Vernacular name	Scientific name	Size label ¹	PHP ²			USD ³		
			1998	1999	2000	1998	1999	2000
1 putian	<i>H. scabra</i>	XL	1,300	1,400	1,650	29.7	35.0	36.7
		L	1,000	1,100	1,400	22.8	27.5	31.1
		M	700	750	1,100	16.0	18.8	24.4
		S	400	450	750	9.13	11.3	16.7
		XS	300	350	550	6.85	8.75	12.2
2 susuan	<i>H. fuscogilva</i>	XL	950	1,200	1,600	21.7	30.0	35.6
		L	900	1,100	1,550	20.5	27.5	34.4
		M	750	900	1,200	17.1	22.5	26.7
		S	550	600	800	12.6	15.0	17.8
		XS	400	500	560	9.13	12.5	12.4
3 katro kantos	<i>S. chloronotus</i>	na	700	750	1,050	16.0	18.8	23.3
4 bakungan	<i>H. nobilis</i>	L	650	700	1,200	14.8	17.5	26.7
		M	550	600	1,000	12.6	15.0	22.2
		S	450	450	800	10.3	11.3	17.8
		XS	400	350	500	9.13	8.75	11.1
5 buliq-buliq	<i>Actinopyga</i> spp.	L	650	800	1,100	14.8	20.0	24.4
		M	450	550	700	10.3	13.8	15.6
		S	350	450	520	7.99	11.3	11.6
		XS	250	400	470	5.70	10.0	10.4
6 hanginan	<i>S. horrens</i> <i>S. hermanni</i>	L	550	800	950	12.6	20.0	21.1
		M	400	500	650	9.13	12.5	14.4
		S	300	400	520	6.85	10.0	11.6
		XS	180	250	300	4.11	6.25	6.67
7 tinikan	<i>T. ananas</i>	L	450	530	650	10.3	13.3	14.4
		S	-	-	450	-	-	10.0
8 hudhud	?		420	450	700	9.59	11.3	15.6
9 khaki	<i>A. mauritiana</i>	L	360	450	650	8.22	11.3	14.4
		M	220	300	500	5.02	7.50	11.1
		S	160	250	360	3.65	6.25	8.00
		XS	100	120	180	2.28	3.00	4.00
10 leopard	<i>B. argus</i>	na	230	280	380	5.25	7.00	8.44
11 lawayan	<i>Bohadschia</i> spp.	L	160	220	310	3.65	5.50	6.89
		M	120	200	280	2.74	5.00	6.22
		S	80	120	180	1.83	3.00	4.00
12 legs	<i>T. anax</i>	na	150	170	220	3.42	4.25	4.89
13 black beauty	<i>H. atra</i>	L	110	160	240	2.51	4.00	5.33
		M	70	85	140	1.60	2.13	3.11
		S	30	40	100	0.68	1.00	2.22
14 white beauty	?	na	110	160	250	2.51	4.00	5.56
15 red beauty	<i>H. edulis</i>	L	100	130	240	2.28	3.25	5.33
		S	-	-	220	-	-	4.89
16 brown beauty	?	na	100	130	240	2.28	3.25	5.33
17 patola	<i>H. leucospilota</i>	na	80	130	220	1.83	3.25	4.89
18 sapatos	<i>H. fuscopunctata</i>	na	80	110	130	1.83	2.75	2.89
19 bulaklak	<i>B. graeffei</i>	na	60	85	110	1.37	2.13	2.44
20 labuyuyq	?	na	28	40	75	0.64	1.00	1.67
- patola red	?	na	-	-	250	-	-	5.56
- patola white	?	na	-	-	20	-	-	0.44

Source: Akamine (2000, fieldnotes).

1: Not applicable (na) indicates no size given.

2: Price given by middleman A' in Puerto Princesa City in October 1998, October 1999 and September 2000.

3: USD 1 equals to PHP 44 in 1998, PHP 40 in 1999 and PHP 45 in 2000 respectively.

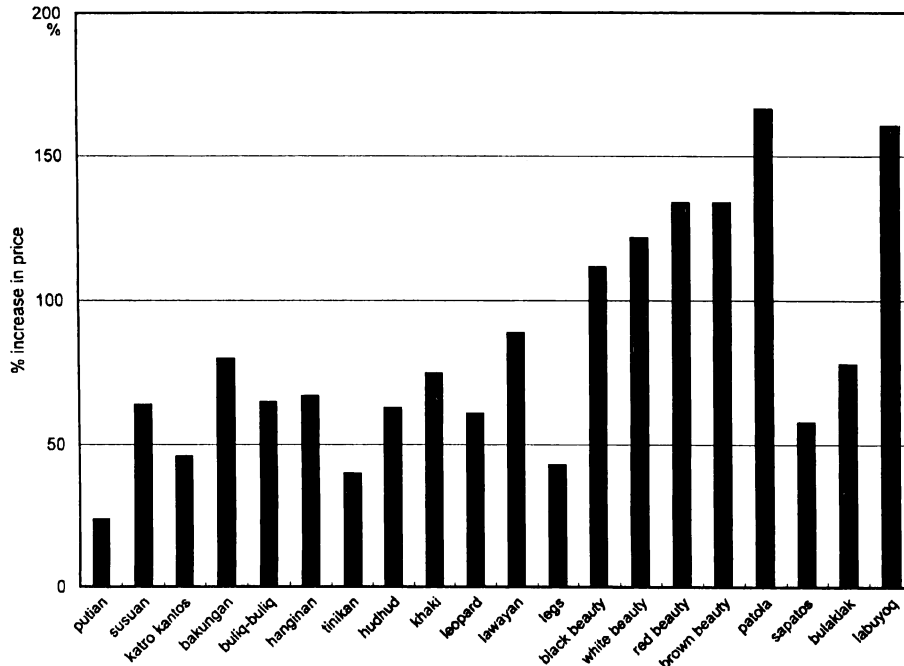


Fig. 2. Price increases by species 1998 - 2000.

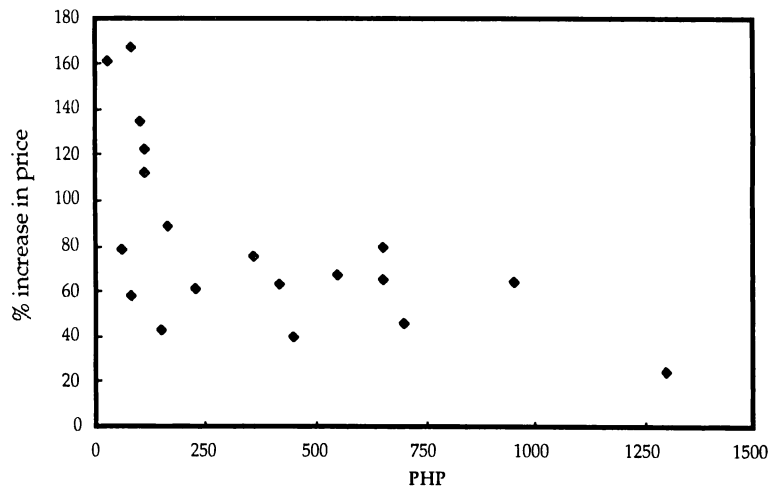


Fig. 3. Price increase 1998 - 2000

In 1970, the Philippines shipped only 12 metric tons of balatan, which increased to nearly 100 metric tons in 1976, 226 metric tons in 1977, and as much as 647 metric tons in 1978. Between 1978 and 1982, the Philippines annually exported more than 500 metric tons with the exception of 1979. Surprisingly, the Philippines has maintained a 1,000 metric ton export level since 1983, a level achieved only by the Philippines and probably Indonesia ⁶⁾. In 1985, the Philippines reached its peak

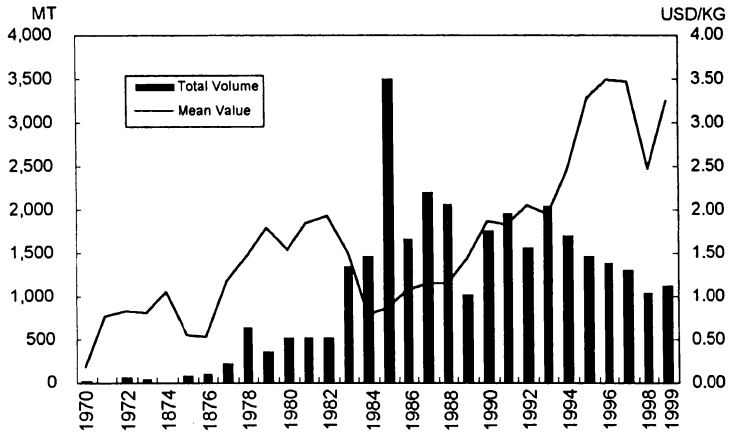


Fig. 4. Volume and mean value of balatan exports from the Philippines 1970-1999

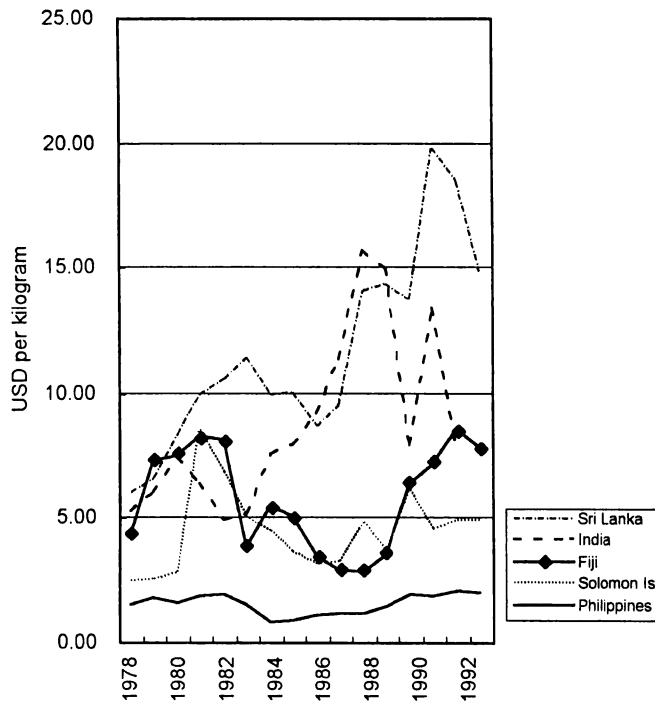


Fig. 5. Major balatan exporting countries by mean value 1978-1993

production of 3,499 metric tons worth almost 3 million US dollar. Although the 1999 harvest was only a third of this, the average price per kilogram since 1984 has increased. The sharp price fall in 1998 was probably due to the depreciation of Philippine peso (PHP), which dropped about thirty percent against the US dollar (USD).

According to the 1992 *FAO Yearbook*, the Philippines owned 15.6 percent of the world balatan trade by volume. However, the trade value was only 8.2 percent of the world trade. In that same year,

Sri Lanka exported only 0.4 percent of the total world market in volume, but had a trade value of 1.7 percent. Mean trade value per kilogram for the Philippines was USD 2.05, while that of Sri Lanka was USD 18.9, which is a surprising 9-fold difference. This explicitly shows that the Philippines exports lower valued balatan compared to other major balatan exporting countries (Fig. 5). This is typical of the Philippine balatan industry.

Balatan Fishing and Processing in Mangsee Island

The present research was conducted in the small island named Mangsee in the southern part of Palawan Province. The island lies only one nautical mile away from the national border with Malaysia (Fig. 6).

The population of the island was about 6,000 in 1997, with about 95 percent being Sama, also known as Bajau, a common ethnonym. The Mangsee community emerged from the "national crisis" when the late President Marcos declared Martial Law in 1972. Most of the inhabitants are refugees from conflicts that arose in the southern Philippines between the Moro National Liberation Front (MNLF) and the Philippine Constabulary (PC) during the 1970s.

Since then, Mangsee Island has developed into a prosperous community known as the "Money Island" due to active smuggling and rich neighboring fishing resources, which attracts new immigrants from other parts of the Philippines. The main fishing activities practiced on the island are dynamite fishing and diving for balatan, both often conducted in the Spratly Islands.

Catch from dynamite fishing is limited to *Caesio* spp. and all of them are processed into salt-preserved dried fish. Stockfish is traded in Mindanao Island where the inland farmers produce dollar-earning crops such as banana, pineapple and coconut ⁷). Dried balatan, on the other hand, is shipped to Manila through Puerto Princesa City and exported abroad.

In 1998, balatan was harvested in two ways. Active balatan fishing, with a crew of 10 to 15, equipped with echo-sounder and hookah type air-compressor, spend several weeks fishing among the Spratly Islands. Alternatively, balatan was fished as a by-product of daily commercial fishing trips. One or two fishermen fish in the early morning near Mangsee Island using air-compressors, return in the afternoon and harvest different kinds of marketable marine products like *sunuq* (Epinephelidae) and *lak* (Trochidae). In 1998, there were at least 15 fishing boats engaging in balatan fishing in the Spratly Islands, with those actively harvesting balatan having a greater catch than those not.

For active balatan fishing, the boat owners pay all necessary expenses in advance and deduce them from catches and divide the net profit among the crew. According to the divers, the most valuable *putian* (*H. scabra*) can only be found in muddy mangrove swamps and are rare in the coral

6) According to *FAO Yearbook of the Fishery Statistics*, in 1988 Indonesia and the Philippines were the two largest exporters of balatan in the world. In that year, both countries shared 44.4 percent of the total volume traded. Both exported more than 1,000 metric tons for the first time in 1983 and have maintained this level or higher. According to available statistics, Indonesia reached the peak production in 1988. Unfortunately, Indonesian statistics are not available beyond 1988 and only a few studies have dealt with Indonesian balatan fishery, which makes it difficult to compare Indonesian state of arts in the balatan industry with that of the Philippines (see Vail and Russell 1989, Tuwo and Conand 1992, and Moore 1998 for Indonesian information).

7) For further information on the dynamite fishing and the trade network of dried *Caesio* spp. in the Philippines, see Akamine (1999).

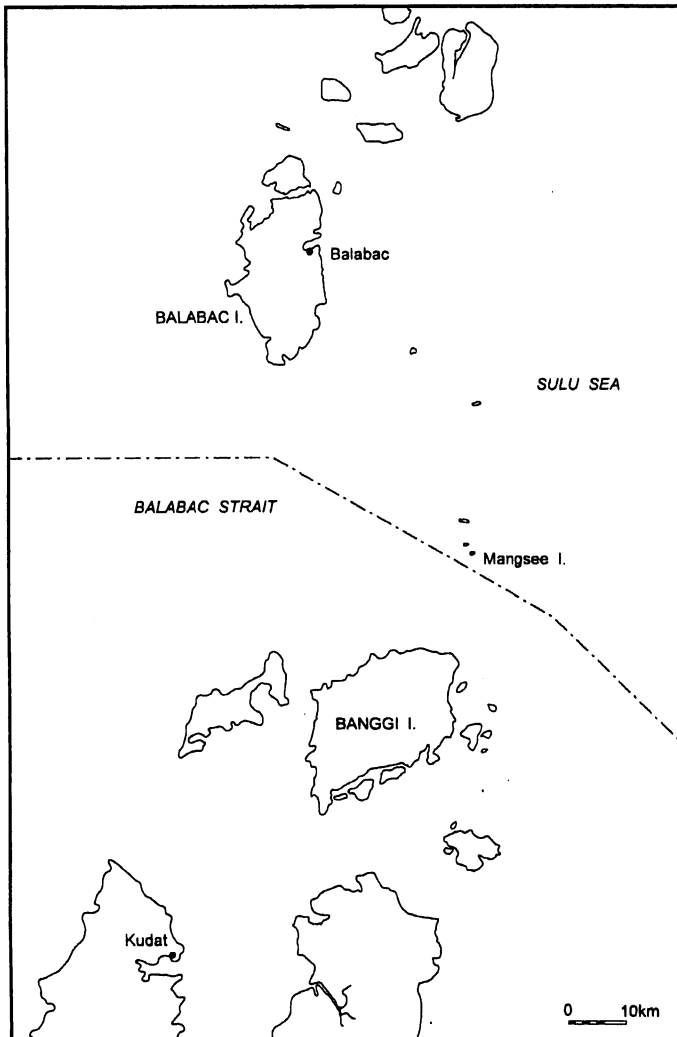


Fig. 6. Location of Mangsee Island.

reefs surrounding the Spratly Islands. Thus, the second most valuable *susuan* (*H. fuscogilva*) is the preferred target species as a source of profit. At the same time, divers compensate their expenses with *susuan*.

The following is one example of fishing activity in the Spratly Islands. Yusop (born in 1959) was back from the Spratly Islands on August 17, 1998 from 43 days of fishing trip. He is the leader of the crew, locally called *nakuraq*. The crew consisted of 10 divers and five non-divers who processed the catches on board. The boat has a 39-foot length keel with a 56 horse power second hand engine and is owned by Ali, who runs a small general merchandise shop in the Mangsee Island. The capital invested for the operation was about PHP 70,000. Divers started diving at 30 meters depth and dived as deep as 50 meters. There were 960 specimens of *susuan* collected along with other species designated as *sari-sari*, meaning "assorted" according to local terminology. *Susuan* was salt-preserved and stored in the ship hull, while other *sari-sari* species were cooked and dried on the boat.

Table 4. Catches example of Ali in 1998

	Species	Weight(kg)	%
1	legs	192.65	49.09
2	sapatos	95.75	24.4
3	leopard	35.9	9.15
4	tinikan	24.45	6.23
5	katro kantos	14.65	3.73
6	hanginan	12.4	3.16
7	hudhud	5.6	1.43
8	black beauty	3.2	0.82
9	brown beauty	2.15	0.55
10	lawayan	2.15	0.55
11	buliq-buliq	1.75	0.45
12	bulaklak	1	0.25
13	red beauty	0.8	0.2
	Total	392.45	

Source: Fieldnotes.

The first 500 *susuan* paid for Ali's initial investment, worth PHP 140 per each, though the market price for a piece of uncooked salt-preserved one was PHP 230 per piece. Ali sold all *susuan* in Malaysia for R24, almost equal to PHP 240 per piece and earned at least PHP 56,000 in profit. After deducting, the net catch for the divers was 460 *susuan* and about 390 kilograms of the dried *sari-sari* species (Table 4). They, however, had to sell all balatans to Ali at cheaper prices. The sale of 460 *susuan* was PHP 64,400. The total sale of *sari-sari* was not known, though Ali sold them to middleman C' in Puerto Princesa City for about PHP70,500. Ali handled all transactions and he calculated that one share of each diver was PHP 5,500 with an additional bonus of PHP 7 for each *susuan* gathered.

Ali got three shares of boat, engines and echo-sounder. However, Ali, as a middleman, made a profit rather than his shares as the boat owner. The common profit-sharing practiced in 1998 was that the investor handled all transactions and the divers were not informed of the details, and sales from *susuan* was smaller than those from the *sari-sari* species.

After two years, at the time of the present research in August 2000, there were only a few vessels fishing in the Spratly Islands. Instead, they preferred fishing near Cagayan de Tawi-Tawi in the Sulu Sea. A crew of 10 to 15 divers fish about 10 days with air-compressors, looking for *susuan* in not very deep waters. Not a few fishermen illegally fish in Malaysian waters in pursuit of valuable balatan species. They fish not by group but alone or in pairs and they skin-dive at night with waterproof flashlights and come back the following morning.

According to the local fishermen, balatan emerges from corals at night, facilitating harvest by skin-diving. Skin-diving costs less than heavy equipped diving and this is probably the reason skin-diving conducted at night gained popularity, even in the Spratly Islands, a practice never observed in 1998. Omar's example below illustrates this.

Omar (born in 1952) owned a fishing vessel and was a leader of a crew of 13. They fished in the Spratly Islands for about 2 months from mid May to July 2000. They fished at night at the seven fishing sites located on different banks, shoals, and coral reefs in the eastern part of the Spratly Islands. There were only 20 *susuan* harvested, 858 kilograms of dried *sari-sari* species and 104

Table 5. Catches example of Omar in 2000

	Species	Weight (kg)	%
1	lawayan	293.41	34.17
2	black beauty	252.9	29.45
3	legs	113.3	13.19
4	hanginan	65.09	7.58
5	leopard	61.41	7.15
6	buliq buliq	22.87	2.66
7	katro kantos	15.7	1.83
8	brown beauty	12.5	1.46
9	sapatos	12.3	1.43
10	tinikan	3.25	0.38
11	hodhod	3	0.35
12	khaki	1.75	0.2
13	bakungan	0.84	0.1
14	bulaklak	0.2	0.02
15	putian	0.15	0.02
	Total	858.67	

Source: Fieldnotes.

kilograms of *botoq goyak*, a sea urchin used for ornament (Table 5).

Omar harvested more than double the volume of Ali's expedition in 1998. There are differences in the contents of their catches. Omar harvested more species than Ali did. The percentage of the species is also different. *Legs* in Ali's catch consisted of nearly half of the harvests but not in the case of Omar's⁸⁾.

The most distinct difference is the profit-sharing system. Omar's one share, PHP 9,000, was much better than that of Ali's. This is partially because Omar gained not a single peso out of his transactions. He sold all the balatan, including *susuan*, to the middlemen B' in Puerto Princesa City and divided the profit equally. This kind of profit-sharing never existed in 1998 when an investor worked as a middleman at the same time.

The balatan fishery in Mangsee community must have experienced successive changes for the last 30 years. According to locals, skin-diving for balatan in neighboring Palawan waters occurred in the 1970s. During this period, 4 to 5 fishermen went on week-long expeditions and harvested only *H. fuscogilva* and which they cooked back on the coast.

The second phase was during the late 1970s, when the hookah type air-compressor was introduced, making it possible to dive longer and deeper. Almost at the same time, balatan of the *Actinopyga* spp. and *T. ananas* gained commercial value and local fishermen began harvesting them. However, lots of decompression accidents occurred because they were not familiar with safe usage. Many divers abandoned the air-compressor and went back to skin-diving.

Around the end of the 1980s and early 1990s, fishing grounds expanded to the Spratly Islands, with larger vessels and the air-compressor employed again for diving. This was the time when Bisayan divers, who were very familiar with air-compressors, began to migrate from the central Philippines and participated in balatan fishing in the Spratly Islands. By that time, most of the species

8) According to the fishermen, *legs* inhabits in deeper waters. This is probably the reason why Omar was able to harvest less *legs* than Ali because Omar's crew only skin-dived in shallow waters and never reached in deeper waters.

currently traded became their targets.

In the mid-1990s, deeper fishing grounds were sought and the use of echo-sounders increased to explore underwater topography. In 1997, fishing was apparently conducted at a depth of around 30 to 40 meters. After a year, the fishing depth increased to 50 or 60 meters in search of *H. fuscogilva*. Naturally, they encountered several decompression accidents. For a year from July 1997, there were at least three divers who died from decompression accidents. In December 1998, there were three fishing vessels that sank with only two divers surviving out of more than thirty at the Jackson Atolls when they were hit by the typhoon. After this tragedy, the fishing shifted back to shallow waters in Malaysian territory or the Spratly Islands.

CONCLUSION

Balatan fishing has been changing in regards to fish stock, fishing grounds, fishing techniques, and species fished. The fishermen have actively reacted to these changes but never passively. Because targeted species are the less valuable variety, fishermen nowadays need to harvest greater volumes in order to make a profit.

In this regard, Schoppe's description is too static to be realistic. Changes mentioned above make it possible to depend on the holothurian resources for the last thirty years. We have to be careful about the discontinuous aspects in history of the industry.

Change is not limited to balatan fishing. Fishing with hook-and-line for *sunuq* (Epinephelidae) recently gained popularity because live *sunuq* sells for a high price in Malaysia. This means multiple uses of the fishing grounds and it is another alternative income source for the fishermen. Balatan fishing cannot be static but it is just an alternative among other choices for livelihood. The dynamism of the fisherman's response to resource depletion should be studied from an aggressive multiple fishing viewpoint. It can never be properly understood if we consider only a static image of fishing community.

On concluding this study, two possible choices must be examined in order to see a more profitable use of resources. In Table 2, L-size balatan is shown to have a greater weight range compared to other sizes. It means that culturing balatan for several seasons can produce more profits. There is another way to improve their incomes. Among the *sari-sari* species, *hanginan*, *buliq-buliq*, and *katro kantos* are expensive and they can be harvested in great volume by night skin-diving, as shown in the case of Omar. If they are properly cooked and processed, they sell for high prices. Otherwise, they are classified as class B, resulting in fewer profits. The Mangsee community has paid no attention to quality, because they thought resources were substantial and inexhaustible. This is one of the reasons why *H. fuscogilva* is often shipped to Malaysia in only salt-preserved condition, where the fish is properly processed resulting in more value added. Quality control is the key to making use of the resources.

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赤嶺 淳 フィリピンにおけるナマコ資源利用：「伝統的」生業にみる連続と断続

ナマコは、遅くとも 18 世紀から、東南アジア より清国へさかんに輸出されてきた商品である。植民地期における漁民像を再考するにあたって、中国世界を市場とするナマコやフカヒレ などの海産物の生産と貿易の重要性が指摘されてきた。しかし、ナマコ産業そのものの具体的な様相は、明らかにされていない。本研究は、東南アジア島嶼部に「伝統」的であると考えられるナマコ産業に着目して、植民地期から現在にいたるまでの東南アジア社会を描写しようとする作業の端緒として、19世紀から20世紀初頭における流通種と現在の流通種とを比較し、伝統的産業の連続部分と断絶部分を指摘するものである。そして、現行の流通種の特徴を、低価格性にもとめたうえで、高級種から低級種へと捕獲対象が変化したことによって、漁村にどのような変化が生じたかについてパラワン州南部のマンシ島の事例を検討する。