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*Handbook No. 18 (1979)*

# **BECHE-DE-MER OF THE TROPICAL PACIFIC**

*A handbook for fishermen*

A handbook covering identification of commercially important species of holothurians (bêche-de-mer or sea cucumbers) with notes on their collection, processing, packaging and marketing.

(Revised edition of *Bêche-de-mer of the South Pacific Islands*, Noumea, South Pacific Commission, 1974).

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**SOUTH PACIFIC COMMISSION  
NOUMEA, NEW CALEDONIA**

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# PREFACE

This handbook is based on work by Kanapathipillai Sachithanathan, bêche-de-mer consultant to the former South Pacific Islands Fisheries Development Agency, a UNDP/FAO regional fisheries project. The handbook originally appeared in 1974 under the title *Bêche-de-mer of the South Pacific Islands*.

This edition has been extensively revised by Mark Gentle, SPC bêche-de-mer biologist, with the assistance of Mme C. Conand of the Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM, Noumea Centre), for whose help SPC is most grateful. Much of the text has been rewritten and new photographs, kindly provided by ORSTOM, added.

Two species of bêche-de-mer of no commercial value have been deleted, and two new species added.

The section on processing has been considerably expanded, and SPC gratefully acknowledges the assistance of the Fiji Fisheries Division, which granted permission for information to be taken from its leaflet *Processing of bêche-de-mer*, and Mr W. Travis of the Division's staff.

In addition, a list of buyers of bêche-de-mer in South-East Asia and the United States, kindly provided by Mr Y. Fong of Suva, Fiji, has been included.

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# INTRODUCTION

Bêche-de-mer provided the basis for a prosperous fishery in the Pacific region in the past. Early Chinese settlers introduced curing methods to the native populations of the Pacific Islands and enjoyed the benefits of the trade by shipping the product to China and other east Asian countries. The fishery was very prosperous during the German, Spanish, French and Japanese occupations of numerous islands in the Pacific. Truk Island in Micronesia is said to have exported nearly one million pounds annually during the early years of this century.

The two world wars interrupted the activities of this fishery. The Second World War, fought in the Pacific region, brought the industry to a near standstill in Micronesia and in the New Hebrides. In Papua New Guinea, Solomon Islands and Fiji the trade is not as prosperous as it was before the war, but is beginning to regain its former importance.

The Pacific has an extensive resource of bêche-de-mer. They form an important part of the bottom fauna within the reefs. The shallow water lagoons enclosed by the very many reefs, islands and islets in the Pacific offer a variety of situations which provide shelter for these sluggish creatures, although some species occur in depths down to 50m.

The larger types move about slowly on the sandy and grassy bottoms away from the coast towards the reef. Some types bury themselves in sandy mud, others crowd into crevices of the coral colonies or hide beneath rocks. They are mostly sediment feeders. Bêche-de-mer that are to be commercialised must be large, but it is not true that all large bêche-de-mer will make a satisfactory preparation. Generally, the valuable species are those with a thick body wall.

Bêche-de-mer are easy to capture as they offer no resistance. Some animals throw out white sticky threads when disturbed (see page 19). These threads are called cuvierian tubules and are said to cause irritation if they come in contact with the eyes, but are otherwise harmless to man. Harvesting involves collection by hand in tidal flats and pools and diving in the deeper waters within the reefs. Diving equipment can be used in deeper water in areas where trained divers are available and where there are facilities for the maintenance of the equipment. The bêche-de-mer are processed near the places of collection.

The processing method is simple: the collected bêche-de-mer are cleaned, boiled and smoked, then dried and packed for export. Although most Pacific Islands are in the tropics, storage of this dried product is not a great problem. Usual methods of storage for fishery products (chilling or refrigeration) to maintain freshness and avoid spoilage are not needed. Markets are within reasonably easy reach of the islands; many islands are connected by regular shipping services to the two important markets, Hong Kong and Singapore. Bêche-de-mer produced in the Pacific has preference with consumers and fetches high prices. Prices of the more common varieties are given in the text. They will no doubt change in the future but are mainly intended as a guide to comparative values of the different species.

Bêche-de-mer is a Chinese delicacy. It has become part of the life and traditions of the Chinese people to eat bêche-de-mer preparations on festive occasions; purchased in dried form, it is soaked in water, cleaned and cooked in many delicious ways. It is rich in protein. The dried product has the following nutritional composition:

protein	43%
fat	2%
moisture	27%
minerals	21%
insoluble ash	7%

#### **Note on Chinese names**

Chinese names for the various species of bêche-de-mer have been included in this edition of the handbook. Where possible, the names have been given in three forms: the Chinese characters themselves and the pronunciations of the characters in Mandarin and Cantonese (Hong Kong) dialects. However, the Chinese characters can be understood by any educated Chinese no matter which dialect he speaks.

# GLOSSARY OF TECHNICAL TERMS

<b>anal teeth:</b>	usually five in number; each a hard (calcified) triangular structure about 3 mm long embedded around the anus (rear opening) of the gut.
<b>cuvierian tubules:</b>	sticky white threads or ribbon-like structures which are thrown out from the anus of some species as a defence mechanism.
<b>fauna:</b>	the kinds of animals found in a particular locality.
<b>habitat:</b>	the place where an animal is usually found, e.g.: near living coral, among sea grasses, etc.
<b>holothurian:</b>	the scientific name of bêche-de-mer.
<b>sea cucumber:</b>	another name for bêche-de-mer.
<b>teats:</b>	conical processes of the body wall.
<b>trepang:</b>	a name sometimes used for processed bêche-de-mer.
<b>tube feet:</b>	small water-filled tubes occurring in great numbers mainly on the underside of bêche-de-mer and used for locomotion.
<b>tubercle:</b>	a wart-like lump on the body surface.

# COMMERCIALLY VALUABLE SPECIES OF BECHE-DE-MER IN THE TROPICAL PACIFIC

## TEATFISH *Microthele nobilis*

This species, which is also known as the mammy fish, occurs in two colour phases, white and black.

### Chinese



yenshen (Mandarin)  
seasom (Cantonese)

### Cook Islands Maori

rori-ū

### Fijian (black form) (white form)

loaloa  
sucuwalu

### Gilbertese (black form) (white form)

terommama  
temaimmama

### Motu (PNG) (black form) (white form)

tamasi loremana  
tamasi kurukuruna

### Palauan

bakelungal

### Ponapean

matchip

### Solomon Islands Pidgin

susufish

### Tahitian

rori iu

### Tongan

huhuwalu

### Tokelauan

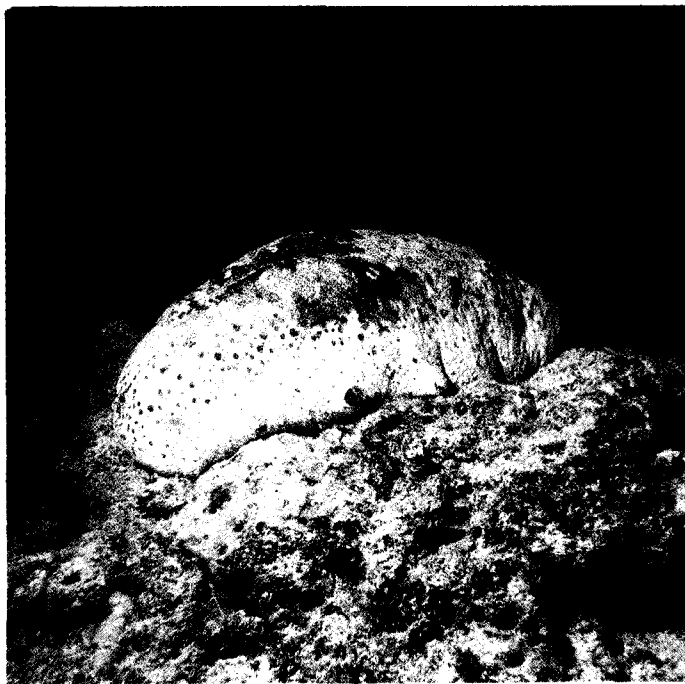
ikahiuhui

### Trukese

machonepech

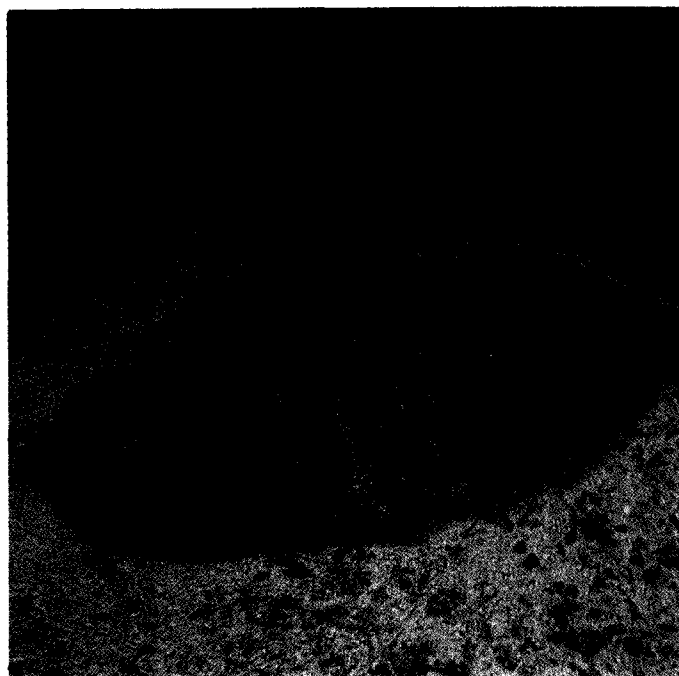
- Size** Length 30-40 cm Width 10-15 cm  
Body wall thickness 10-12 mm Live weight 2-3 kg
- Shape** A flattened oval in shape. Six to eight teats on each side give this species its English names. Five anal teeth are present.
- Colour** The colour of this species is variable, ranging from completely black to white with black flecks. Body usually has a fine coating of sand.
- Habitat** The white and black forms of the teatfish occur in different habitats.  
(i) The white teatfish is usually found in water deeper than 3 m and is said to occur at depths as great as 30 m. It is most abundant on clean sand in reef passages and near turtlegrass (*Syringodium isoetifolium*) beds. Young white teatfish live among turtlegrass plants.  
(ii) The black teatfish is typically found in shallow water of about 3 m on clean sand bottoms where there is living coral and a free movement of water.
- Value** This is the most valuable species of bêche-de-mer, fetching a price of Fiji\$4-5 per kg with a greater demand for the white variety.<sup>1</sup>

1. In August 1979, F\$1 = US\$1.23.



(G. Bargibant, ORSTOM)

White teatfish (*Microthele nobilis*)



Black teatfish (*Microthele nobilis*) (P. Laboute, ORSTOM)

## Bêche-de-mer of the genus *Actinopyga*

This genus includes several large species of bêche-de-mer of considerable commercial value. Because many of the species are very similar in colour and appearance, their precise scientific names can only be determined by a specialist. However, the information given here should be sufficient for the needs of a fisherman.

### BLACKFISH *Actinopyga* sp.

Chinese	小烏元 hsiaowuyuan (Mandarin)
Fijian	dri, dri-dakai
Motu (PNG)	dubana karemana
Palauan	erumrum
Tongan	mokuhunu
Trukese	chon

<b>Size</b>	Length 20-30 cm Body wall thickness 8 mm	Width 8-12 cm Live weight 0.5-2 kg
<b>Shape</b>	Cylindrical with five anal teeth and tube feet arranged in three rows on the underside.	
<b>Colour</b>	Black, sometimes with a dark brown underside.	
<b>Habitat</b>	Found mainly in water less than 2 m deep on reef flats among living coral (often in the same places as the black teatfish), and in turtlegrass beds.	
<b>Value</b>	F\$2-3 per kg for first grade product.	



(FAO)

Blackfish (*Actinopyga* sp.)



## DEEP-WATER REDFISH *Actinopyga echinites*

Chinese	(Characters unknown) hung hur (Cantonese)
Fijian	dri-tabua

<b>Size</b>	Length 20-30 cm Body wall thickness 7 mm	Width 8-10 cm Live weight 0.5-1 kg
<b>Shape</b>	The body is wider in the middle, tapers towards the ends and has a slightly wrinkled dorsal surface. Three rows of tube feet on underside and five anal teeth.	
<b>Colour</b>	Brick-red above, a lighter orange on the underside. Body generally covered with a fine coating of sand.	
<b>Habitat</b>	Between 3 m and 30 m deep on sand bottoms among living corals (frequently found together with the white teatfish).	
<b>Value</b>	F\$2-3 per kg for first grade product.	



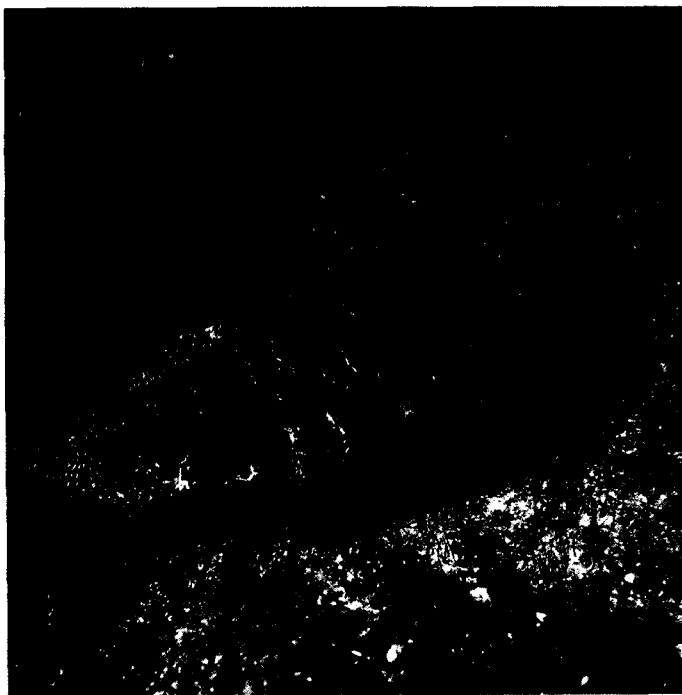
(P. Laboute, ORSTOM)

Deep-water redfish (*Actinopyga echinites*)

## **SURF REDFISH *Actinopyga mauritiana***

<b>Chinese</b>	(Characters unknown) hung hur (Cantonese)
<b>Cook Islands Maori</b>	rori pua
<b>Gilbertese</b>	tawacura
<b>Motu (PNG)</b>	dubana kahakaka
<b>Tahitian</b>	rori papa'o

<b>Size</b>	Length 20-30 cm Body wall thickness 6 mm	Width 8-10 cm Live weight 0.5-1 kg
<b>Shape</b>	Almost cylindrical but with a flat underside. Three rows of tube feet on the underside and five anal teeth.	
<b>Colour</b>	Brick-red above and pale orange below. There is a grey area around the anus and flecks of grey on the upper surface.	
<b>Habitat</b>	Found only where the surf breaks on the outside of the reef. The tube feet are very firmly attached to the substrate to prevent the animal being carried away by the waves.	
<b>Value</b>	This species is not exploited at present but because it is common, is of large size and is similar to the valuable deep-water redfish, it is likely that it could be marketed successfully.	



(J. L. Menou, ORSTOM)

Surf redfish (*Actinopyga mauritiana*)

## STONEFISH *Actinopyga lecanora*

Chinese (Characters unknown)  
season (Cantonese)

- Size** Length up to 40 cm
- Shape** Almost cylindrical, but flattened below and slightly tapering towards the front. Five anal teeth, tube feet in three bands.
- Colour** Variable, but most commonly dark brown with an ash-grey area around the anus.
- Habitat** Found from 2-10 m, often on the underside of large stones. This species seems to be most active at night, so this may be the best time to search for it.
- Value** Unknown; this species is not exploited at present but because of its large size it may be saleable.



Stonefish (*Actinopyga lecanora*)

(P. Laboute, ORSTOM)

## PRICKLY REDFISH *Thelenota ananas*

Chinese	梅花参 meihuashen (Mandarin) bufa som (Cantonese)
Fijian	sucudrau
Gilbertese	teuningauninga
Motu (PNG)	ratarata
Palauan	temtamch
Tahitian	rori euta
Trukese	lachcha

<b>Size</b>	Length 40-70 cm Body wall thickness 15-20 mm	Width 10-15 cm Live weight 3-6 kg
<b>Shape</b>	Very distinctive appearance because of numerous large pointed teats in groups of two or three all over the body surface. There are numerous large tube feet on the flat underside.	
<b>Colour</b>	Reddish-orange in colour, with the teats darker in colour than the body surface. The tube feet on the underside are bright orange.	
<b>Habitat</b>	Found at a depth of 2-30 m on clean sand bottoms, often beside large coral heads.	
<b>Value</b>	Formerly one of the most valuable species of bêche-de-mer, but there is now only a limited demand for it. A problem with this species is that it shrinks much more than other species during processing. Some buyers will pay up to F\$5 per kg for first grade product.	



(FAO)

Prickly redfish (*Thelenota ananas*)

## SANDFISH *Metriatyla scabra*

Chinese



paishen (Mandarin)  
toksom (Cantonese)

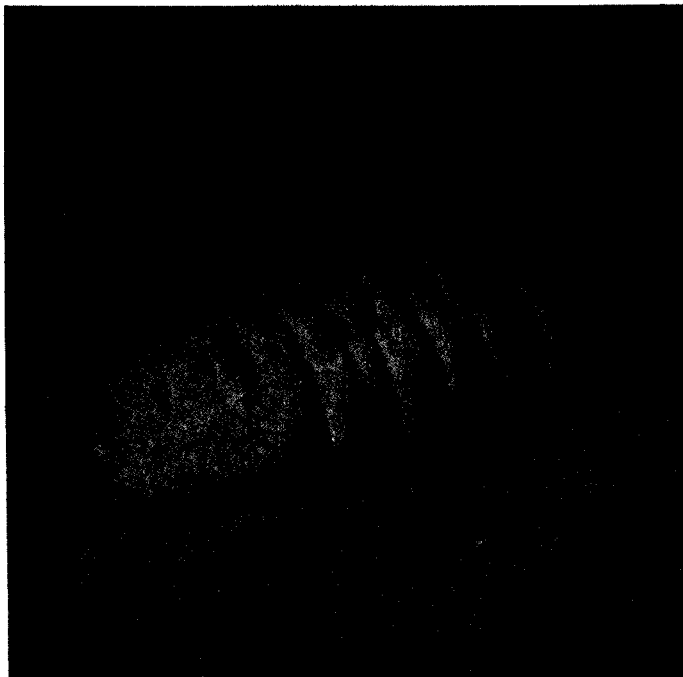
Fijian

dairo

Palauan

rebothal

- Size** Length 30-40 cm Width 8-10 cm  
Body wall thickness 5-10 mm Live weight 0.5-1.5 kg
- Shape** Short and stout with flattened ends and prominent wrinkles on upper surface.
- Colour** Lower surface dull cream and upper surface grey. A few are entirely cream or almost black. There are fine black spots all over the upper surface.
- Habitat** Found in silty sand, often near estuaries and frequently together with turtle grasses. This species spends part of the day buried in the sand. Depth range 1-10 m.
- Value** Approximately F\$1 per kg  
(special processing methods are needed for this species).



(P. Laboute, ORSTOM)

Sandfish (*Metriatyla scabra*)

# ELEPHANT'S TRUNK FISH

## *Microthele axiologa*

Chinese

象鼻参

hsiangpishen (Mandarin)

Fijian

dairo-ni-cakau

- Size** Length 40-60 cm Width 10-15 cm  
Body wall thickness 8-12 mm Live weight 2-4 kg
- Shape** Almost cylindrical with a slightly flattened underside. Prominent wrinkles on the upper side. A notch in the body indicates the position of the anus.
- Colour** Dark orange or rust-brown above with pale grey sides and underside.
- Habitat** 10-30 m deep often on very fine sand. Frequently occurs in groups. Like the sandfish, this species is able to bury itself.
- Value** Although this species is not exploited at present, a market for it is said to exist.<sup>1</sup>

1. Recent information is that this species has a poor flavour and is probably therefore of no commercial value.



(P. Laboute, ORSTOM)

Elephant's trunk fish (*Microthele axiologa*)

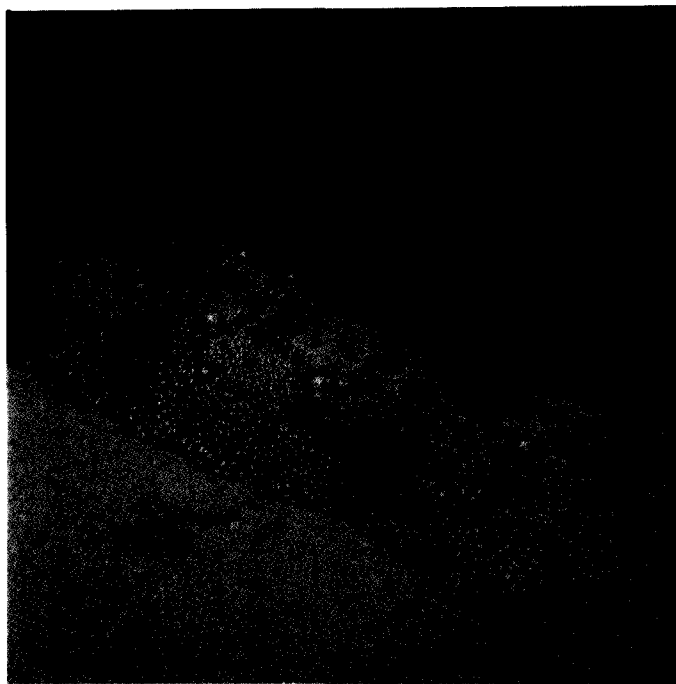
# GIANT BECHE-DE-MER (AMBERFISH)

## *Thelenota anax*

(Chinese names not known)

**Tahitian** rori he

- Size** Length up to 80 cm
- Shape** Square in cross-section with many small tubercles on the body and a distinctly flattened lower surface.
- Colour** Uniformly dull grey (some specimens have a speckling of brown on upper side).
- Habitat** Depths greater than 10 m on fine sand bottoms, often together with the elephant's trunk fish.
- Value** Historical sources indicate that this species was once in great demand but it is not known if a market still exists for it.



(P. Laboute, ORSTOM)

Giant bêche-de-mer (amberfish) (*Thelenota anax*)

# LOLLY FISH *Halodeima atra*

Chinese	烏 條 wutiao (Mandarin)
Cook Islands Maori	rori toto
Fijian	loliloli
Gilbertese	ten tabanebane
Palauan	esengl
Ponapean	kotop
Tahitian	rori toto
Tokelauan	loli
Trukese	perijan

**Size** Length up to 60 cm

**Shape** Cylindrical with a smooth body surface.

**Colour** Black, always with fine covering of sand but with patches along the sides lacking sand (cf illustration). If the body surface is rubbed vigorously a red fluid is given off.

**Habitat** Very numerous on sandy reef flats, often in only ankle-deep water. Specimens up to 30 cm are common to a depth of about 3 m, larger individuals are scattered in deeper water, but at lower densities.

**Value** Large specimens are said to have some value.



Lollyfish (*Halodeima atra*)

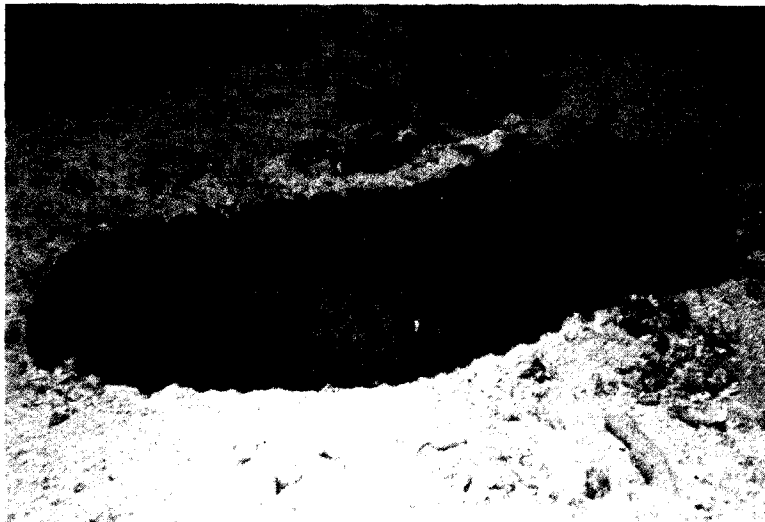
(FAO)



## CURRYFISH *Stichopus variegatus*

Chinese 玉参  
yushen (Mandarin)

- Size** Length 25-35 cm Width 10-15 cm  
Body wall thickness 9 mm Live weight 1-1.5 kg
- Shape** Lower side flat with many tube feet. Upper side has a rough surface bearing many tubercles.
- Colour** Typically dark yellow with irregular brown patches and pink tube feet. A few specimens are almost white.
- Habitat** Turtle grass beds and clean sand bottoms between 3-30 m.
- Value** Little commercial value because it tends to fall apart with boiling.



Curryfish (*Stichopus variegatus*)

(N. Coleman)

## GREENFISH *Stichopus chloronotus*

Chinese

小方参

hsiaofangshen (Mandarin)

Cook Islands Maori

rori matie

Fijian

tarasea

**Size** Length up to 40 cm

**Shape** Square in cross-section with numerous prominent teats at each corner of the square. Body surface otherwise smooth.

**Colour** Very dark green often appearing almost black.

**Habitat** Reef flats on broken coral rubble. Depth range: 0.5-2 m.

**Value** Little commercial value because it tends to fall apart with boiling.



Greenfish (*Stichopus chloronotus*)

(FAO)

# LEOPARD (TIGER) FISH *Bohadschia argus*

<b>Chinese</b>	紋 wen (Mandarin)
<b>Fijian</b>	vula
<b>Gilbertese</b>	tebunia
<b>Motu (PNG)</b>	toutou
<b>Palauan</b>	ehosobal
<b>Ponapean</b>	penepen
<b>Tahitian</b>	rori ruahine
<b>Trukese</b>	asaia

<b>Size</b>	Length 30-50 cm Body wall thickness 6-12 mm	Width 10-12 cm Live weight 1-2 kg
<b>Shape</b>	Cylindrical with a very smooth surface. Sticky white threads (cuvierian tubules) are extruded through the anus if the animal is disturbed.	
<b>Colour</b>	Background colour either brown or silvery. Distinctive eyelike spots all over the surface which are conspicuously encircled with a light colour (yellow, white or grey).	
<b>Habitat</b>	Common on coarse coral sand at depths of 2-6 m.	
<b>Value</b>	Negligible commercial value.	



Leopard (tiger) fish (*Bohadschia argus*)

(FAO)

# BROWN SANDFISH

## *Bohadschia marmorata vitiensis*

Chinese	赤 参 chishen (Mandarin)
Cook Islands Maori	rori puakatoro
Fijian	vula
Gilbertese	uninganibakoa
Tahitian	rori ruahine

- Size** Length up to 40 cm
- Shape** Body short and thick with lower surface only slightly flattened. Sticky white threads (cuvierian tubules) extruded through anus if the animal is prodded.
- Colour** Uniformly distributed small dark brown dots contrast with a golden-brown background.
- Habitat** Common on coarse coral sand at depths of 2-6 m.
- Value** Negligible commercial value.



Brown sandfish (*Bohadschia marmorata vitiensis*)

(FAO)

# PROCESSING

## EQUIPMENT

Only simple equipment is required.

1. A large container for boiling the bêche-de-mer. A shallow container is best since it allows more even heating and makes it easier to inspect the bêche-de-mer. Half a 44-gallon drum cut lengthwise and thoroughly cleaned is ideal for this purpose.
2. A wire mesh basket (see photograph) for easy inspection and removal of the bêche-de-mer during boiling. There should be no projecting ends of wire since these might damage the product.
3. A sharp knife for slitting and gutting.
4. A drying shed or copra drier with drying trays of wire mesh with wooden frames.

## PROCEDURE

This is simple but must be carried out with care if a good quality product is to be obtained. The following technique can be applied to all species except sandfish (for which see page 26).

**First boiling.** Fill the boiler with clean seawater and bring it to boil. It is important that the water is brought to the boil before the bêche-de-mer are put into the boiler. Put the bêche-de-mer into the boiling water, making sure they are completely covered with water. Bêche-de-mer of a similar size should be boiled together as cooking time varies with size. To ensure even heating, do not boil too many at once.

Stir continuously and examine frequently. Cooking time depends upon the size of the animals and may be as short as a few minutes. The best way to judge the cooking time is by inspection. When the animals have started to swell up, the time is right for them to be removed to cool. If they are left to boil too long at this stage they will burst. Remove from the boiler and put into cold seawater to cool.

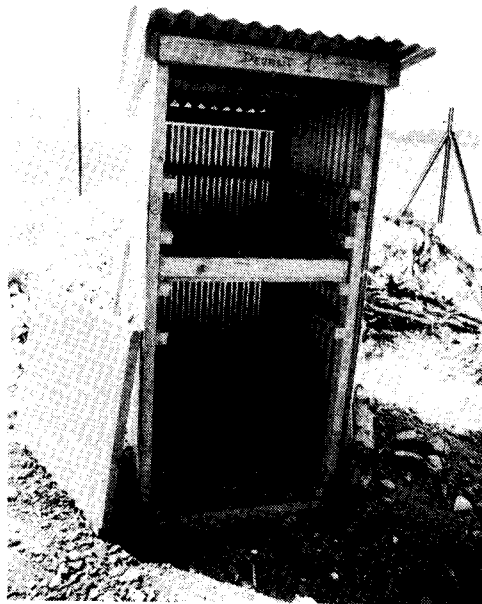
**Slitting the body wall.** Place the bêche-de-mer on a flat board with the belly-side down. With a sharp knife make a neat cut along the back. Cut to within 2-3 cm (one inch) of the mouth and 2-3 cm of the anus (see photo). Do not extend the cut over the ends for this will prevent the animals from being closed properly and an inferior product will result.

**Second boiling.** Follow the same procedure as in the first boiling. Boil for 15-30 minutes. Exact boiling time will depend upon animal size. The bêche-de-mer will shrink slightly and gradually become hard. This hardness is the best way to gauge cooking time, so inspect them frequently.



Les Nouvelles Calédoniennes

Wire basket for use during boiling.



Les Nouvelles Calédoniennes

Drying shed.



Les Nouvelles Calédoniennes

Boiling.



Les Nouvelles Calédoniennes

Bêche-de-mer after the first boiling; note swollen shape.

Once they become firm and rubber-like they are cooked and should be quickly removed from the boiler. You will recognise this rubber-like hardness while stirring and scooping them above the surface of the water. If they have not reached this rubber-like hardness they are under-cooked, but if they have started to shrink and soften they are over-cooked. These changes occur quickly, so keep a careful watch. Remove from the boiler and put into cold seawater to cool.

**Removal of guts.** Open up the bêche-de-mer and empty out the loose contents. Cut out the organs that run through the centre. Make sure no stubs are left at the ends. Do not remove the tissues lining the inner walls of the body cavity.

**Smoke drying.** Coconut husks or mangrove wood are good materials for the fire. If mangrove is used, throw branches with leaves over the fire. This will prevent the fire from getting too hot and will create the necessary smoke. The fire should be of a very low and constant heat. Open the bêche-de-mer and place a short stick (not more than 2.5 cm or one inch long) across the cut to keep the sides apart.

Place the bêche-de-mer on the smoking tray with their split sides down, so the inner part of the body is exposed to the heat of the fire. Do not turn the material during the smoking, always leave the split side facing down.

Periodically move the trays around in the dryer. The tray on the bottom rung should be moved to the top rung and all other trays moved down a rung.

The sticks should be removed about half-way through the drying process and the bêche-de-mer tied up with thick string or vines otherwise the dried product will have a misshapen appearance (see photograph).

Drying will usually be completed after 24-48 hours. Exact drying time will depend upon many factors such as heat of the fire, size, weather, etc. Judge the dryness by placing your finger inside the product. Make sure you check the inside ends as they will be the last areas to dry completely.

Remember a hard dry product is preferred to a soft, moisture-laden one.

**Sun curing.** Brush off any soot, ash or dirt that has accumulated during the smoking. Place the product in the sun on a clean, dry surface. Watch the weather. The product should not be exposed to the rain. After four or five days a powdery substance will have formed on the bêche-de-mer. This indicates that the sun drying and curing process is complete.

Remove string and brush off any dirt or sand. Now the product is ready for packing and storing.

If after examining the product you find it somewhat soft and damp, you may have to repeat the smoking and curing process. The properly dried and cured state of bêche-de-mer is something that can be recognised with a little experience.





Les Nouvelles Calédonniennes

Cutting.



Les Nouvelles Calédonniennes

A correctly cut bêche-de-mer after the second boiling and ready to be gutted.

**Processing of sandfish.** Special methods must be used in processing sandfish so as to remove the deposits of chalk-like material in the skin of this species. After boiling twice and cleaning as for other species, sandfish must be buried overnight in clean, moist sand. Burial aids decomposition and easy cleaning of the outer skin layer. The outer skin layer is removed by hand scrubbing (coconut husks are used in some places). Special care is taken in cleaning the whitish lower layer of the skin. Sandfish is then boiled again in seawater before being dried as for other species.

## **PACKING AND STORING**

Copra sacks are good for packing the finished product. Pack in clean, dry sacks and store in a cool, dry place. The product can also be packed in polythene bags. Where the product has had to be stored for a long time in humid conditions, re-drying is generally necessary. It is important that all bêche-de-mer in a sack are perfectly dry. This is because the rot from even one damp bêche-de-mer will spread and spoil all the others in the sack.

## **GRADING**

Certain varieties of bêche-de-mer are preferred by consumers. Teatfish, both black and white varieties, are the most highly priced. Prickly redfish, blackfish and deep-water redfish are next in value. Separation into species is the first step in grading. Size, appearance, odour, colour, moisture content and dirt content are other factors which determine the grade.

**Size.** Within a species, the larger the size the better the grade.

**Appearance.** A pleasing, smooth surface and a uniform shape are preferred to shrunken, uneven products. The body wall cut should be clean, not ragged.

**Odour.** A pleasing smell should be attained. Those smelling of decomposition should be discarded.

**Colour.** Dark coloration is generally preferred. The chalky white ventral surface of sandfish is to be avoided.

**Moisture content.** Bêche-de-mer stored in a humid atmosphere tend to absorb moisture and become soft. Twenty to thirty per cent moisture content by weight may be allowed. A hard, dry product is preferred.

**Spoilage.** Products should be free from bacterial and chemical spoilage.



Les Nouvelles Calédoniennes

Bêche-de-mer split side down on the smoking tray.



Les Nouvelles Calédoniennes

Bêche-de-mer (above) after removal of sticks halfway through smoking and (below) tied with string for final processing stages.

# MARKETING OF BECHE-DE-MER

The following list of bêche-de-mer buyers includes most of the important buyers in South-East Asia and the U.S.A. at the time of publication.

Gradings and prices vary considerably between merchants, and also vary somewhat according to season (highest prices are usually before Chinese New Year which generally falls in February). In addition, some merchants are very selective as to which species they will buy. Many only want white teatfish, whereas others will accept several kinds. It is advisable to seek several quotations before making a commitment to sell. In the following list, the buyers who will accept prickly redfish are marked with an asterisk.

## BECHE-DE-MER BUYERS

### China

The Peoples Republic of China does not at present import bêche-de-mer since it is able to supply its own needs.

### Hong Kong

Chi Fu Company, Cables: Chifucopan  
14 Possession St., 1st Floor

Concord International Ltd., Cables: Asafla  
Pak Lee Mansion 9th Floor,  
6-8 King's Road

Heep Tong Hong, Cables: Tiburon  
16c Nam Pak Hong Building,  
22-28 Bonham Strand West

\*Tai Hing International (Trading) Ltd., Cables: Taihigram  
P.O. Box 5690,  
308-309 International Building,  
141 Des Voeux Road, Central

Tai Yeong Trading Co., Cables: Sharkfins  
Room 601, 6th floor, Lee Kiu Building,  
51 Jordan Road, Kowloon

**Japan**

Japan does not import bêche-de-mer since it is able to supply its own needs.

**Malaysia**

Malaysia imports bêche-de-mer from Hong Kong and Singapore and does not deal directly with producing countries.

**Singapore**

\*Avimarine Pte. Ltd.,  
470-A Upper Serangoon Road,  
Singapore

Cables: Lokemarine

Chop Chip Chaing,  
20 New Bridge Road,  
P.O. Box 3226,  
Singapore 1

Chop Yong Hong,  
16 North Canal Street,  
Singapore 1

\*Daniel Oei Enterprises,  
G80 Katong Shopping Centre,  
East Coast Road,  
Singapore 15

Eng Thong Co. (Pte) Ltd.,  
74 South Bridge Road,  
Singapore 1

Hon Huat Enterprises (Pte) Ltd.,  
13 Telok Ayer Street,  
Singapore 1

Ng Eng What,  
14 New Bridge Road,  
Singapore 1

Phoon Hoat and Co. (Pte) Ltd.,  
G.P.O. Box 2414,  
171 Bencoolen Street,  
Singapore 7

**Taiwan**

Transworld Enterprises Co. Ltd.,  
4A, No. 1, Alley 6, Lane 303,  
Nanking East Road, Section 3,  
Taipei

Cables: Twenter

**U.S.A.**

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1860 Ala Moana Blvd No. 405,  
Honolulu, Hawaii 96815

George K. Tang,  
Suite 202,  
1253 Bush Street,  
San Francisco, California 94019