

SOUTH PACIFIC COMMISSION

NINTH REGIONAL TECHNICAL MEETING ON FISHERIES

(Noumea, New Caledonia, 24 - 28 January 1977)

BECHE-DE-MER IN THE SOLOMON ISLANDS

by

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SUMMARY

The origins and performance of the Bêche-de-Mer industry in the Solomon Islands are traced. Credit must be given to the expertise and marketing ability of the Chinese community in supporting this fishery.

Harvesting and Processing techniques are covered and training and extension programmes are carried out by the Fisheries Division of the Ministry of Natural Resources.

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BACKGROUND

1. The Beche de Mer industry in the Solomons has a tradition extending back to pre world war II days but activities of that time are not well documented. Recent history of the industry development commenced in 1964 when a Honiara based Chinese managed company discovered a market existed for processed Beche de Mer and applied to the Government for a Protected Industry status to commence production. The concept at that time was for a factory unit in Honiara to which live animals would be transported for processing. The factory had cutting benches, washing tray, and oil-fired driers, this investment in theory being protected by a Protected Industry status or restricted licence issue in fact guaranteeing monopoly.
2. The licence was issued on 17 January 1966 and revoked on the 6 July 1971. During the five year operation the company experienced difficulty in live storage and transportation of Holothurians and supplies were variable and not sufficient to maintain field production. However the company concerned developed markets and the technique of processing to a fine art so that in 1971 when the system was changed to village level cooking and drying the expertise was available to pass on to rural areas in many cases through a Fisheries Division extension officer.

3. This accounted for an upsurge in interest and production from 1971 onwards although a body of opinion favours the theory that the revocation of a monopoly restriction was responsible for this increase in production.

Historical Performance of the Industry (export of dried and sliced  
beche de mer)

1968	3 tons 6cwt )	
1969	4 tons 12cwt )	Live transportation for processing
1970	0 tons 9cwt )	in Honiara
1971	5 tons 0cwt )	Revocation P.I. July 1971
1972	33 tons 15cwt	
1973	54 tons 14cwt	
1974	18 tons 0cwt	High copra prices
1975	3 tons 10cwt	Not accurate figure
1976		

4. The 1975/76 figures are not believed accurate as the statistics were taken from customs records which de-classified beche de mer in 1975 as a separate export commodity. But estimate 1975 is 20 tons taken from company records.
5. For the original factory operator the investment was not lost as the concept of the factory operation changed from full processing to "finishing off" village dried products. Incompletely dried village produce as long as it has not developed rot could be further processed to optimum value and consequently little export rejection.
6. In 1976 the beche de mer factory was taken over from private ownership to co-operative ownership under Central Co-operation Association of Honiara and it is hoped the wide coverage of the Solomons by this organisation will further stimulate interest in beche de mer.

#### PROCESSING

7. For interest sake extracts from a leaflet issued by Quan Hong Company on live storage is given in Appendix I. This is of limited interest only as village processing instantly after capture is now recommended. The live storage and transport was in effect not so easy as the leaflet indicated and this contributed to the decline of this method.

8. Appendix II is the handout issued by Fisheries Division, Honiara to village people to explain the processing technique. This handout is also available in Pidgin English (the local lingua franca) and is not intended as a complete guide. The leaflet is designed for issue to villagers who have received instruction at either a Fisheries Division sponsored training course or after instruction by a touring officer.

9. Assuming the beche de mer are of acceptable quality then grading is done by size and species. Only four species are considered commercial in the Solomons in order of importance:-

TEAT FISH	( <u>Microthele nobilis</u> )
BLACK FISH	( <u>Actinopygma miliaris</u> )
PRICKLY FISH	( <u>Thelenota annas</u> )
RED FISH	( <u>Actinopygma echinites</u> )

10 Grading by species and size is done before purchase and then the beche de mer are further dried if necessary, sliced and packed for export in air-tight tins.

11. Common faults in processing are incorrect boiling (usually too short) inadequate drying or drying at too high a temperature so that the animal may burn or char. These defects usually result in rejection and as the whole process is fairly critical the rejection rate is of concern. Through instruction and training the rejection rate has dropped from 80% 1971/72 to around 40% in 1976. Certain areas who have longer history of processing achieve a better rate and grading at production centre also reduces rejection in Honiara and consequential loss of transport charges.

### MARKETING

12. Process dried fish are either sold whole or in slices to basically Chinese markets. The best outlets are Singapore, Hong Kong and San Francisco. The recent popularity of Chinese cuisine has increased demand and the major use of beche de mer is in Chinese soup. Alternatively it can be eaten as a main dish.

13. Mystical properties are ascribed to the food and such publicity carrying "health food" or "sexual stimulat" labels give an obvious marketing boost.

14. Locally beche de mer are eaten by Solomon Islanders immediately after boiling though it is not an obviously appetising dish. There is also a local market to the Chinese community.
15. The existence of a beche de mer industry in the Solomons is largely due to the management and marketing expertise of the Chinese business community.

#### FISHERY MANAGEMENT

16. The performance of the industry in relation to over-fishing shows a very ill defined pattern. Certain areas of the Solomons seem to have a very limited habitat whilst others have a large and surprisingly varied habitat. Population pressures and alternative earning opportunities also affect fishing intensity.
  17. Thus one area (Ontong Java) has supported a considerable beche de mer industry with no sign of decline since 1971 whilst another area (Alite reef) was apparently fished out in one mad week. Yet another area (Marovo Lagoon) which has possibly the richest beche de mer stock in the Solomons is still unfished as the local population is comparatively small and has other opportunities for cash earning - paradoxically catching and marketing reef fish is the most important.
  18. Very little is known of the biology or population dynamics of commercial Holothurioids and with the industry very much a "cottage type" industry there is little pressure to instigate such work. Perhaps it could be the function of a body like SPC to sponsor such work as well as development work applicable to the Pacific Region.
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APPENDIX I

Beche-de-mer or sea slugs are worm like animals that live on the bottom of the sea. They have many different local names but most people know them as PUHAKA (Roviana) or MWAUU RALONELLA (Kwara'ae).

Before the war beche-de-mer were bought by Chinese people to eat as food but the war spoilt the business and nobody bothered to collect them anymore.

Now a new kind of business or company is being started to buy live Beche-de-mer and dry them in a special factory before selling them overseas.

The company is called Beche-de-mer Limited and the head office and factory is in Honiara. When the factory is ready in October, company ships will tour around the islands to buy the Beche-de-mer. The company will also buy them if you bring them to Honiara.

Collecting Beche-de-mer is not hard work and now that there is a company to buy them, farmers and fishermen will soon have an easy way to make more money.

If you want to collect Beche-de-mer to sell in Honiara here are some simple rules you must follow. (Note this method is not now recommended)

1. MAKING A COLLECTING POOL

Build a small saltwater pool to keep the Beche-de-mer until you have enough to sell. The pool can be made on the beach or in shallow water in a lagoon. If you make it on the beach, be sure that saltwater will fill the pool at high tide. It does not matter if the pool goes dry at low tide. Make the sides with big coral stones or strong sticks in the same way as you make a turtle pool.

2. COLLECTING

Just pick up the Beche-de-mer from the bottom of the sea and take them to the pool. Remember to keep them cool and wet whilst you are collecting them. Do not bang them or damage them.

Colour. There are many different kinds of Beche-de-mer and you must be careful to choose the good ones. Collect the BLACK, BROWN, RED, and YELLOW kinds. Do not collect the white kind as this is no good.

Size. The best size is 1 foot to 2 feet long. Do not take any over 4 feet long as these are too old. Very small ones under 6 inches long are no good and it is best to leave these in the sea to grow bigger.

### 3. KEEPING

Leave the Beche-de-mer in the pool until you have enough to send to Honiara, or until a cutter boat calls to take them. Do not feed them. They will find their own food in the bottom of the pool and will live for many months without attention.

### 4. SHIPPING

Beche-de-mer must be sent to Honiara ALIVE. If they are dead or rotten you can not sell them. The best way to send them is in old copra sacks or sugar bags. Wet the sacks awith salt water and wait until the ship is ready to sail before you fill them. Put the sacks in the hold of the ship. If they go on the deck you must put shade over them.

Beche-de-mer will only live out of water for about one day so you must be sure to send them by the quickest ship.

### 5. SELLING

When the Beche-de-mer arrive at Point Cruz they will be taken by lorry to sell at the factory. It is important that they arrive there fresh, otherwise the company will not buy them. The price you get will depend on the kind of Beche-de-mer you are selling. You will only get a good price if they are:-

- (1) The right colour
- (2) The correct size
- (3) Alive and fresh

These rules are not difficult to follow but some farmers and fishermen may think that it is easier to cook the Beche-de-mer and dry them in their village before sending them to Honiara. This is no good and the company will not buy them. All the cooking, cleaning and drying is done in the factory, so that the company will only buy fresh Beche-de-mer.

Collecting and selling Beche-de-mer is a job for all the family and a good way of making more money. Start now so that you will have plenty ready when the company begins buying in October. The company may put a buying station or agent on some of the islands.

If you would like to know more about this kind of work write to:-

Mr Quan Hong  
Beche-de-mer Limited  
Box B.15  
Honiara

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APPENDIX IIHow to Process Beche-de-mer

Prepared by Fisheries Division, Solomon Islands after consultation  
with Beche-de-Mer Co. Ltd

Processing beche-de-mer is a simple system of cooking cleaning and drying. The body wall portion of the animal is retained in the dried form. The internal organs are removed. The animal shrinks to approximately half the size but should retain its original shape. The dried product usually hard and dark.

COLLECTING

Collect the beche-de-mer from lagoons or reefs and, in sandy and grassy bottoms away from the coast, toward the reef. Generally, larger species are found in deep areas where the water is clear and the bottom can be easily seen. Smaller species are restricted to shallow water. Take banana or coconut leaves with you in your canoe. After you have collected the beche-de-mer, cover it with these leaves to protect it from the sun. Leave the white and black susu fish (Teat fish) if less than 12" (one foot).

Cook the beche-de-mer as soon as you return. This is very important because after they die, they are no good anymore, so do not collect more than you can cook at one time.

COOKING

Light up a warm fire inside your dryer before you start to boil your beche-de-mer. Put the beche-de-mer into a pot or drum and cover with boiling sea water. Bring to the boil, then cook for 1½ hours with a small medium fire. Boil slowly, and stir every 5-10 minutes.

DRYING

After cooking for roughly for 1½ hours, (this depends on size of our animals), remove the beche-de-mer from the pot or drum. Cut along the back (not belly) from end to end with a sharp knife. Remove the gut, and wash all the sand out. Use small sticks (bamboo is very good for this) to hold the beche-de-mer half open. For large animals you will need to use two or three sticks, for small animals one stick will do.

Now place the beche-de-mer upside-down on a wire mesh tray, lining them up side-by-side in rows. Put the tray in the dryer with a warm smokeless an currents, UNTIL THEY ARE DRY. This may take two days and one night in your village dryer, keep the fire going all the time, check that they are dry inside, remove the sticks, and then should contract to their original shape.

Place open-side face down again on a tray for a day and a night in the dryer, then remove and put on a higher layer in the dryer for 3 - 4 days or more. Remove and place on top of dryer.

When you know a ship is coming, pack the beche-de-mer into sealed dry sacks and put in hold for shipment to Honiara.

If you have not made beche-de-mer before, send samples of your beche-de-mer (about 15-20 of each kind) to Fisheries Division, HONIARA. They will let you know if you are cooking and drying them correctly. If you are not, then go and see them so they can explain what you are doing wrong. Badly cooked beche-de-mer will be rejected. It cannot be reconditioned like copra. TAKE CARE, then, too cook and dry your beche-de-mer properly.

The times given here are meant only as a rough guide to help you. For your village dryer, use your own judgment.

#### GRADING

Prices paid for beche-de-mer depend on the type of beche-de-mer, the quality of the dried product, and the merchant who buys your produce.

##### A. Types of beche-de-mer to collect

You will no doubt, have noticed several different types of beche-de-mer in lagoons or reefs. Only some of these are valuable.

##### TEAT FISH (*Microthele nobilis*)

Also known as mammy fish, it commands the highest price in the beche-de-mer market. The most distinguishing external features is the presence of about six lateral teat-like projections (papillae), which are contractile. The body is somewhat flattened oral in shape with a very thick wall and five anal teat. These animals are generally found in deeper water of more than 20 metres (65ft), on coral and sand and grassy bottoms.

BLACK FISH (Actinopyga miliaris)

These are black or dark brown and cylindrical with numerous tube feet, tending to be arranged in three bands on the bottom side and have five anal teeth characteristic of both Actinopyga and Microthele. The juveniles of 20-35 mm (1-1½ in) are generally found in murky shallow waters and are black in colour. Adults are found in depths more than 2m (6ft) in clear water on coral sand bottoms. Price in the market rank second or third to the teat fish.

PRICKLY FISH (Thelenota annas)

Has very many large teats in groups of two or three together and numerous tube feet on its bright red flat bottom side. This shaggy looking animal is abundant in most of the reef enclosed lagoons of the Pacific. Found mainly in depths of 2-10m (6 - 33ft) on the reef flat, and is commonly between 330 - 600mm(12-24in).

DEEP WATER RED FISH (A. echinites)

Mid-brown slightly darker on top. Papillae scattered on its slightly wrinkled dorsal surface. The body is stout in the middle, maximum breadth when contracted nearly half the length. It has three bands of tube feet on the bottom. Length up to 350mm (14in).

Hints to improve the quality of your beche-de-mer

(i) Do not let your beche-de-mer burn. The sun is very hot during the day and can spoil the skin of beche-de-mer. So shade your beche-de-mer with coconut or banana leaves.

(ii) Do not delay cooking your beche-de-mer. If the animal is already dead, the meat will come away from the skin during the cooking process. If this happens, the animal will be rejected. It is worth less.

(iii) If you put your beche-de-mer into hot or boiling water, it will become permanently twisted and will be worthless. Never add beche-de-mer during cooking, you will only spoil it.

(iv) Before you start cooking, it will help you if you separate the smaller animals from the rest. These will cook quicker, and so should be cooked separately. As a test to see if your beche-de-mer is properly cooked, take one out of the pot and drop it on the ground. If it bounces, it is properly cooked. It should feel rubbery.

(v) Always use a sharp knife to cut along the animal's back after cooking. A blunt knife leaves an even edge along the cut surface of the animal. This gives an inferior quality product.

(vi) Make sure all your beche-de-mer are properly dried. inside and out. If they are not, they will soon rot. A good smelling specimen means a good quality product.

A copra drier can be used to dry beche-de-mer. Either hot air or smoke will do the job.

Finally to get the best price for your beche-de-mer, go to two or three agents who buy it in Honiara. Prices vary, and will probably get a better price for your trouble.

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