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Papua New Guinea National Bêche-de-mer Fishery Management Plan 2001

The National Fisheries Authority, under Section 28 of the *Fisheries Management Act* 1998, sets out the national bêche-de-mer fishery management plan that will supercede all previous plans. This plan takes effect from the date of notification in the National Gazette.

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Background

Description of the Fishery

Bêche-de-mer, also called pislama or trepang, is the name given to the dried product manufactured from the marine animals commonly known as sea cucumbers. Sea cucumbers are members of the class Holothuroidea.

The bêche-de-mer fishery in PNG operates at the community level. Villagers collect and process sea-cucumbers through boiling, cleaning, drying and in some cases smoking. The product is sold to buyers who, in turn, sell them to exporters. PNG's main bêche-de-mer markets are Hong Kong and Singapore.

Beche-de-mer fisheries began in PNG in the late 1970s and exist in all coastal provinces in PNG except Gulf Province. It was not until 1996 when the management plans were first introduced to manage the beche-de-mer fisheries in Western, Milne Bay, New Ireland and Manus Provinces. In spite of the establishment of these provincial management plans the fishery still experienced over fishing and continuous pressure from the fishers for reopening. The latter is attributed mainly to the fact that large bulk of the coastal population relies heavily on the beche-de-mer for income for school fees.

In recent years there has been a marked decline in the volume of high value species and an increase in the volume of the low value species taken. The opening of the market to new species that traditionally had no commercial value has dramatically impacted on the volume of export. Figures for 2000 showed PNG exported about 484mt of dried beche-de-mer with the value of K14million. Of that low value species accounted for (61%) 296mt and high value species about 188mt dry weight. Harvesting and processing is generally by 'isolated processing', where the fisher harvests and processes his own catch within traditional boundaries, and sells it to a middleman or buyers.

Between 1980 and 1983, average beche-de-mer prices paid by buyers in PNG ranged from K2.34/kg to K3.36/kg; in 1985 the averaged K3.67/kg and K4.64/kg in 1986. In 1994, prices paid to fishers in PNG were said to range from K1/kg to K12/kg, but sandfish were fetching from K12.19/kg in North Solomons Province to K18/kg in Manus Province, and white teat from North Solomons were selling for K30/kg (C grade) to K46/kg (A grade). The price paid by importers in 1994 ranged from K4/kg to K23/kg. In 2000, prices paid to fisher range from K3.50/kg of chalkfish to K60/kg of (A grade) sand fish.

Beche-de-mer appears to be transshipped within PNG more than does any other fisheries commodity - so it will take reliable recording of sales and attention to the company register and areas of operation of exporters to accurately record production. Ideally, records include harvest date, locality, quantity gathered, species variety, dry weight of product and price obtained.

The use of closed season relieves fishing pressure off the spawning stocks of most beche-de-mer species and in this case occurs at the end of each year. Unfortunately the closure clashes with the start of a new school year when the majority of the parents require cash for school fees. Coupled with that is market demand from Asia to some extent make closed seasons difficult to enforce when greater profits are to be made during period leading up to Chinese New Year in January. Alternatively closures may be put on reefs for several months on a rotation system. However in

the absence of much knowledge on larval dispersal and juvenile recruitment, they may be ineffective.

There is little information in the country on the rate of recovery of stocks, although - as with other resources - the fishery do recover in the absence of fishing. The exploitation of less valuable species of beche-de-mer to satisfy the mainland China market to some extent relieves fishing pressure on depopulate stocks of traditionally more valuable beche-de-mer species. Similarly, restriction on the use of underwater breather apparatus will save the populations of beche-de-mer in deeper water.

NFA has conducted stock assessment surveys of beche-de-mer for Manus, New Island, East and West New Britain, Oro and Western Provinces and may estimate the MSY for these provinces. Nonetheless, the fishery is so dynamic that these estimates may not accurately reflect the current level of the fishery in these provinces or if extrapolate to entire PNG. Studies on the beche-de-mer dynamic for all provinces are needed to consolidate information on growth, mortality, recruitment and movement patterns. These data are needed for estimate of yield and stock sizes.

Environmental impacts

The bêche-de-mer trade has had environmental impacts. In areas where product is smoked mangrove stands may be deforested as firewood is gathered. Estimates have been made that ten tonnes of wood is needed to smoke 1 tonne of bêche-de-mer.

Sea cucumber processing also results in the production of stickwater which contains a toxin (holothurine) that originates from the boiling of holothurian skin. In other countries, the release of stickwater directly into the marine environment has resulted in fish kills in shallow coastal areas.

Other potential environmental impacts of bêche-de-mer harvesting are poorly understood. All sea cucumbers extract bacteria and organic matter from bottom sediments and some are responsible for bioperturbation and oxygenation of the sea floor. Consequently, intensive collection may cause changes to the condition and nature of seafloor sediments with unknown impacts on other resources.

1. Application

- a) This bêche-de-mer fishery management plan is cited as “the management plan”.
- b) This plan applies to all animals belonging to the class Holothuroidea, commonly known as sea cucumbers, bêche-de-mer, pislama or trepang.
- c) This plan applies to the bêche-de-mer fishery and includes all fishing and activities associated with the collection, processing, storage, buying, selling and exporting of bêche-de-mer products.
- d) The Schedules to this plan form part of the management plan and shall be read together with the management.
- e) This plan is to be interpreted in accordance with Section 2, Interpretation, *Fisheries Management Act 1998* and Part 1.1, Interpretation, *Fisheries Management Regulations 2000*.
- f) Otherwise express so words and expressions used in the management plan shall have same meanings as defined in the *Fisheries Management Act 1998* and *Fisheries management Regulation 2000*.
- g) Where there is inconsistency between the plan and *Fisheries Management Act 1998* and *Fisheries Management Regulation 2000* the *Fisheries Management Act* shall prevail.

2. Objectives

- a) To manage the fishery so that Papua New Guinea gains the maximum economic benefits.
- b) To ensure that the development of the bêche-de-mer fishery benefits coastal communities, particularly customary fishers.
- c) To ensure use of the bêche-de-mer resource is sustainable and that bêche-de-mer fishing has minimal impact on the marine and coastal environment.

3. National Management Arrangements

- a) The bêche-de-mer fishery will be managed nationally. A National Management Advisory Committee (NMAC) will be formed in accordance with paragraph (g) to provide advice to the Managing Director on the management of the bêche-de-mer fishery.
- b) The NMAC will provide advice to the Managing Director on management measures as the Managing Director may specify including total allowable catches, closed seasons, reporting, restrictions, trade, and any other relevant issues that the Managing Director may direct from time to time. The final decision on the fishery management remains with the Managing Director.
- c) The NMAC may take on responsibility for advising on management of other marine species if directed to do so by the Managing Director or the Board.
- d) The Managing Director or the Minister may direct the NMAC to examine a particular issue in the fishery or to review all or part of the management plan.

- e) The plan will be reviewed by the NMAC at the direction of the Managing Director at least every three- (3) years or at such earlier time as the Managing Director shall direct.
- f) Subject to prior approval of the board, any review of the management plan shall be made public by the NMAC and comments will be invited from all stakeholders in the fishery.
- g) The National Management Advisory Committee will consist of the following persons, appointed by the Managing Director:
 - i. two National Fisheries Authority (NFA) representatives (one will be appointed Chair)
 - ii. one fishery scientist
 - iii. two customary fisher representatives
 - iv. two fishing industry representatives nominated by the fishing industry
 - v. a representative from a non-government organization whose objectives include conservation of the marine environment and resources and;
 - vi. one representative each from Region Fisheries Secretariat for Southern, Momase and New Guinea Islands.
- h) No more than two members may represent groups or government from the same province.
- i) Elected political office holders are ineligible for membership of the NMAC. Should an NMAC member be elected to political office during their term he or she must resign their membership. Persons who nominate for provincial or national election shall stand down.
- j) The members to the NMAC will serve for three-year terms.
- k) The NMAC and its members will operate in accordance with the following procedures and such other procedures and standards as may be set by the Board:
 - i. a quorum requires two thirds of all members and must include one NFA representative;
 - ii. The Managing Director shall with endorsement of the Board lay down operational procedures for the NMAC including place and dates for meeting and the NMAC shall meet at least once a year;
 - iii. prior to taking up membership, representatives will be required to disclose any direct or indirect personal or pecuniary interests in the fishery, otherwise than as a member of, and in common with the other members of, an incorporated company consisting of not less than 25 persons. The nature of his or her interest shall be disclosed as soon as possible to the NMAC. Such a disclosure shall be recorded in the minutes of the NMAC and submitted to the Managing Director;
 - iv. the NMAC and Managing Director must be advised of any substantive changes in such interests, or new such interests, during the course of membership. The Managing Director will determine if a change in interests will affect that member's term; and
 - v. where a member who has an interest described in subsection 3(k)(iii), has not made a disclosure in accordance with that

subsection, his or her vote shall be null and void retrospectively from the time such interest is considered and determined by the Managing Director and the Managing Director shall terminate the appointment of such a member.

4. Provincial Management Arrangements

- a) To ensure strong input from the Provinces, NFA will encourage provinces in the formation of Provincial Management Advisory Committees (PMACs).
- b) PMACs will advise the NMAC on Province specific management arrangements.
- c) NFA will only recognise PMACs that comprise broad representation of marine resource users in the Province and the membership of each PMAC must include:
 - i. one representative from provincial administration;
 - ii. one district administrator;
 - iii. three customary fisher representatives (from different Local Level Government areas);
 - iv. two local fishing industry representatives;
 - v. one NFA representative;
 - vi. provincial fisheries officer; and
 - vii. one representative from a non-government organization whose objectives include conservation of the marine environment and resources.
- d) The PMAC may submit a request to the NMAC, with justification, for members representing other stakeholder groups in the Province.
- e) The PMAC and its members will operate in accordance with the following procedures and such other procedures and standards as may be set by the Board:
 - i. the Chair of the PMAC will be voted in by a two thirds majority; and
 - ii. a quorum requires any six members and must include one customary fisher representative, the Chair and NFA representative; and
 - iii. the PMAC will meet as required, but, no less than twice a year.
- f) The Managing Director will determine, on recommendation of the NMAC, if a PMAC will be represented on the NMAC. The composition of the PMAC will be the deciding factor. A PMAC must not include any elected political office holders from the national or provincial government or person nominated for such office.
- g) PMAC may be consulted on other fishery.
- h) The PMAC may in consultation with the Provincial Government develop a schedule to the National Bêche-de-mer Management Plan that covers Province specific management measures. The NMAC will endorse PMAC schedules for Board approval if they are consistent with the provisions of the management plan.

5. Management Measures

The following management measures set out in the management plan shall have the force of law upon notification in the National Gazette.

5.1 Licensing

- a) Under this plan the only licenses required in the bêche-de-mer fishery will be export and storage facility licenses.
- b) There is no limit to the number of export license in any given province. However the PMAC of each province may recommend to NFA a specific number of export licenses for the province based on the resources available.
- c) Licensed exporters will be required to provide returns (in the form on schedule 2) to NFA detailing all purchases made during the month. Failure to do so will result in export not being permitted.
- d) New or renewed export licensees will have to meet certain criteria set by the Managing Director with endorsement of the board to qualify for an export license.
- e) Export licenses are not transferable.
- f) The bêche-de-mer fishery is reserved for the use of citizens of Papua New Guinea. Only PNG citizens and PNG citizen enterprises may hold an export licence, or engage in any part of the bêche-de-mer fishery.
- g) Non-citizens shall not take part in any aspect of the bêche-de-mer fishery.
- h) Licences are valid for one year and subject to renewal.
- i) Licences for the bêche-de-mer fishery will only be issued or renewed if the Board is satisfied that the company will meet, or has met, all licence conditions, and will comply, or has complied with the, provisions of the plan, *Fisheries Management Regulations 2000* and the *Fisheries Management Act 1998*, including any that may have prevailed prior to this plan.

5.2 Catch Limits

- a) Each Province will have an individual total allowable catch (TAC), applicable to a twelve month period, that is calculated using the best information available.
- b) The Managing Director, with the endorsement of the Board, will set TACs for the bêche-de-mer fishery in each Province. The NMAC will advise the Managing Director on TACs using information provided by NFA. TACs will be set after the yearly closure of the fishery in each Province and prior to the opening of the fishery the following year. TACs for each province will be recorded in Schedule 4 to this plan and once set shall not be changed until the following year.
- c) NFA will close the fishery on a date it estimates the entire TAC, or TAC of a value group, will be reached. This will be based on the best estimates of weight traded during the season.
- d) The NMAC will review the TACs for each Province annually taking into consideration any new and relevant research or information that is available.
- e) The TAC will be divided into two groups: high value species and low value species. Schedule 1 sets out which species belong to each group. These will be referred to as value groups.

- f) NFA will monitor the total allowable catch for each value group in each Province.

5.3 Trade

- a) Licensed exporters will only export bêche-de-mer of the sizes set out in Schedule 1 to this management plan.
- b) Trade of undersized bêche-de-mer is prohibited and any undersized product will be confiscated and the licence may be revoked or cancelled.
- c) The export of part or parts of, or broken bêche-de-mer, is prohibited.
- d) Parts of, or broken bêche-de-mer, weighing more than 40 kilograms found on export premises or packed for export will be confiscated and the export licence held may be revoked.
- e) Bêche-de-mer product for export must be packed by species and the holding container clearly labeled with the name and quantity of the product and the name and licence number of the exporter.
- f) Movement of bêche-de-mer product between provinces is not permitted except with written authorisation from the Managing Director of NFA.
- g) Where an exporter's nearest port for export is in another province, or not functional, the company may apply for written authorisation, from the Managing Director of NFA, to use another port for export. If granted, such written authorisation shall:
 - i. be attached to the licence;
 - ii. apply for one year only; and
 - iii. be reviewed at the time the licence is renewed.

5.4 Restrictions

- a) The use of hookah and SCUBA for the fishing of sea cucumbers is prohibited.
- b) The use of underwater lights or surface lights for the fishing of sea cucumbers is prohibited.
- c) Collection, buying, selling of all species of beche-de-mer is prohibited during the closed season or when a TAC is reached.

5.5 Closure of the fishery

- a) NFA will close the fishery when the TAC is reached or the compulsory season closure date is reached whichever occurs first.
- b) A compulsory closed season will occur each year, from **1 October** until **15 December** inclusive. The compulsory closed season applies to all Provinces.
- c) If a fishery in one Province is closed early, other Provinces may continue to fish until their TAC is reached, or the season closure date is reached, whichever occurs first.
- d) All collection, buying and selling of all species of bêche-de-mer will cease at the beginning of a closed season declared by NFA. Exceptions for export may be granted in writing by the Managing Director of NFA and such exception maybe with conditions deem approved by the Managing Director.

- e) NFA will advertise the closure of the fishery through national and local media approved by the Board.
- f) On the fishery closure date, exporters must report holdings of bêche-de-mer product to NFA on the form set out in Schedule 3.
- g) NFA may specify a date by which all holdings of beche-de-mer must be exported, or impose other measures for holding of product during the closed season.
- h) NFA reserves the right to close any area of the fishery for conservation or regeneration purposes if it is considered necessary to do so for the sustainable management of the fishery

5.6 Reporting

- a) Standard trade names must be used in all reporting. These are set out in Schedule 1 to the plan.
- b) Licensed exporters must submit holding data to NFA on all bêche-de-mer product handled. This includes species composition, grades, LLG/ward of origin, supplier's name, weight in kilograms and any other information that NFA may deem necessary.
- c) Holding reports containing the information set out in Clause 5.6(b) must be submitted by the fifth (5) day of each month on the form in Schedule 2 to this Plan.
- d) Exporters shall declare all beche-de-mer product they intent to export on form on schedule 2 of this plan to NFA, before NFA will issue approval for export and shall submit to NFA detail proof of remittance.
- e) Five (5) working days after the closure of the fishery, export licensees must submit a report to NFA stating how much bêche-de-mer they hold at the start date of the closure set in Clause 5.5(a). These will be submitted in the form set out in Schedule 3 to the plan.
- f) Failure to submit the required reports within ten (10) days, or submitting incorrect data, including incorrect trade names, may result in suspension or cancellation of the export licence under Sections 19 and 20 of the *Fisheries Management Regulation 2000*.

6. Research

- a) NFA will work with stakeholders in the bêche-de-mer fishery, non-government organisations and research institutions to carry out research and information-gathering activities to allow refinement of the plan, particularly the conduct of resource surveys and assessments.
- b) NFA will work with Provincial Governments and other relevant organisations to establish local programs of fishery statistics collection.
- c) NFA will commission, or encourage research to identify negative environmental impacts to the bêche-de-mer industry in PNG, and develop mitigation methods against them.

7. Customary Rights

- a) Existing customary management measures which are consistent with this plan are recognised by the NFA and PMACs will be encouraged to notify NFA of such measures and incorporate these into their Provincial schedules.

- b) Customary open seasons that are inconsistent with closed seasons as set out in Clause 5.5(a)&(b) are prohibited under section 30 of the *Fisheries Management Act 1998*.

SCHEDULE 1**Value Groups, Trade Names and Minimum Size Restrictions****Value Group H - High Grade Species**

	Trade Name	<i>Scientific Name</i>	<i>Alternative Names</i>	Live Length (cm)	Dry Length (cm)
1	Sand fish	<i>Holothuria scabra</i>	Golden sandfish	22	10
2	Black teatfish	<i>H. nobilis</i>	Black mama	22	10
3	White teatfish	<i>H. fuscogilva</i>		35	15
4	Green fish	<i>Stichopus chloronotus</i>		20	10
5	Prickly redfish	<i>Thelenota ananas</i>		25	15
6	Surf redfish	<i>Actinopyga mauritiana</i>	Rough surf	20	8
7	Black fish	<i>A. miliaris</i>	Big blackfish	15	10
8	Curry fish	<i>S. variegatus</i>		25	10
9	Stone fish	<i>A. lecanora</i>		15	10

Value Group L - Low Grade Species

	Trade Name	<i>Scientific Name</i>	<i>Alternative name</i>	Live Length (cm)	Dry Length (cm)
1	Tiger fish	<i>Bohadschia argus</i>	Leopard fish	20	10
2	Amber fish	<i>Thelenota anax</i>	Giant bêche-de-mer	20	10
3	Lolly fish	<i>H. atra</i>	Biglolly	30	15
4	Brown sandfish	<i>B. vitiensis</i>	PK fish	20	10
5	Chalk fish	<i>B. similis</i>	False teatfish	25	7
6	Elephant trunkfish	<i>H. fuscopuntata</i>	Trunkfish	45	15
7	Pink fish	<i>H. edulis</i>	Smallbelly	25	10
8	Snake fish	<i>H. leucospilota</i>			
9	Flower fish	<i>B. graeffei</i>	lollyrough, butterfly fish		
10	Deepwater red fish	<i>A. echinites</i>		25	15

Note: Shaded values are estimates.

**SCHEDULE 2****NATIONAL FISHERIES AUTHORITY****Monthly Buying Summary Report**

This form should report all marine product bought with in month

Name of Exporter:

Month/Year:

Province:

License N0:

Product Type: Beche-de-mer

Species NFA trade names	Species Value High (H) or low (L)	Dry Weight kilograms	Supplier first name and last name	LLG/Ward where bdm was collected

Send or Fax form to:

Facsimile: (675) 3202069
Telephone: (675) 3212643Manager,
Licensing & Information
P O Box 2016
PORT MORESBY
Papua New Guinea

SCHEDULE 3



NATIONAL FISHERIES AUTHORITY

End of Season Holding Report

This form should report all marine held at the close of a season

Name of Exporter:

Month/Year:

Province:

Licence NO:

Product Type: Beche-de-mer

Species One per line. NFA trade names	Species Value high (H) or low(L)	Dry Weight kilograms

Send or Fax form to:

Facsimile: (675) 3202069
Telephone: (675) 3212643

Manager,
Licensing & Information
P O Box 2016
PORT MORESBY
Papua New Guinea

SCHEDULE 4**Total Allowable Catch for each Province**

Province	High Value Species (tonnes)	Low Value Species (tonnes)	Total TAC (tonnes)
Bougainville	20	40	60
Gulf	0.5	0.5	1
East New Britain	10	20	30
East Sepik	7	13	20
Madang	10	20	40
Milne Bay	60	80	140
Manus	18	32	50
Morobe	10	20	30
NCD & Central	25	55	80
New Ireland	25	55	80
Oro	15	25	40
West New Britain	20	40	60
West Sepik	7	13	20
Western	10	7	17
	237.5	420.5	668

Approved this....10thday of.....September.....2001

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HON. RON GANARAFO
MINISTER FOR FISHERIES AND MARINE RESOURCES

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