

Information Paper 5

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Current status of sea cucumber fisheries, management approaches and compliance

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Status of sea cucumber fisheries

1. Bêche-de-mer (BDM) is the most important coastal fishery product traded from the region. Many coastal communities in Pacific Island Countries and Territories (PICTs) have harvested and processed sea cucumbers to BDM deriving significant income. However, the supply of BDM from the region cannot keep up with the growing demand from Asian communities.
2. The sea cucumber resources in the majority of PICTs have declined due to excess harvesting and exports and authorities responsible for the management of the fishery have been slow to react to the declining state of the resources. This fishery is characterised by open and closed years/seasons.
3. BDM production data for 14 member countries has been compiled by SPC primarily from past publications, technical reports, contacts with national fisheries or customs agencies or websites. Unfortunately, for many years and for most PICTs this information is aggregated BDM species production.
4. BDM production increased rapidly during the mid-80s and reached its peak in 1992 at 2023 tonnes (t). Ten-year average production from 1988 to 1997 was 1414 t, followed by another 10-year average of 1147 t. From 2008 to 2012 production averaged 919 t and the last 5 years (2013 to 2017) average production was 688 t (Figure 1), i.e. less than half that of the historic average high. For the past 25 years, 85% of BDM from the region came from Melanesian countries.
5. Over the period 2013–2017, 90% of the regions' BDM was exported to Hong Kong, 2.3% to Malaysia and 1% to New Zealand and the United Kingdom, with smaller volumes (5.7%) going to a number of other countries¹.
6. Published Hong Kong and Guangzhou wholesale and retail prices for BDM at the species level are available^{2,3}. High value species such as black teatfish, white teatfish and sandfish retail at USD 150 to USD 390/kg and low value species such as elephant trunkfish, lollyfish, amberfish and snakefish retail at USD 20 to USD 35/kg³.
7. Export value information across PICTs is fragmented, however the average export value was USD 33,500/t for Fiji, PNG and Vanuatu over the harvest seasons 2015–2017 and an average of USD 80,000/t over the same period for New Caledonia and French Polynesia. In 2017, the total BDM fishery export value was USD 43 million⁴.

¹ <https://comtrade.un.org/>

² Purcell S.W. 2014. Value, market preferences and trade of beche-de-mer from Pacific Island sea cucumbers, PLoS One 9 (4) (2014) e95075.

³ Purcell S.W., Williamson D.H. and Ngaluafa P. 2018. Chinese market prices of beche-de-mer: Implications for fisheries and aquaculture. Marine Policy, 91, pp.58-65. <http://bit.ly/2tY0Zc8>

⁴ Export data provided by Fiji, PNG, Solomon Is, New Caledonia and French Polynesia

8. The two French territories (New Caledonia and French Polynesia) target medium to high value sea cucumber such as white teatfish, black teatfish, sandfish, leopard fish and the Melanesian countries target a larger range of species (low, medium and high value) for BDM production. For countries who have BDM species export composition information, there has been a shift in production volumes from high value to low value species – another sign of a fishery in serious decline.

Management, compliance and governance

9. Seven PICTs have adopted management plans and/or regulations, and several PICTs are developing management frameworks for sea cucumber fisheries. Various approaches are used in the management of sea cucumber fisheries including:
 - a. Total allowable catch quotas;
 - b. Short-term harvest or opening season;
 - c. Minimum size limits;
 - d. Protected species;
 - e. Gear restrictions;
 - f. Limits on export and/or processing licenses; and
 - g. Requirement to submit BDM export data.
10. Catch quotas have proven near impossible for countries to implement. Experience demonstrates that catch quotas were exceeded two- to three-fold, in addition, short harvest seasons were frequently extended.
11. Few countries monitor sea cucumber catch or processed BDM through license condition and inspections to enforce minimum size limits. Fiji sampled processed BDM in 2014 and determined that 36% were under the regulation size, in fact 67% were below scientifically recommended minimums, and that protected species were harvested and processed for export. Vanuatu monitored BDM export consignments and determined that 82% were undersize for the 2016 harvest seasons⁵.
12. Data collection (species, quantity) has improved significantly in recent BDM open seasons. However, more effort is required to gather information along the value chain. In several countries, customs agencies collect BDM export information; this complements information collected by fisheries agencies.
13. Many PICT fisheries agencies have limited enforcement capacity; therefore, sanctions are seldom enforced. PICTs need to think strategically and focus enforcement actions at certain components of the fishery, for example by monitoring and controlling BDM exporters.

⁵ Leopold M (2016) Evaluating the harvest and management strategies for the sea cucumber fisheries in Vanuatu. Projects No 4860A1 (BICH2MER) and CS14-3007-101 (BICHLAMAR). IRD, Noumea, 64pp.

14. A major issue with sea cucumber fisheries is the implementation and adequate enforcement of management frameworks. Management actions are almost routinely undermined by political and/or trader interference.
15. Melanesian Spearhead Group, agreed to harmonise sea cucumber minimum size limits in 2017. Dry minimum size limits for 24 species in three size categories (10, 15, 20 cm) and minimum wet size limits in six categories (20, 25, 30, 35, 40, 45 cm)⁶.
16. It is important to apply and enforce science-based size limits in sea cucumber fisheries. Fishers and governments lose significant revenue by not strictly enforcing size limits. The long-term harvest of sea cucumber species could increase by up to 97% and generate up to 144% more revenue, if minimum size limits were enforced⁷. This is aside from the other known benefits such as ensuring breeding stocks are healthy and that their ecological function in ensuring lagoon and coastal health is maintained.
17. Despite significantly more training, increased stock surveys, better management plans, and substantial investment from donors, in most countries BDM exports and values are declining rapidly over 5-year averages, management is failing and governance frameworks are not effective.

IUCN and CITES listing of sea cucumber species

18. Four species – golden sandfish (*Holothuria lessona*), sandfish (*H. scabra*), black teatfish (*H. whitmai*) and prickly redfish (*Thelenota ananas*) – are listed as endangered, and five species – curryfish (*Stichopus herrmanni*), white teatfish (*H. fuscogilva*), deepwater redfish (*Actinopyga echinites*), surf redfish (*A. mauritiana*) and hairy blackfish (*A. miliaris*) – are listed as vulnerable to extinction by the International Union for Conservation of Nature (IUCN). These nine species are found in PICTs' coastal areas.
19. In 2019, the 18th Conference of the Parties (CoP18) to the Convention on International Trade in Endangered Species of wildlife fauna and flora (CITES) will discuss, amongst other issues, a proposal for the listing of subgenus *Holothuria* (*Microthele*) in Appendix II of the Convention. The species found in PICTs' coastal areas that are proposed for listing are white teatfish, black teatfish and elephant trunkfish (*H. fuscopunctata*).
20. CITES Appendix II listing is to ensure international trade of these species does not threaten their survival and to maintain their ecological roles to ecosystems. Listing of these species may provide much needed political attention to the improvement of sea cucumber fishery management. However, PICTs that are parties to CITES will no longer have the freedom to harvest and export these three species, as they will be subject to strict adherence to CITES management and conservation measures and reporting requirements.

⁶ Govan H (2017) Setting minimum size limits for Melanesian Spearhead Group sea cucumber fisheries

⁷ Lee S, Govan H., Wolff M. and Purcell M. 2018 Economic and other benefits of enforcing size limits in Melanesian sea cucumber fisheries. SPC Fisheries Newsletter 155:29–36.

Figure 1. BDM production (tonnes dry weight) from PICTs and average 10- and 5-year production.