

Governance and the Papua New Guinea beche-de-mer value chain

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Abstract

The sea cucumber fishery was a highly significant fishery for many years in Papua New Guinea, supplying 10% of the global trade in the mid-2000s. However, increasing prices and an influx of buyers entering the trade has led to overfishing of sea cucumber stocks, and a moratorium was subsequently introduced by the National Fisheries Authority in September 2009. This paper draws out key findings from an analysis of the governance arrangements along the beche-de-mer supply chain from village-based fishers and suppliers in Papua New Guinea through trading to end markets in the Peoples Republic of China. We give an overview of the value chain, showing that fishers were doing quite well from the sea cucumber fishery compared with exporters in the sellers' market operating in the years before the moratorium, and the deeply opaque nature of import markets via the Hong Kong "grey trade". The analysis of management measures shows that while ecolabels seem an unlikely measure in the short term, there may be opportunities for branding according to place of origin, quality and food safety. We find that the regulation of exports rather than the fishery *per se* is an excellent fit between the operational realities of the business and government capacity. This did not, however, prevent overfishing before 2009, but it nevertheless provides a model with great potential for other countries with similarly structured fisheries and trade to consider.

Introduction

The objective of this study was to conduct a governance analysis to assist the National Fisheries Authority (NFA) of Papua New Guinea (PNG) and other stakeholders to grasp the factors influencing the effectiveness of the revised National Beche-de-mer Fishery Management Plan (herewith, the Management Plan), which was gazetted in September 2016 in preparation for the reopening of the PNG sea cucumber fishery in 2017. We employed an "interactive governance" approach, wherein ideas from governance studies have been developed for use in fisheries management (Kooiman et al. 2005; Jentoft and Chuenpagdee 2015). In this approach, all of the factors affecting the governance of a fishery – the ecology of the fishery, government, non-governmental organisations, social values and markets – are considered. To encompass markets, the approach uses the concept of a "fish chain", which is similar to a supply chain or value chain except that those concepts are largely economic, whereas the interactive governance goals are multidisciplinary (i.e. they consider other factors such as resource sustainability, food security, community well-being, livelihood viability and social justice). Furthermore, interactive governance influences are considered at the various scales relevant to the fishery, from local to provincial to national and global. Because this kind of broad governance analysis has

not been done for sea cucumber fisheries before it was appropriate to take an exploratory approach, for which qualitative methods are best suited (Barclay et al. 2016a). On the basis of this broad research it is possible to narrow down questions for future research using quantitative methods. Data consisted mainly of interviews with fishers and traders in PNG and the Peoples Republic of China (hereinafter, China), sea cucumber scientists and policy-makers in various countries, and an extensive literature review. In this article we summarise some of the major findings of the project that may be of interest to sea cucumber fisheries managers and researchers. We focus on elements of the fish chain from PNG to Asian markets that are less well-understood and then highlight some features of governance. Readers interested in further details can download the full 168-page report (Barclay et al. 2016b), posters and a brochure from the University of Technology, Sydney website.³

The "fish chain"

The sea cucumber fishery in PNG prior to the moratorium in 2009 was extensive; it was carried out in most coastal and island locations around the country, and involved more than 26 species of sea cucumber, from very high-value to very low-value (Kinch et al. 2008). It was a small-scale informal fishery with multiple landing points, conducted

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³ <http://www.uts.edu.au/about/faculty-arts-and-social-sciences/research/projects/png-beche-de-mer-fish-chain> 2016

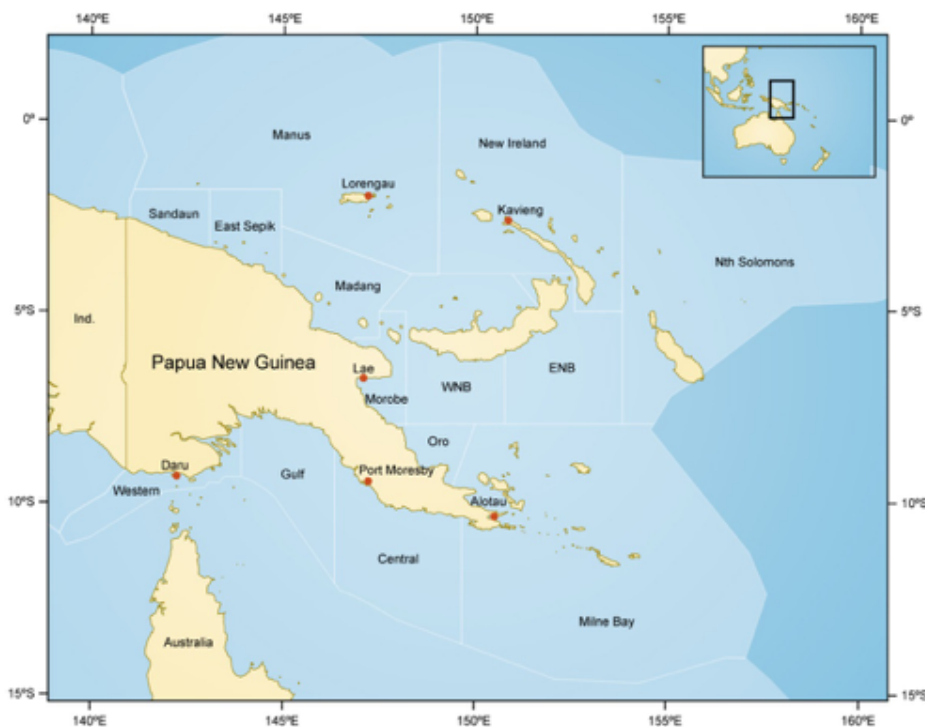


Figure 1. Papua New Guinea.

Note: WNB = West New Britain; ENB = East New Britain; Nth = North).

mostly from shore, canoe or dinghy by indigenous Papua New Guineans (i.e. no foreign fishing fleets, although illegal Vietnamese fishing vessels have become a recent problem, with several vessels arrested in the East Sepik, New Ireland and Milne Bay provinces). Women, men and children fished close to shore and gleaned in shallow areas. Young men dominated the fishing, which they conducted farther from shore or which involved deep diving. Some level of processing was done by fishers – minimal processing, usually first boiling only if the beche-de-mer could be sold quickly, full drying if fishers had to wait some weeks to be able to sell their product because they were in remote locations and thus needed to wait for suitable transport. Exporters were based in provincial capitals or Port Moresby and bought the beche-de-mer through buyers who travelled out to fishing areas or fishers who brought product to them to sell direct. There were a handful of exporters in each maritime provincial capital and more in Port Moresby, which meant the export node of the supply chain was much more consolidated than the fishing node.

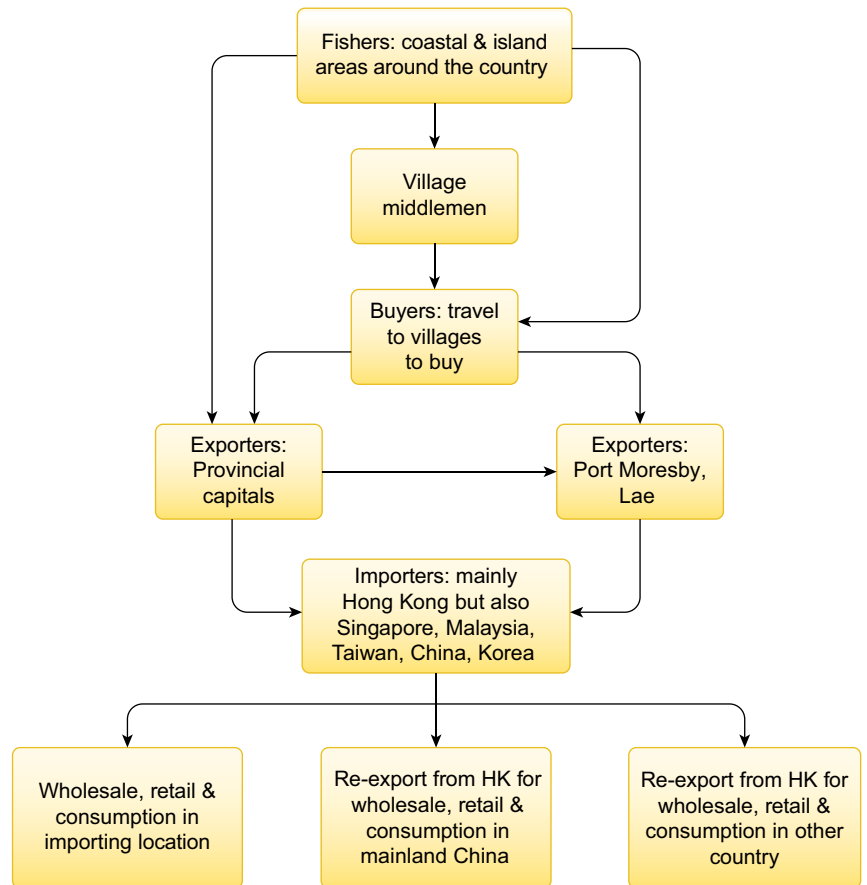


Figure 2. Papua New Guinea beche-de-mer fish chain.

Note: HK = Hong Kong.

Regional markets for beche-de-mer have existed for centuries, and they have expanded greatly since the 1980s due to growing affluence in China. Beche-de-mer was exported mainly via Hong Kong Special Administrative Region (hereinafter, Hong Kong) as an *entrepôt* to other regional markets (Kinch 2004, Kinch et al. 2008). Most of the PNG product was bound for new markets in mainland China, with some high-value product retained for established high-end markets in Hong Kong or Singapore. The tropical species of sea cucumbers exported by PNG are consumed mostly in southern China, with much smaller amounts sold to markets in northern China. While there is a diversity of trade routes within mainland China, one key route is from Hong Kong to Guangzhou, and then to other centres within mainland China. Hong Kong, as a luxury seafood hub for the Chinese market, is a free port with no tariffs, while tariffs as high as 30% (depending on China's trade relations with the export country) for import into China. So, although the trade from Hong Kong into China is extensive, it is a form of "grey trade" (that is, illegal). Our interviewees said trade via Vietnam, highlighted as a route by other researchers (Conand et al. 2014), was not significant, but it should be noted that due to the illegal nature of the trade, our interviewees were reluctant to discuss details of how beche-de-mer moved from Hong Kong to mainland China.

The beche-de-mer trade, from buying from villagers through export to import and retail, was highly dependent on relationships. Rather than arms-length, contract-bound market arrangements, trading was almost entirely based on relationships and trust. The exporters we interviewed were unanimous in saying that their relationships with importers were key to being able to operate as a beche-de-mer exporter, and to how well they did in the business. Relationships with importers affected the prices offered. One exporter related how, despite family connections to China, it took him years to learn what the market rates were and thus be able to charge the best price. Different exporters would get different prices from the same importers for the same quality product, depending on the strength, longevity and honesty of the relationship. All of the importers in Hong Kong and Guangzhou that we interviewed also stressed the importance of working with trusted local business partners from PNG.

Before the PNG sea cucumber fishery was closed in 2009 it was effectively a "seller's market". Most Papua New Guineans interviewed felt that exporters were making the best deal from the fishery, because in PNG and other Pacific Island countries it is normally assumed that "foreign" business people (most exporters not of indigenous PNG ethnicity) exploit village producers, and in many cases this assumption, with roots in the colonial experience, has a basis

in fact (Barclay 2012). Figures from 2007, however, show that sea cucumber fishers were getting more of the final market price than exporters (Kinch et al. 2007, 2008, see Fig. 3). We speculate that fishers were able to get such good prices because from around 2004 there were so many exporters competing for supply in PNG that it pushed prices up. It was also possibly due to the fact that PNG fishers avoided being captured in patron–client relations with traders. Such relations have been found in other small-scale fisheries in developing countries to depress prices (e.g. Padilla et al. 2003). The reasons PNG fishers were able to gain such good prices is important to follow up in future research because many sea cucumber fishers globally are economically marginalised. Fishers captured more of the final retail value of their beche-de-mer when it was of higher quality

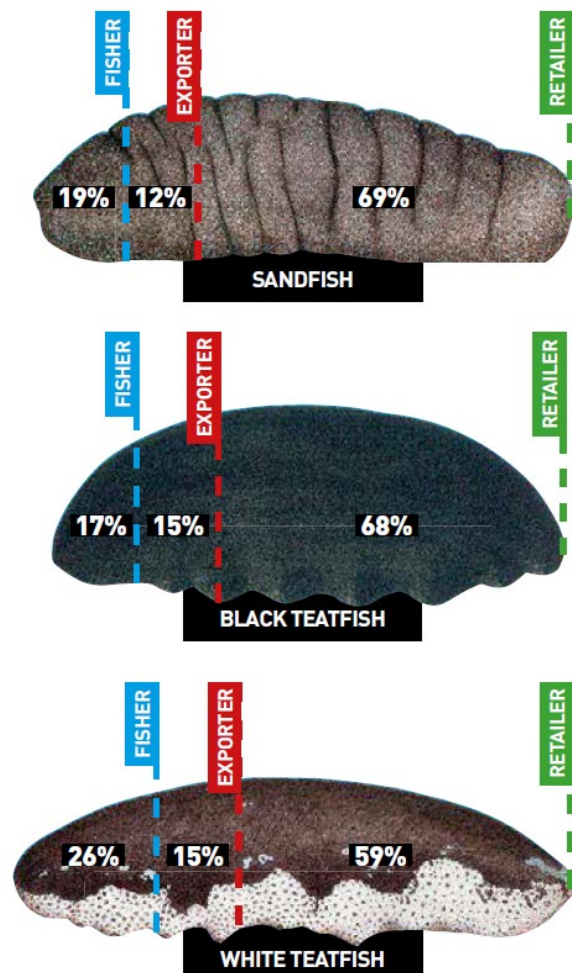


Figure 3. Market prices for fishers, exporters and retailers in 2007 (Kinch et al. 2007, 2008). Sandfish (*Holothuria scabra*), black teatfish (*H. whitmaei*), white teatfish (*H. fuscogilva*).

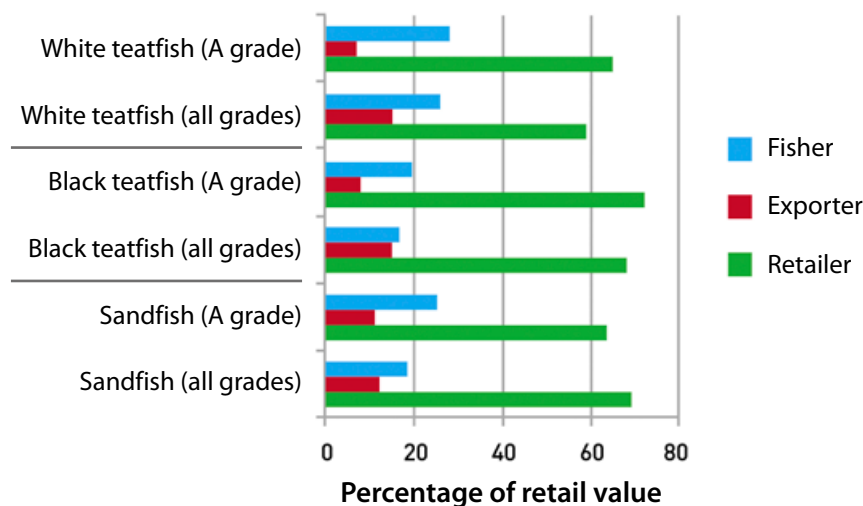


Figure 4. Market price variations by grade in 2007 (Kinch et al. 2007, 2008).
White teatfish (*H. fuscogilva*), black teatfish (*H. whitmaei*), sandfish (*Holothuria scabra*).

(Kinch et al. 2007, 2008, see Fig. 4), as has been found in other studies (Purcell 2014). The 2007 figures also show that there was a substantial increase in value after the beche-de-mer was imported to Hong Kong. A more recent study on prices from other Pacific Island countries (Purcell 2014) had similar findings – the retail price in Hong Kong is, on average, 2.7 times the export price across all the species traded.

Many fishers expressed a desire to sell directly to importers, and several exporters also advised that they had tried to “shorten the chain” and capture more of the value between them and the retail node of the chain (see Fig. 3) by selling directly to retailers. These exporters had been unable to do so, however, because the retailers they contacted were unwilling. Moreover, the importers we interviewed expressed no interest in cutting out exporter companies and going direct to fishers. The Hong Kong-based traders interviewed felt it was necessary to go through PNG exporters because of the need for what they cited as relationships with the fishers. In addition, only PNG citizens could hold an export license. According to traders, the fishers needed close liaison to produce quality product, and the PNG exporters based in provincial towns were able to liaise with fishers in a way overseas-based importers could not. Other traders spoke specifically of the difficulties of working in PNG: one advised that the security situation was very poor so he was not keen to invest there, while several more simply stated that they had heard stories of traders being cheated there and that they did not trust the local people. Even buying through local exporters, however, required building up trust first; without trust, such an undertaking was almost unanimously viewed by traders as too risky and dangerous. This point was emphasized by almost every trader interviewed.

Governance

There are many different opportunities for governance along the entire fish chain discussed in the full report for the project (Barclay et al. 2016b). We briefly discuss here two noteworthy sets of challenges and opportunities for improved governance that arise within the consumer end market of China and PNG’s revised Management Plan.

Internationally, there are some potential measures that could influence governance of the fishery, including the possibility of listing overfished species under the Convention on the International Trade in Endangered Species (CITES), although sea cucumbers, despite a submission by the United States for listing on Appendix II, did not get much mention at the 2016 CITES Conference of Parties meeting in South Africa, as sharks were the primary focus. Greater scrutiny of imports by the Chinese government is another potential influence. However, the illegal nature of the beche-de-mer trade from Hong Kong into its major markets in China poses a clear obstacle to effective governance. Bringing the trade between Hong Kong and the rest of China into the legal sphere is a prerequisite for improved data on the trade all the way along the supply chain, the kinds of governance benefits that could arise from having traceability, and potential trade related measures such as anti-illegal, unreported and unregulated documentation being required by China as an importing market state.

Market-based measures

In general, market incentives for sustainability are not yet significant in the main Chinese markets. Traders interviewed in Hong Kong and China acknowledged the problems of resource sustainability in

sea cucumber fisheries, and that this was leading to beche-de-mer being more difficult to source from some locations. Many of the traders in Hong Kong and Guangzhou knew there was a moratorium on the PNG fishery and why it was in place. One Hong Kong trader who had had long dealings with PNG exporters was very supportive in principle of the need to manage PNG's sea cucumbers, saying that this was "good for the country" and "good for the livelihoods of villagers". Other traders agreed with the broad notion that fisheries should be sustainably managed, suggesting that it could help to stabilize prices. However, most traders were unwilling to seriously engage with sustainability actions and initiatives, and did not feel that doing so would improve their business, especially as the Chinese seafood industry is sceptical that anyone will pay more for ecolabeled product. Interviews with exporters in PNG supported these findings, with all exporters interviewed saying none of their importers had ever raised resource sustainability or ecolabeling as something they were concerned about. Others viewed sustainability as solely the responsibility of exporting producer countries and did not see the role of traders relating to governance to ensure resource sustainability. This is not to say that ecolabeling will never take off in China, but it indicates it is not a short-term proposition (see Fabinyi 2016 for a summary of issues relating to sustainable seafood consumption in China).

In contrast, consumer preferences for food that is considered safe and healthy significantly overshadow concerns about sustainability that may be present (see Fig. 5). At the high price marketing end, food safety and quality concerns could potentially be linked to ecological factors and sustainability issues. There is potential for PNG product to be marketed as coming from "pristine" South Pacific waters without the industrial or sewerage pollution found in many Asian source countries. Currently, however, PNG's reputation in end markets for poor or unreliable quality beche-de-mer is a problem. Managers in PNG's NFA who were interviewed for the study said they are aware of the negative reputation with PNG product and are considering methods of extension for improving quality to increase the value of the fishery alongside efforts to improve sustainability (with higher prices, fishers could still have a good income even if catches are reduced).

Regulating exports

In PNG, our analysis found that, on the whole, the revised Management Plan is a good option: it is pragmatic and based on a thorough understanding

of how the fishery operates.⁴ The new emphasis on devolution, for example, is a good compromise between the need to allow for the delegation of responsibility where particular provincial governments and local organisations demonstrate preparedness for it, but not to rely on devolution where capable institutions are not yet in place. In particular, when we look at the complexity and scale of the beche-de-mer fish chain, the PNG government's choice to regulate exports is a good option. The fishery is extensive, informal and conducted in areas where government services are minimal. One international study has found that more sustainable sea cucumber fisheries correlate with certain kinds of fisheries management (Purcell et al. 2013). With an extensive and informal fishery in PNG, however, vessel controls and limited entry to the fishery are not feasible, and enforcement capacity at the fishery level is a long way from being achieved. Cash-earning opportunities are extremely limited in villages far from transport routes because of the expense of bringing inputs in and sending goods out, so the pressure to fish sea cucumbers will remain very high. At the point of exporting, on the other hand, beche-de-mer supply is consolidated from hundreds of thousands of fishers down to a handful of exporters in each maritime provincial capital and in Port Moresby. Exporting is a formal business requiring government licensing. Moreover, it is conducted in towns where government services are functioning, and



Figure 5. Sea cucumbers sold as "safe", "non-additive", and containing "no chemicals" in a Beijing supermarket. (Photo: Michael Fabinyi)

⁴ PNG's national fisheries management plans are available on the Internet (<http://www.fisheries.gov.pg/PolicyandRegulation/ManagementPlans/tabid/87/Default.aspx> 2013). At the time of writing the new Management Plan for the sea cucumber fishery was not yet available on the webpage.

where staff are available to implement and enforce policies. The point of export is far more governable than the fishery under prevalent conditions in PNG, so it makes sense to concentrate management efforts on the exporting node of the chain.

The success of the revised Management Plan, however, rests on ensuring fishery closures are enforced effectively and at the right times. In the past, the monitoring of catches via monthly export reports was not timely enough, which allowed the fishery to overshoot the intended limits and render the whole plan ineffective. The key point for strengthening the total allowable catch (TAC) and closed season instruments are to make sure TACs are set at the appropriate levels for each province, – which will require ongoing stock assessments – and to ensuring TACs are monitored in “real time” and fishing stops when the TAC is reached. More broadly, a central, ongoing challenge for the governance of the beche-de-mer fish chain in PNG will be how to ensure the sustainability of the fishery in the context of the strong need for cash in villages, and strong market demand. Even though the revised Management Plan is a good option to the operational reality of the business, it may still be unequal to these demand- and supply-side pressures.

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