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## **Growing Chinese dominance of the bêche-de-mer trade: A Papua New Guinean resource sector characterised by paradox**

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### **Introduction**

The export commodity market for bêche-de-mer in Papua New Guinea (PNG) is unique and fascinating. Bêche-de-mer is the cooked, gutted and dried body wall of sea cucumbers. There are over 25 species of sea cucumbers that are processed into bêche-de-mer in PNG, most of which can be hand collected without scuba or compressors (though these can make it easier to harvest some species). The market price varies significantly among species, with three species typically fetching prices above K200/kg if properly processed. It costs relatively little to produce and can be easily stored. Once dried, bêche-de-mer can remain in good condition without refrigeration for months while awaiting suitable transport to take it to market, which makes it a particularly suitable commodity for producers in remote locations such as small islands where transport is infrequent. The equipment required to harvest and process sea cucumbers is relatively simple (the freshly harvested sea cucumber must be boiled, gutted and dried, either by sun or over a low fire) and within financial reach of most rural coastal

and island people in PNG. As such, it represents one of the most evenly distributed sources of substantial income for these rural coastal and island people. While the benefit can be distributed relatively evenly in space, it has mostly been sporadically distributed over time as sea cucumber fisheries are prone to series of 'boom and bust' cycles, which have been the topic of commentary in fisheries management circles for many years (Hair et al., 2016; Kinch et al., 2008; Preston, 1993). This has significant implications for the various economic, social and cultural impacts of the fishery. For example, when coastal families derive substantial pulses of income from the sale of a large quantity of *bêche-de-mer*, they may significantly reduce labour inputs to subsistence gardens because they can buy imported foods such as rice and flour (Foale, 2005; Hair et al., 2019). The risk of loss of traditional agricultural knowledge as a result is real and could potentially impact on food security over the long term (Kinch, 2020; Macintyre & Foale, 2010; Macintyre & Foale, 2013).

For PNG, the *bêche-de-mer* market represents a complex and analytically challenging intersection of value systems, which can be examined from four perspectives. First, the commodity is marketed predominantly into China, Southeast Asia and countries with a Chinese diaspora, where people believe it has great health benefits (Fabinyi & Liu, 2014; Fabinyi et al., 2012). By contrast, most coastal Papua New Guineans do not seek it out as a valuable food (indeed, many see it as 'rubbish' [Tok Pisin: *pipia*] and are bemused by the Chinese predilection for it), though some species of sea cucumbers have been traditionally consumed for special purposes in some parts of the country (Kinch et al., 2008).

Second, the very high unit value as a tradable commodity combined with the low subsistence value means that marine resource owners think about this fishery differently to many others. As a result, community-based management of this fishery has generally been a failure, and the only management that has had any level of success to date has been government intervention, primarily in the form of moratoria (i.e., a total shut-down of the fishery for a specified period, typically on the scale of one to several years) (Foale, 2007; Kinch et al., 2008; Lee et al., 2020). Even the moratoria have only been partially successful, as they are supposed to be tied to a provincial quota system, which is routinely exceeded. We discuss this further in the section below on sea cucumbers as a fishery management conundrum.

Third, despite the importance of the fishery as a generator of cash for coastal and island people, it has been largely ignored by the conservation non-governmental organisation (NGO) community until quite recently, resulting in the listing of white teatfish (*Holothuria fuscogilva*) and black teatfish (*H. nobilis* and *H. whitmaei*) on Appendix II of the Convention on the Trade of Endangered Species (CITES) (FAO, 2019; Gisawa et al., 2020; Shedrawi et al., 2019). In late 2022, the three sea cucumber species in the genus *Thelenota* were also listed in Appendix II in CITES despite being assessed by the Food and Agriculture Organization as not meeting the criteria for listing (FAO, 2022). This is despite the ongoing popularity of the ‘conservation-and-development’ formula, a key component of which is the fostering of ‘alternative livelihoods’; bêche-de-mer is clearly a locally appropriate example of alternative livelihoods, given its importance as a source of income.

Finally, the highly dynamic encounter between two very culturally distinct groups of people—Melanesian coastal and island resource owners (the producers) and Chinese merchant capitalists (the buyers and traders)—in a mutually beneficial market exchange exposes several highly charged cultural tensions. The producers usually seek a form of rent from their resources, which they utilise according to a very different set of economic values to those held by the buyers, while the latter seek to maximise the value they can extract from the encounter, often using manipulative tactics and violation of regulations. Both parties routinely break management rules associated with the fishery, particularly minimum size limits.

In this chapter we elaborate on these four perspectives on the sea cucumber fishery and bêche-de-mer trade and discuss the extent to which the sector is changing as direct Chinese control of the market chain increases.

## 1. The food value of bêche-de-mer

The protein content and nutritional value of the meat from the body wall of sea cucumbers are understood by the scientific community to be very high (Bordbar et al., 2011; Ram et al., 2017; Wen et al., 2010). Despite this, sea cucumbers are rarely consumed in PNG (Kinch et al., 2008), and although most coastal languages have a generic name for them (e.g., ‘*puol*’ in Lihir and ‘*pula*’ in the Tigak Islands, New Ireland Province; and ‘*pisi*’ or ‘*buyoki*’ in the Misima and Tubetube languages respectively of the Milne Bay Province), specific names matching scientific taxa are uncommon. A small number of groups, however, do use them for specialised (typically

ritual) purposes. At Mali Island in the Lihir group, for example, women with infants often ate the (white) flesh of certain species of sea cucumbers, after scraping off the pigmented skin, in the belief that this food would help with lactation. The relatively low desirability, coupled with comparatively low human population densities along most of PNG's coastlines and islands mean that if all the sea cucumbers suddenly disappeared, few people would see this as a problem for subsistence food security as other types of marine protein remain abundant in most places (Foale et al., 2011). However, sea cucumbers are extremely valuable as a marketable commodity, once they have been cooked, gutted, smoked and dried to make *bêche-de-mer*.

The Chinese value *bêche-de-mer* very highly and pay exorbitant prices for well-processed, top-grade species. *Bêche-de-mer* qualifies as a '*Bu*' food (Fabinyi & Liu, 2014), which means it is believed to impart a high level of vitality to the consumer. The dramatically expanded engagement the Chinese Community Party has fostered with global markets since the late 1970s has meant that there is now a much larger 'middle class' who seek to elevate their status through consuming '*Bu*' foods such as *bêche-de-mer*. Consequently demand, and with it, prices, have risen steadily over the past three decades.

## **2. Sea cucumbers: A fishery management conundrum**

A lot has been written about the role, realised and potential, of customary prohibitions, particularly local marine tenure systems and taboos, for the management of coastal subsistence and commodity fisheries (Almany et al., 2013; Cohen & Foale, 2013; Foale et al., 2011; Govan et al., 2009). There is some evidence that trochus, a relatively low-value commodity fishery, has been successfully managed in a small number of locations where communities have partnered with either governments or NGOs to implement serial closure-based management regimes (a type of 'hybrid' management based partly on traditional taboos) (Nash et al., 1995; Pakoa et al., 2008). However, we have seen limited evidence of any successful community-scale management of sea cucumber fisheries in PNG (or indeed beyond) to date.

While some have claimed there is evidence that supposedly representative samples of coastal and island communities in PNG possess the social and cultural attributes to collectively and intentionally manage marine fisheries sustainably (Cinner et al., 2012), not only are these claims contestable,

but there are compelling examples of local social and cultural institutions being completely inadequate for managing coastal fisheries successfully, especially where there is any significant level of population or market pressure (Foale et al., 2011; Friedman et al., 2009; Hair et al., 2020; Hair et al., 2016; Kinch, 2020). Moreover, recent ethnographic and other social data from a community in New Ireland Province shows that despite a long period of negotiation and provision of support to a local community for management of a sea cucumber ‘ranching’ project, communal management of this high-value species can collapse very quickly, resulting in premature harvesting of ‘protected’ areas (Hair et al., 2020) and potentially an extended recovery time for the fishery (Bell et al., 2008; Cohen & Foale, 2013; Foale et al., 2011). In Milne Bay Province, declining sea cucumber stocks and escalating prices led to the rise of heated disputes over resource areas, several of which required State intervention through the legal system (Fabinyi et al., 2015; Kinch, 2020).

The combination of the high commodity value of sea cucumbers with the kinds of political divisions that typically exist in most Melanesian communities (Filer, 1990) means that community-scale management of this resource is very challenging, if not impossible. For this reason, the only successful form of management that has been observed to date has been government moratoria (Foale, 2007; Hair et al., 2016). A large part of the government’s success is due to the fact that the product must pass through a small number of market bottlenecks (points of sale) in PNG because it must be containerised before it is exported. This significantly reduces the time and cost for government officers to monitor and regulate the market at these points. A fishery with a more dispersed marketing system, such as reef fish, cannot be subjected to the same level of scrutiny and control. Improvements on the current system could be achieved by limiting the number of exporter licences, controlling intra-provincial transfers and policing the export ports (Barclay et al., 2019; Barclay et al., 2016). This would significantly reduce the time and costs of monitoring, control and surveillance operations for the National Fisheries Authority (NFA) and provincial fisheries officers.

While the PNG NFA has in recent years been able to exert some measure of control over the bêche-de-mer market, this control is somewhat tenuous (Hair et al., 2020). Part of the reason for this appears to be both an increase in the number of buyer licences issued by the NFA and a change in the behaviour of Chinese buyers, who in some instances are now travelling out to remote island communities themselves where they know there are significant

stocks of sea cucumbers (to compete for access to the product), and who are offering high prices for partly processed (such as fresh or simply boiled) sea cucumbers (because processing by fishers is often sub-standard and results in lower-value product). This greatly complicates the task of monitoring and regulation for the government. We have also directly observed large volumes of (illegally) undersized *bêche-de-mer* that were seized by police and NFA officers in Kavieng. The seized catch was very unlikely to represent all the illegally marketed product for that season. There is also evidence that staff at various levels within provincial and national fisheries agencies have become aligned with corporate and political interests within the sector.

### **3. Conservation NGOs arriving late to the *bêche-de-mer* party**

The ‘conservation-and-development’ model has been used by international conservation NGOs in PNG and the Pacific since it became popular in the 1990s, following the 1992 Rio Convention, and the poor performance of NGOs in relation to the ‘development’ side of the equation has been critiqued for almost as long (Filer, 2000, 2004; Foale, 2001; Van Helden, 1998; West, 2006). Ecotourism, bioprospecting and small-scale ‘eco-timber’ have been the preferred sustainable development options among conservation NGOs for a long time, but these options have seen very limited success over the past two decades. At the same time, the sea cucumber fishery has seen significant returns accruing to coastal and island communities (Hair et al., 2019; Kinch, 2007, 2020; Kinch et al., 2008) but the sector has mostly been ignored by the NGO community until relatively recently (Mangubhai et al., 2017).

It will be interesting to watch how the NGO community proceed with their new interest in *bêche-de-mer* as a livelihood option given the antipathy that many environmental NGOs have traditionally displayed toward governments (Foale, 2007; West, 2006), particularly given NGOs’ perennial emphasis on community-scale resource management, and what we have argued in Section 2 above. Some environmental NGOs now appear to be forging more productive collaborations with governments, though how this will play out in PNG’s *bêche-de-mer* sector remains to be seen, particularly given the recent listing of some of the higher value species on Appendix II of CITES, as outlined above, and the likelihood of other sea cucumber species being added to this list in the near future.

## 4. Melanesian resource sovereigns meet Chinese merchant capitalists

Traditional Melanesian economic personhood is geared to deliver elevated social and political status primarily through *redistribution*, not accumulation, of economic surplus (typically horticultural) (Gregory, 1982). The more someone can give away, generally at a traditional mortuary ritual or perhaps a marriage feast, the bigger their ‘name’ (or political capital) becomes. Personal material possessions may not change at all, and culturally Papua New Guineans are stereotypically not predisposed to ‘making a profit’ (Curry, 1999; Curry et al., 2015). Most people in this cultural region are strongly influenced by pressure from kin and extended family to share monetary surpluses generated by small businesses such as trade stores. State-enshrined customary land (and marine) tenure and relatively low human population densities have in part facilitated the survival of this cultural and economic system in PNG. Expatriate Asians, by contrast, like the early colonial traders of European extraction, are dependent entirely on their capacity to produce, and accumulate, profit from trading. They are highly skilled at it, and thus tend to dominate in the business sector (Smith, 2013, 2016). With the exception of a small number of European traders in the early phases of the colonial period, Chinese have always dominated the bêche-de-mer market in the Pacific Islands region, including PNG. They control the entire bêche-de-mer market chain all the way from the local buyer (who is legally supposed to be a Papua New Guinean, but who is often financed by a Chinese ‘businessman’) to the end consumer in China. Language, and capacity to establish a mutual trade relationship, is a fundamental barrier to participation and scrutiny from any non-Chinese players (Barclay et al., 2016).

While it is illegal for foreign nationals to be involved in the bêche-de-mer industry it is no secret that they bankroll it. Very few PNG nationals have the cash backing to buy bêche-de-mer or the contacts in Chinese markets. Indigenous Papua New Guinean buyers often have Chinese financial backing. So, from the start, Chinese are integral to the trade. The influx of new, more aggressive, mainland Chinese into the trade can be seen in the rise in numbers of licensed buyers in recent years since the reopening of the fishery in 2017.<sup>1</sup> As a result of this influx, many of the older, established

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<sup>1</sup> This was the first time the sea cucumber fishery had been reopened since 2009; it has been closed and opened several times since 2017.

buyers (including members of the so-called 'old Chinese' families, as well as several expatriates of European descent) are exiting the sector (see similar accounts in various other sectors identified by Chin in this volume).

The relationship between 'propertied' *bêche-de-mer* producers and (often landless) Asian buyers and merchants is far from cordial or trusting but is nevertheless important, and productively transactional for both parties. The Chinese buyers in Kavieng appear to have become somewhat more manipulative and aggressive during the 2018 open season, and for the first time came out in boats to remote islands in the Tigak group to try to get access to unprocessed or partially processed product so they could process it themselves to a standard they preferred (Hair et al., 2020). They exchanged food stuffs (including foods brought from town such as chicken) for fresh sea cucumbers and already processed *bêche-de-mer* instead of paying cash.

Some *bêche-de-mer* producers are resentful about the level of control of the market by Asians, including Chinese, though most are happy with the significant returns they get for their catches, which represent a relatively large percentage of the ultimate market value of the product (Barclay et al., 2016). The Nature Conservancy's (TNC's) Manus Island branch obtained an export licence from the NFA in 2018 and succeeded in selling *bêche-de-mer* made from one of the high-value sea cucumber species directly to Hong Kong, through a subsidiary contact who knew the market there, and managed to obtain significantly higher prices for the producers (Rick Hamilton, personal communication, 2016), but this activity did not result in an ongoing, alternative market chain. This may have been to do with difficulties TNC had with banking arrangements, delaying the return of funds to PNG. Since then, it appears that fishers prefer the immediacy of returns from selling product directly to local buyers (cf. Rasmussen, 2015). Most of the *bêche-de-mer* continues to become essentially invisible to non-Chinese observers once it is acquired by buyers in PNG. The extent of oversight of the market by the PNG NFA has also become increasingly difficult to gauge in recent years, but it appears that costs of monitoring and regulating the trade are increasing, with likely negative impacts on the prevention of capital flight from the sector. Ineffective management, which permits illegal activities to continue in the sea cucumber fishery and *bêche-de-mer* trade, undermines not only the livelihood benefits to coastal and island communities, but also the national revenue and foreign exchange earnings that are vital to the development of Papua New Guineans.



## Conclusion

There are some parallels to this picture of heavy Asian, and increasingly Chinese, dominance of a commodity chain between PNG and China—timber is the most obvious example (Filer, 1997). The key differences are that the monetary benefits from bêche-de-mer remain fairly (though not perfectly) evenly distributed; apart from occasionally significant thinning or clearing of littoral vegetation (including mangroves) for firewood, there is relatively little environmental damage caused by the fishery. There are sometimes negative social impacts due to jealousies and disputes over access to stocks in some areas (Kinch, 2020), sustainable management and benefit distribution (Barclay & Kinch, 2013; Barclay et al., 2016; Hair et al., 2020; Hair et al., 2019; Hair et al., 2016; Kinch, 2020), though these are not on the same scale as are commonly observed in association with logging.

We offer this vignette as an example of a commodity market that brings together people with radically different world views and modes of economic personhood. It reveals the power of a high-value commodity to change local economies and cultures, raising questions about the extent to which the market facilitates both economic and human development, and it highlights the difficulty of managing a high-value marine resource at multiple scales (Barclay et al., 2019). In a country such as PNG, with persistent, pressing needs for dramatic improvements in human development and basic service delivery, the financial transparency and effective governance of a market as lucrative *and* widely beneficial as bêche-de-mer remains a major development priority.

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