New projects
New research

# Winners and losers of sea cucumber exports from Palau

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*Caroline Ferguson is a PhD student in the Emmett Interdisciplinary Program in Environment and Resources at Stanford University in the United States. While conducting community-based participatory research on Palau's sea cucumber fisheries, she hopes to bring feminist theory and methodologies to bear on fisheries management challenges for more equitable and sustainable outcomes.*

## Project background

Pacific Island nations have been exporting dried sea cucumber (beche-de-mer) to Chinese markets for over a century, but the magnitude and extent of the trade has rapidly expanded, accelerating the depletion of sea cucumbers worldwide (Eriksson and Clarke 2015). Over 50% of stocks are now overexploited or depleted (Purcell et al. 2013). My research examines the social impacts of serial sea cucumber depletions throughout Palau. Marine invertebrates, including sea cucumbers, are customarily owned and predominantly utilised by women for subsistence, local markets and cultural purposes in Palau; their depletion is, therefore, likely to disproportionately impact women. Understanding the social impacts of the sea cucumber trade through a gender lens is critical for the equitable and sustainable management of these fisheries, in the context of their rapid decline in Palau and across the Pacific.

In response to declining stocks, Palau banned the export of sea cucumbers from the country in 1994. In 2011, however, Palau re-opened the fisheries to export for a six-month window. In response to high prices, fishers from across the country – including men – flooded into the sea cucumber fisheries, despite strong cultural norms that would prevent men from participating under normal conditions. In six months, fishers were paid a total value of USD 1.3 million (Pakoa et al. 2014), a significant influx of cash to rural areas. However, this money was not equally distributed among all fishers. Preliminary interviews suggest it was primarily men that benefited from the international trade of these resources, which customarily belong to women.

The environmental impacts of the harvest have proven to be long-lasting: the fishery had still not shown signs of recovery as of the last survey in 2014 (Rehm et al. 2014). This is typical of sea cucumber fisheries worldwide. Sea cucumbers are broadcast spawners and, therefore, require a high density of individuals for reproduction; low densities can inhibit recovery (Anderson et al. 2011). At the conclusion of the six-month harvest, Palau passed national legislation banning the export of all sea cucumber species in response to concerns about population declines, following the classic boom-bust-ban pattern observed in sea cucumber fisheries across the Pacific (Eriksson and Clarke 2015). The ban remains in place today, but ongoing harvest for subsistence and local markets continues to put pressure on already-depleted stocks.

## Research objectives

My research asks: Who benefited from the export of sea cucumbers in Palau, and how? Who is now paying the costs of sea cucumber depletion? I propose that existing social inequities placed some fishers in a better position than others to exploit the fishery while prices were high, and that the depletion of sea cucumbers has, in turn, exacerbated these inequities. To investigate these linkages, I will combine qualitative interviews, surveys, and focus groups with fishers that are diverse across multiple identities, with attention to gender, immigrant status, age, marital status and rank.

### Who benefited from the export of sea cucumbers, and how?

First, I will investigate what factors shaped fishers' access to sea cucumbers during the lucrative export harvest. I will examine each of the mechanisms proposed by the 'Theory of Access' (Ribot and Peluso 2003), with particular attention to how fishers' identities – especially gender – mediated their access to sea cucumbers. For example, I will observe that the majority of boat owners are men and ask whether access to boats gave men an advantage over women during the export harvest. Boats would have enabled men to collect and store many more sea cucumbers than women who typically wade into shallow waters at low tide with small buckets. In my analysis, I will draw lessons from intersectionality (Crenshaw 1991), examining other social identities in relation to gender. For example, I will examine whether Palauan women had greater access to boats via their extensive social networks than did immigrant women, and whose networks are smaller and weaker.

### Who is now paying the costs of sea cucumber depletion?

Second, I will investigate which fishers are now bearing the cost burden of sea cucumber depletion. Fishers today report having to go out farther, for longer periods of time in order to collect fewer sea cucumbers. This translates to less protein and lower income for those who rely on the fishery. Since the export of sea cucumbers from Palau was banned, men have stopped collecting sea cucumbers (a return to normal conditions), while many women have not, despite the difficulty in

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harvesting them in their depleted state. Thus, I hypothesise that the depletion of sea cucumbers may have increased pre-existing social inequities by benefiting fishers who already had more resources and then placing greater costs on fishers with few alternatives.

### Next steps: Participatory monitoring and management

In the next phase of research, I will work with a diversity of sea cucumber fishers to develop recommendations for the monitoring, management and possible restoration of sea cucumbers in Palau. In collaboration with Palauan researcher and community organiser Ann Singeo, we will develop a participatory monitoring protocol that incorporates a diversity of ecological knowledge held by fishers. It is my hope that this work will promote the recovery of the fisheries and the greater inclusion of a diversity of women in resource management decision-making in Palau.

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Sea cucumbers are hand-collected

A package of processed sea cucumbers (locally called *eremrum*).