

Evaluating the impacts of efforts to improve postharvest processing of sea cucumber in Fiji

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Sea cucumber fisheries are an important source of income for coastal communities in the Pacific. Sea cucumbers are a delicacy that is particularly sought after in South East Asia (Ram et al. 2014). Because of their medicinal properties they are considered 'high value for money'. Sale prices of beche-de-mer (dried sea cucumber) in the Pacific Islands usually range from USD 3–85 per kg, depending on the species, product size and quality of processing when sold by fishers to an exporter or processor (Kinch et al. 2008; Purcell et al. 2016a), while the sale price for raw sea cucumber is much lower. Poor processing of beche-de-mer results in spoilage of product, poor product quality for export and diminished sale prices for fishers in Fiji (Ram et al. 2014). A project funded by the Australian Centre for International Agricultural Research (ACIAR) to evaluate the impacts of efforts to improve the postharvest processing of sea cucumber was carried out in Fiji, Tonga and Kiribati. This paper describes the training that took place in Fiji.

Despite a history of over 200 years of fishing and trade, most village fishers in Fiji had no previous training or information on how to process sea cucumber in order to gain optimum economic returns (Purcell et al. 2016). In Fiji, sea cucumbers are an important export earner and a source of income generation for coastal communities involved in this trade (Ram et al. 2014; Purcell et al. in press).

In Fiji, the project on 'improving postharvest processing' began in Fiji in June 2013, with the support of the Ministry of Fisheries. In 2014, the project conducted baseline socio-economic surveys of fishers in eight locations across Fiji. Thirty-four villages from Bua, Cakaudrove, Taveuni, Ra, Kadavu, Vanua Balavu, the Yasawa group of islands and the Southern Lau Group were surveyed. A structured questionnaire was developed that focused on present sea cucumber fishing practices, and the income and livelihoods of sea cucumber fishers. The survey also considered the fishers' 'current methods of postharvest processing'.

Processing methods used by fishers were studied and described in an article published in issue 36 of the SPC

Beche-de-mer Information Bulletin (Purcell et al. 2016a). At the same time, a comparison of fishing methods among locations was made, and the influence of gender and socio-economic factors on the different sea cucumber fisheries were examined (Purcell et al. 2016b).

After the socioeconomic surveys were completed, training workshops on postharvest processing for village fishers were conducted. The trainings demonstrated the best practice methods of collection, handling, storage and processing of sea cucumbers. The training emphasised the importance of proper handling and storage, such as gutting, cooking, salting, smoking and drying, which have an impact on the quality of the sea cucumbers.

A technical manual² designed to be used by (i-Taukei) communities, and a studio-made DVD³ were produced by the project and provided to the fishers as part of the training. Both information sources explained and demonstrated all of the steps involved in processing different groups of sea cucumber species. More than 2000 training manuals were distributed to fishers in Fiji.



A fisher gutting a white teatfish during the training (image: Sailasa Tagica).

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² <http://aciarc.gov.au/publication/cop026>

³ <https://www.youtube.com/watch?v=9Wd18O1Rdgo&t=8s>



Village fishers with their manuals after a workshop (image: Sailasa Tagica).



Conducting a follow-up survey (image: Sailasa Tagica).

A total of 353 fishers were trained during full-time workshops held in 24 villages in Fiji, and shorter training sessions were conducted in another five villages. Each location was revisited a year after the workshops. A follow-up socio-economic survey was delivered in each location to gauge the impacts of the project interventions. A key issue that was frequently raised by fishers during the follow-up surveys was that buyers were dictating the prices of sea cucumbers, whether dry or raw. Many fishers have requested the government's intervention through the Ministry of Fisheries to standardise and regulate the prices of each sea cucumber species. Some fishers, who have been harvesting sea cucumbers for many years reported a decline in sea cucumber stocks over time. The project baseline data found that the majority of fishers believed that the main reason for declining stocks in the sea cucumber fisheries is the increase in the number of fishers (Purcell et al. 2016b). It seems that coastal communities now tend to focus on sea cucumber as their main source of income since sea cucumber fishing is the fastest way to earn money when compared with agriculture or other fisheries.

Since the implementation of this project, we have seen positive changes in the way fishers are processing their sea cucumber. Fishers who have been following the methods taught during the workshops have reported higher returns from their sales. Several of the fishers interviewed are abiding by the recommendation to only harvest the larger sea cucumber, to enable the replenishment of stock. Hopefully, along with future management reforms planned by the Ministry of Fisheries, continued efforts to implement improved processing methods will contribute to a more sustainable sea cucumber fishery in Fiji.

The project videos and manual can be viewed and downloaded at:

- <http://scu.edu.au/environment-science-engineering/index.php/125>
- www.youtube.com/watch?v=9Wd18O1Rdgo&t=8s
- <http://aciar.gov.au/publication/cop026>

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