



## The live reef food fish trade in Fiji<sup>1</sup>

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### A brief history of the trade in Fiji

Fiji is one of the countries in the Pacific that has recently become involved in the live reef food fish (LRFF) trade. The trade was introduced by the government in the late 1990s through the Ministry of Agriculture Fisheries and Forest (MAFF) Commodity Development Framework (CDF) programme.

The objective of the CDF programme was to strengthen export-driven and import-substitution commodities. The LRFF trade was identified as one of the main export commodities under the programme. The programme was divided into two main sub-programmes reflecting the archipelagic zoning of the country. The main sub-programmes are the offshore fishery, which deals with the tuna/snapper industry, and the inshore fishery, which deals with the harvesting of resources within coastal waters.

The government anticipated that the introduction of the LRFF concept to communities would result in the realisation of economic development and the opportunity for a better living standard due to the higher potential for earnings from exporting reef fish live, compared with the sale of dead fish to local markets. For instance, approximately 338 tonnes of coralgroupers (*Plectropomus* spp.), cod (*Epinephelus* spp.) and wrasse (Labridae), valued at 1.35 million Fijian dollars (FJD)<sup>3</sup> in the local markets, are caught in the Bua and Macuata coastal zone annually. These fish are sold to the Labasa and Suva markets. Exporting the same amount of fish to Asian markets (live) would realise an annual export earning of well over FJD 16.9 million.

LRFF development started with one pilot company and later increased to eight companies. Most of these have subsequently withdrawn and opted to move out of Fiji for the following main reasons:

- LRFF is a new concept and will take a long time for members of communities to adapt to the commercial demand of the trade.
- Fiji has 410 “customary fishing rights areas” managed by the Fisheries Department, with 25 Fisheries Stations and 17 ice plants located within the four administrative divisions (east, west, north and central). Most communities were too focused on selling their catch through the rural fisheries service centres.
- The LRFF trade targets only a few species, so other fish caught are discarded or considered only for subsistence consumption.
- Cargo space for exporting is limited due to high competition from other fisheries commodities, such as tuna.
- The geographical set-up of some highly reliable targeted areas is too costly for operators in terms of their remoteness (e.g. the Southern Lau group).

From late 2002 until early 2003, only two companies were operating: Satseas Company Ltd in Bua (Northern Division), and Atlas Ocean Products Ltd (Southern Lau).

### Actual breakdown of companies

#### Satseas Company

- Operation site in Bua (Islands of Galoa and Tavea)
- Deployed fish cages
- More than 40 fishermen actively participated in the fishing operation
- Mother vessel collected fish and transported to Viti Levu (Western Division) for export

#### Atlas Ocean Products

- Based in Suva
- Operation site in Southern Lau

1. Reprinted with permission of the Australian Centre for International Agricultural Research from: Johnston B. and Yeeting B. (eds). 2006. Economics and marketing of the live reef fish trade in Asia-Pacific: Proceedings of a workshop 2–4 March 2005, Noumea, New Caledonia, hosted by the Secretariat of the Pacific Community. Australian Centre for International Agricultural Research. 163 p.

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3. FJD 1.00 = USD 0.59 (December 2006)

- Deployed fish cages
- An average of 40 fishermen from each village actively participated in the fishing operation; fishing was done rotationally, one island after another (Lakeba, Oneata, Komo, Namuka and Vanua Balavu)
- Mother vessel collected fish and transported to Viti Levu (Suva) for export
- Company also bought fresh dead reef fish

Only local fishermen were allowed to catch fish; operators or companies were restricted to purchasing the fish, as outlined in the management guidelines.

The buying prices ranged from FJD 5.50 to 6.00 per kg for humphead wrasse (or Maori wrasse) (*Cheilinus undulatus*) and FJD 4.50 to 5.00 per kg for coralgroupers (or lower, depending on the fish quality). These buying prices were fixed as part of the agreement between the custodians, operators and Fisheries Department.

Fish bought from local fishers usually passed through several levels of trade right up to the market. Market prices often changed and the trade fluctuated depending on fluctuations in market price. So, the trade may have sometimes disadvantaged local fishers due to the fixed buying prices. Fishermen may have received very little for their fish even though actual market prices may have been very high.

### Export of live reef food fish

#### Satseas Company

- Satseas Company exported cod (*Epinephelus* spp.) and coralgroupers (*Plectropomus* spp.)
- The company exported 8250 kg of live fish in 2003, valued at about FJD 410,000
- The company exported 5100 kg of live fish in 2004 (excluding November and December), valued at about FJD 255,000

#### Atlas Oceans Products

- Atlas Ocean Products started a live fish operation in 2003 and exported once that year, with a shipment of 13,000 kg, valued at about FJD 650,000. In Figure 1, the high value in June is due to this shipment and 400 kg exported by Satseas.

For the above breakdown, the market prices were obtained from the ADB booklet "While stocks last: The live reef food fish trade" (Sadovy et al. 2003).

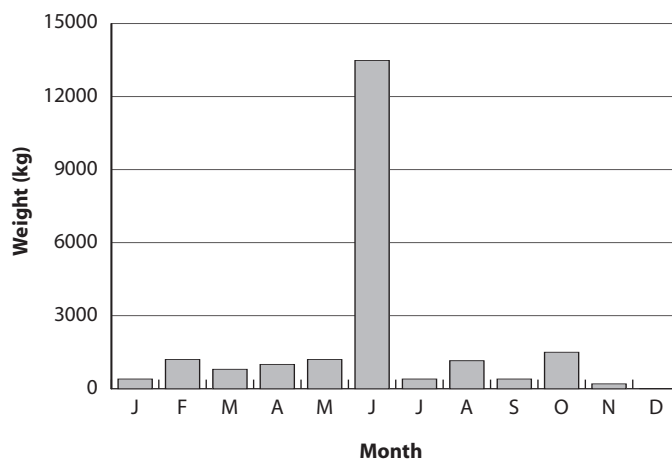


Figure 1. Live reef food fish exports from Fiji (2003).

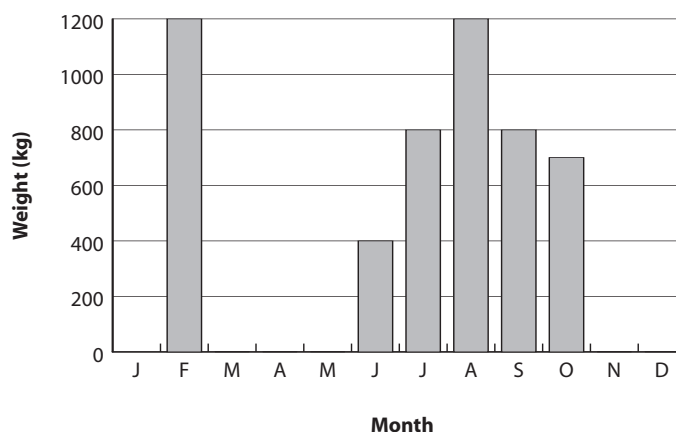


Figure 2. Live reef food fish exports (2004; excluding November and December).

Figure 2 shows a decrease in exports because only one company was operating. Satseas only exported once in the first five months of 2004 (in February), as the company ceased operation to renew cages. Operations started in June with the exportation of 400 kg, at which point a new company (King Fisheries Limited) took over.

### Status of the live reef food fish trade

King Fisheries Limited (KFL) is the only company operating a LRFF enterprise. KFL is a locally registered company with foreign shareholders. It is based in Nadi with a warehouse/processing factory close to the airport. KFL began operating in late June 2004, taking over from Satseas following the approval given by the Fisheries Department to export both live and dead reef fish.

The company's operational site is Bua, mainly in the *qoliqoli* (fishing ground) around the island of

Tavea. This followed approval granted by the Buli Lekutu (Paramount Chief in Bua) to access the *qoliqoli*. The island of Tavea is one of the leading areas for the LRFF trade. It was also targeted by Satseas after the company moved from Galoa Island. Tavea has considerable potential, with close to 50 fishermen actively involved in the live reef food fishery. These fishermen are well known for their fishing skills and knowledge, being the traditional fishermen of the Buli Lekutu. KFL has set up fish cages with assistance from the fishermen.

The fish cages have a holding capacity of 500 kg of live reef fish (Fig. 3). Three pens are held together to form a large cage of three separate compartments. The cages are all the same size (about 8 m in length by 6 m in width). The fish cages have been renewed to keep fish safe from shark attacks, damage from bad weather conditions, and other factors that may lead to high fish mortality.

The cages are located in front of the village, visible from the shore for security. While fish are in captivity, they are left to feed naturally without the provision of feed.

In a similar way to the operation in Lau and other LRFF operations, the mother vessel tows the fishing boats (dories) out to the reef or fishing locations where the boats disperse to their preferred fishing sites. According to the fishermen, the number of boats has increased from 14 at the beginning of 2004 to 16 boats. Fishermen operating in the LRFF trade can earn an average of FJD 300 to 700 per week depending on the catch landed. This has enabled these fishermen to improve their standard of living.

Once fish are purchased, they are shipped to Nadi via the mother vessel, where they are kept, processed and exported to overseas markets. The company has been exporting every week, with an average shipment of 180 kg, valued at FJD 1260.

## Management and challenges

The Fisheries Department, in facilitating the development of the LRFF trade in Fiji, has developed some guidelines to help ensure the long-term sustainable development of the industry. These guidelines will be reviewed throughout the year, then finalised and documented by December 2005. The guidelines are as follows:

- All companies must have an indigenous Fijian partner as a 51% shareholder.
- Fijian protocol must be followed, with permission to be granted by the tradi-

tional custodians followed by approval from the Provincial Office. Original copies of all formal agreements must be submitted to the Fisheries Department.

- A baseline assessment survey should be carried out in the area targeted for operation to assess the availability of target species; viability of the business and the total allowable catch that can be taken without compromising resources for the future. The survey is to be fully funded by the operator or company.
- The vessel is in no way to participate directly or indirectly in the taking of fish (as defined under the Fiji Fisheries Act, Cap. 158) either for subsistence or commercial fishing. Fishing may only be done by the resource custodians, so foreigners or non-citizens should not be involved in catching fish, except for training purposes. The fisheries observer on board will ensure this condition is met.
- Wild species such as humphead wrasse should not be considered a target species in this fishery and no company, organisation or individual should export this species under the live fish trade.
- Companies must only engage in the LRFF operation and no other marine resources should be taken or purchased by them.
- Fishing of targeted species is not permitted during spawning or aggregation periods.
- The companies' warehouses and fishing vessels must be accessible to the LRFF project officer and enforcement officers for monitoring and inspections, as appropriate.
- All export of live reef fish should be carried out from designated ports, where fish can be inspected before being exported to overseas markets.
- Shipment of live reef fish to overseas markets by sea is not permitted. All live reef fish exports should be by airfreight.
- Licenses will be reviewed each year.



**Figure 3.** Live reef food fish cages on the island of Tavea (photo by Ledua Ovasisi).

The Fisheries Department sets out agreements with the company/operator prior to operation. The agreement mainly focuses on the terms of operation (enforcing fisheries regulations) that the company must comply with; any breach of the agreement will incur a penalty or automatic cancellation of the operation.

The Fisheries Department is working on enforcement and monitoring with recruitment of field officers to be based permanently in the field/village or operations site to collect operational and domestic (subsistence) data which would then be analysed to check on the amount of targeted fish species harvested in a week or month.

The following monitoring system checks are currently in use:

- A fisheries project officer boards the company vessel to monitor operations on site and the vessel's overall operational system.
- Site visits are made and regular meetings with fishers are held to monitor the benefits and impacts of the trade and to facilitate the development of the trade.
- Visits are made to companies to collect data, inspect the processing facility and discuss other relevant activities of the industry and the Fisheries Department's work programme.
- Companies submit data on a monthly basis to the Fisheries Department, as outlined in the agreement.

### Conservation measures

- Conservation of marine resources: the operation is restricted to the purchase of fish only (mainly live reef fish and sometimes fresh dead reef fish). There is ban on targeted species such as humphead wrasse (*Cheilinus undulatus*), which is also included in the CITES Appendix II.
- Marine protected areas (MPAs) are implemented in areas highly targeted by the trade to allow target fish species and other marine resources to breed.
- Fish aggregation devices (FADs) are deployed in areas where the trade is operating to attract offshore fish species and to substitute for reef fish taken out by the trade.

### Major challenges for the LRFF trade

- Monitoring of operations (as described above), including linkages between the site, company factory and port to the overseas markets.
- Stock assessment surveys, which take a long time and may be too expensive.
- Educating (raising awareness of) the communities on all aspects of the LRFF trade.

### Future directions of the trade

The development of the LRFF trade in Fiji is not consistent, judging from the number of operators/companies entering and leaving, as highlighted earlier. The Fisheries Department is aware of the fluctuations in the trade but recognises the benefits that it has brought to local communities in the short time it has been operating. The Department views the trade as an income generating activity, but recognises that the benefits have often come with high costs.

The Fisheries Department is optimistic that, with good facilitation and monitoring, the trade can be considered as one of the best alternative sources of income for coastal maritime communities. The Department is considering changes in its fisheries activities, such as shifting the LRFF project to its research division, as it involves a lot of research activities on both target and non-target species, impacts of the trade and fishing operations on the environment, including comparisons of LRFF target and non-target sites and the near extinction of marine species such as humphead wrasse (*Cheilinus undulatus*). This research is important given the number of companies expressing interest in being involved in the trade and will help the Department to determine the real depth of the trade, the status of its available stock and its economic value and benefits. With this information, the Fisheries Department will be in a better position to determine the future of the LRFF trade.

### References

- Sadovy Y.J., Donaldson T.J., Graham T.R., McGilvray F., Muldoon G.J., Phillips M.J., Rimmer M.A., Smith A. and Yeeting B. 2003. While stocks last: The live reef food fish trade. Manila: Asian Development Bank. 147 p.