

Bioprospecting & Live Rock Harvesting for Coral Conservation, Fiji

Presented at: A Private Sector Approach –
Conservation Agreements in support of Marine Protection



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Abstract

A Locally Managed Marine Area (LMMA) is an area of nearshore waters actively being managed by local communities or resource-owning groups, or being collaboratively managed by resident communities with local government and/or partner organizations. A LMMA strategy offers an alternate and complementary approach to the centrally-managed system where a body (such as a national government agency) largely uses "command-and-control" to manage a marine area, often from a remote location. As of 2007, 200 LMMAs involving more than 300 communities had been declared in Fiji, covering about 30% of the country's inshore fishery. The LMMAs in Fiji protect reefs, sea grasses, and mangroves. Management plans associated with LMMAs include income-generating activities. Under this guise, contractual arrangements between private companies and communities have been entered into for bioprospecting, artificial live rock harvesting, and SCUBA diving. This case study will explore these arrangements as a means to augment local incomes and create tangible value in protecting the marine environment through LMMAs.

Project Overview

A number of income generating initiatives directly related to access to the locally managed marine area (LMMA) and its tabu (no take) zone have been established. Given the well-developed tourism sector in Fiji, snorkeling in no-take areas (where fish are plentiful and docile) by fee-paying tourists is a common income-generating effort. This case study will focus on two less prosaic initiatives, the commercial search for drugs from marine invertebrates and microorganisms (bioprospecting) and the rental of reef area for live rock culture (planting artificial bare substrate of cemented pumice to allow coralline algae to cover it).

Agreement Mechanism-Bioprospecting

For bioprospecting different kinds of agreements have been used. The policy framework is that the Fiji government plays a regulatory role and benefits are channeled to the traditional marine resource owners. In all cases the University of the South Pacific has played a central role, signing agreements with overseas entities such as universities or pharmaceutical companies and in turn getting approval from Fijian communities for collection to take place.

Two fee-paying initiatives have been established; one with the Strathclyde Institute for Drug Research (Scotland) acting mainly as a broker for Japanese companies signed with Verata district in 1997 and a contract with several provinces and PharmaMar company (Spain) in 2007.

In the Verata case a fee of \$100 USD per sample was paid for about 350 samples, proceeds going to a district conservation/education trust fund. With PharmaMar 40,000 Euros was split 50/50 between the USP laboratory and a Trust Fund established to support LMMA work in the collection areas.

Many other marine collections have been made but as part of programs without immediate commercial potential (after 1995 drug discovery models have disfavored the use of natural products by drug companies). All agreements call for milestone payments for recollection and sharing benefits from licensing fees or royalties.

Agreement Mechanism-Live Rock

The live rock initiative is an attempt to replace the removal of reef base for aquarium traders on reefs. After about a year this material attains the desired characteristics of real live rock. In essence reef space is "rented".

Villages pay US\$0.25 per kilogram of bare rock and receive US\$0.50 per kg (there is also a 20% weight increase as organisms cover the substrate). To facilitate community involvement in pilot sites USP under an International Cooperative Biodiversity Group (ICBG) grant underwrites the purchase of up to 5000 kg of material per village, with the proviso that at least 60% of proceeds are used to replant an increasing amount each year.



Process & Issues

- Both processes began as part of a larger marine conservation initiative in which a healthy reef system is linked to the enterprise.
- Extensive discussions were held with community leaders and government about the project. For bioprospecting the idea of providing new drugs to help people was attractive to Fijians.
- Each agreement has formal contracts. The communities in Fiji have customary tenurial control over their marine resources; land resources are owned by them but can be leased; marine resources can be used by others on payment of compensation (legal ownership is with the state but this is disputed).



The main indirect threat underlying the direct threats to reefs is need for cash. The initial main focus of our work is good stewardship; once this is agreed to/established then income generating projects are discussed. In the case of live rock the villages had either refused large royalty offers (bribes) of about US\$20,000 to allow access to live rock harvest or had harvested live rock and then become aware of dangers and discontinued. Several people in a village employed as live rock harvesters can earn as much as US\$10,000 a year (a tourism job might earn a third this amount). For cultured live rock the initial planting will only earn the entire village about \$3,000 a year but the improved reef conditions over time will hopefully compensate for this income loss. The amount of planting can also be expanded. Where the community had had direct contact with the live rock trader they were suspicious of the project, especially feeling that payment was inadequate

Conclusions

The stakeholders include the community, government at different levels, the conservation sector and the business sector. For the live rock trade the tourism industry was especially supportive of the cultured rock initiative and one resort offered an area in front of their resort to trial the initiative while the community discussions were taking place.

The aquaria owners who ultimately buy the rock are also important, there has been a lull in the project as the original cultured rock "design" was not well-received. For bioprospecting of course the general public might eventually benefit by a new drug discovery. In both cases funding for the initiatives has come from US government projects for drug discovery and conservation.



- Agreements can be good conservation incentive
- Should follow on to conservation commitment
- Simpler is best
- Agreements need to be well understood
- Trust funds a useful control mechanism
- Partnerships critical at several levels



Recommendations

Direct income to communities is a strong incentive to reinforce conservation. The commitment made by communities need to be well understood by them as well as the consequences of non-compliance. Income-generating with minimal community requirements are more likely to be successful. It is probably simpler to work initially on a small geographic scale with reasonably homogeneous community characteristics and expand them rather than try to be too ambitious to start with. Partnerships which provide best practice advice are also critical to success.

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