

Fisheries Working Group (FWG), raising the awareness of member economies to the issues facing the coral reefs of the region. The benefit of working with APEC is that it is a regional body, and although it cannot directly alter national governmental policy or legislation, it can pressure those governments to “go along” with other APEC economies. It has given IMA an audience that it would not normally have been able to reach, and also allowed IMA to put forward its case for reefs, reef species and reef fisheries. As perhaps the only organisation working across “the chain of custody” in the region, IMA is in the position to provide information on all aspects of the chain, as well as up-to-date information on APEC’s main focus, trade. This can provide APEC a sound basis for making decisions in its various working groups, as well as at the ministerial level. In this regard, the APEC FWG is currently funding a two-year project to develop industry standards in the live reef fish trade. Of major concern to FWG is the issue of “certification”, which is seen as a barrier to trade. The development of these standards is in no way a certification scheme, but rather a voluntary plan of best practices for adoption by all stakeholders.

Following on from plans developed during a multi-organisation strategy conference held in Honolulu in 2001, a meeting was held in January 2002 in Hong Kong to discuss the development of industry standards for the live reef food fish trade. These standards are being developed in collaboration with The Nature Conservancy, Marine Aquarium Council and HKCSM through a multi-stakeholder dialogue. They will cover areas such as capture, handling, transportation, aquaculture, stock assessment and food safety. Further details of this project are discussed elsewhere in this issue.

Continued efforts have been made by IMA to disseminate market information on the live reef food fish trade to stakeholders and fisheries managers throughout the region. All IMA regional offices and collaborative partners (e.g. the Secretariat of the Pacific Community and various government fisheries departments throughout the Indo-Pacific) receive a monthly update of import volumes and wholesale and retail prices. Should anyone wish to receive these market updates, or any other specifics on the market, they should contact the authors.



## Pacific Regional Live Reef Fish Trade Management Workshop

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### Background

During 2001 and 2002, the Secretariat of the Pacific Community (SPC) implemented a regional technical assistance project on the live reef fish trade (LRFT), in partnership with International Marinelife Alliance (IMA) and The Nature Conservancy (TNC), with financial support from the Asian Development Bank (ADB). Activities included biological and LRFT activity assessments in a number of Pacific Island countries, provision of policy and technical advice to government fisheries management agencies, and the development of a variety of public awareness materials.

As part of this project, a regional workshop was held at The University of the South Pacific to:

- provide fisheries policymakers and managers in the region with information on activities and outputs under the project;

- elicit the views of participants – especially Pacific Island representatives – in order to share and learn from each other’s experience in developing and managing the trade; and
- identify priorities for action on the policy and technical levels.

Government representatives from all SPC member countries and territories that had LRFT operations (either for food or aquarium fish) were invited. Some countries, particularly Fiji Islands and Kiribati, also had representatives from the industry. Scientists and economists familiar with the LRFT from academic and research institutions and non-governmental organisations were also present. Mr Thomas Gloerfelt-Tarp was present to represent ADB, the sole funding source for the project. In total, there were 50 participants, half of which were from the Pacific region, representing 11 SPC member countries that had LRFT operations.

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## Workshop objectives

The aims of the workshop were to:

- provide participants with an overview of the biological, fisheries management, economic, and socioeconomic dimensions of the LRFT;
- provide information and provoke discussion on the relative costs and benefits of opening the LRFT, and the conditions under which the trade may or may not be a positive and sustainable option;
- explore and discuss key policy and management issues related to the LRFT in the region;
- review various other ongoing initiatives related to the LRFT in the region;
- provide input into the development of draft industry best practice standards for the live reef food fish component of the LRFT; and
- identify priorities for future technical assistance, policy development, and capacity building in the region.

The meeting included 11 sessions:

- Session I: Opening/introduction
- Session II: Overview of the live reef fish trade in the Pacific
- Session III: Pacific Island countries' LRFT experiences
- Session IV: Overviews of relevant LRFT initiatives
- Session V: The Australian experience
- Session VI: Key scientific concerns
- Session VII: Key management concerns
- Session VIII: Marketing concerns, certification and best practices
- Session IX: Mariculture: a potential solution?
- Session X: Pulling together experiences and lessons presented
- Session XI: Wrap-up discussions and formulation of outputs

After opening speeches, Dr Jimmie Rodgers, Senior Deputy Director-General of SPC, made a dedication in respect and honour of the late Dr Bob Johannes and the fisheries work he has done in the Pacific region. The recently produced awareness video "The Live Reef Food Fish Trade - Avoiding the Boom and Bust Syndrome?" was then viewed.

A global and regional overview of the LRFT (both aquarium and food fish), including current trends and some important issues affecting the future of the trade in the Pacific, was presented in Session II.

In Session III, Pacific Island delegates discussed the status of the LRFT in their countries, and problems and issues in developing and managing the LRFT.

This information is important in directing future SPC efforts. Presentations by industry representatives from Kiribati and Fiji Islands were useful in revealing some of the problems faced by operators and how they cope with management conditions and requirements. The session concluded with a panel discussion that organised key issues and priority actions into four categories: a) management issues, b) biological issues, c) social issues, and d) economic issues.

Session IV reviewed some of the initiatives in the Pacific that dealt with various aspects of the LRFT, including:

- the ADB-funded SPC Pacific Regional LRFT Initiative, a collaborative project with NGOs, particularly TNC and IMA;
- TNC's LRFT work in PNG and Solomon Islands;
- Solomon Islands LRFT project funded by the Australian Centre for International Agricultural Research (ACIAR); and
- the capture and culture of coral reef fish project implemented jointly by ACIAR, Queensland Department of Primary Industries, and the International Center for Living Aquatic Resources Management (ICLARM).

Australia provides at least 90 per cent of the live reef food fish exported to Hong Kong from the Pacific and it is generally acknowledged as probably the only well-managed and seemingly sustainable LRFT operation in the region. Although the LRFT in Australia is very different from that in the smaller Pacific Island countries, there were some important lessons to learn. Session V was devoted to discussing Australia's experience.

Sessions VI, VII, and VIII dealt with scientific, management, and marketing (including certification and best practices) aspects of the LRFT. Experts in each of these areas helped clarify key issues and lead discussions of their implications for the sustainability of the LRFT.

Culture initiatives of both live food fish and aquarium fish were discussed in Session IX. Grouper aquaculture has had success in Asia, where most of the research has been conducted; it was therefore important to describe the Asian experience and discuss the feasibility of introducing such activities into Pacific Island countries.

The last two sessions of the workshop were committed to summarising key findings about the LRFT in the Pacific and prioritising areas for further action. Following is a list of those findings and recommended actions, followed by a list of specific concerns raised by the country participants.

## Key findings and recommendations

- Awareness about the LRFT in Pacific countries is poor.
- Strong awareness-building programmes are required in most Pacific Island rural fishing communities where the LRFT is likely to occur. There is consequently a need to translate awareness materials into local languages.
- Financial obligations are the main driving force behind communities overexploiting their resources.
- Opportunity costs should always be considered in the process of developing the LRFT.
- There is a general lack of technical capacity and ability to conduct data collection and assessment of resources and to transform this information into good management options.
- Stock assessment methods need to be looked at carefully and improved before they are relied on by fisheries managers and decision-makers.
- Underwater visual census is a useful tool for making quick estimates of the resource.
- Some countries use trial fisheries to evaluate the feasibility of the industry.
- Transportation of live fish is one of the biggest problems in the region. The transport of live food fish by sea is wasteful because of high mortality rates, while opportunities to transport by air are limited for most countries.
- Environmental risks associated with transporting water (with fish) from one country to another seems to have been neglected and should be addressed.
- Ciguatera fish poisoning is an important issue that countries should consider when developing their live reef food fish industries.
- Most countries do not have LRFT development and management policies in place. Such policies are urgently needed in order to control the LRFT.
- Lacking information, a precautionary approach to managing and regulating the fisheries should be considered.
- There is a lack of infrastructure and funds at the national level to manage the LRF industry, as well as other fisheries in Pacific countries, so it is appropriate to consider community-based fisheries management options.
- In managing the LRFT, an adaptive management approach that encourages community involvement and that is aimed at maximising benefits for local communities, should be taken.
- There is a need to improve coordination among different authorities within a country in developing and managing the LRFT.
- The real costs of management, including the costs of monitoring and enforcement, should be evaluated as part of the process of establishing a LRFT industry.
- Programmes that use observers on LRF fishing and transport vessels should be developed, similar to the observer programmes used for the region's foreign tuna fisheries.
- The exploitation of rare and vulnerable species such as the humphead wrasse is not sustainable and should be banned.
- Cyanide fishing does not seem to be an important issue in the Pacific, but the targeting of spawning aggregations is. Targeting spawning aggregations can quickly lead to depletion of fish stocks and should therefore be discouraged or banned.
- Given the fast-growing economy of China, the demand for live food fish is likely to increase.
- Information on wholesale prices of live reef fish is an important need of local governments and communities. Such information can be maintained in a centralized database, such as the one being developed by SPC.
- LRF operations have not followed any standards with regard to post-harvest mortality, and there is much room for improvement.
- Certification and best practices standards may improve the quality of LRF products and reduce the waste associated with high mortality rates, but the implications of such schemes for local suppliers in Pacific countries are not known.
- Alternative income earning opportunities should be promoted, but in some communities, such opportunities do not exist. Ecotourism is one option, but is not readily accepted in most isolated communities.
- Mariculture of grouper species for the live food fish trade is not an option for Pacific countries because of the highly competitive sources in Asia. Mariculture could, however, be an option for the trade in marine ornamental species.
- Demonstration is needed of the feasibility of semi-aquaculture-based aquarium operations that collect larvae from the wild for grow-out.
- It is important to recognise that the Australian live reef food fish industry is very different from those in the small Pacific island countries and therefore what works for Australia might not work in the Pacific. It is based on a single species and all exports are made by air to Hong Kong.

## Countries' specific concerns and needs

- There is a need for public awareness programs on all aspects of the LRF trades.
- There is a need for better ways of making politicians and decision-makers more sympathetic to the reality of the LRFT and the need to properly manage it.
- What should a country do when approached by a LRF operator?
- Countries have a need for clear and transparent

- processes for investors wanting to start LRF operations.
- There is a need for the development of “rough rules of thumb” (requested to be prepared in time for the next SPC Heads of Fisheries Meeting) that would provide steps for making quick precautionary decisions – based on the limited information available – on whether new LRFT operations should be allowed or not.
  - There is a need to review lessons learned in the LRFT and to compile case studies from the Pacific to show the pros and cons of having a LRFT and also to look at and learn from the past experiences of other industries, such as forestry and tuna fisheries.
  - There is a need to establish and promote information exchange among countries (e.g. on good and bad operators), which can then be made available to SPC member countries through SPC’s central database.
  - Communities need to be properly informed in order to make decisions, so targeted and appropriate awareness materials that communities can comprehend easily should be developed. Such materials should be made available in local languages.
  - There is a need for information, such as management guidelines and information on investors, and such information has to be country-specific.
  - SPC should prepare a package containing management guidelines and recommendations for regional government fisheries departments.
  - Coordination among government departments should be strengthened and fisheries departments should become more involved when new LRF operations emerge.
  - There is a need for information linkages between supply countries and Hong Kong, including mechanisms for cross-checking various sources of information. These links should involve reliable partners such as the Hong Kong government, the Hong Kong Chamber of Seafood Merchants, and IMA-Hong Kong. It should be noted that the Hong Kong government has already stated that if it is approached for information by supply governments, it will readily respond.
  - Countries should proactively advise LRF operators of their requirements, such as through the Hong Kong Chamber of Seafood Merchants. This task could be undertaken by SPC rather than each country doing so individually.
  - Market prices can be made available to countries on a timely basis through SPC, with the help of IMA-Hong Kong. Possible media include SPC’s website and the LRF Information Bulletin. The issue of information confidentiality should be considered.
  - Many Pacific Island countries do not have the management structures needed to address the LRF trades, and this fact needs to be addressed.
  - There is a lack of capacity and resources, both human and financial, in fisheries departments, especially at the provincial and state levels.
  - Countries should consider using and building on traditional/customary management approaches to address the LRFT.
  - There are concerns about spawning aggregation sites and there is a need for a fact sheet on aggregations to be included in the TNC/IMA/SPC awareness package.
  - Countries should consider using marine protected areas, aggregation site closures, and seasonal closures of LRF fisheries during spawning seasons.
  - Information and guidance are needed with regard to options for using marine protected areas as a management tool. For example, what percentage of habitat could realistically be closed?
  - There is a need for information on ciguatera outbreaks.
  - Priorities for enforcement should be clearly defined at the national, provincial, state, and community levels.
  - Enforcement is a political issue and money is needed to ensure that enforcement will be effective. Options for meeting the costs of management from external sources should be considered. For example, should there be mechanisms to transfer the costs of management to the industry?
  - Enforcement of some controls is more expensive than of others. The relative cost-effectiveness of various management options needs to be considered; for example, controls on fish exports are relatively inexpensive to administer and enforce.
  - Where fisheries management capacity is limited, partnership or co-management arrangements that involve non-governmental organisations, communities, and other government jurisdictions should be considered.
  - There is a need to consider the development of vessel observer programs for LRF fisheries.
  - Public awareness of rules is needed in addition to active enforcement in order to ensure compliance.
  - The capacity of regional organisations such as SPC is limited. The strengthening of effective regional partnerships with non-governmental organisations and other regional and international organisations should be considered.
  - With regard to mariculture, there is a need to strengthen the linkages between SPC’s Aquaculture and LRFT programmes and for SPC to link with organisations and initiatives in

Southeast Asia, such as the Network of Aquaculture Centres in Asia-Pacific (NACA).

- The potential for gardening coral for aquaria should be examined.

These outputs indicate a number of priority areas of concern. At the top of the list is awareness about the trade in government (both at the political and technical levels), in communities, and among operators and investors. Secondly, and closely linked to awareness, is the need for specific kinds of information (e.g. successes, failures, fish prices, and the histories of investors and operators). The third is management capacity. This includes technical capacity, as well as resources such as staff, infrastructure, and funds.

It should be noted that some of these needs are already being addressed through several activities. These include the production of a handbook of

fishery management guidelines for the live food fish trade, the production of a package of LRFFT awareness-raising materials for communities, the production of a handbook about ciguatera fish poisoning, the development of a regional LRFT database, a compilation of case studies of LRF operations in the Pacific, and various capacity building activities.

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## Live reef food fish trade – Pacific awareness materials project

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The Secretariat of the Pacific Community (SPC), The Nature Conservancy (TNC), International Marinelife Alliance (IMA) and the World Resources Institute (WRI) entered into a three-year Memorandum of Understanding in December 1999 to implement "The Pacific Regional Live Reef Fish Trade Initiative." The overriding purpose and goal of this initiative was to provide scientific, information, policy and management advice and assistance to Pacific Island countries and territories with respect to the live reef fish (LRF) trade. The objective of the initiative was for SPC, TNC, IMA and WRI to work collaboratively to:

- collect, assess and disseminate information on LRF fisheries and trade in the Pacific region;
- assist Pacific Island nations to develop and implement regional, national and local mechanisms, policies and management strategies that promote or foster sustainable practices in the LRF fisheries;
- provide training and capacity building to Pacific Island nations for sustainable LRF fishing and fishery practices;
- strengthen the capacity of SPC's Marine Resources Division to respond to requests for

technical assistance related to LRF fisheries from SPC member countries and territories;

- raise Pacific decision-makers' and communities' awareness and understanding of the LRF trade; and
- explore and develop appropriate opportunities for coordination and collaboration between the "supply" communities and "demand" markets to promote a sustainable industry that benefits local Pacific Island communities.

Within this initiative TNC took the lead in:

- compiling and maintaining an inventory of live reef food fish trade (LRFFT) awareness materials (all media); and
- developing relevant generic LRFFT awareness materials for various target audiences and disseminating them through SPC.

In order to establish common ground, set priorities, and begin development of these awareness materials, a workshop involving a broad range of participants was held in Papua New Guinea in May 2001. That workshop reviewed existing awareness materials, defined key messages and awareness goals,

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