



A regional Pacific Islands workshop on monitoring and managing reef fish spawning aggregations for sustainability: A first attempt

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From 7 to 10 October 2009, the Secretariat of the Pacific Community (SPC) and the Society for the Conservation of Reef Fish Aggregations (SCRFA) jointly organised a sub-regional training workshop at the University of the South Pacific campus in Suva, Fiji. The workshop was held in response to a request for assistance from five Pacific Island country fisheries departments that wanted to start monitoring and managing their reef fish spawning aggregations. Their desire for assistance stemmed in part from their concerns with live reef food fish trade operations, which were specifically targeting spawning aggregations of groupers and related species.

Reef fish spawning aggregations (FSAs) are common in the Pacific region and are well known to many local communities. Many reef fish species move away from their home reefs at particular times and migrate long distances to a specific part of the reef to form large aggregations for spawning. During these periods, aggregations are very good fishing grounds that, in the past, supported low levels of subsistence fishing and a welcome seasonal fishing activity. However, with growing human populations and increasing demand for food and income earning opportunities, as well as improved fishing technologies, these FSAs are increasingly being found and targeted. This threatens fish species with overfishing and compromises fisheries.

Within the last decade, FSAs have been targeted for live fish as part of the live reef food fish trade. Additionally, the establishment of ice plants and the development of deep reef slope

fishing have facilitated fishing on FSAs in remote areas. Because these aggregations support important nearshore fisheries that are critical for people's livelihoods, establishing effective management measures for FSAs is urgently needed in the Pacific region. Management, however, requires a good understanding of these spawning aggregations in terms of their periods of formation and, in some cases, their location, by species. Unfortunately, the fisheries research skills needed to address this challenge are largely lacking in Pacific Island countries. Thus, there is a need to develop training programme that address gaps in knowledge and skills for effective FSA management. Although legislation that addresses the conservation and protection of spawning aggregations across Fiji is currently being considered in that country, monitoring will still be needed for adaptive management.



Fisheries officers from six Pacific Island countries participating in the SPC/SCRFA spawning aggregation workshop held at the University of the South Pacific campus in Suva, Fiji.

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The purpose of the workshop was to address this need for training. The workshop was designed to give participants an understanding of the major issues in coastal fisheries, and within that general context, to highlight the importance of FSAs, which are formed by many of the most valuable reef fish species. Training was provided through a series of lectures, hands-on exercises, discussions and documentary films. The importance and relevance of fisheries monitoring of FSAs was discussed. Novel methodologies for simply, cheaply and efficiently surveying reef fishes in aggregations, and estimating annual catches, were presented. To highlight the challenges of monitoring FSAs, hands-on experience gained in Palau and Fiji by invited keynote speakers was shared with workshop participants.



SPC team filming workshop session on teaching how to interview fishermen (photo by Yvonne Sadovy).

The importance of good science as a basis for developing appropriate management was highlighted in the workshop. Simple scientific sampling protocols, such as how to decide on minimum and representative sample sizes (e.g. how many fish to measure in markets to get a representation of species diversity) and how to simply and effectively study reproductive biology (spawning season) of key target species were introduced and later practiced through sampling at the local fish market and in a practical laboratory session working with fish specimens. This involved recording fish lengths, getting samples of gonads, and identifying species. Other relevant issues, such as the importance of size-at-maturity versus size demanded by the market, were also discussed. Trial fisher interviews were organised and conducted in a nearby fishing village (Kiuva) to provide training on how to collect biological data and characterise knowledge of spawning aggregations. Methods for handling and storing data, as well as simple analyses, were also conducted and discussed.

In total, 22 fisheries officers participated in the workshop — 11 from countries outside Fiji, including Cook Islands, Kiribati, Palau, Samoa, Tuvalu and Vanuatu. Local participants were from the Fiji Fisheries Department and from Fiji-based marine conservation and management non-governmental organisations. Feedback from participants was generally very positive, with all participants finding the workshop useful and relevant to their current fisheries research work in their respective countries. One of the key expectations of participants was that they would gain basic practical and hands-on skills in how to undertake research (collect data sets) and manage or protect reef fish spawning aggregations. These basic skills could then be adapted and applied to their own fisheries or monitoring sites.

The workshop was the first of its kind on such an important fisheries issue in the Pacific region. It provides the first — and very useful — opportunity to improve, and possibly expand, the design and delivery of such training if further needs arise. Participants were confident that they had gained very useful data collection and sampling skills and would be able to pass those skills on to other people within their own institutions and to communities that need to manage and protect their own spawning aggregations. One of the outputs from the workshop was the identification of outreach and educational materials and simple guidelines for conducting monitoring and long-term sampling. A compilation of relevant reference materials and educational examples (pamphlets, posters, etc.) was provided to each participant on CD.

SPC and SCRFA will continue to assist workshop participants as needed and as their own FSA-related research and management programmes develop. Workshop participants will serve as a regional network within which issues and experiences can be discussed.

Workshop conveners believe it is important to assist participants in engaging their institutions and countries. They should understand the threats that fishing on FSAs present to the sustainability of their reef fish stocks and be convinced that the time to act to monitor and manage these events is now. Pacific Island countries will require policy advice and follow-up meetings, preferably at the national level. SPC may undertake this work.

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