Inshore resource assessment and monitoring

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Efforts to monitor and manage small, multispecies, multi-method nearshore fisheries along conventional western lines have generally not been effective in developing countries (e.g. Smith 1991), including those in Oceania. On the other hand, despite a long tradition of customary management in the Pacific, it would be a mistake to assume that Pacific Island marine resources are necessarily being managed *well* (Johannes, 1998).

There are at least two important reasons why management of marine resources along traditional lines by Pacific Island villagers does not guarantee their sound use. First, colonial governments, ignorant of traditional management structures and institutions, introduced various types of ineffective centralised policies and systems for natural resource management, which persist to the present day in many countries and often greatly weaken local authority (e.g. Dashwood 1991). Another important reason is that most villagers do not have adequate scientific information on which to base management decisions.

Generally in our region, fish stocks in coral reefs were harvested in the past only for subsistence purposes. Such fisheries are now becoming rare. Most of the reef fisheries in developing countries are exploited at an artisanal level (Munro 1999). That is, fish or invertebrates are harvested by small-scale fishers and sold at the landing place directly to consumers, or to dealers who will distribute the catches more widely. Unless those making management decisions receive a consistent flow of up-to-date and quality information for resource assessment, and unless stocks and adjacent habitats have some degree of protection rather than facing the extreme jeopardy of full exploitation and habitat degradation, we will be confronted with a growing problem of failure in resource management and the loss of our reef fisheries.

Resource assessment and monitoring ensure that management decisions are based on the highest quality scientific information on the biological, social, and economic status of the fisheries. Information on their biological status includes species responses to environmental changes, exploitation, and other human activities that affect the various species and their habitat. The information generated must be comprehensive, objective, credible, and effectively communicated. It is used not just for current management decisions, but also to conserve resources and anticipate future trends, assure future utilisation opportunities, and assess the success or failure of management efforts. User groups and other constituents also need to understand and accept the validity of the technical dataset and information, which will lead to an understanding of the management decisions for which the information provides the foundation.

To gain the kind of outputs from resource assessment and monitoring that will aid effective management, research must address certain management questions and objectives. For instance, research priorities that would support fisheries conservation and management include: conservation research; research on the fisheries (social and biological); and information management research. In regard to biological research, the primary focus is on the diversity, abundance and life history parameters of the target species. Information comes from fishery-dependent and fishery-independent sources, including in-water diversity and abundance assessment, age and size samples from fish landed, landing records specific to individual fish plants and vessels, and other plant/fleet data. These data are key inputs to stock assessments, development of fishery management regulations, and the production of economic and resource statistical summaries at the national level. The actual level of complexity of an assessment is determined by the amount of available information needed by management.

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