

Few MPAs have monitoring programmes to record trends in social and economic issues that affect, or are affected by its presence, although some do collect data on fisheries or visitor use. However, socio-economic monitoring is essential to demonstrate the value of an MPA and provide information for management. This sheet outlines the main principles involved.

Most MPAs in the WIO have objectives that relate to social, cultural and economic issues, particularly in terms of improving livelihoods of local communities and providing economic benefits nationally. Without a socio-economic monitoring programme, it is difficult to demonstrate whether these objectives are being achieved. Socio-economic monitoring also provides information that:

- helps managers understand how people interact with the MPA and its resources;
- can be used to predict conflicts over resource use and potential changes in pressure on a particular resource;
- helps to identify and/or measure changes in the motivations of resource users;
- assists economic valuations (see sheet E6).

Socio-economic monitoring should be carried out in parallel with ecological monitoring because of the close links between the environment and its users. For example, monitoring of fish populations underwater should be linked to fishery data collection, as this will help determine the causes of changes in catch size or composition.

SOCIO-ECONOMIC INDICATORS

Finding reliable and realistic indicators for socio-economic issues is difficult. First, the main 'parameters', or areas of interest, must be identified. The ten most commonly used are as follows (Bunce *et al.*, 2003). Note that not all of these are relevant to every MPA, and they should be carefully selected to reflect MPA objectives:

Resource use patterns - e.g. activities on which people depend for food and income (particularly those associated with marine resources) and their location, timing and seasonality, use rights.

Stakeholder characteristics - e.g. household characteristics (such as age, gender, education level, religion, literacy, food consumption, incomes).

Gender issues.

Stakeholder perceptions - e.g. perceptions and level of understanding of MPA management, and of their impact on the environment; perceptions of other stakeholders; cultural and religious beliefs; willingness to cooperate.

Organisation and resource governance - e.g. property rights, management efforts, administrative and political arrangements at community and governmental levels.

Traditional knowledge (see sheet B4).

Community services and facilities - e.g. medical, education, transport, communications, public utilities.

Market attributes for extractive uses - e.g. supply, demand, prices and market structure, such as fishing or mangrove harvest.

Market attributes for non-extractive uses - as above, for activities such as tourism or aquaculture.

Non-market and non-use values - e.g. storm protection and provision of fish habitat.

The parameters allow the selection of indicators. For example, 'stakeholder characteristics' is likely to be relevant to many MPAs, and appropriate indicators to monitor might include numbers of inhabitants and households, ethnic and religious groups, age group composition, number of men and women, and so on. In MPAs where fishing is a major activity or impact, 'market attributes for extractive uses' would be an important parameter, and suitable indicators might include species harvested, amounts, values, numbers of fishers and traders. Indicators should be sufficiently simple for monitoring at regular intervals on a permanent basis. Detailed guidance on indicator selection is available in Bunce *et al.* (2000) and Pomeroy *et al.* (2004).



J. Rubens

Designing a socio-economic monitoring programme requires a good understanding of the local use of the area, thus consultation and discussion are essential.

DESIGNING A PROGRAMME

As with all monitoring programmes, clear objectives are needed, who will use the data and for what purpose must be known, as well as the methods, frequency of data collection and personnel needed. A baseline survey should be carried out, and data then collected at regular intervals in a standardised format. Data should be entered into a database or other storage system accurately and promptly, analysed and interpreted, and the results fed back to the managers. Sources of data include:

Primary - Interviewing key informants with specialised knowledge, household interviews, direct observation, mail, phone or in-person surveys; focus and discussion groups (see sheet B1); public meetings; MPA personnel, ranger and visitor log books, ticket stubs, permits and licences.

Secondary - National census data (usually needs to be ground-truthed in the field); local government and council records; historical sources, reports, literature; cost-benefit analysis, modelling.

Some socio-economic parameters are difficult to measure as people may be reluctant to give accurate information. It is often not possible to collect data directly on income, and so another indicator will be needed to show trends in the economic status (relative wealth or poverty) of households, such as diet, or their assets.

KEY POINTS FOR THE MPA

- ❑ Obtain expert advice when developing a socio-economic monitoring programme and ensure that it is sufficiently simple and cost effective to maintain over the long-term.
- ❑ Ensure that the indicators selected will provide the information that is needed for the MPA.
- ❑ Ensure that those responsible for data collection are aware of their responsibilities and adequately trained; if possible, give one person responsibility for oversight of the programme.
- ❑ Where possible, use stakeholders, including local communities and local and national government representatives, in data collection activities.

CASE STUDY

Socio-economic monitoring in Tanzania and Kenya

CORDIO's Socio-Economic Monitoring Project (SEMP) started in 2001 with funding from the Finnish Foreign Ministry, and aims to develop indicators and a method for monitoring socio-economic aspects of marine resource management at community and local government levels. Although not developed specifically for use in MPAs, three of the four pilot sites are MPAs or marine management areas: Diani (a National Marine Reserve but never implemented because of opposition from stakeholders) in Kenya, and Mnazi Bay-Ruvuma Estuary Marine Park (a multiple-use MPA) and Tanga Region (six collaborative fishery management programmes), both in Tanzania.

Parameters and indicators were selected to ensure that costs were within the expected budgets, that the monitoring would not take up too much time for MPA staff or community members, and that data would be easy to collect. The indicators had to have been tested elsewhere, so that their usefulness was known. The following three were selected:

Resource use patterns - to determine trends in pressure on coastal resources; the indicators are how, where and when resources are used.

Livelihood strategies - to determine dependence on coastal resources; the indicators are the % of households involved in each activity.

Attitudes and relations - to provide information for management interventions, predict future problems and identify zoning needs; the indicators are conflicts and relations among user groups.

Sources of further information

Bunce, L. & Pomeroy, B. 2003. *Socioeconomic Monitoring Guidelines for Coastal Managers in South-east Asia: SOCMON SEA*. GCRMN and IUCN/WCPA, NOAA, Washington D.C. 82pp. <http://ipo.nos.noaa.gov/coralgrantsdocs/SocMonSEAsia.doc>

Bunce, L. et al. 2000. *Socioeconomic Manual for Coral Reef Management*. GCRMN/IUCN/AIMS/NOAA, AIMS, Townsville, 251 pp. www.aims.gov.au/pages/reflib/smcrm/mcrm-000.html

Maine, R.A., Cam, B. & Davis-Case, D. 1996. *Participatory analysis, monitoring and evaluation for fishing communities*. FAO Fisheries Technical Paper 364. FAO, Rome, 142pp.

Pomeroy, R.S., Parks, J.E. & Watson, L.M. 2004. *How is your MPA doing? A Guidebook on Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness*. IUCN, Gland, Switzerland and Cambridge, UK. xv + 230pp.

CORDIO/GCRMN Socio Economic Monitoring Programme (SEMP) – Brochure, training sheets, manual and review of monitoring issues available from cordio@cordio.info

National social science strategy for MPAs in the USA: www.mpa.gov – details priorities for social science research in relation to planning, management and evaluation of MPAs.

Monitoring teams, comprising community members and local government staff, were trained by technical advisors to conduct interviews and focus group sessions, and to manage data collection. Training notes and guide sheets are provided so that in the long term external technical assistance will not be necessary, although this should be accessible if needed. The frequency of data collection varies with the indicator, from 3-5 years (livelihood strategies) to seasonal (resource use patterns and conflict analysis) and remains constant unless an event occurs that accelerates change (e.g. a natural disaster or a major development, such as hotel construction). The data will be stored in a database and analysed at CORDIO, but sites are expected to develop their own capacity for this. Computer skills are lacking at the sites but if long-term technical support can be made available by government agencies or NGOs, this gap could be filled.

Although termed monitoring, the pilot phase is a baseline assessment for each site. The initial results have provided data on the numbers of households dependent on fishing, fish selling, glass-bottom boat and other tourism activities, and thus an indication of marine resource dependence. In Diani, for example, some villages depend significantly more on marine activities than others. Very few households have family members employed in tourism although this is the biggest single industry. While these patterns were generally known before, the assessment gives up-to-date quantified data that will help determine appropriate management interventions.