

We would, nevertheless, appreciate copies of any correspondence that is relevant to the interests of group members and that we could include in future issues of the Bulletin (with your permission, of course). Please send any copies of correspondence to myself or to J.P. Gaudechoux at SPC.

We hope to continue to publish such 'practical' papers in future issues. Any suggestions for topics, and, in particular, contributions, will be most welcome.

Moses Amos, of the Vanuatu Fisheries Department, contributes an informative paper on the vital modern role of traditional marine resource management in a trochus re-seeding programme. Our hope is that his paper will stimulate other such contributions from Pacific Island fisheries departments.

We have also included a 'request paper' from ICLARM (International Center for Living Aquatic

Resources Management, based in Manila, Philippines) for contributions from the region to their FISHBASE computer database project. I have been very impressed with how FISHBASE has developed over the last two years, and urge anyone with access to any form of relevant material to set about contributing. (Incidentally, although the authors don't say so, they will reimburse you for mailing and photocopying charges, against receipts!)

Finally, there are a couple of reports of conferences in the region held during 1992, and a notice about the 4th Annual Common Property Conference of the International Association for the Study of Common Property (IASCP), to be held in Manila June 16-19, 1993. Please note that the IASCP will try to assist with securing travel funds (but please contact the organizers directly!).

Kenneth Ruddle

Strategies for acquiring traditional marine knowledge

*by Andrew Smith
South Pacific Regional Environment Programme
Apia, Western Samoa*

The strategies required for documenting ethnobiological information, as opposed to specific techniques, often receive minimal attention. Here I outline some of the strategies that I, as a marine biologist, have used to elicit and verify traditional marine knowledge under differing circumstances. I do not explain specific techniques, as these can be found in the anthropological literature. To a large extent both techniques and strategies depend on the factors surrounding the project and the researcher's personal preferences and experience.

In an ideal situation the recording of traditional marine knowledge should be done by people who have biological and anthropological training and are preferably from the culture concerned. However, it can be argued that it is possible for interviewers who come from within the culture being studied to overlook valuable information through being too familiar with the subject. What to them may seem insignificant — especially if something is deemed 'common knowledge' — may be of considerable value in relation to the objectives of the project concerned. Ideally, the research team should include:

- researchers with local knowledge and others with an 'outside' perspective;
- people with biological and anthropological training and experience;

—both male and female researchers.

The team should have adequate funding and adequate time to achieve its objectives.

Unfortunately, with today's economic climate the ideal situation will rarely be achievable. Current economic realities usually require projects to be completed with minimal funding, in too little time, with minimal staff and logistical support, or some combination of these problems.

In all situations where traditional marine knowledge is to be elicited, the objectives of the work must first be clearly identified, as these, in conjunction with the 'realities' noted above, determine the research strategy to be used. The following examples of strategies for documenting traditional marine knowledge were determined by differing objectives, cultural situations and logistical circumstances.

The first case involved documenting the marine ethnobiological knowledge of two Australian Aboriginal communities. Although this was primarily for my PhD thesis, there was also an applied objective: to provide the Great Barrier Reef Marine Park Authority (GBRMPA) with management recommendations relating to Aboriginal fishing and marine hunting. In the second case I was employed to record the traditional fishing and management

methods used in the outer islands of Yap State, Federated States of Micronesia, for the State Government's Marine Resources Management Division (MRMD). In the third case I was responsible for developing a marine resources and coastal management plan for Yap State that incorporated its two distinct traditional systems. In the first case I worked alone; in the second I had a partner, but we divided the project geographically (which also meant culturally) and hence conducted our field work separately; and in the third case I had to oversee both outside consultants and local MRMD staff to obtain information relevant to the development of the management plan.

Case 1:

The objectives of this study were to document the ethnobiological knowledge and the marine hunting and fishing practices of the Hopevale and Lockhart River Aboriginal communities. Additionally, there was an applied objective that dictated both the communities chosen and the focus of the study. The GBRMPA required recommendations that could be used to develop a management programme for the usage of marine resources, especially dugongs and turtles, in the areas of the marine park adjacent to the Aboriginal communities.

The objectives, circumstances (PhD and GBRMPA contract) and logistical situation resulted in the following strategy:

- a full time study;
- one primary community and one secondary community (for comparative purposes);
- long-term fieldwork in the primary community (16 months), with a shorter period in the secondary community (3 months);
- adequate funding;
- one researcher; and
- a general study, but with specific applied management objectives.

The fieldwork involved the collection of biological data and specimen material as well as the ethnobiological information. Only the latter will be considered here. The fieldwork involved two phases.

The first involved developing the necessary rapport with the community and gathering certain basic anthropological information. This included data on household composition and genealogical links, cooperative networks operating in marine

resource exploitation, and place names and site locations relevant to the project. This phase was also used to assess the informant pool.

The second phase of field work involved more intensive and directed interviewing. The general informant pool consisted of approximately 48 men and five women, although the key informant pool comprised only ten men. The formal interviews were based on the development research sequence outlined by Spradley (1979, 1980), whereby a series of descriptive, structural and contrast (verification) questions were asked over an extended period of time. Informant reliability was tested by asking two series of questions on fishing or on the biology of fish or other animals: (a) questions to which the answers were already known and (b) plausible questions to which the informant could not possibly know the answers (this technique is discussed in Johannes, 1981).

This information, in combination with historical records, was used to reconstruct former systems of marine resource exploitation. Considerable time was also spent in the company of Aborigines on fishing and marine hunting trips. This aspect of the field work was based largely on the method of participant observation (see Spradley, 1980). I was an active participant in order to check on the validity and reliability of the information derived from interview materials.

As with any cross-cultural research there were problems. With care these were minimised, but not eliminated. Some problems commonly encountered in ethnobiological field work are:

- Problems of differing cultural perspectives. For example, the notion of conservation and its resultant management regimes is often perceived differently, if at all, by different cultures.
- Cultural obstacles. Some information relating to fishing is considered confidential or secret by the owners of that knowledge. Knowledge often represents power and status to the owners; its disclosure could weaken that position.
- Traditional knowledge of the marine resources may not be complete. It may also be influenced in various ways by social or religious beliefs, European contact, and the impact of modern technology.
- At times the 'culturally correct' information on fishing methods supplied during interviews may be markedly different from what actually occurs in practice.

- The degree to which fishing activities are influenced by the presence of a researcher can be difficult to determine.
- Being associated with government agencies, especially those that are also involved with enforcement, tends to have a negative effect on informants.

In this particular case, my major difficulties stemmed from being indirectly associated with a government agency and by working in a 'fourth-world' community. As I was from the dominant culture, informants were understandably more reticent to divulge knowledge, and considerable time was required for a rapport to develop. This was compounded by my association with GBRMPA.

Case 2:

The objectives of this study were to document the traditional knowledge of the marine environment, fishing methods, marine resource management, utilisation of marine resources, and marine folk knowledge for the Yap State Government's Marine Resources Management Division. As Yap State includes two distinct cultural groups — the Yapese and the Caroline Islanders ('outer islanders') — and as my co-researcher was familiar with Yapese culture and language, we divided the field work responsibilities geographically and hence culturally. There were no specific **applied** objectives for the study.

The resultant strategy for the 'outer islands' field work involved:

- a full-time study;
- working on nine remote atolls and islands;
- short-term fieldwork at each location: periods on each atoll ranged from 4 weeks to 4 months, with the average about 5 to 6 weeks, and were determined by the schedule of the inter-island vessel;
- minimal funding;
- one researcher;
- a general study with no applied objectives.

Prior to beginning the fieldwork, considerable time and effort were spent discussing the project with the relevant authorities, especially the Council of Chiefs. It was decided to begin fieldwork on the highest-ranked islet of the highest-ranked atoll.

Although this took longer to arrange in the short term, it facilitated access to and cooperation from the chiefs on the other atolls in the long term.

Owing to the brief time available on each atoll an open-ended questionnaire and checklist were used during directed interviews. This standardisation permitted comparison between atolls of the information collected. Upon arrival at each atoll a meeting would be held with the chiefs and other men. The objectives and proposed work plan would be explained, and any questions or problems addressed.

Formal interviews were conducted with four or five men appointed by the chiefs and elders as being recognised to be experienced and knowledgeable about fishing and marine resources. These men, along with a translator/field assistant, were paid for their time while working on the project.

Again a series of questions, similar in form to those used to verify informant reliability in the first case, was interspersed throughout these interviews. In addition, careful observations were made of the reaction of the individuals within the group as, since questions were answered by communicating through a translator, I had more time to take note of the informants' body language. After the interview I would discuss any adverse reactions with the translator, and if necessary, arrange a private interview with any dissenting informant. When knowledge was identified as specific to one islet within an atoll, or where management and boundaries were involved, specific trips were made to obtain that information from the islet in question.

Whenever possible time was spent observing and participating in fishing activities. This allowed verification of interview material, as well as the documenting of any differences between the theoretical descriptions of fishing methods and those used in practice.

Most of the information obtained during this study was of a general nature — that which was available to most males in the community. This was partly a result of the limited time available at each atoll, and partly associated with the limiting nature of using a questionnaire and checklist technique. But it related principally to the ownership of knowledge. In those islands specialised knowledge is more often than not only divulged to family members on a 'need to know' basis.

One of the significant problems with this strategy — targeting a number of locations, for short times, eliciting the same information — was not to double

guess answers to questions that had been answered with identical information at all previous atolls. Occasionally there were slight variations that could easily have been missed.

Case 3:

The third example involves the documenting and use of traditional knowledge and management systems for an applied purpose. The Yap State Government wanted a marine resources and coastal management plan prepared for the state. The goals of the plan were:

- To maintain Yap State's marine resources and coastal ecosystems in the best possible condition for future generations;
- To obtain the maximum environmentally sustainable benefits from the multiple use of the coastal resources for traditional, subsistence and development activities;
- To support and enhance the traditional resource management and marine tenure systems, so as to be effective in resource control;
- To provide appropriate marine environmental education to the public; and
- To provide a review process for making wise decisions about coastal resource use.

Considerable public participation was involved in the development of the plan. Input was sought from representatives of the state government, traditional leaders, and the community at large. This was accomplished through meetings with villages, traditional leaders and government personnel to inform them of the plan's development and to gain their input. Open workshops focusing on critical aspects of the plan's development were also held.

Of particular importance to the plan was the consideration of traditional knowledge, uses and customs, to ensure that the plan would be relevant to the cultural systems. The strategy adopted to achieve that involved:

- Part-time work;
- Working in ten Yapese municipalities as well as the outer islands;
- Short meetings, interviews and workshops;
- Minimal funding;

—Team, including one short-term consultant and MRMD staff members;

—Applied study with set objectives.

The need to incorporate customary marine management practices into the plan raised a number of questions: What are the customary marine management practices? How are they **currently** perceived by the community? Will they be effective in the face of present and future economic development? How could we account for the **dynamic** nature of customary practices? How could the two different social systems be included in the plan?

To resolve those questions we needed to know what the customary marine management and usage practices **were**, as well as what they are **currently** perceived to be, and in what form they are practised at present. MRMD had previously contracted the Yap Institute of Natural Science to document the traditional fishing and management practices of the State (see Case 2, above), and, although not in a final form, that information was used extensively in the plan's preparation.

The short-term consultant was given the task of assessing the **present** state of Yap's reef fishery management systems, especially in terms of the 'traditional' structure of authority and how it was coping with social and economic changes.

This study was to provide ideas for reinforcing or modifying that structure, and coordinating the respective roles of 'traditional' and 'modern' management systems. The information was obtained through interviews with municipal and village leaders and other village members over a four-month period. Information was also obtained from published and unpublished accounts of previous studies.

A number of problems were encountered with the strategy used. First and foremost was how time-consuming it was to arrange meetings and interviews with the relevant villages and leaders. These meetings were often postponed for various reasons, for example for funerals or other village matters. The village meetings usually had to be organised out of work hours to permit government workers to attend. This was compounded by the MRMD having insufficient staff (experienced or otherwise) to permit full-time work on the plan. All staff involved had numerous other projects, programmes and work commitments to attend to simultaneously.

The lack of trained and experienced staff who were familiar with **both** the traditional and western systems was another obstacle. This was partly why an outside consultant was used for some of the work. Such short-term consultants, although sensitive to the customary system, can rarely obtain a complete understanding of it. The use of local counterparts was necessary, but again, owing to work commitments, they were not able to work full-time with the consultant.

The problem of having specific applied objectives meant that it was not possible to follow interesting topics when they arose. The time factors, combined with the information being collected by a number of people, meant that I was unable to follow up details as occurred with the two previous cases. This project needed an overall perspective and could not afford to become tied down with details, however interesting they might.

For a number of reasons the codification of the customary management systems was not attempted.

First, customary management systems usually only function within their cultural environment. Owing to the dynamic nature of the cultural environment, trying to link future marine resource management to a static structure — codified traditional laws — while the rest of the culture is changing would result in an ineffective management regime. By codifying customary marine management practices they would essentially be severed from the cultural environment upon which their effective existence depends.

Second, codification would further hinder the ability of the customary system to adapt to introduced fishing methods and technology.

Third, in the case of Yap, there was no consensus as to exactly what the customary marine management systems are perceived to be at present, and codification would therefore have been a very complex and time-consuming task.

This is not to say that MRMD has not attempted codification of some traditional management information, or will not attempt to do so in the future — for example in the mid-1980s, MRMD attempted to document the marine resource boundaries of Yap — just that with our time, financial and personnel limitations we felt justice could not be done to the task. In the mid-1980s, MRMD attempted to document the marine resource boundaries of Yap.

The final report was, however, rejected by the council of chiefs, in part, as it was deemed incomplete. The fishing and reef ownership rights are extremely complex in Yap, with multiple layers of different use rights. The report only documented one of those layers, and even that was at times in dispute. For the use rights boundaries to be successfully codified would take a number of years of full-time work.

Discussion

In general terms there appear to be two basic strategies for acquiring marine ethnobiological knowledge:

- Short-term studies focusing on specific species or topics, often in a number of locations; or
- Longer-term, more generalised studies aimed at recording as much information as possible on numerous topics and species in only a few locations.

Both strategies have advantages and disadvantages.

One argument in favour of the longer-term, more generalised approach is that because the environmental knowledge of many groups has not been recorded and is being quickly lost, a high priority should be attached to recording it as soon as possible. For this to be done properly requires considerable resources. Additionally the researchers involved need to have enough specialist knowledge to be able to recognise and follow-up significant information when it arises.

A problem with long-term studies in one location is that they may seek to document marine knowledge sets that are possibly not there, or may be incomplete. The cost-effectiveness of such a study would be questionable.

The advantages of a research strategy involving working on specific topics or species in a number of locations, using relevant expertise (biologists, anthropologists, etc) include:

- A more efficient and cost-effective use of field research time;
- Acquisition of more detailed data on specific topics by combining the respective areas of expertise; and
- The ability to assess the potential of a location for a long term study.

The major disadvantage of this strategy is that other valuable information may be missed. It is also more difficult to establish a good working relationship with informants.

As both research strategies have their advantages and disadvantages, it is apparent that the type of approach used should be based on:

- The type of objectives, e.g. biological, management or conservation orientated, ethnographic or historical, or a combination of these;
- The type of resource involved, e.g. single species, whole ecosystem;
- The degree to which the marine knowledge has been altered or affected by westernisation, discontinuities, etc; and
- The level of support and expertise available.

There can be no set formula applicable to all situations. Each of the above problems needs to be assessed and an appropriate strategy, or compromise in strategy, applied. In assessing each situation the effects of the strategies on the people who own the knowledge must be considered, and their wishes incorporated.

Where the acquisition of ethnobiological knowledge is primarily for management and conservation reasons, then a different strategy may be required than for specific biological objectives. Where both biological and management objectives have been set for a study, it would be beneficial to prioritise them before devising an appropriate research strategy.

The specific detail sought for biologically orientated work may not be necessary for management purposes. First, the management problem needs to be clearly defined. Does it involve a single community or a number of communities? Does it involve more than one culture? Does it involve a single species, a number of species, or a whole ecosystem? Second, it should be determined if the work should be carried out by a biologist. For example, if it involves documenting traditional use rights and boundaries, these may be more appropriately documented and mapped by an anthropologist in consultation with a biologist.

When management of an exploited resource is considered, it should be remembered that it is the exploiters who are being managed, not the resource. Therefore, of prime importance in a management orientated ethnobiological study is the

establishment and maintenance of a rapport with the informants and community involved. The brief focused studies applicable to the acquisition of biological information would not be appropriate under these circumstances. The amount of time required would depend on the management problem to be addressed and the community or communities involved. At all stages the informants and community should be involved as much as possible.

Because of the dynamic nature of cultures, ethno-biological studies can provide data relevant only to the period in time when the study was carried out. For management purposes, it would not be appropriate to base contemporary management decisions on a study carried out, for example, ten years ago. However, short-term studies tailored to contemporary management needs could be used to update any previous studies to avoid out-of-date information. When acquiring marine ethnobiological knowledge for conservation purposes, not all traditional knowledge is necessarily conservation-oriented, and of that which may be classed as conservationist, not all may be relevant to the current circumstances. Each situation needs to be evaluated on its own merits.

References:

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