Institutions and governance of aquatic biodiversity in the Pacific Community region

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Abstract

The meanings of the word "biodiversity" are discussed, as they relate to aquatic resource management, and the "metascience of biodiversitology" is defined as one of the disciplines contributing to the higher-order aim of ecosystem governance. The Pacific island institutional bases for aquatic governance are very briefly described, and the lack of control over problems arising from land-based sources is contrasted with the comparatively sound basis for management of marine-based problems.

Introduction

When I was invited to this meeting, I came here prepared to try and explain why I had some problems with the concept of "biodiversity" - not the good things that "biodiversitologists" were doing, but just the confusing way in which the concept is interpreted by different people. Biodiversity may be a good way of packaging information for politicians and the public, but as defined it is not a good basis for achieving the goals in my own field of fisheries management. However, I came here to learn, and I was very pleased to hear Rainer Froese providing a reasonable explanation for my confusion on Thursday, when he suggested that "Biodiversity" is in fact a misnomer, and that it is developing away from its original definition into a new metascience drawing components from taxonomy, biogeography, conservation, resource management etc.

I have heard other people suggesting that consideration of biodiversity also includes all the social and economic factors that go into deciding what is "sustainable use". My problem with this is that there are already several disciplines that draw together social, economic, ecological, and biological sciences to look at sustainable use - fisheries management is one of them. Those of you who have read the proceedings will recall that I launched a criticism of the word "governance" in my paper for the 3rd ACP/EU research initiative meeting, where I pointed out that the concept of fisheries governance did not supersede the concept of fisheries management but was rather a reminder that the whole range of social interaction with natural resources should be taken into account. I am led to think that biodiversity should be looked at in a similar way. Biodiversity management does not supersede natural resources management as some have suggested in my part of the world, but rather adds breadth and the much-needed reminder that the whole range of ecosystem interaction needs to be taken into account.

Rainer suggested that there are 4 core attributes for the data necessary for doing biodiversity science, at least at the species level, and was careful to point out that there was other information that was needed to do other things. And Astrid Jarre yesterday used biodiversity indicators as only one of the building blocks of the total equation for managing ecosystems. My view is that biodiversity is only one factor in ecosystem maintenance, and when you add in the concept of sustainable use, you add in a whole bunch of social and economic factors as well. What I am trying to suggest is that biodiversity is
not the ultimate aim. The ultimate aim is ecosystem governance, and biodiversity, whilst it is a broad ranging metascience and often overlooked in the past, is only one component.

Rainer also suggested that biodiversity is a science without a paradigm. I’ve tried to puzzle my way through the politically-balanced text of the Convention for Biological Diversity. I’ve also listened to the presentations at this meeting, where different speakers have used the word biodiversity in ways that could be variously substituted by the words "natural resources" or "ecosystem management" or "systematics", and I have heard it used in other fora as a synonym for "critical species" or "conservation". Rather than being a science without a paradigm, I would suggest that biodiversity is actually a science without a good definition. Its a bit late in the day, but perhaps one output of this meeting could be a workable definition for aquatic biodiversity so we do not end up all talking about different things.

**Institutions and governance**

You may be wondering what all this has to do with institutions and governance of biodiversity in the Pacific Islands. It is really a long-winded way of explaining that nobody in the Pacific Islands actually manages biodiversity. They manage some critical fisheries and they manage some protected areas and they do a bit of taxonomy (although there is not much of that going on).

If we were to set about the task of using aquatic biodiversity sustainably in the Pacific then one major gap would be in the area of integrated coastal zone management (or whatever it is called nowadays). I have been accused of defending fishing interests when I have said this in the past, but I honestly believe that marine habitat alterations and loss are at least as big a problem as overfishing in the Pacific. Overfishing directly affects a few species, mainly exported species. Habitat degradation directly affects everything. Pacific Island countries do not have many formal fisheries management measures in place, but most of them have traditional community governance mechanisms and are making real progress on the problems of commercial fishing. But I have yet to see much progress in planning terrestrial developments to take marine ecosystems into account, apart from the occasional Environmental Impact Assessment on big projects.

To get onto the subject of institutions, I cannot provide a comprehensive list in the time available, but I can illustrate the main categories and make a few points.

I think it is now obvious to everyone that many Pacific Island societies have had community-based rules and procedures continuously in place, and evolving, for many hundreds, or even thousands, of years. It is very rare to find an aquatic ecosystem in the Pacific Islands that has not been subject to substantial human influence, and these ecosystems and mechanisms have evolved in concert. There have definitely been ecological disasters in the past, both with individual species extinctions and with human beings exceeding ecosystem carrying capacity, and both ecosystems and human populations have come through, with modifications. We are not suggesting that all Pacific Island societies now know how to control their impact on the ecosystem, but we make the point that overfishing and overpopulation are not purely modern problems in the Pacific Islands.

However, none of these community-based, or governance mechanisms seem to manage biodiversity as such. They manage components of the ecosystem according to their perceived worth, with an eye on the inter-relationships necessary to maintain the whole. As an illustration of this perceived worth, most Pacific Island societies do not have names for individual species of small reef-fish, but often have more than one name for different stages in the life-cycle of valuable species. The closest analogy I can make is that many Pacific Island societies manage marine ecosystems like you or I would manage money in the bank. Wise communities husband their natural capital and live off the interest, but emergencies might require the liquidation of capital. Pacific Island societies also set up marine "trust funds" in the form of reef areas under moratorium, and these produce many of the same results as biodiversity management, in the sense of the CBD, with its emphasis on protected areas.
Non-governmental organisations (NGOs) are not yet a major force in the Pacific Islands aquatic sector. I’m told this is because of the strength of regional intergovernmental organisations, of which the Pacific Islands have quite a number. The Nature Conservancy is one of the more effective NGOs in the Pacific marine field, and it is perhaps notable that it tries to work with government departments rather than in opposition.

I might also point out that even the private sector is not much in evidence in some of the smaller island countries, where the economy is dominated by the subsistence sector and government employment. Small Island countries come under a lot of criticism for having large civil services, but you have to recall that Tuvalu has much the same international responsibilities under the CBD and the Law of the Sea as the United States, even if the domestic sector is tiny, and government has a certain irreducible minimum size.

There are a number of intergovernmental organisations in the Pacific Island region which are of relevance to aquatic biodiversity. These include:

- The Secretariat of the Pacific Community (SPC). SPC has a Marine Resources Division which carries out scientific research on tuna fisheries and practical development and management work on small-scale fisheries. We are currently in the process of operationalising the Pacific Islands node of Fishbase and we have just been asked by member countries to get involved in aquaculture again as well. The work we are doing on integrating trophic and physical factors in a multispecies model for the assessment and management of the Western Tropical Pacific LME is also of relevance to this meeting.
- The Forum Fisheries Agency (FFA) is currently devoted to developing a management regime for Pacific Island tuna fisheries and to developing the economic share of its member countries in these fisheries.
- The South Pacific Regional Environment Programme (SPREP) has concentrated its support on the highest environmental priorities of the region, which have been mainly land-based, to date, but has started doing much more marine work in the past few years, particularly in coastal management and protected area management, but also in awareness-raising on specific high-profile issues like coral reef and turtle conservation.
- The South Pacific Applied Geosciences Commission (SOPAC), along with SPREP, is involved with climate change and coastal protection. SOPAC also has a strong mapping capability with an increasing interest in marine habitat mapping.
- The University of the South Pacific is gradually increasing its strength in marine studies as a component of its degree programmes. USP now a much greater marine research capability than formerly and has become the home of the South Pacific branch of the International Oceans Institute.

Member countries, and SPC has 27 of them, retain strong control of these regional organisations, and it is governments which make most of the formal decisions affecting the sustainability of biodiversity. Regional organisations can only advise. The environment departments in most of the independent Pacific Island countries are relatively new, and often small. Most of the responsibility for the aquatic area thus falls upon marine resources and fisheries departments, which is appropriate for fisheries management, but does not provide much control over land-based sources of aquatic problems.

**Approaches to governance**

That was a brief tour of Pacific Island governance and institutions in “biodiversity” management. There may be time to make a few more miscellaneous points....

One point is that Pacific Islands commercial fisheries management is usually crisis management, and few countries have formal management plans in place, or have the time and resources to test and implement such plans, apart from the one major industrial fishery in the Pacific: tuna. At the artisanal
level SPC has spent several years exploring this mechanism and will continue to do so, but there are large research requirements, and the main outstanding need at the moment is for rapid-response ad-hoc advice on coping with resource crises, to governments and communities. In this respect, the Fishbase encyclopaedia being developed by ICLARM with European Union assistance is becoming an invaluable tool, and our organisation is very pleased to be associated with it. We would also note that, in the Pacific Islands region at least, a similar encyclopaedia covering invertebrate fisheries would be equally valuable.

I was also asked to try and point out which institutional mechanisms could be considered most effective. I can’t do this at this stage the great majority have not been evaluated, at least comparatively, or using the same baselines. I would note that the World Bank is sponsoring a first attempt to comparatively evaluate the perceived success of nearshore fisheries management mechanisms in several Pacific Island countries at the moment, and this very broad study will contain much useful information for sustainable use of biodiversity.

It has been difficult to address the subject of this talk about improving the prospects for sustainable use of aquatic biodiversity in the Pacific Islands because most people in the region are not accustomed to thinking in total biodiversity terms. We are still very food-oriented, and we think mainly in terms of maximising the long-term benefit of certain components of that biodiversity. There was a rift in many countries at the start of the 1990s between established fisheries departments and newly set-up environment departments. There was usually no mechanism for dialogue and as a result little specialist marine resource expertise from the Pacific Islands region was included in the discussions leading up to Agenda 21 and the Convention on Biological Diversity. Most fisheries departments came upon Agenda 21 very late as a fait accompli and have yet to get to grips with the CBD, even though a significant part of their work would address the aims of both of these.

The dialogue has since greatly improved, as environment departments direct their attention to the sea, and as fishery departments start to worry about terrestrial effects, and we hope that this dialogue will continue to improve in future.

It is now an old song, but the language of northern hemisphere scientists, like myself, still does not ring many bells in subsistence communities, and if words like "biodiversity" are to mean anything in the village, they have to be translated into terms that people use themselves. And vice-versa.