

**Integrated Coastal Zone Management:
Participatory management, the way forward?**

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SUMMARY

In stark contrast to the volume of material published on Coastal Zone Management (CZM) and related issues, many countries, including the UK, have yet to come up with coherent and practicable strategies. This is particularly an issue if the concept of sustainability is to be truly embraced.

Most coastal resource users are experiencing difficulties with sustainable usage and conflicts with other users. As each user group is already under pressure, conflicts between groups are all the more bitter and intractable.

The need for a new and integrated approach to the management of coastal marine resources has been recognised and in this paper we suggest that it is urgently required. We highlight the need to fully integrate financial, socio-economic and environmental criteria.

Legislation aimed at tackling individual problems abounds just as do local, regional and national CZM initiatives in the UK. However these individual approaches tend to lead to parochialism and sectoralism and greater risks of conflict, a situation which could be avoided if they were incorporated into a wider strategic framework.

Increased participation of resource stakeholders is put forward as key to any approach to managing the coastal zone. The strengths and weaknesses of participatory management are discussed in the light of local management experiences from around the world and possible frameworks for implementation are discussed.

INTRODUCTION

During the second half of this century rapid economic development and population growth has taken place in the coastal areas of many countries which, combined with technological advances in methods for marine resource exploitation, has led to greatly increased pressure on coastal resources and those who depend on them.

Management of Coastal Resources

Although local, regional and national authorities have, to varying extents, recognised the need for coastal zone management (CZM), with a few exceptions national authorities fail to encourage the creation of administrative mechanisms that would promote integrated analysis and planning and thereby sustainable development (OECD 1993).

In this paper, after examining some common problems emerging in the coastal zone, we add our voice to the growing lobby for integrated coastal zone management and examine the potential role of participatory management in achieving the aims of integrated CZM.

PROBLEMS IN THE COASTAL ZONE

Nature conservation and Marine Nature Reserves

Many of the efforts of the nature conservation lobby have been directed at the designation of nature reserves. Attempts to designate effective marine nature reserves in Scotland and in many other countries have been fraught with difficulty. In some cases there has been overwhelming local opposition and resistance from resource users. Marine reserves have been perceived as a major interference in, and constraint on, local economic and cultural activity, in circumstances where there is no locally apparent need to safeguard the marine environment for cultural or scientific reasons.

The EC Habitats directive initially raised hopes in the UK that at last major progress might be achieved in marine conservation. The main aim of the directive is to promote biodiversity and maintain sustainable development taking into account socio-economic and regional requirements. Member states have to draw up lists of sites containing species or habitats that should constitute "Special Areas of Conservation". Although the directive represents a step forward in that it places the duty of care on statutory authorities, full implementation will only take place a decade from now, furthermore it now appears that many important marine habitats will be omitted from the list (such as Scottish sea lochs) owing to direct political interference and presumably pressure from vested interests.

In any case, the concept of nature reserves may well be inherently flawed as an approach to conservation, except in extreme situations, in that it promotes the exclusion of resource users rather than promoting ecologically sustainable use. This is often compounded by the fact that the "outside"

conservation interests usually fail to promote sufficient local participation at an early enough stage in the planning process.

It is notable that in Scotland the only successful marine reserve (St Abbs Head) is based on voluntary agreement, coupled with a significant advisory input from local fishermen.

Crisis in the fisheries sector

Only last year the FAO indicated that world fish harvests have been in decline since 1991. A number of world fisheries have collapsed due to factors such as overproduction and poor management.

In Europe a recent review of the Common Fisheries Policy by the EC concluded that there was a potential crisis in the sector caused by over-capacity and over-investment leading to serious over-fishing. The management regime has proved inadequate to tackle these problems and the review suggests that in the future there should be further regulation and limitation of access to resources as well as increased emphasis on the socio-economic aspects of management. It is strongly emphasised that those who exploit the resource should be encouraged to take responsibility for it and implement management regimes for their own long-term welfare.

Continuing conflict exists in the UK between small-scale fishermen operating fixed gear and fishermen from further afield operating larger boats and elaborate fixed or mobile gear. Because of the high level of investment, the larger operators feel bound to catch as much as possible wherever possible, while local operators see their gear damaged, resources in decline and livelihood threatened.

In developing management regimes the emphasis has been on biological information and yield models. Little attention has been paid to the socio-economic context and the behaviour and motivation of fishermen. Government consideration of socio-economic factors has generally exacerbated (albeit unintentionally) the tendency towards over-capitalisation and over-capacity through the provision of subsidies, grants and infrastructure.

It is widely suggested that the only way forward, along with a gradual reduction in government incentives to over-investment, is to increase the personal stake of fishermen in the future health of the resource. This implies increased resource ownership which may be achieved by introducing Individual Transferable Quotas (ITQs) and/or local management regimes involving some form of enhanced property rights.

Other coastal development

The coastal zone is under increasing pressure in many countries with unmanaged urbanisation causing significant environmental problems. Coastal areas are increasingly used for developments related to leisure, tourism and recreation developments and also industrial developments. The beneficial economic effects of these developments are of course welcome but often take place without consideration for the impact on other resource users.

Pollution of coastal waters is still of great concern and is increasing, particularly in the rapidly developing countries of the "third world". Pollutants come from a wide range of sources such as agricultural run-off, sewage, urban run-off, aquaculture, mineral exploitation, shipping and industry. Discharges are usually regulated but this may not take proper account of the environmental or socio-economic situation. On the other hand a plethora of regulations from a number of authorities may exist making development excessively cumbersome.

The hazards of flooding and erosion (which may be expected to increase with possible sea-level rises) are often tackled with the construction of coastal defences. Such hugely expensive projects may often fail to consider the impact on a regional level, for instance work at one coastal location may actually hasten erosion at another distant site.

Inter-sectoral and cross-boundary conflicts

Until now management and planning has usually taken place along sectoral lines. Particular user groups have frequently followed individual approaches to regulations leading to parochialism and sectoralism. The lack of adequate reference to other user groups has led to many examples of conflicts between different sectors. As each user group may already be under intense pressure, conflicts between groups are all the more bitter and intractable.

The adoption of artificial boundaries is another area leading to conflict. Examples of this can be seen where an area which would be best managed as a whole is divided by local, regional or national boundaries beyond which planning and management authorities are not able to control. Another aspect of the same problem is the frequent discrimination between terrestrial and marine management and planning at the land/sea divide.

The need for integrated coastal zone management

Examination of the above catalogue of problems and conflicts in the coastal zone suggests that in most cases the heart of the problems relate to the following:

- A failure to address the social and economic factors affecting the exploitation of a particular resource as well as purely environmental ones.
- Failure to adequately consider the interests of all the different stakeholders in the use of marine resources.
- Failure to take into account the fact that natural resources and the socio-economic situation in which they are exploited are extremely variable both geographically and over time.
- Failure to involve all the stakeholders at an early enough stage in policy formulation and management.

These points encapsulate the arguments commonly put forward for an integrated approach to CZM.

Requirements of Integrated Coastal Zone Management

The need for integration of the planning and management of all the various activities taking place in the coastal zone is now widely recognised (see e.g. OECD 1983, Gubbay 1994), advocates include the EC and UNCED. National governments, local authorities, resource users and communities have to varying extents become involved in CZM in many parts of the world.

There is a proliferation of different approaches to CZM and rightly so as the approach must be dictated by the particular reasons for the programme and the social, economic, administrative and environmental conditions in a particular country. Nevertheless a number of common themes are consistently advanced as necessary for effective CZM including:

- Use of the coastal zone should be environmentally sustainable
- CZM should be included in national legislation with the establishment of a national body to co-ordinate and oversee CZM initiatives and to provide overall strategic planning.
- Local planning authority jurisdiction should be extended below low water
- Incorporation of social and economic criteria in environmental assessment
- Sectoral policies affecting the coastal zone should be integrated and harmonised.
- Promotion of public involvement through consultation or participation in decision-making.

The three last points are of particular interest here. Even in countries where CZM strategies have integrated, or attempted to integrate, all sectoral policies, usually the fisheries sector has been specifically excluded.

With regard to participation, it is to be expected that where people are given more responsibility for a resource upon which their livelihood depends, and gain a greater understanding of the associated ecosystems, marine conservation will be seen as intimately related to their own long term interests. Furthermore community participation was expressly included in UNCED (Principle 10) and Agenda 21 in strategies for achieving sustainable development. All too often governments claim to be fostering participation when in fact they are using processes of consultation which frequently don't allow for any effective participation of the consultees beyond that afforded by a mere sampling of public opinion.

PARTICIPATORY MANAGEMENT OF COASTAL RESOURCES

It has been demonstrated throughout history and throughout the world that open access to a valued common resource often results in resource degradation and associated economic hardship. The success of community-based resource management compared to more state dominated forms has been recognised for a number of common resources such as water in irrigation schemes, common use of agricultural land and finance via village credit programmes (McGlade nd, Berkes and Farvar 1989). Recent reviews (Berkes and Farvar 1989, Pinkerton 1989, Ruddle et al. 1992, Hviding and Jul-Larsen 1993) and work by Nautilus show that local or community-based marine resource management has global occurrence and suggest that tenure systems or restricted access are a far more common situation than the defenders of open access to marine resources would have us believe.

Local management of marine resources world-wide

Many of the examples of community based management are from developing nations where it can be argued that local management takes place in situations where the resource users are not affected to any great extent by the economic pressures (e.g. market forces and over-capitalisation) which prevail in industrialised nations. However two points are worth mentioning before moving on to examine cases of local management in more economically developed countries.

In a number of cases (particularly in Pacific Island nations) customary marine tenure has been included in the national legislation of the countries concerned and modern developments in the coastal

zone (such as bait-fishing, sport diving and aquaculture) have to take into account the property rights of customary owners (cf. Hviding 1992).

Traditional management systems in Asia and the Pacific have, in many cases, incorporated principles which are only just being recognised as vital for effective CZM in more "advanced" nations. An example of this is the frequent perception of land and sea as economically and nutritionally complementary domains which are not dichotomised as in the West (Ruddle 1994). By the same token, it would be inconceivable to divorce the management of fisheries from that of other resources.

Examples of local management in developed nations

Interesting examples of local management of fisheries can be found in developed nations. In Japan, fishermen's co-operatives hold property rights to coastal fisheries (and aquaculture) a system which works remarkably well given the proximity of the world's most lucrative markets for fisheries products. The key ingredients are a mixture of long tradition and strong organisational structures with most management responsibility allocated to the fishermen themselves. This system ensures strong representation of the fishermen's interests in relation to other users of the coastal zone although some authors suggest that the fisheries co-operatives wield too much power and may hinder other coastal developments (Ruddle 1989).

There are quite a few examples of local management involving restrictions on access to single species fisheries. Examples include lobster in Nova Scotia, Maine, Mexico and New Zealand, salmon in Alaska, herring in the Bay of Fundy and cod in Lofoten, Norway. Several of these experiences constitute co-management i.e. management by fishermen within an overall government framework. Results are varied, with instances of success and failure. Again the key to success seems to be the allocation of both rights to the fisheries and responsibility for their management to the local fishermen (Nautilus Consultants 1994).

There is a steadily emerging consensus that inshore fisheries may very well be better managed within a local or co-management framework (Nautilus Consultants 1994). However areas in which fishermen operate will have to be clearly demarcated to avoid conflict, especially with the larger more mobile fishing interests. Such zoning would be best incorporated within an overall CZM framework.

Fisheries management has long been one of the more complex marine resource management issues. The arguments in favour of increased user-participation in fisheries management can be broadly applied to the management of other resources in the coastal zone and also to the organisation of local and overall CZM strategies. As Berkes and Farvar (1989) point out, combinations of property rights regimes may work better than single regimes.

Strengths and weaknesses of participatory management

Examination of the case studies mentioned above, the literature on common property regimes (Berkes and Farvar 1989, Pinkerton 1989), governance (McGlade nd) and Nautilus Consultants (1994) suggest the following strengths and weaknesses of participatory management regimes.

Advantages of participatory management of coastal resources

- Active participation by members of the whole community should lead to a stronger commitment to comply with the management strategies and sustainable use of the resources
- The potential for increased equity may enhance the legitimacy of the regulations in the eyes of resource users
- Increased awareness of resource users of the pressures exerted on their resource by themselves and other stakeholders leading to awareness of sustainability issues
- More adaptable in the face of rapid changes in resources, markets or other local conditions
- Cost effectiveness: some of the burden of information gathering, planning, routine management and enforcement can be shifted from central government
- More effective use is made of local knowledge and existing linkages
- Direct involvement of all the stakeholders across a wide cross section of the community ensures that decisions better reflect local social, economic and environmental conditions

Weaknesses of increased participation in resource management

- Access or investment may be denied to more enterprising or economically efficient outside interests
- Economies of scale may not be achieved
- Management may be influenced by local political whim or prejudice

- May be less practicable in open diversified societies in urban areas than in smaller, identifiable, communities in peripheral areas.
- Integration into broader socio-economic systems has made local communities less dependent on sustainable exploitation of local resources. Communities may be tempted to deplete the local resources and invest the cash
- Certain interests such as offshore or large-scale fisheries, heavy industry and mineral exploitation will not perceive any benefits to themselves in this approach and may not take part or actively resist such moves
- Existing problems of over-capacity will be difficult to reduce

From the above it appears that increased participatory management potentially provides an effective and democratic way of addressing the main objectives of integrated CZM. Socio-economic factors are incorporated into the planning process by the affected parties themselves, increased responsibility should enhance sustainability and compliance with regulations is more likely. The advantages are particularly obvious for peripheral regions.

However, some of the weaknesses of participatory management regimes do not support a wholesale swing towards such strategies. Major problems can be expected in many interactions between local areas with the wider economy and powerful vested interests. Also communities may choose to act to benefit themselves at the expense of the interests of society at large. Therefore, as suggested by McGlade (n.d.):

The central issue is which resource management responsibilities should be placed at which levels of organisation within the public and/or private domain.

And Berkes and Farvar (1989):

... successful approaches to the commons dilemma will be found in complementary and compatible relationships among the resource, the technology of its exploitation, the property rights regime and the larger set of institutional relationships.

PARTICIPATION AND INTEGRATED COASTAL ZONE MANAGEMENT

One broad outline of a possible participatory approach to integrated CZM could consist of local resource user groups establishing their needs and management strategies with respect to other local user groups within some type of local forum. The local forum would have the principle functions of establishing strategies for sustainability, conflict resolution and a certain degree of resource allocation or zoning. A next tier of management would have regard for regional strategies, overseeing local initiatives and mediating in conflicts not resolved at the local level. The regional bodies would work within the framework of a national strategy administered by a national CZM authority.

The "policy cascade" approach is similar to that adopted for terrestrial planning in the UK and to the CZM strategy of New Zealand (Gubbay 1994). This framework should be gradually incorporated into national legislation, nesting wherever possible existing legislation, especially that concerning regulation of the large and powerful vested interests such as industrial pollution and so on. Gradual adoption of this approach enables constant evaluation and modification of policies in the light of emerging problems as is being achieved in New Zealand.

This co-management approach will require that national governments make a commitment in terms of financial and legislative backing for the implementation of locally produced strategies and the creation of a national CZM framework if it does not already exist.

The particular case of the UK

National contexts have been provided for CZM in countries such as Australia, New Zealand, Brazil, USA, the Netherlands and Denmark, within which regional and local initiatives are nested (Gubbay 1994). At present in the UK local, regional and national initiatives are proliferating and momentum is being given to existing plans, but in the absence of any overall framework. This causes confusion of the relative roles and increases the potential for conflict (Gubbay 1994)

However some very promising local initiatives are taking place with good opportunities for increased participatory management. Examples of these are a number of coastal or estuarine forums such as the Dee, Duddon, Firths, Morecambe Bay, Ribble, Solway and Thames initiatives. Approaches vary, but in general the interested stakeholders in each area are encouraged to cooperate on the planning of management strategies. This at the very least encourages communication and the identification of problems and constraints but hopefully produces valuable management strategies that are less likely to be locally unpopular.

For this strategy to be successful a more inter-disciplinary approach is required involving less science and biology and more social science methods such as consensus-building, conflict resolution and participatory appraisal together with other socio-economic and anthropological perspectives. Also, the key players must not only understand the principles of facilitating public participation but be willing to accept consequences of this such as unpredictable schedules and outcomes and having to explain themselves to the public.

A major problem is that these initiatives do not have tangible support at the national level in terms of finance or legislation. Implementation of the strategies may be impossible without recognition of this fact and the provision of government backing.

The political inertia in this matter is difficult to understand but is consistent with other government initiatives (or lack of) with regard to environmental policy. In many ways the time is right for a major rethink of the national approach to CZM. A major fishing crisis is looming with potentially huge social and economic implications for coastal communities and the situation is quite serious for other sectors with interests in the coastal zone. If there are going to be major upheavals, surely it would be better if these were tackled in one overall, national and cohesive policy.

At the same time the forthcoming formation of the unitary authorities provides an opportunity for incorporation of new means of implementing coastal management strategies and the new national Environmental Agency provides a promising forum for the national CZM framework and authority.

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