

Chapter 15

MULTI-USE CONFLICTS IN INSHORE WATERS

Rob van Ginkel and Nathalie Steins

1. INTRODUCTION

Until only quite recently, human activity in Europe's inshore waters made little impact on marine resources and one activity scarcely interfered with any other. But long term developments such as demographic growth, urbanisation, expanding demand for food and natural resources, the integration of resources into markets, technological innovation, the development of marine transport and the rise of tourism have all increased the level of human impact on coastal areas and resources. Once a domain where only fishers and sailors ventured, the sea is now being used for many other purposes, particularly in the inshore zone. In addition to their continuing importance for fisheries, inshore waters are now commonly used quite intensively for other potentially intrusive activities. The public's growing demand for entry to the inshore zone has brought about competition and conflicts between various claimants over access to, allocation of and control over coastal space and resources. In addition to multiple use conflicts, intensified use of the coastal zone can also exacerbate resource management problems. Human activities unrelated to fisheries affect marine ecosystems: mineral exploration and development, water based recreation, navigation, dredging, land reclamation, industrial and agricultural waste disposal including the discharge of effluents and the dumping of toxic chemical and nuclear waste, thermal pollution from coastal power stations etc.

The present chapter outlines some of the issues concerning the diversified and intensified use of inshore waters. The coastal zone is a typical example of a common pool resource, where exclusion of access is difficult and joint use involves subtractability. It is clear that as the number of resource users

and the types and extent of resource use multiply, interdependencies increase. Obviously, there are conflicts of interest when activities interact. Therefore, 'when commons evolve into multiple use resources, the institutional framework within which collective resource use takes place has to be re-negotiated to avoid adverse impacts associated with increased access of new users to the resource system, such as overexploitation, alienation of traditional users and inter-user conflicts' (Steins and Edwards, 1999: p. 242). However, we are dealing with complex situations where different uses may be mutually incompatible; where one activity may be damaging to some interests but beneficial to others; where some activities cause effects elsewhere and are themselves affected by different activities; where others cause effects without being interfered with themselves; where still other activities only suffer interference without causing any effects on others; and where different user groups are regulated through different management regimes (Sibthorp, 1975; van Hoorn *et al.*, 1980; Edwards and Steins, 1998). In this chapter, we focus only on how inshore fishing is affected by the utilisation of the same space and by other activities occurring in the coastal zone. Attention is not paid to the other side of the coin - how fishing impacts on other activities. This lop-sided approach is to some extent justified by the fact that it is usually the fishing industry that is forced to retreat under pressure of development by other users of the coastal zone, whether for reasons of relative organisational strength, public opinion or governmental preference. The one area where fisheries are perceived to have potentially strong negative impacts is the marine environment and the concomitant concern for marine wildlife conservation, already considered in Chapter 14.

We usually speak of resource management when referring to situations in which people exploit common pool resources under certain management regimes. However, it is rarely the resources *per se* that are managed; management usually relates to geographical space and human behaviour. Spatial management refers to the locations where particular forms of resource use are allowed. People management relates to the question of which categories of individuals or groups are entitled to use which resources, where and when. Here, exclusion mechanisms restrict the number of people who are allowed access to the marine space and the resources in it. Thus, the management of multi-use situations relates to three complementary dimensions: resource management, spatial management and people management. All three dimensions are potentially conflictual at local, regional, national and international levels. But multi-use conflicts are first and foremost conflicts between different user groups over the consumption of space. Thus, solutions with respect to competing uses typically involve segregation of use over space and/or time.

2. INSHORE FISHERIES: THE IMPACTS OF OTHER FORMS OF MARINE SPACE UTILISATION

A wide variety of other activities affect fishing directly or indirectly. In this section we examine how different categories of use impact on inshore fisheries beginning with the case of how one type of fishery may interfere with another and, recapping briefly on results from Chapter 13, how marine aquaculture can be at odds with established fishing interests, before moving on to consider the repercussions of extractive and non-extractive uses and the case sometimes made for the non-use of marine resources and finally to assess the impacts of the abuse of the marine environment for purposes of waste disposal on inshore fisheries.

2.1 Capture fisheries versus capture fisheries

Although fishers may compete with each other for the same species or exploit the same ecosystem, they rarely exploit only one species or one ecological niche. Normally they catch different species with different kinds of gear over an annual cycle, using various ecological niches. Switching behaviour is 'the most important adaptive strategy used by fishermen' (Acheson, 1988: p. 49). The availability of alternative niches and resources is, of course, a precondition for this kind of flexibility. The extraction of renewable marine resources by similar categories of users may lead to congestion, while the uses of different fishing gears - for example, stationary versus mobile gear - in any one particular location may be incompatible. Disputes over space are usually zero-sum games in which there are both winners and losers. As Jentoft and Kristoffersen (1989) point out in relation to the spatial management of the Lofoten cod fishery, making more space available on the fishing grounds for one type of gear simply reduces the space available for other gears. In the French Mediterranean conflicts arise between different components of the inshore fleet relating to competition for resources and space. This applies in particular to situations where mobile gear and stationary gear are deployed in the same waters and also when there are illegal incursions into the inshore zone where fixed gears are used (Farrugio and Le Corre, 1991; Dufour, 1996). Similar problems occur in Greece, though here time and area closures are imposed to limit gear interaction and fishing effort. According to Frangoudes (1996: p. 124) the decisions are usually 'the result of more or less conflictual negotiation processes among the fishermen, either within a single gear group or among different gears'.

In multi-use situations where only fishers are involved, there are often informal regulations as to who may use certain locations at particular times. The means to avoiding conflicts is simply to segregate those using different kinds of gear into separate territories (Jentoft and Kristoffersen, 1989). Fishers from different villages on the Breton island of Houat have established a *modus vivendi* over all matters to do with the sharing of fishing grounds (Jorion, 1978). Two basic principles influence systems of informal territorialisation: first, fishing spots 'belong' to fishers from the nearest port; and, secondly, individual expertise gives the expert the right to use. In Spain, *cofradías* are responsible for territorial arrangements based on similar principles. But these principles are essentially ideal conditions which may not coincide with actual behaviour: internal conflicts continue to occur, while the encroachment of 'outsiders' into fishing territories traditionally claimed by certain categories of local fishermen pose increasing threats.

In some areas, institutions have been developed apparently around an 'ethic of fairness'. For example, the drawing of lots is intended to ensure that fishers take turns in exploiting good fishing spots; the same principle may also insist that they rotate spots after each set. The former system of allotment is practised and regulated by several *prud'homies* in the French Mediterranean (Dufour, 1996), while the rotation system is used in salmon fishing in an Irish village (Taylor, 1981, 1987), off the Greek island of Meganisi (Just, 1995) and in the swordfish fisheries in the Straits of Messina (Collet, 1996). Such institutions tend to work only when certain preconditions are met: first, the resources are considered communal property; second, the territories are respected by fishers from outside the area; and, third, that encroachment can be resisted. It should be understood, however, that territorialisation by fishermen usually has little to do with resource management, but rather with the creation of 'privileged space'. Such systems rarely find a place in modern, bureaucratic forms of resource management. *Cofradías* and *prud'homies* are involved in people management in the sense that they have powers to sanction those who breach the rules and regulations (Frangoudes, 1995). Although informal arrangements with respect to 'privileged space' exist in many parts of Europe and fishers will also attempt to monopolise the use of good fishing spots through the privatisation of knowledge as to their whereabouts, such locations are not formally owned in any way.

Placing limits on the numbers who can legally exploit renewable marine resources, through licensing, is a familiar mode of people management. Limited entry systems should avoid the problem of 'crowding'. In addition to effort controls involving gear restrictions or time limitations, limited entry is commonly used in single resource, single use management regimes as a means to avoid overexploitation. Such regimes are usually installed by

external authorities. But governments or supranational institutions may crosscut systems of self-governance and rekindle conflicts between different user groups (Delbos and Prémel, 1996). When certain categories of fishers are excluded from access to a resource, while others are allowed entry, this may lead to strife within the fishing communities (van Ginkel, 1991).

A particularly difficult situation can arise over access to migratory species which may be caught before reaching inshore waters, creating problems for the less mobile small boat fishermen who are forced to stay within the coastal zone (Fingleton and McCann, 1996). Across a number of European countries there is a major dispute between commercial and recreational fishing interests over rights to fish the scarce wild salmon stocks. The netting of salmon has already been discontinued throughout most of the high seas fisheries in the North Atlantic, and is being phased out from inshore waters within the UK ostensibly to conserve the stocks - to the obvious concern of the commercial netsmen who feel that the inland sports fishing interests are being unfairly favoured. Both commercial and recreational fishermen jointly accuse the salmon farming industry of being responsible for the increase in sea lice infestation of the wild stocks of sea trout but these allegations remain unsubstantiated.

More generally, large scale offshore fishing competes with small scale inshore fishing for both resources and markets. In this respect, inshore fishers also face competition from sparetime or leisure fishers, who can catch considerable amounts of fish without being subject to the kinds of restrictions that apply to professional fishers and who may undermine quayside prices through direct sales to hotels and restaurants. Mondardini Morelli (1999) also points to intense conflicts between professional and leisure fishermen in Sardinia based on competition for marine resources and for port space.

2.2 Marine aquaculture

Aquaculture increasingly competes for space and resources with other users of the marine domain, among them inshore fishers. Fish farming and shellfish cultivation are expanding rapidly. Entrenched interests, such as traditional fishers who fear competition over fishing grounds or tourist agencies concerned over threats of 'aesthetic damage', often oppose the establishment of new aquaculture sites and attempt to maintain the *status quo* (Ridler, 1997). In Norway the expansion of marine aquaculture - mainly salmon farming - has already taken up much coastal space and with other marine species gradually being introduced into marine aquaculture, there will be an increasing need for multiple separation zones and other measures

to avoid contamination and interaction effects (Sandberg, 1996). Along with the increasing crowding effect, the potential for conflicts between aquaculture and capture fisheries have grown. In some areas of Ireland, for example, fishers feel that they have had to sacrifice important fishing grounds to the interests of salmon farming, and there have been incidents where aquaculture cages have been sabotaged (Steins, 1998).

Inshore fishers are also naturally concerned that the quality of fishing grounds in the vicinity of fish and shellfish farming sites will deteriorate. More specifically they fear the introduction of non-native species, sedimentation of fishing grounds close to mussel farming areas, pollution by salmon farming through the accumulation of waste food, excreta and chemical residues and the concomitant decline in water quality.

2.3 The extraction of non-renewable resources

The discovery of commercial quantities of oil and natural gas in the North Sea in the 1960s affected the fishing industry in as much as competition for sea and harbour space, repair facilities and labour all increased. On the other hand, oil and gas development did offer alternative employment opportunities in remote coastal regions with poorly developed labour markets. Nonetheless, the overall view is that oil and gas exploration and development are unlikely to serve as a permanent replacement economy for most fishing communities, while they do have negative impacts on the fisheries. Fishers face a loss of access to fishing grounds, hazards to navigation, pollution from oil seepages, spills and blowouts; and damage to fishing gear as a result of debris dumped from rigs, supply boats and pipe laying barges. Fishing interests have generally held the weaker bargaining position in their negotiations with the oil and gas industry, though compensation schemes are available to cover part of the costs arising from lost fishing time and damage to gears (Grant, 1978; House, 1986).

Drilling rigs form physical obstacles and fishing is prohibited within a 500 m safety zone. Under-water oil and gas pipelines present similar obstacles to bottom trawling and will normally be avoided. But on the credit side, such structures simulate the functions of reefs, providing a refuge for fish populations.

In areas where land based activities associated with the oil and gas industry are concentrated, the inshore fisheries may suffer direct competition for labour, though it should be remembered that the oil and gas industry, once established, is capital intensive, employing relatively little labour much of which is in fact engaged in highly specialised technical or administrative work. Indeed many of the key workers are brought to the area from outside.

Possibly more serious from the fishing community's perspective is the tendency for higher prices to be charged for goods and services, including housing, in a boom economy.

Shell, sand and gravel extraction also poses threats to fishing activity, both directly and indirectly, albeit to a far more limited geographical extent than oil and gas exploitation, and over a much shorter time span - but often with more damaging consequences for the local fishing industry. Mineral extraction can disturb spawning and nursery grounds and bury active shellfish beds. Indirectly, it affects the ecological balance by causing longer term damage to the seabed and by increasing the turbidity of surface waters.

2.4 Non-extractive uses

Among the non-extractive uses of the inshore domain, exploitation of its amenity value would seem most likely to exert the greatest impact on fishing and fishing communities. Tourism has received a huge fillip as a consequence of increased leisure time, disposable personal incomes and improved transportation systems. Recent expansion of seaside tourism has spread outwards from existing coastal resorts, but over the past few decades has invaded previously untouched areas partly as a consequence of deliberate policies of local tourist boards and stimulated by the desire of holiday makers to spend their leisure time in 'unspoiled' areas of coast. The net result has been a gradual deterioration of the natural environment. Construction has altered the littoral sometimes causing considerable damage to marine life as for example when excessive sediment pollutes the coastal waters (Sibthorp, 1975). The development of coastal resorts and marinas can lead to pressures for space: fishers are sometimes relegated to peripheral locations, experience delays in moving in and out of crowded harbour areas and may experience growing opposition to their quayside activities (see Chapter 8). Cruise shipping, recreational boating, swimming, scuba diving and water skiing are among the new activities that can potentially interfere with inshore fishing and coastal aquaculture.

Although the rise of the coastal tourism and leisure industries can be observed throughout Europe, nowhere has its impact been greater than along the northern shores of the Mediterranean. By the mid-1970s, the Spanish Mediterranean coastline had been irreparably damaged by an uncontrolled spending spree: millions of foreign visitors invaded the coastal areas each year and it was reported that 'local fishermen have become barbers or waiters, wholly dependent on the tourist trade' (Sibthorp, 1975: p. 58). There are many examples where tourism interests, although relative newcomers to the scene, are better organised and much better represented in the decision

making processes concerning coastal development and marine resource use than traditional user groups like fishers. On the other hand, tourism can provide an opportunity for fishers to earn additional incomes. Holiday making in coastal communities stimulates local demand for fish products. However, at the height of the tourism season, many local boat owners will make their craft available for hire for sightseeing or recreational fishing trips even when this coincides with the more important fishing season: tourists provide a more reliable source of income and require far less physical effort.

Not all new coastal development is associated with tourism. Coastal areas are preferred retirement locations; new port facilities are located away from congested established dockland areas, especially to accommodate the twentieth century's supertankers and bulk carriers; the new generation of nuclear and oil and gas fed power stations have been built in coastal locations, often in relatively remote sites; in some island fringed coastlines new road networks have necessitated the construction of bridges and causeways, while flood protection schemes have involved the building of massive dams, tidal barrages and thousands of kilometres of embankments. Many of these developments have affected the adjacent marine environment and impacted directly or indirectly on local inshore fisheries. Moreover, the increasing scale of seagoing navigation has extended the need to maintain shipping channels through frequent dredging.

2.5 Marine wildlife conservation

Inshore fisheries are subject to increasing interrogation from environmentalists regarding the impacts of their activities on marine habitats and ecosystems (see Chapter 14). In recent times, environmental organisations have become identified as legitimate stakeholders; in some instances they clearly strive for hegemony in the decision making process concerning the inshore domain and are reluctant to compromise their objectives (Chapter 5). Most environmental organisations lay stress on the natural values of the seascape and some are apt to favour limited use or even non-use of renewable resources through their advocacy of marine protected areas (MPAs), though in most instances such designations seek to restrict rather than exclude fishing activity. But the very suggestion of MPAs is liable to force 'a polarisation of interests rather than a dialogue between interested parties ... creating instances of tension and conflict' (Mondardini Morelli, 1998: p. 188). To an extent, some conservationists have sought to turn fish and shellfish into products of zero exchange value and, in so doing, have attempted to remove them from the commodity path. As protectors of the marine domain, conservation organisations enjoy widespread popular

support and have achieved considerable political influence, in marked contrast to inshore fishing interests.

2.6 Waste disposal and pollution: abuse of the marine environment

Macrostructural social changes such as population growth, industrialisation and urbanisation have led directly to increasing discharges of effluents and the disposal of polluting agents in coastal waters. Most marine pollution originates on land and is channelled to the sea through the river systems and major estuaries. As a result coastal waters and semi-enclosed seas tend to be much dirtier than the open oceans. Urban, industrial, agricultural and, in some cases, mining waste thus enters the marine environment putting at risk the productivity of the inshore ecosystems and the viability of fish and shellfish populations. Pollution of the marine environment is typically a transboundary problem which has to be tackled internationally and within the context of the regional seas - a point readily acknowledged by international conventions and regional organisations like the North Sea ministerial conference (Svelle *et al.*, 1997).

Throughout much of the industrial age the seas have been consciously or unconsciously regarded as a cheap dumping site for various kinds of waste material: dispersion and dilution of potentially harmful materials were considered the natural functions of the oceanic systems. The release of untreated sewage into coastal waters patently conflicts with their natural use as spawning and nursery grounds and their applied use for fish farming and shellfish cultivation. Sewage can be directly toxic to living organisms and cause oxygen depletion through nutrient enrichment. In general, the smaller the area of water and the weaker its circulation, the worse will be the effects of sewage discharges. From time to time governments must act to close down shellfish production in waters where there is a risk it becoming so tainted or contaminated that it is unfit for human consumption. The release of nutrients into coastal waters through urban sewage disposal or agricultural land run-off can also lead to blooms of toxic plankton and algae posing the risk of substantial mortalities among fish and shellfish populations in inshore waters. Mortality and physical abnormalities can also result from high concentrations of heavy metals and PCBs resulting from the discharge of industrial or mining waste water.

One of the most dramatic forms of impact upon the marine ecosystems of inshore waters and their associated fisheries results from catastrophic episodes of oil pollution caused either through accidents or through purposive acts of cleaning out oil tanks at sea. Shipwrecks, groundings and blowouts on offshore oil rigs account for the worst oil related environmental

disasters. As to the severity of the incident much will depend on whether the spillage is of heavy or light oils, but in any case oil is relatively difficult to disperse or contain in water. Incidents with oil tankers like the *Torrey Canyon*, *Amoco Cadiz*, *Braer*, *Sea Empress* and, recently, the *Pallas*, *Erika* and the chemical tanker *Ievoli Sun* have had devastating effects on the inshore marine environment, marine wildlife and fishing activity. Major blowouts like the one in the *Ekofisk* field in 1977 and the *Piper Alpha* disaster in 1988 also released huge amounts of oil into the sea but their effects on the inshore marine environment were to some extent mitigated by the fact that the incidents occurred in the open sea rather than close inshore.

More oil enters the marine environment through discharges and industrial effluents than through accidents. Oil tankers deliberately discharge significant amounts of oil through cleaning their tanks before taking on new cargoes and many vessels also empty oil contaminated ballast and bilge water while at sea, usually close to port. The normal operation of coastal refineries and industrial plants adjacent to estuaries can lead to oil leakage or seepage into the tidal waters. Oil pollution, even in small doses, taints the flesh of fish and especially shellfish making it unmarketable; more severe contamination can also have serious consequences for the reproduction success of some marine species (Sibthorp, 1975).

3. OPPORTUNITIES FOR MULTI-USE MANAGEMENT

Several international treaties and conventions relating to the prevention of marine pollution are already in force and in recent years regulations have been progressively tightened. Indeed, one of the success stories of the EU's environmental policy has been the significant improvements in water quality in both freshwater and marine environments, but there is still a good deal to be done. In a recent policy document, the International Maritime Organisation (1998) observes that measures which have already been adopted should be implemented as rapidly and as effectively as possible and that governments should act to enforce the relevant international conventions. While it is clear that environmental problems like marine pollution can only be tackled effectively on a global scale and through international collaboration, the most viable means of tackling specific multi-use problems in inshore waters occur at the local level.

Coastal planning involving all stakeholders and integrating all the options is the preferred way of managing competing uses and interests. An integrated approach would require the weighing of costs and benefits of each conflicting activity (Ridler, 1997). This was recognised, as early as 1975, in respect to the North Sea.

‘To make the best use of it in the aesthetic and recreational sense as well as commercially, rational management is vital to ensure both that each activity is conducted at such a rate and in such a way as to serve the best long term interest, and that the prosecution of one activity is harmonised, so far as possible, with that of another’.

(Clark, 1975: p. ix)

The aim of multiple use management should be the optimal exploitation of resources, with the various interacting activities managed in such a manner as to achieve the greatest overall benefit. It is beyond the scope of this chapter to calculate the relative importance of widely disparate activities carried out in the inshore zone. Instead, we are content to outline the basic means of negotiation concerning access to, allocation of and control over marine resources on behalf of different user groups. In order to achieve legitimacy in the view of different users, it will be necessary to adopt specific management measures which meet with widespread approval and are ultimately enforceable. The means to achieve this vital consensus lies in the concept of co-management which aims to forge closer links between all relevant stakeholders and the central and regional authorities with appropriate legislative powers. A basic construct in co-management is the establishment of ‘user platforms’ where all interest groups can meet to debate the issues and tease out a consensus view.

Co-management organisations are negotiating and/or decision making bodies, formed on a voluntary or statutory basis, comprising different stakeholders who work collectively towards an understanding of the resource issues, cooperate in solving social dilemmas associated with collective resource use, and undertake joint action in respect of perceived problems. The need for such bodies may arise spontaneously when stakeholders experience the negative impacts of their own and other users’ exploitation of the natural resource and become aware that concerted action is needed to resolve undesirable outcomes. Experience from around the world - and not only in relation to fisheries - suggests that the establishment and facilitation of organisations that bring together various interest groups has considerable potential for solving natural resource management problems through collective action and joint learning based on the accommodation of different and often conflicting objectives (Röling and Wagemakers, 1998).

Although *cofradias* and *prud’homies* can be considered as the predecessors of modern co-management organisations for the collective management of a single use, what is ‘new’ about the idea of ‘user platforms’ is their potential to facilitate collective action among separate user groups in complex, multiple use situations without necessarily involving the central or regional bureaucracy. For instance, in Killary Harbour in Ireland, the

development of mussel farming required the renegotiation of resource use which traditionally focused on salmon, lobster and crab fishing. When it was discovered that the estuary was an excellent mussel spawning area, local community members established a mussel farming cooperative for local mussel farmers only, in order to avoid the colonisation of the resource by 'outsiders'. At the time of the cooperative's inception, local fishermen were concerned that the estuary would be filled with mussel structures, preventing access to their fishing grounds. The cooperative, aware of the fishermen's fears, agreed to keep the fairway and fishing grounds free from rafts and longlines, even though these areas were designated for mussel production. The cooperative, assisted by a community development project in the area, was able to convince the government to support its policies.

At the regional level, co-management can also involve the elaboration of integrated coastal zone management strategies. In the case of the Bantry Bay Project, in 1997 a partnership comprising Cork County Council, the Coastal Resources Centre based in University College Cork and the Nautical Enterprise Centre secured funding under the EU LIFE programme for a project to develop sustainable ways of managing the land and water resources of the bay. Bantry Bay in south west Ireland is one of the most important tourism and nature conservation areas in the country; it also harbours Ireland's second largest fishing port (Castletownbere) and has become a prime aquaculture production area. Lack of coordination between different users had resulted in a number of multi-use problems. In particular, there was growing conflict between mussel cultivation, on the one hand, and tourism and fishing interests, on the other. The Project brought in external experts specialising in conflict resolution to undertake a consensus building exercise: the Centre for Dispute Resolution in Dublin has worked closely with the various stakeholders in establishing a process which involves:

- (i) working at understanding each other;
- (ii) looking for ways of satisfying each other's needs, interests and concerns;
- (iii) building on areas of common ground while trying to reduce differences;
- (iv) exploring the scope for mutual gain;
- (v) confronting the problems not each other; and
- (vi) investing in relationships for the future (Bantry Bay Charter, 1997).

Consensus building is regarded as a crucial element in the overall project (Centre for Dispute Resolution, 1998).

The strategy for integrating shellfisheries and nature conservation in the Dutch Wadden Sea, outlined in Chapter 5, offers another example of the co-

management approach - this time developed at the national level - based on creating a platform for resolving key disputes between the fishing and conservation interests. In this case the emergence of difficulties at the start of the second management plan simply underlines the importance of building confidence, mutual trust and genuine consensus through the user platform idea.

The formation and facilitation of user platforms for resource use negotiation therefore offers a promising but certainly not unflawed mechanism for consensus building over responsible behaviour in exploiting inshore waters. Several issues are of importance in attaining this goal. First, the scale of the platform must correspond with the scale of the ecosystem to be managed and with existing economic and administrative institutions. Second, it is important that all relevant stakeholders are correctly identified at the outset in order to examine all sources of pressure on the resource, the full range of vested interests and the relative stakes held by each user group. The alienation of certain user groups through their exclusion from the process risks the erosion of legitimacy for any decisions adopted (Symes, 1996). Third, management of the process must focus on social processes and collective learning about the situation to be tackled. Finally, the role of external agents must be addressed with great sensitivity. While they may be essential for facilitating and supporting actions by local groups and help to reduce transaction costs, the over-involvement of external agencies can undermine the basis of cooperation and the sense of ownership and responsibility for the project. Much is to be gained by seeking to give local associations a more permanent footing and to bestow on them certain management responsibilities.

4. CONCLUSION

Broadly there are two contrasting approaches to resolving multi-use problems: legislating at national or international level for more efficient regulatory frameworks, on the one hand, and seeking compliance through legitimacy negotiated at the grass roots level, where mutual respect and true consensus are the precursors to the enactment of new regulations, on the other. Both are needed to tackle the kinds of problems facing inshore fisheries outlined above. Problems whose origins lie outside the local area - as in the case of the oil and gas industry, urban development and pollution - must be addressed through national and international legislation; those which are internal to the area - including competition within fisheries and between fisheries, aquaculture, tourism and marine conservation should be subject to

local arbitration within some form of overarching strategy for the integrated management of the inshore zone.

The creation of formal links and channels of communication between all parties is a first requirement for a properly integrated approach. The presence of multiple, but unconnected, user groups, external agencies and authorities will in fact hinder integrated management and increase the likelihood of multi-use conflict and irresponsible behaviour. Formalised links between the parties involved will facilitate negotiation over the formulation of management objectives, strategies, action plans, the division of responsibilities and the elaboration of monitoring procedures. In situations where such links have been established it is important that they are not restricted simply to the time when policies are being formulated and when the integration of particular interests is initially at stake but persist throughout the ensuing period. The challenge of multi-use management is to integrate disparate interests so as to achieve socio-cultural acceptability, economic feasibility and environmental sustainability (Glaeser and Piriz, 1996). Ongoing dialogue is required to create mutual understanding of each other's perspectives, interests and concerns in order to avoid an 'us' and 'them' situation arising when negotiation over policy is taking place and to prevent stronger sectoral interests overruling the weaker ones. Opportunities for dialogue should persist well into the implementation stage to ensure that the distributive effects of the policy are as anticipated and agreed during its formulation.

It is important to identify the vested interests and relative stakes held by different user groups and to understand the ways in which people, resources and institutions in multi-use contexts are embedded within webs of economic, social and cultural relations at various levels of integration. Marine resource use and marine environmental issues transcend nation state boundaries and a meld of local, national and international actors have identified themselves as principal stakeholders with regard to use rights over marine space and access to resources. It is precisely this fact which can lead to a clash of interests between the various claimants. In many cases, there will be power hierarchies or structural asymmetries of stakeholder groups and individuals, whose socio-economic and cultural statuses vary. In negotiations, some may be included, others excluded. The problem of participation, representation and cooperation in decision making has important consequences for the possibility of disputes and dispute regulation. The interests of local fishers often clash with state imposed regulations concerning the use of the inshore zone. In the past, governments have tended to favour the economically stronger sectors like aquaculture, tourism or oil exploration over the economically weaker inshore fishing interests. Fishers thus risk being alienated from the resources they

traditionally exploit and that sense of alienation may well undermine the legitimacy of measures adopted. Management needs to take account of the socio-economic and cultural contexts of the different types of user.

It is equally important for an integrated management approach to decentralise at least part of the decision making structures. Multi-use problems can best be identified and tackled at the local level. Even though some sectoral interests may well exceed this level, management strategies need to be locally compatible because compliance with rules and regulations largely depends on public support and local participation. There is evidence that under centralised and non-participatory approaches, sectoral development and the non-integration of different interests can lead to severe conflicts. In a decentralised system, local authorities must be given powers to react immediately to emerging problems without the need first to consult the central state, a time consuming process which hinders flexible management. Further, local agreements should not be capable of being challenged by other agencies. User participation, balance of power and consensus building are not goals in themselves, they are the means to an end. Though the importance of these social processes can hardly be underestimated, collective learning about the marine ecosystem, its complex dynamics and varied functions is an equally important component in balancing the interests of multiple users and achieving harmonious resource use.

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