

**COMPARATIVE ANALYSIS OF INSTITUTIONAL ARRANGEMENT
EXPERIENCES AND NEEDS FOR INTEGRATED COASTAL ZONE
MANAGEMENT IN THREE EUROPEAN COUNTRIES :
FRANCE, NORWAY AND GREECE**

**"COASTMAN"
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OIKOS Environnement-Ressources (scientific coordinator)
65, rue de Saint Briec
35042 Rennes cedex
France

Bodoe University College (administrative coordinator)
8002 Bodoe
Norway

NIREUS Fisheries and Aquaculture Consultants
1st Km Koropiou-Varis Ave.
Athens 19400
Greece

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The following persons and institutions have been involved in the COASTMAN programme :

Katia Frangoudes	OIKOS Environnement-Ressources, scientific coordinator
Denis Bailly	CEDEM, University of Western Brittany
Zoe Bakela	NIREUS
Sophia Galinou-Mitsoudi	Directorate of Fisheries of Thessaloniki
Miltiadis Kalamaras	NIREUS
Apostolos Karagiannakos	NIREUS
Dimitrios Kochras	MARFISH
Lambros Kokokiris	MARFISH
Andreas Papandreou	University of Makedonia, Thessaloniki
Jean-Luc Prat	OIKOS Environnement-Ressources
Lionel Prigent	CEDEM, University of Western Brittany
Bjørn K. Sagdahl	Bodø Regional University
Audun Sandberg	Bodø Regional University
Håkan T. Sandersen	Nordland Research Institute, Bodø
Stéphanie Sauvée	OIKOS Environnement-Ressources
Maria Sevastaki	NIREUS

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FOREWORD

During the past decade, the concept of Integrated Coastal Zone Management (ICZM) has been popularised by international agencies and has inspired many theoretical and empirical research. This report presents the main findings of a two years (1998-1999) European collaborative research funded under the « Environment and Climate » programme of the European Community 4th Research Framework Programme. The COASTMAN programme has been initiated by a multidisciplinary group of Norwegian, French and Greek social scientists and financially supported by DG Research of the European Commission. Although it has been conducted as an independent academic research, it has benefited of a very dynamic context of debate and initiatives on ICZM. In this regard, the Demonstration Programme on Integrated Coastal Zone Management launched by DGs Environment, Regions and Fisheries in 1996 is certainly one of the most important in Europe.

Indeed, coastal areas play a significant role in most European countries both economically and culturally speaking. They have been the starting point of world expeditions by explorers and conquerors and also the place where a large part of the primary resources for wealth accumulation has been landed for centuries. Major cities have developed on harbour based economies. Today's economic and cultural international relations are still strongly influenced by the original way different societies have come in contact with each other during this period. The maritime adventures, including the stabilisation of the coastlines or the domestication of the marshes, the transoceanic navigation, the development of the fisheries or aquaculture and the expansion of marine leisure and sport activities, are all long stories of attempts to domesticate or live with wild and dangerous spaces that are still often viewed as one of the last realms of wilderness and individual freedom. Human development has found in coastal areas a unique and diversified potential. The result is a strong attractiveness of a narrow coastal stretch for human settlement in most European countries. 19% of the European population lives permanently in coastal communes (European Commission, 1997). The coasts are the first destination for holiday purpose. This leads to a strong competition for access to coastal opportunities. And thus, there are many areas where collective action is needed to ensure some level of coordination among individuals and to prevent or solve conflicts of interests.

Fragile and weak to natural or human aggressions, natural settings play also a major role in the framework of social and economic development of coastal territories. The position of land-sea interface, of fresh-salted water contact and of watershed outfall make them very specific territories with unique biological and physical dynamics. This leads to problems like coastal erosion but also to the existence of very rich ecosystems like coastal wetlands. Most of world freight goes on the seas, raising the problem of maritime security particularly in coastal zones. Although some of the European coast may remain almost inhabited, very few of the coastal ecosystems are not affected in a way or another by anthropic pressure. Seen from the land side, many of today's natural landscapes are human constructions. In the perspective of sustainable development, nature conservation in coastal areas raises fierce debates. Between conservation and preservation, restoration and enhancement, the debate among the defenders of the nature and the supporters of economic development is complex. Should we worry about coastal waters quality for bathers, for aquaculture or for natural biodiversity ? Should we maintain coastal wetlands to offer opportunities for tourist leisure or for birds nesting ? Should we limit the use of pesticides and fertilisers to preserve coastal waters quality at the

cost of agriculture competitiveness ? Do coastal landscape reward very restrictive urban planning ?

These are typical questions of public policy, that are raised in most coastal areas. In this regard, to what extent the Integrated Coastal Zone Management suggests a perspective different from simple planning or management ? Where do we stand today in Europe and what is the diversity of contexts to which it may apply ? Those are the key issues discussed in this report in the perspective of an institutional analysis conducted jointly by a team of political scientists, sociologists, economists and environmental planners. The programme has been structured in two actions. One is a review of national context and policy on coastal zone management in the three countries : Norway, Greece and France. The second has been a field primary research in study-areas : the Helgeland in North Norway, the Gulf of Thermaïkos in Greece and the Bay of Mont Saint-Michel in France. All the material of primary and secondary research has been published in a series of fourteen COASTMAN Working Papers that will be made available on OIKOS website. Some of these papers have been presented in conferences and workshops, including some of the final discussion of the European ICZM demonstration programme. Other are drafts of articles published in journals. This report, submitted as the final report of the COASTMAN programme, is an analytical sum-up of national reviews illustrated by case-study findings. It is structured in five chapters. The first chapter reviews the concepts of ICZM from theory to practice. Chapters two to four presents key issues and policy initiatives in the three countries, Norway (chapter 2), France (Chapter 3) and Greece (Chapter 4). The last chapter summarises the main dimensions of coastal zone management and discusses the institutional perspective of ICZM development in Europe.

CHAPTER 1. INTEGRATED COASTAL ZONE MANAGEMENT – FROM THEORY TO PRACTICE.

By Bjørn K. Sagdahl, Audun Sandberg and Håkan Sandersen

1. A theoretical Definition of the Coast

The coast is not merely the thin line where the sea-water washes upon sandy beaches or rugged rocks. It contains much more in the form of dramatic relationships and evolutionary dynamics than this line tells. These dynamic relations requires the mutual contributions of both earth sciences, life sciences, social sciences and cultural sciences in order to explain the complex processes of change in the coastal zone. Thus the very task of understanding and explaining the coast requires an integrated approach i.e. the close collaboration of different sciences with quite different ways of looking at reality.

Still, the core of the coast is the littoral itself, the zone between the highest tide and the lowest tide which is neither land nor sea. Here the earth sciences explains the main dynamics of the coastal landscape as the erosion of the coast and the consequent loss of land. But they also explains the rise of land and the sedimentation and accretion of shallow seas, thus giving the causes behind the emergence of new coastal lands and dramatic changes in the entire coastal landscape. Here also the life sciences explain the crucial littoral ecosystems which are among the Earth's most diverse, complex and productive ecosystems and which through their interrelations to greater aquatic and terrestrial ecosystems are of outmost importance for world food security.

And here the social and cultural sciences have started the difficult process of explaining how the social institutions of the land and those of the sea meet on the coast, sometimes to produce, nurture and sustain unique social, cultural and ecological landscapes. But the social and cultural sciences can also explain institutional incompatibilities that sometimes produce and maintain social conflicts and leads to deterioration of both physical coastal landscapes and destruction of crucial coastal ecosystems. Recently such institutional decay has also been identified as the cause of decay in coastal ecosystems as a common property resource and indirectly as a cause of dramatic decay in larger aquatic and terrestrial ecosystems that are fundamental for the food production of large parts of the world. This is a major reason why both the UN-system and the EU-system has placed great emphasis on multidisciplinary approaches to analysing and ameliorating the problems of the coasts. The UN-system does this in its "Environment and Development in Coastal Regions and in Small Islands" Programme (CSI) which tries to develop «A Culture of Wise Practices» for an integrated approach to the development of coastal regions and small islands. While the European Commission recently has completed its "Demonstration Programme on Integrated Coastal Zone Management" (ICZM) which tried to attack the problems of insufficient co-ordination between the different levels and sectors of administration and their policies.

The coast can then be seen as both a territorial and a thematic entity that extends from the littoral line and as far out into the ocean as coastal based activities takes place, which for most practical reasons comprises the entire exclusive economic zone of coastal states. On the terrestrial side of the littoral, a functional definition offers most in terms of analytical power, i.e. the coast extend as far inland as people perform activities related to the coast, like fishing, shipbuilding or week-end beach activities. In countries dominated by archipelagos or fjordland coasts, considerable areas can thus be defined as part of the coastal landscapes,

including mountains, forests and glaciers. If we only take the coast as the first 60 km from the sea, 60% of the world's population are «coastal populations», this is likely to rise to 75% - or more than 8 billion by the year 2025. Coasts also attracts sea-transport facilities, harbours and industrial areas as well as trading and financial centres. Thus we find 16 of the world's 23 mega-cities in the coastal belt, making both urbanisation and globalisation two important features of modern coasts.

Another way to define coasts is to trace the influences on a particular coast of natural and human activities that take place in a freshwater catchment area that empties its waters, sediments, nutrients and pollutants into coastal waters. Everything that happens upstream, whether it is degradation or enhancement, will then have a downstream effect on the coastal areas. Thus the entire catchment area can in some respects be regarded as part of an integrated coastal system. The same kind of upstream/downstream logic can be applied to migrating fish stocks, who are often hatched in coastal waters, estuaries or in rivers, grow to adult size in distant waters and return to the particular coasts to spawn. Ecological deterioration – or overfishing in the open sea has downstream effects on the coastal ecosystem, in the same way as deterioration of the coastal spawning areas has downstream effects on the adult fish stocks in the open sea. This logic can be extended also to downstream effects of the transport of man-made pollutants by coastal currents and to possible changes in the system of oceanic currents and weather systems themselves by global warming due to urban CO₂ emissions. Taken to its extreme, the logic of upstream/downstream effects on coasts can be used to argue for one integrated coastal system that comprises the whole world. We shall not go to such extremes in this report, but mainly stick to a functional definition of the coast, based on identifiable coastal activities that can be contained in a physical plan and governed by a territorially based elected representative body. But in dealing with many of the institutional incompatibilities, this perspective of upstream and downstream effects will be utilised to add realism to the analysis.

2. The Problem of the Coast

The coasts of the world are often seen as a problem. The public image has been one of coasts in peril and violent conflicts between resource users over coastal resources. The erosion of coastal landscapes is often dramatic processes that removes land and make it into sea, thus endangering buildings and human investments in infrastructure etc. On the other hand, the accretion of sediments by rivers, currents and wind – and the consequent creation of new land is also seen as a problem; familiar seascapes are lost and a public image of environmental deterioration is prevailing.

The fundamental problem is that the coast, as defined as a thin line between the terrestrial and aquatic environment, is not only an attractive line, but is also a dynamic line, that has always changed through the geological history of the planet. These dynamics, which really represents renewal and new possibilities, becomes a problem because the human investments in physical structures like harbours, railroads, dykes, highway bridges, metros, high-rise buildings and coastal tourist resorts are rigid structures that cannot easily be changed. Social constructions like property rights and profitable property markets for coastal ground, add to this rigidity and creates heavy incentives to invest large sums to keep the “coast where it was”, instead of adapting to a dynamic environment. This is basically a problem of incompatibility between natural systems and social systems, where the outcome of the conflict often is that the natural coastal system is harnessed and enforced to conform with the social system – in built-up

waterfronts. This works well until a major storm or flood reminds us of the underlying dynamic character of the coast. After such natural disasters we have a tendency to start anew intense discussions of what is sustainable coastal development and of what it takes to create a resilient coast. And linked to this debate, a more profound debate of what is really a good and beautiful coast.

The other class of problems of the coast is the competition for coastal resources and the conflict over these resources. Such typical conflicts are the use of coastal waters as sewage recipients for urban populations and as leisure areas for the same population – or cash generating tourists. The traditional conflict of this kind is the long conflict of the last century between artisan, coastal fishermen and modern, industrial fishing fleets over limited fish resources. Other, and more subtle conflicts is the conflict between aquaculturists farming salmon in northern fjords, and the interests of anglers who want these fjords as undisturbed homing channels for wild salmon. With new technologies and globalisation of both business and environmental concerns, there is increased competition for diminishing coastal resources. For instance tourism, the world's top growth industry, places enormous pressure on coastal and island peoples and their traditional use of coastal resources. When the disparity grows between those who have not and those who have, this competition over diminishing resources make the coastal areas of the world flash points for violent conflicts where the modern use generally tend to gain victory over the traditional use. Thus the planning and management of coastal resources by legitimate local communities is rendered all the more difficult by the globalisation of both the world economy and by modern urban environmentalism. These conflicts between rich and poor, urban and rural, traditional and modern, are well known and well documented in the literature.

This latter class of problems, the struggle over alternative uses of coastal resources, is the objective of most coastal zone planning and coastal zone management. It is based on an idea of rationality, that rational compromises can be found between most competing uses of the coast and that the outcome of the planning process itself, the plan, is the rational compromise. Thus coastal seas can serve as both sewage recipient and holiday playground, coastal fish resources can be used to sustain both artisan fishers and industrial fishing fleets and fjord can be used both for aquaculture and as homing channels for wild salmon. It is all a matter of degree and of finding a politically acceptable compromise..

Sometimes the coast conforms with this way of reasoning and resource-use compromises - or multiple use regimes - can be as long-enduring as they are in terrestrial environments. But often we find that in a dynamic and partly aquatic environment like the coast, the use of a resource by one group in the long run undermines the use of the resource by another group in a way that area-planning techniques cannot prevent. As long as the planning does not address the crucial ecological and economic processes themselves, domesticated organisms will tend to drive out wild organisms, modern economic enterprises will tend to drive out traditional economical enterprises and urban based activities and perceptions will tend to drive out rural activities and perceptions.

Therefore the task of working out a European Strategy for Integrated Coastal Zone Management - «or promoting sustainable development of E.U. Coastal Zones» - is more challenging than it may look. It is not only the challenge of transforming management from the conventional sectoral rationality of the last century to the more integrated approaches inherent in area - or comprehensive territorial planning techniques. It is in addition the challenge of moving one step further, towards an integration of the concern for ecological and

economic processes into the planning and governing processes. Such a transformation will need changes in a number of underlying institutions in the coastal zone, among these property rights and basic incentive structures, channels of influence for organised interest groups and jurisdictions of local government.

It is to these kinds of challenges this report addresses itself. The study focuses on the development of coastal management in a comparative perspective and seeks to explain the reasons behind the growing political and professional ambition of establishing integrated coastal zone management in the compared countries. The three countries compared are geographically spread, ranging from Norway in the very north of Europe to Greece in the very south, and with France in its middle. They all have different age-old institutional and governing traditions, but they still have something in common. Having long coastlines, they have all through the centuries had to face the challenges of coping with the complexity of coastal management.

Until recently, the large oceans and the off-shore waters have been regarded as areas for open access, rooted in the *Mare Liberum* concept of the 16th century. Although some remains of this tradition are still working, the post-war period has brought about a rather drastic shift. Growing awareness that the sea based resources are limited and vulnerable to disruptive exploitation, as well as a growing competition between nations for exploitation of available sea based resources, has paved the way for the coastal states to expand their territories and improve their capacity to govern the coastal resources now under their jurisdiction.

The origin of institutionalised coastal governance is, however, older and far more complex. Although often the available technology caused these institutions to evolve in relation to the resources on the near coast - sometimes called the inner coast, they have still become part of the coastal cultural heritage. Therefore, in order to understand the contemporary changes in coastal resource management, it is crucial to understand the cultural foundations of institutional construction and reconstruction and how they are rooted in the different societies. Despite rapid modernisation of most of the compared European coasts, these roots are much older and more deeply rooted in the 3 different societies than the span of one or two generations.

Neither should the evolution of governance and institutions be seen separate from their normative base. There has through the ages been different values attached to the coastal environment, from a preference for pristine coral reefs to a preference for the built up coastal waterfront - the esplanade. The norms connected to the untouched coastal nature that need protection and the norms connected to the beauty of the enhanced coast can be seen as contrasting, although they in terms of their aesthetic content are very similar. Other sets of norms are connected to expressions like «the leisure coast» - the coast as a playground, and «the working coast» - the coast as a place to harvest nature's riches and recently - to cultivate in order to enhance the harvest even further. Thus a normative inquiry is an important part of the institutional analysis, the views the different actors have towards the question of what constitutes «a good coast» are important in understanding the legitimacy of various institutions. Such analysis is often done through historical analysis of the origin of institutions combined with studies of their adaptation to changes and investigations into their self-perpetuating capabilities.

Institutions for governing natural resources in the coastal zone are more than in other environments arranged in layers, where the same resource can have several different

institutions pertaining to govern it - often originating from different periods in the development of modern European societies. New institutions are added on, while older institutions are rarely made completely defunct. This complex empirical situation demands inclusive methods of analysis that does not merely compare two or more different institutions governing the same type of resource, but also compares two or more different evolutionary processes - including their in-built dynamics of further change.

The overriding theoretical question is the role of common property type social institutions we are facing. A number of studies by social anthropologists, ethnologists and sociologists has documented that the perceptions in coastal communities and among fishermen, shellfish farmers, aquaculturists and stock enhancers often have the character of some kind of “coastal commons”. In these the property rights are mainly uncoded, but they still represent constitutional frames for the design of informal rules that function as supplements to codified laws and government regulations.

Thus, one hypothesis goes, the normative base of governing institutions for coastal resources also contains a layer of rules that are anchored in the notion that the coast and its great variety of resources is the common property of coastal dwellers. We shall therefore in the following also see to what extent we can identify such rules and perceptions, in order to illustrate the more general analytical aspect of norm-based regimes. We will further discuss what consequences these have for the governing of coastal resources - especially when such governance comes under pressure of new technologies, diversification of user interests and new and more integrated ways of utilising coastal resources.

But this normative-historical perspective on common property related institutions does not necessarily fit in with later established formal institutions for governance. In some cases they do, in other cases they do not. And in some cases we may find deep-rooted tensions and conflicts between folk based regimes and modern government rationality. What characterises modern government is first and foremost specialisation and law based sector management. This has been the general recipe for efficient knowledge based management of the western rational type (Weber 1922). The resulting multi-sectoral structure with specialised professions, each with their hegemony of what is regarded relevant expertise, constitute a perpetuating challenge for the political governing bodies. It is acknowledged that co-ordination is insufficient (EU-1999), but the answers to the questions of what is to be co-ordinated, at what level and by whom are not self-evident. Besides, the idea that sectoral solutions has to be co-ordinated, is a threatening change to many actors with vested interests and will meet with opposition. Raising new problems and getting them accepted on the political agenda are by and large a matter of politics. And the outcomes are not self-evident and may eventually be considerably diluted in the process of achieving the necessary political agreements.

This complex empirical world of institutions forms both the possibility for good governance of the coastal resources as well as major obstacles for integrated management. The bottom line is that both change agents and governing political bodies are confronted with a rather complex structures of organised interest when attempting a change of rules or in outlining and implementing new policies for the coastal zone. The political and institutional landscape is heterogeneous and the compromises made will often be consciously unclear and self-contradictory when dealing with definition of new formal rights and adjusting new entrepreneurial types of economic activities to established property rights. What adds to the complexities is that with growing knowledge and new awareness of the ecological limits for

possible political solutions, the politically balanced solutions have become more difficult to find. In most countries we find that it is unfamiliar to regard the state of the coastal ecology as the ultimate measure for success or failure of public policies. If international environmental obligations shall be fulfilled, this adds to the political costs of outlining a policy under pressure from affected and often competing interest groups. Therefore truly “Integrated Coastal Zone Management” as advocated by both the EU-system and the UN-system, seems to be a rather ambiguous objective to be reached - if possible at all. Even slight improvements in the co-ordination of sectoral policies could be hard to achieve without dramatic changes in the institutional foundations for modern policy formation- or in the legal basis of governing the coast.

We will in the last chapter in this report discuss more in detail whether such changes best can be achieved by professional inspiration in the form of “Wise Practises” and “Codes of Guidance”, whether agreement on new and improved administrative procedures is sufficient, or whether it is necessary to apply legally binding “Directives” that forces member states to change their legislation in the direction of Integrated Coastal Zone Management.

However, despite these rather pessimistic views we find that over time in most countries, there has been a scientific and public development in search for co-ordination and more integrated solutions to the ecological and social challenges to the European coasts. We shall therefore below discuss some basic theoretical traits of the experience of coastal zone management in the compared countries: What have been the driving forces? How is management organised, how does it function and how do we explain its many malfunctions? And to what extent can we assume that more co-ordination and even integration in managing and governing the coastal zone will make the coastal ecology more resilient and improve the welfare of coastal dwellers?

Rapidly Increasing numbers of Actors, New Use-Forms and Conflicts in the Coastal Zone

As mentioned above, the coast can conveniently be defined as the thin border between land and sea, thus embracing many environmental gradients, a high spatial diversity of natural habitats and a temporal diversity due to dynamic processes. Thus, the coast is therefore among the most dynamic and fastest changing landscapes on earth¹. It is now increasingly accepted that the natural coastal environment is comprised by series of complex, multidimensional, and often non-linear systems. In the past, problems were often characterised by visible or relatively easy identifiable single factor cause-and-effect situations that could be dealt with through high-probability risk assessment. In contrast, in the present situation the dynamic, complex and multifaceted character of cause and effect in the coastal zone has been acknowledged. Consequently, it is necessary to place more emphasis on the doubts and the uncertainties, and therefore on the ecological “precautionary principle” (Kildow 1997:249).

Another feature of the coast that causes additional difficulties compared to many other sectors, is that many coastal resources, particularly those on the wet-side, are public property or so-called common pool resources. Common pool resources share two basic characteristics, indivisibility and interdependency, which both call for improved co-ordination or co-operation among the user-groups. First, such resources are difficult to transfer to private

¹ In western Europe, more than 50% of all the indigenous plant species can be found in the coastal zones (Meulen & Udde de Haes 1996:402). The coastal zone account for 8% of the global surface area and probably as much as 25% of global primary production (Turner et al. 1996:161).

ownership as they cannot be easily divided. Secondly, the actions of one party are affected by or affect the outcome of the acts of others'. Thus, the coast does not only cause uncertainties and complexity in terms of biology, it also demands unusual and complex institutional arrangements (Clark 1997:192).

The tendency towards increased human pressure and more mutually exclusive use forms on the coast is most likely to increase further. These processes cause, first, increasing tensions between protection of natural resources on the one hand and economic development based on coastal resources on the other. The sector agencies responsible for protection and industrial development will therefore find themselves in even more serious conflicts in the future. Although it is now acknowledged internationally that humans are part of the ecosystem and that environmental management schemes have to be able to serve both social and environmental needs, it is not at all clear how this will be implemented in practice at the national level. Second, tensions between various contradictory uses and users are increasing. Often the sheer scale of use makes seemingly non-contradictory uses incompatible. Uses that were logically non-compatible could at a small scale co-exist in separate places, but when scales increase, the incompatibilities become visible, such as mass tourism vs. expanded nature protection and popular leisure home development vs. public access to beaches. Third, there are use conflicts related to whether short term or long term considerations should be given preference.

Theoretically, it make sense to distinguish between space related and resource related conflicts. Space related conflicts occur when two or more incompatible uses are taking place or planned in the same area. Resource related conflicts, on the other hand, takes place when two or more stakeholders or stakeholder groups have opposite interests when it comes to the extractive use of certain resources within the same area. Often these two types of conflicts are difficult to separate, as for instance, in fish farming in open cages, the locality is the nature resource, while in capture fisheries the fish is the resource. However, at least some marine resources straddle in and out of a given areas, while a locality per definition is stationary. Another conflict that frequently occur, and that may apply both to space and resource, is related to adverse effects or negative externalities, i.e. when one type of use is harmful or unfavourable to other uses even if the use-forms are not competing as such over the same coastal space or resources. All joint uses do not have to be conflicting. Uses can also be neutral or even mutual beneficial.

Further, the level and nature of conflicts are highly dependent on the extent to which the uses are consumptive (subtractive) or non-consumptive (non-subtractive) (e.g. nature protection), and whether they are transitory (fishing) or permanent (fish and shellfish farming).

Another type of conflicts are those pertaining to interdepartmental power struggles and jealousy. Here institutional conflicts occur for a variety of reasons, such as divergent legal mandates and different missions, differences in perspectives, in training, and in how the coast is perceived. A useful distinction is made by Cicin-Sain, Biliiana & Knecht (1998:19), who distinguish between interagency conflicts (among agencies at the same level of government) and intergovernmental conflicts (between different levels of government).

The question, then, is which institutional arrangements are most capable of simultaneously co-ordinating multi-use competition, environmental protection, and socio-economic development. So far the most common approach world-wide when addressing these issues has been integrated coastal zone management (ICZM). ICZM gives some general process-

oriented guidelines about how to approach coastal zone management problems. Typically such guidelines ask for improvement of management along three crucial lines:

- Improved information about the state of the coastal zones and about the impact of human activities on coastal ecosystems.
- Improved co-ordination of both policies and actions between the different levels and the different sectors of administration.
- Improved consultation with and participation of the relevant stakeholders (EU 1999)

But typically such guidelines leave it to the given country to analyse the particular problems and to find their own solutions to conflicting use of coastal resources. It is thus mostly guidelines for procedural matters, aimed at improving the legitimacy of the planning and management processes. When the conflicts are hot, as between ecosystem rationality and economic rationality, as between wild and domesticated organisms or between traditional and modern enterprises, these international guidelines have no solution to offer.

3. Some analytical perspectives

As briefly mentioned above, the Coastal Zone Institutions can be analysed as multiple layers of norms, rules and institutions, each with their own rationality, but without an overall rationality that makes them work nicely together.

Nor have the different coastal institutions done so in the past, but because the total human impact on coast was limited, these institutions did not engage in numerous conflicts with each other. In the age of late modernity, institutional conflicts are numerous and the challenge of integrated coastal zone management can also be compared to a comprehensive political-administrative project. The ultimate indicator of its success or failure is at the end of the day the state of the ecosystems of the managed areas, vulnerable ecosystems that a number of harvesting, cultivating and leisure activities are dependent on. That makes integrated coastal zone management (ICZM) somewhat different from public policy making in many other fields, where political “failures” often have less dramatic consequences. In addition, we have the problem that nature does not normally speak for itself; nature’s “interests” have to be “interpreted” and advocated by human agents. Their interpretation is, however, highly dependant on their “social construction of nature”, and other actors interpretation of the first interpretation is again dependent on what interests this represents. Taken together with the extremely complex wet/dry coastal ecologies, these special epistemological factors make coastal zone planning and management quite different from shore-based management alone.

The concept of ICZM could be regarded both as a goal to be reached as well as a method for analysing inter-related and complex management situations. The literature has tended to focus primarily on land-sea interface and methods for better management of multiple use of such areas. Analysis of conflicts related to economic activities in the littoral zone, siting policies, protection of wetlands and public access to the shoreline are some of the basis for increased efforts of co-ordination and more integrated management. But the methods of planning and user participation to prevent and solve user conflicts that are frequently used in such situations are mostly confined to land management. In most European states, land management, also on the shore, is taken care of by local authorities. This shore-based analytical perspective on coastal zone management is found in the large literature tradition of planning. Both this literature, and the large literature on efficiency and legitimacy in local government is utilised in this report.

The sea part of the coast has in most European countries been treated as a national resource to be administered by the king or the state for many hundred years. Apart from some surviving “coastal commons” it has been the Kings who have secured the public access to the coastal seas. These public rights of access to shore and coastal waters were derived from Common Law, Roman Law or the Scandinavian “Right of Way”. It is here necessary to make an analytical distinction between a public right of access – which is for everyone (in Scandinavia codified as “Everyman’s Rights”) and a common right of access which is common only to a distinguishable group of right-holders. While formal laws for hundreds of years have specified the coastal sea and the shore itself as public property, local and informally evolved rules have often treated this as common property to a fishing village or a group of coastal dwellers like a guild of fishermen or a conglomerate of oyster farmers. In very few countries do we find a tradition where planning in the wet part of the coast has been taken care of by local political authorities.

The recent trends of institutional development on the coast poses serious analytical challenges, which are not answered yet. The formerly free access high seas have become the public property of coastal nations out to the 200 mile line, and most countries struggle to develop good managing tools for the recourses in the EEZ. The land side of the shore is under heavy pressure of privatisation by both urbanisation and by the tourist and leisure industry. As planning tools – and local authorities - in most countries are tailored to development efforts, this processes will continue and the land side of the coast – apart from the 50 or 100 meter shore zone - will to an increasing extent be planned, zoned, developed, built-up and owned by someone.

What then of the coastal seas – what are the analytical challenges here? Coastal waters areas have traditionally been common grounds for coastal dwellers. The tradition of planning and local government is considerably weaker than for the land side of the shore, often due to unfortunate distinctions between laws that apply to the land and those that govern the sea. The *de facto* property rights have been a confusing mixture of traditional clan – or farm based rights to net or weir- sites, informal common property rights to fishing grounds and reefs and formal public property rights with the state as custodian. In addition the nation states has been the central policy makers, the crucial mediators and peace-keepers as well as the managers of resources utilised by important sectors like fisheries, aquaculture and sea-weed harvesting. Policy-making and conflict resolution has therefore been different in the “wet” part of the coast compared with the land side and adjacent areas. Another body of literature, not directly linked to ICZM and the co-ordinated management of the shoreline areas, has focused on marine waters as common property resources, on fish stocks and sea-territories etc. as basis for alternative ways of organising resource based activities. Social sciences have given substantial contribution to this literature focusing on aspects as property rights, decision-making rules, distributive mechanisms, institutional design and conditions for co-operation (Pinkerton 1989, Ostrom 1990, Jentoft 1998). This new and rich literature is also utilised in this report.

New technological and organisational developments have brought about an increased and diversified use of the coastal zone, which tends to bring the land and the sea side of the coast closer together. Thus the institutional incompatibilities and contradictions between the sea side and the land side become more visible. Introduction of the 200 mile extended economic zones have brought both former “open access areas” and dormant traditional “coastal commons” into the public realm and initiated constitutional debates in most European countries – as well as in the European Commission itself. The call for more information, co-

ordination, participation and consultation in the form of “Integrated coastal Zone Management” is a symptom of this kind of debates. The role of scientific analysis here is partly to deconstruct such debates and make clear to the public what the debate is really about, Partly the role is to construct new and improved ways to govern coastal resources in the future.

Related to the constitutional debate on how to govern the European coasts in the future, a rather large body of literature about ICZM has already developed, focusing on integrated coastal zone management as a solution. The main point here is to treat the shore line and the belonging coastal waters as a single interacting, functional unit. According to Clark, the key will be a unitary management of the zone (Clark 1997). Moreover, it has to be defined functionally rather than geographically. Thus the extent of the arena has no well defined and fixed limits. Or as put by Clark it should include “...all land areas affected by the sea and all coastal waters influenced by the land” (Clark 1997). Governing such areas most often implies involvement of all governing levels; state, regional and local public authorities as well as private actors and organisations. And in a number of cases, the state is often the key actor, and not always the neutral mediator.

ICZM is introduced into this debate as an answer to managing problems where sector approaches have failed and where co-ordinated action seems to be needed. Experience and scientific research tells us that this is not often achieved by top down policies and authoritarian management, but by the co-operation of those affected. High legitimacy of both goals and means is hardly found where a policy has been imposed, but where it is elaborated in a co-operative manner with participation of those affected. The arenas for learning and problem solving, and the processes that goes on here could thus be said to be more important than the printed ambitious coastal master plan. And the mediator role probably has become more important than the formal decisional one in the case of integrated management. This is because public policy making in many cases is dependant on bringing opposing interests together for problem-solving, bargaining and compromises, rather than top down rule by decree or ministerial decision. The analytical perspective of an incremental policy-making, is for such reasons advocated as having more explanatory value in this context than simple models of rational choice.

It is argued that developing ICZM does not necessarily means developing completely new institutions. Often it will only imply bringing about co-ordinated action of those established in a more sustainable ecosystem perspective. Some of the established actors are well rooted in managing coastal resources already, backed by formal organisations and established political-administrative networks, thus having a well established perspective on problem formulations and solutions from their own experience and interests. Likewise there are other clusters of interests, dominating in other fields of the coastal arena, but with other interests and perspectives on the prime coastal needs and solutions to coastal problems. Not all of them are confronting and disposed for conflicts, but some are. And as the total base of coastal resources are taken into use to an increasing degree, the potential and number of conflicts is rising. Multiple use of the resources or areas, linking sea and shore, therefore involves a multi-institutional perspective on management. Supreme and co-ordinated management is therefore an overwhelming political task, if possible at all. Or as stated by Cicin-Sain and Knecht (1998):

“The goals of integrated coastal management are to achieve sustainable development of coastal and marine areas, to reduce vulnerability of coastal areas and their inhabitants to

natural hazards, and to maintain essential ecological processes, life support systems, and biological diversity in coastal and marine areas. Integrated coastal management is multipurpose oriented; it analyses implications of development, conflicting uses, and interrelationships among physical processes and human activities, and it promotes linkages and harmonisation between sectoral coastal and ocean activities.”

Such governing ambitions constitute major challenges to government and governance in general, although the belief in this particular kind of solution is probably considerably bigger than the governing capacity in most legislatures or local political bodies.. Nevertheless, international literature on the field of integrated coastal zone management is growing and documents both failures and progress.

The Turn of the Tide² Experiences made and lessons learnt in the 20th century

The core of a modern ecosystem approach is to maintain and improve the resilience of the life-supporting systems. In general, they will attain a higher resilience the higher the biological diversity, i.e. the more ecocycles of “exploitation, conservation, release and renewal” we can maintain (Holling and Sanderson 1996). Humans are now considered an integrated part of all ecosystems on this planet and has responsibilities towards these life-supporting systems (UNEP/CBD/COP/4/Inf.9, 1998). So although King Canute felt his royal powers were empty and worthless in the face of God’s power, the responsibility of humans towards nature is all the more demanding. The turn of the tide symbolises that at an area planning and area management approach to the coastal zone is not sufficient, because the coastal waters are fluid and the coast itself is a dynamic environment, the management efforts must increasingly include the use, the protection and the enhancement of the coastal resources themselves. Since humans are also an integrated part of the coastal ecosystems, the management of these must also include the management of human enterprises in the coastal environment.

In this endeavour it is useful to distinguish between a theory about ICZM and a theory for ICZM. While the former is mainly descriptive and explanatory, the latter is principally prescriptive and to some extent normative. Having a clear instrumental purpose, the literature on ICZM has often attempted to establish general insights, norms and perspectives to improve and guide present and future ICZM. However, as a global trend with substantial normative content, ICZM did in the last decade often travel as general blueprints and “institutional modes” from one country to another without taking sufficiently into consideration the national, regional and local differences in terms of structure of the problems, cultural traits and the inherited institutional infrastructure. Thus, the problem with theory for ICZM is often that these general principles are imported without sufficient consideration of the local contextually embedded elements. Theory about ICZM, on the other hand, may contribute exactly to emphasise these contextual elements which so frequently are crucial to the success and failure of ICZM. On the other hand, this type of theory is often too descriptive and contextualised to provide clear general guidelines for actions which can be relevant to other cases.

² “Let all men know how empty and worthless is the power of kings. For there is none worthy of the name but God, whom heaven, earth and sea obey”. So spoke King Canute (Knud) the Great (Viking King of England, Denmark and Norway), the legend says, seated on his throne on the seashore, waves lapping round his feet. Canute had learned that his flattering attendants claimed he was "So great, he could command the tides of the sea to go back". Now Canute was not only a religious man, but also a clever politician. He knew his limitations - even if his attendants did not - so he had his throne carried to the seashore and sat on it as the tide came in, commanding the waves to advance no further. When they didn't, he had made his point that, though the deeds of kings might appear 'great' in the minds of men, they were as nothing in the face of God's power.

So both theory for and theory about ICZM are necessary, and the interplay between them is vital. While the theory about ICZM are critically investigating the problems and requirements inherent in the concept, theory for ICZM are extracting general insights and common denominators among the success stories.

Integrated management is also more demanding than traditional area planning and the managing of separate coastal resources by specialised sector management. In its full consequence it means the integration of both the objectives of the developmental path and the multiple instruments needed to reach these objectives. But it also implies a full integration of all relevant policy areas pertaining to the coast, as well as all sectors and all levels of administration. And it means integration of the terrestrial and marine components of the target territory – or ecosystem (EU, 1999).

The term integration can be divided in at least four basic categories³. First, a distinction can be made between technical or administrative integration and political integration. Administrative (sectoral) integration applies to situations where the main integration is made by and between the bureaucracies, while political (territorial) integration applies to cases when representative political bodies are in charge of the integration between the given institutions. Often political integration will be regarded as more legitimate among the population, however, often political bodies are less prone to make hard “unpopular”, but necessary, decisions.

A second distinction can be made between integration as a process and integration as a result or outcome. Integration as a process emphasises the process during which integration is achieved or sought. The focus here is often on the participation of stakeholder groups, negotiations and deliberations. Integration as an outcome is oriented towards the degree of integration achieved, without looking too much at the way the integration is achieved.

Third, it may sometimes be useful to distinguish between voluntary integration and hierarchically forced integration. Voluntary and spontaneous (bottom-up) integration is the one achieved when parties mutually adapt to each other in a non-coercive way, while hierarchically imposed (top-down) integration is imposed through legislative or other measures. Integration can also be achieved through standardisation of processes, knowledge etc (Naustdalslid 1992).

Integration literally means “to make into a whole, unify”. In the full consequence ICZM should imply a total restructuring of all the relevant institutions dealing with the coastal zone and a formation of one organisational or institutional structure. In most cases of ICZM this has certainly not been achieved, and is usually not even aimed at. In practice, ICZM is mainly about improving co-ordination between different public agencies and between these and important stakeholder groups. Co-ordination is also a well-established concept in political science, while “Integration” is not. In this respect, Co-ordinated Coastal Zone Management could be a more precise and preferable term. An alternative is to regard full integration as an unachievable goal or only an ideal type, while some sort and level of co-ordination is both an achievable end and a mean to achieve the goal of a more sustainable coastal development.

³ This is based on an elaboration of Naustdalslid (1992:21)

4. To practice: Planning, Managing or Governance

In the last section we have seen how Integrated Coastal Zone Management evolved and was presented as a solution to a number of problems in coastal areas, caused by insufficient coherent information about the coastal state of affairs, insufficient co-ordination between policies and different levels and sectors of administration, and insufficient participation of all relevant stakeholders. We shall now see how this "solution" has been applied in practice, how it can be applied and what tools we would need to assess the possible success of its application in different countries.

In brief, ICZM can be defined as

"..[the]] integrated planning and management of coastal resources and environments in a manner that is based on the physical, socio-economic and political interconnections both within and among the dynamic coastal systems, which when aggregated together, define a coastal zone." (Sorensen 1997:9)

The focus of ICZM has in most western countries usually been on conservation and management of the publicly owned resources of the "wetside" of the coast (Clark 1997:192). ICZM provides a platform for formal conflict resolution methodologies and constitutes thus a framework for resolution of arguments over how, when, where, and by whom the coastal resources should be exploited. Practical ICZM can be in some respects be defined as a continuous, adaptive, day-to-day process that consists of a set of tasks, typically carried out by several or many public and private entities (Bower & Turner 1998:41). Most definitions of ICZM stress the dynamic nature of the ICZM process and its emphasis on integration of the existing sectoral approaches (Olsen et al. 1997:157). In a meeting of GESAMP the goal of ICZM was defined as:

"to improve the quality of life of human communities who depend on coastal resources while maintaining the biological diversity and productivity of coastal ecosystems" (GESAMP 1996).

Thus, ICZM will usually aim at maximising the long-term human benefits of the coastal zone by maintaining its fundamental ecological processes, and at the same time serve as a practical method of meeting short-term development objectives (Burbridge 1997:178). However, the resources and the ecological processes in the coastal zone can generate a wide range of different "products" and "outcomes", and as many of these are incompatible, conflicts are likely and trade-offs becomes necessary. Both the number of different stakeholder groups and the sheer scale that some of these resources demands, further complicates these management processes (Bower & Turner 1998:42). With human modification of coastal ecosystems, multiple problems, resource exhaustion and increasing complexities will therefore always be the point of departure for any management exercise. Therefore, coastal zone management requires balancing of a wide range of ecological, social, cultural, governance and economic considerations according to the socially/politically desirable mix and priorities the given ICZM decision-making body is aiming at. The challenge, then, is for ICZM to achieve viable agreements on compromises and social choices to support such multiple goals. In addition, the ICZM processes must be dynamic and adaptive in order to cope with changing circumstances in the coastal zone and with changing perceptions, new knowledge and legitimate social priorities.

In the ICZM literature the word integration has encompassed meanings such as the horizontal integration of management tasks, of scientific disciplines, of autonomous economic sectors, of

semi-independent government agencies and of free-floating planning actors and user-groups. It also has the ambition of the vertical integration of all levels of government and non-governmental organisations relevant to coastal zone management. The point of departure here is that far-reaching horizontal and vertical integration are necessary for efficient and effective planning and management of the coastal zone. As shown by Sorensen (1997:7) one of the most important lessons learned from the history of coastal zone management is that these two forms of integration are both the keystone of the practice as well as its largest challenge. It is a challenge partly because such an approach requires a commitment to power sharing, partly because disparate functions and splits in jurisdiction among different levels of government must be co-ordinated in a way that requires true co-operation between previously narrowly focused single-sector agencies. In their more normative recommendations, most of the literature therefore concludes that the aim of ICZM should be to co-ordinate and integrate the various stakeholders and interest groups, single-sector agencies and administrative levels, and not to replace them with new organisations. The point of departure is that sustainable coastal development can only be achieved through better co-ordination and integration of the existing actors (Cicin-Sain & Knecht 1998:2).

If we follow this way of reasoning, ICZM requires integration and co-ordination on many levels and in many directions. Both jurisdictional levels, different governing agencies and policy- and decision-makers, sectors and stakeholders, scientists and disciplines have to be brought together.

"Integrated management has evolved from recognition that decision-makers should decide and act in a co-ordinated, integrated way to reduce costs and minimise the losses that result from uncoordinated, duplicative management. Integrated coastal management recognises that the multiple units within and among governments, and the stakeholders they represent, must join together to embrace the appropriate boundaries of ecosystems or physical systems that need to be managed" (Kildow 1997:254)

Thus, ICZM should encompass political, administrative, economic and spatial elements in order to optimise the ability of multiple interests to reach consensus on complex issues in the coastal zone. It is precisely the lack of co-ordination of the different resource uses and constraining policy regimes, together with inadequate knowledge of the dynamics of the coastal processes and systems that have resulted in inadequate overall management. Market failures have often aggravated governmental intervention failures, as resource allocation decisions frequently are made without the guidance of information on the externalities involved, and are therefore prone to economic and environmental loss or damage (Turner et al. 1996:166).

There is also a need to distinguish ICZ Planning from ICZ Management. Planning can be described as a tool that provides a structure for the systematic collection of information, and which guides policymaking and decision-making processes. Coastal zone planning is according to Sorensen:

"a process of comprehensively analysing coastal systems, environments, natural resources, and uses in order to produce a framework (i.e. a plan) to guide decision makers in the immediate and future allocation of scarce resources (e.g., space, land capital investments, fish, water) among competing interests (stakeholders)." (Sorensen 1997:9)

Sorensen also claims that there has been at least three major motivations for planning in the coastal zone: to escape the tyranny (the cumulative impact) of small decisions, to reduce the administrative and political costs of permit letting, and to provide an arena and vehicle for community-based management. In the comparative chapters of this report we will examine closer these and other motivations for ICZ Planning in the 3 countries.

Management on the other hand, includes decision-making processes, the implementation of decisions, and the monitoring and policing of regulations decided upon. According to Sorensen (1997:9), the history of ICZM has shown that a management program, in addition to planning also should include applied research, education and public outreach. We shall briefly see how the practice of ICZM is treated in the most recent literature, and start with the more beneficial aspects of real life management exercises, later moving into the more problematic sides.

4.1 Measuring the benefits of ICZM

The benefits and effects of ICZM can be most readily discerned if they are related to some baseline conditions in the given coastal zone (Bower & Turner 1998:50). However, comprehensive and accurate baseline information is often lacking. Another critical problem is how to define the "baseline scenario", i.e., what would have happened in the absence of ICZM? The point is that the "business as usual" assumption is unrealistic as every system will be subject to continuous processes of adaptive changes, related to learning, technological, economic, demographic and ecological changes, etc.

The pressures that influence or drive the outcomes of an ICZM program are numerous and complex, and it is difficult to establish exactly which cause led to which effect. In addition, ICZM aims at a moving target as both the circumstances, objectives and priorities evolve and change over time, even if the goal of sustainable coastal development remains constant. Further, as stated by Olsen et al., the challenge for evaluating an ICZM process is

"inherently complex since we must make judgements on a "process" that is designed to avoid conflicts and ecosystem degradation by identifying problems and opportunities proactively and acting upon them." (Olsen et al. 1997:160)

Another problem that emerges when evaluating an ICZM process is that many of the objectives set for ICZM are not clear and their interpretation often varies among different interest groups (Burbridge 1997:175). The trade-offs that the various interest-groups will accept may be different, and vary over time. Also, coastal management initiatives which may be successful in fulfilling local needs, may not reflect national priorities. Whether this is good or bad in relation to some evaluation criteria causes ambiguity in most evaluation exercises.

Further, social, cultural, economic and environmental consequences have to be addressed and incorporated in any ICZM evaluation scheme. The hard part, then, is to strike the right balance between the limitation of opportunities for economic development versus a socially acceptable reduction in environmental quality. As Burbridge (1997:178) points out, what constitutes an acceptable balance will vary among different communities and will also vary within a community over time.

Bower & Turner (1998:50) distinguish five main benefits of ICZM:

- 1) Mitigation benefits are comprised of damage reduction and restoration benefits. This type of benefit is mainly related to the preparations for and handling of natural hazards such as storms, floods, oils spills etc.
- 2) Enhancement benefits are achieved through increased outputs from the coastal zone, either by increase in net output or by reduced conflicts among the users.
- 3) Preservation benefits are the benefits related to the preservation of an area or an ecosystem, and includes both use benefits and non-use (existence) benefits.
- 4) Indirect economic (or secondary) benefits stem from "second round" effects of measures applied to produce benefits in the first three categories. It is, however, important to keep in mind that such effects always will be secondary, and not the primary goal of ICZM.
- 5) "Option benefits" refer to the potential gains from an ecosystem conservation policy which seeks to preserve as many future coastal resource use options as possible. Ecosystems may have qualities in the future, such as medical, historical, and scientific values - that are currently not valued or known. Thus, species and habitat protection can be necessary for reasons that are both ethical and based on long term economic self-interest.

4.2 Barriers to Institutional Integration and Co-ordination

A key to successful ICZM is horizontal and vertical integration whereby the disparate private and governmental sectors are brought into a single lateral framework. Thus, a major benefit of the ICZM approach over the traditional sectoral (single use) approach is that it highlights the necessity of integrated, multiple use instead of single use of the resources and areas in the coastal zone. ICZM is substantially a co-operative venture. However, the greater the number of sectoral divisions and user-groups, the greater is the potential for conflict. As stated by Clark getting the co-ordination mechanisms working right is clearly the most difficult part of the creation of an ICZM-type program (Clark 1997:205). And one of the frequent challenges most ICZM efforts face are inadequate and competing institutional and legislative frameworks. The dispersion and poor integration between administrative bodies at different levels and with different scopes, are striking in most countries.

The coastal systems are significantly affected by the cumulative impact of the decisions and actions taken by the local users and the concomitant decisions made by local, sub-national or national government bodies (Sorensen 1997:6). Thus, in ICZM it is important to distinguish between the politically designated management area, the ecological area and the demand area (Bower & Turner 1998:48). The politically designated management area is the area politically designated to be managed by one or more public or private agency in accordance with assigned management responsibilities (jurisdiction). The ecological area is the surface area that mirrors the range or spatial scope of a given ecosystem. The demand area is the area from which demands are exerted on the given resource. The very basic, but important, point made by Bower & Turner serious barrier to successful ICZM.

However, we need not only to address the question of how sectoral integration and harmonisation of sectoral policies can be achieved. Of equal importance is the question of

who is supposed to define the specific objects for the coast and their resources, and the appropriate means to achieve them. As suggested by Davis,

“any answers to these questions are bound to generate such conflicts that, unless they can be managed with the direct involvement of the stakeholders, they will seriously undermine the latter’s willingness to co-operate and, thus, the effectiveness of ICZM decisions”. (1998:379-80)

This means that unless great attention is paid to the crucial process of formulating, negotiating and agreeing on objectives for coastal development, this part of the ICZM exercise can become a major barrier to the integration of different coastal interests in the management process.

4.3 The Question of Participation, Representation and Scope

Many of the questions that are involved in ICZM are destined to generate conflict, and will undermine the stakeholders' willingness to co-operate, unless the “public will” in some form is incorporated in a proactive, participatory and conflict minimising manner. The overriding problem is of course to co-ordinate and formulate the “public will”. The level of public support for regulations in the coastal zone generally corresponds to the level of community and/or user-group involvement in the planning and decision-making process. Thus, in ICZM, experience show that it is of great importance to avoid paternalistic and authoritarian decisions and prescriptions or blueprints based on expert-based analysis only. Such decisions tend to ignore the potential for conflict, as they are foreign to the fundamental logic of these issues. Some authors argue that instead of aiming at the “best policies” derived by expert-based rational analysis, the goal should rather be to seek to identify the “correct” politics that can draw the maximum possible stakeholder support (Davos 1998:380).

It is probably correct to assume that democratic, participatory, and community-based management is required to address a number of the most common ICZM issues. This is because the best resource management is rooted in local communities where the users are empowered to manage and conserve the coastal resources themselves without external policing. Actually, capacity building and institution building or strengthening are often sited as two of ICZM's achievements (Sorensen 1997:15). Instead of expert-based blueprints, ICZM should therefore rather be seen as political processes whereby conflicts are arbitrated among stakeholders who have differing interpretations of what the underlying coastal problems may entail and what may be the most appropriate solutions (Davos 1998:380). From such a point of view it is only through voluntary and comprehensive participation that ICZM can produce the legitimacy and support among user-groups necessary to achieve some degree of consensus and lead to viable and lasting solutions.

The scant practical experience around the world also show that young ICZM authorities may have both genuine democratic and more pragmatic reasons for stimulating public participation. Often such participation is used also as a vehicle for managing public involvement or assessing the political feasibility of certain alternatives

It is necessary to emphasis that ICZM is the process of managing a wide range of coastal zone resources with an interplay between decision-making agencies and a large number of stakeholders. Often the coastal area under a co-ordinating management authority will be larger than the typical coastal village in that country. In most cases therefore, the various

stakeholders and actors will neither know each other well nor belong to a tightly knit “community” in any traditional sense. Thus the scope for rapid mobilisation of trust and social capital may be limited, although both might be present in the coastal societies in some form. Through stakeholder involvement a co-operative approach to ICZM may establish the foundation for building a habit of co-operation and to conform with collective agreements (Davos 1998:281)

According to this view, not only the substantial and procedural aspects of ICZM requires participation from stakeholders, but also issues such as agenda setting, monitoring and control are factors that certainly affects the user-groups’ optimism about a given ICZM effort. So if ICZM in this way are seen as genuine political processes, the question is then whether political bodies, instead of administrative, professional and “expert” echelons, should constitute the core of the ICZM processes? Decision making processes that includes politics are often termed governance, and if this approach to coastal development gains acceptance, it would be more correct to use the term Integrated Coastal Zone Governance (ICZG) instead of Integrated Coastal Zone Management (ICZM).

But this would again make coastal development, and the quality of European coasts dependent on the quality of the political-administrative structure in the given region or country. Weak professional standards, corruption, nepotism and favouritism will lower the long term quality of the coast. According to Clarke (1997:08), it is in any case an advantage that local government is involved in ICZM efforts, as they are the ones who govern where development should take place, where resources are found, and as it is their community members who will feel the benefits or the lack of benefits. Unless resource use options are allowed to grow from within the communities, it is unlikely that they will be regarded as legitimate and be successfully adopted. It is, however, always a risk that local governments will be very vulnerable to development proposals which implies growth in employment and tax revenue. The short-term economic benefits these can offer will always be attractive. In addition, conservation measures are generally poorly regarded by fishers and fish farmers if such measures restrict their actions and options. In many small rural communes along the European coasts these constitute strong and dominant interest-groups. But in a good ICZM-process, both social, cultural, economic and environmental consequences have to be addressed and incorporated. The hard part, then, is to strike the right balance between the limitation of opportunities for economic development versus a socially acceptable reduction in environmental quality. The quality of the political-administrative structure must therefore also be evaluated as part of the assessment of the success of ICZM-processes, and it might in some cases be necessary with wider groups of stakeholders and larger local government to achieve this balance and reach a more democratic and legitimate coastal governance on a regional level. As Burbridge points out, what constitutes an acceptable balance will vary among different communities and will also vary within a community over time. (Burbridge 1997:178)

Clark sums up the challenge of coastal Management cum Governance in this way:

“The pathway to ICZM is strewn with roadblocks. All the usual resistance to government intervention may be there along with high levels of interagency strife and private sector interference and, often, low levels of scientific information and public support. The ICZM advocate must be cautious and willing to negotiate” (Clarke 1997:213)

In general Coastal Governance is more costly and less “efficient” than expert Coastal Management, but the results of good governance are usually better, more legitimate and more long-enduring when also the costs of monitoring, policing and possible sanctions are included in the evaluation.

5. The Nature of Different types of resources

In the previous sections we have seen how management – or governing of the coastal environment increasingly involves the management of the different kinds of coastal resources. In practice, coastal planning as merely the planning of coastal areas is insufficient, true and effective ICZM must also include the most crucial resources of the coast. The nature of the resources are here of importance, both for the degree to which resources can be managed and for the types of rights that develop around the resources and the resulting institutional arrangements.

It can be useful to distinguish between 3 different classes of coastal resources that require different kinds of management: landscape resources, ecosystem resources and stock resources. In real life the distinction between the different resource types can never be absolute, as they are highly dependent on each other. Coastal landscapes are dependent on ecosystem resources like corals and beach vegetation, ecosystems are dramatically affected by coastal erosion or accretion and stock resources are highly dependent on fundamental ecosystem properties. The customary way to think about coastal zone management is that the use of landscape resources are the object of planned use and development, the ecosystem resources are the object of conservation and enhancement efforts while the stock resources are the object of extraction and constitute the basis for economic activity. Most management efforts are based on this kind of management rationale, and a number of institutions are created with this division in mind.

Thus the Fisheries Departments manage the flow from the stocks of different fish species, but has little concern for the coastal landscape that supports the coastal ecosystems that are crucial for the life cycle of the fish. Thus numerous Local Governments plan and manage the landscape resources, but has little concern for the aggregate influence of development projects on the life supporting ecosystems of major commercial fish stocks. And thus the conservation authorities establish and manage coastal and marine parks for «protection» of ecosystems, but with little concern for maintaining coastal culture and coastal settlement.

The overriding question is whether better co-ordination of these different ways to manage distinct coastal resources is sufficient to achieve an integrated management. Or whether the integration has to start with the fundamental view of the resources themselves. The danger of the moderate improved co-ordination is that it tend to maintain the separate sectoral worldvisions and can strengthen the intersectoral jealousy in an increasingly more sophisticated co-ordination game. The danger of the integrated resource management approach is that such paradigmatic shifts among both professionals and politicians can take up to one generation - as the time it takes to fill existing positions with newly trained minds - and as retraining of existing minds is futile. In real life, a combination of the two approaches is probably necessary in order to quickly improve on the fragmented management of European coasts. And as with most compromises, this implies imperfect solutions, struggle between paradigms and organisations with opposite interests and a long period of institutional strife before a new institutional structure emerges. Most of the European coastal states are today

characterised by such lengthy struggles over the institutional developments in the coastal zone, these struggles are the main common theme for the three next chapters on coastal developments in Norway, Greece and France.

Three crucial concepts that helps to understand the integrated nature of coastal resources have been mentioned above:

- The stock-flow properties of coastal resources
- The upstream and downstream effects of coastal resource use
- The diversity and resilience properties of coastal resources

The long term flow of benefits from a stock (e.g. of fish), will always be dependent on the conditions of the stock - and on the life supporting ecosystem resources for the stock. A flow management institution must therefore to a greater extent take into consideration the conditions for keystone ecosystem resources on the coast. Here a limited multispecie flow management is not a sufficiently integrated approach.

Any coastal resource use depends on what happens upstream. This means that human influence on watersheds and rivers have deep effects on coastal environments. Both regulation of spring floods, reduction of water due to irrigation needs and river pollution affects both estuarine and coastal landscape and ecosystem resources. Industrial fisheries on the high seas on migrating fish stocks, have downstream effects for coastal fisheries on the same fish stocks. And coastal fisheries on spawning fish stocks have downstream effects on off-shore fisheries on the adult fish. Thus most coastal resources are interlinked in many ways and there are no single maximum sustainable yield from a given stock without reference to other stocks in interdependent ecosystems.

Sustainable coastal development is difficult to achieve by rational planning and expert management, given the high degree of interconnectedness at both the landscape level and the ecosystem level on the coast. Therefore sustainability tend to be more linked to the maintenance of a high level of biological and genetic diversity and through this a high level of resilience - or robustness against external shocks. Whether these shocks are physical, chemical or biological, a more resilient coastal ecosystem will have a greater potential for recolonisation and recovery than a less resilient system. In managing coastal and marine enhancements, cultivations and sea ranching operations, it is therefore important that diversity and resilience is maintained.

To analyse closer the long term institutional struggles over management - or governing - of the different kinds of coastal resources in different European countries, we need some tools from institutional analysis. These are to a large extent connected to the types of rights that has developed around the different kinds of resources.

5.1 Rights to different resources and institution formation

A number of theoretical questions in governing marine resources are connected to the fundamental difference in physical properties of the marine environment compared to the terrestrial environment. Human occupation and settlement is necessarily different on dry land compared to the open sea. Except for parts of Holland and South East Asia, it is therefore only natural that the fundamental institutional prerequisites for rules and norms are very different onshore and offshore. Some kinds of property rights are more difficult to establish in a fluid environment where everything moves and fluctuates, consequently the attached rights

and duties are usually crafted differently from what we find ashore. There is a long debate whether sea tenure systems have evolved genuinely from ancient usage of typical coastlands and “home-seas”, or whether they are more recent copies of land tenure systems that has been adapted to the various needs of orderly sea-use. In this debate, the evolution of institutions for reclaimed sea-beds (e.g. *wasserschappen*, see *Raadschelders 1992*), coastal wetlands (e.g. salt-flats) and estuarine areas have often been used as prime examples of an evolution of sea-tenure systems *sui generis*. These show remarkable variety throughout the world, often with changing institutional properties corresponding to both the ecological and cultural conditions (see e.g. *Ruddle & Zhong 1988*). On a world scale therefore, there might be foundations for development of genuine theories of sea tenure.

The European scene, however, is made up of a complex composite of land-tenure and specialised sea-tenure institutions. But a few studies of indigenous salt pond institutions and northern beach farming with sea weed manure tells us of an indo-european tradition of crafting institutions also for the coastal fields. However, as a crucial part of large scale development efforts by public authorities, a large portion of European coastal wetlands and estuaries have been turned into military fortifications, landfills, harbour areas or industrial areas, and locally crafted institutions for sea tenure have to a large extent been overrun and exterminated by state actions - from as early on as the days of the Roman Empire. Also in modern times has reclamation of tidal flats been carried out by increasingly larger scale public works, (e.g. in Holland) with the effect that state management rationales has taken over much of the management of these kind of coastal agro/aqua-resources. In Europe therefore – to be fruitful, research on sea-tenure has to be extended into the wider field of marine resource management. Here it is no longer the limited intertidal zone that is of interest, but both the coastal strip of land bordering the sea (e.g. the 100m zone) as well as the adjacent coastal sea areas, in many European cultures called the “home sea”. In this perspective the whole coastal zone was in the European tradition seen as a source of food, materials and cash income for the coastal population. And as for all important sources of livelihood - often called resources - human societies have also crafted rules governing the utilisation of these coastal resources. When such rules have proved workable and have been established, they are often called institutionalised rules and are as such the basis for enduring institutions. When analysing such institutions, we often distinguish between rules made on three different levels:

- The Operational level – where the appropriation of resource units take place, where provision for the continuation of the resource is taken care of and where monitoring of use and enforcement of decisions take place.
- The Collective choice level – where the policy-making for the resource is done and where management and adjudication takes place.
- The Constitutional level where constitutional choices are made regarding rules for management, governance, adjudication and modification of institutions.

The analysis of institutions for governing coastal resources therefore has to take place at all these three levels (*Ostrom 1990*). The analysis will thus move between the different levels and findings on one level will influence the interpretation of findings at other levels. This makes the institutional analysis a very complex and challenging task, in addition the complexity of the coast itself adds to the struggle for analytical clarity.

The notion of an extended coastal zone is also carried on in the recent development of modern European Aquaculture and in modern experiments with Sea Ranching, which utilises and occupies territorial parts of the coastal sea areas. This challenges some of the old institutions, based on more sectorally defined - rather than territorially defined - activities. So in order to

catch both the long lines of European institutional development in coastal areas, and to prepare for analysis of dramatic changes related to expansion of modern activities, an inclusive definition of “coastal” have to be applied. As described above, the coastal resources are in this report treated more generally as one common class closely connected resources without a clear line between the wet and the dry. This enables us to identify and compare relatively long lines of institutional development in a meaningful way across widely different European cultures. For instance is it possible to identify institutional processes in fisheries (stock-based rationality) which are distinctly different from the processes that arises out of the growth of modern aquaculture (emerging territory rationality) Looking at coastal resources as closely interconnected resources also enables the analyst to identify layers of institutions; i.e. the coexistence of different and partly opposing management rationales within one culture and even within one location.

But to be able to spot such “layers of institutions”, it is necessary to use methods that are both historical and comparative, i.e. to contrast the different evolutionary chains of events in environments and cultures that share some common aspects. This kind of analysis of the "processes of institutionalisation" themselves are crucial to the understanding of the different perceptions of rights and duties regarding resource use in the various European Regions. This makes it easier to understand that resource governing institutions often have the character of layers, where for instance the local perceptions are rooted in institutions that used to govern traditional use while the contemporary legal framework is rooted in economic and industrial activities of the modern age. At the same time this kind of analysis can help us to understand the emerging changes and the embryonic institutional dynamics that is caused by new integrative activities, often activities that challenges the previous distinction between use and protection. These latter activities are most pronounced in the coastal areas where there has been a gradual infusion of ideas connected to territoriality and sea tenure - as we know them from East Asian countries.

Despite their differences, the coasts of Europe share a number of common elements, while they are significantly different in many other ways. Even where there are similar ecosystems, similar species and habitats, they have experienced markedly different processes of institutionalisation of the usage of coastal resources. This is often the mark of different cultures on the European scene. However, a common theme runs through all institutions that have evolved on or for these coasts, that is the struggle between **use and protection** of these areas. This runs through the common evolutionary process on all European Coasts, which can conveniently be separated in three distinct phases:

1. One is the long period with traditional harvesting activities at a low technological level - often opportunistic harvesting - that seemingly did not affect the coastal resources in any significant way.
2. The next is the modern industrial phase with large scale industrial extraction of coastal resources - with dramatic consequences for crucial fish-stocks: Herring, cod, salmon and mackerel, as well as tragic consequences for the biophysical coastal infrastructure of Europe: the destruction of estuaries, river mouths and spawning habitats. This phase culminates with the introduction of harvesting quotas - first for industrial harvesting of marine resources, later also for “artisan” harvesting of marine resources.
3. The third phase is the “late-modern” phase of integrative coastal activities, where the idea of “Sea-farming” (Aquaculture, Sea Ranching, etc.), habitat enhancements and rehabilitation, tourism, commercial recreation and multitasking enterprises is taking root in

a large number of coastal communities, and where the interconnectedness of coastal resources is made more visible.

In real life the situation in today's Europe is much more complex than this linear evolutionary pattern indicates. A number of traditional harvesting practices have survived through the modern age and we find that in the areas studied, most local perceptions regarding correct harvesting are still stubbornly persistent. Founded on a basically opportunistic harvesting ideology that know of no aggregate effects of artisan fishing or international industrial fishing fleets, coastal communities in Northern Norway, Western France and the Aegean Sea often exercise local rules that has no size limits to the catch, but are often related to operational rules or rules pertaining to other parts of the coastal environment. For instance, after the relatively recent introduction of a rigid vessel quota system also in coastal cod fisheries in Northern Norway in 1989, there has been vigorous and persistent lobbying from artisan fishers and coastal Sami fishers in Northern Norway for a "free fishing" in inner coastal waters. This has in turn resulted in an instrument for temporary acceptance of the "continuation of fishing by the smallest boats after the overall quota is filled". Founded on local perceptions of local ownership to a local fjord stock, but dressed in modern regulatory terms, this means institutionalising some of the traditional local perceptions - and now into a modern framework. But these efforts has also challenged conventional industrial age marine-biological knowledge and spurred alternative marine-biological research on separate stocks of both fjord cod and other local stocks of fish. Thus, over time these processes tend to create also a natural science basis for such local perceptions.

However, in the process of institutionalising a national and international quota/negotiation system for the modern age, these kinds of perceptions - even when substantiated by research, collide with what has become the conventional arithmetic of fisheries negotiations and quota distribution among organised interests and nations with "historical rights" to particular fish stocks. There is thus a deep-rooted fear among the echelons of fishermen's organisations and fishing companies that increased codification of local property rights to coastal fish stocks shall restrict the mobility of fishers to pursue the fish wherever it might roam. There is also an official fear that if the majority of nations subtract their "local fish stocks" from the international negotiating table, the international institutions regulating the fisheries on the high seas will crumble or become void. Few local marine fish stocks are so local that they do not interact with and depend on the major oceanic or seasonally migratory stocks. In turn then, it is argued, without effective protection by strict quota regulations of the totality of the important fish stocks from the international industrial fishing fleet, such local stocks of a particular fjord type will prove to be just as vulnerable as the oceanic fish. Thus, it is argued, local rules based on these kinds of local perceptions can in the final analysis be directly detrimental to the survival of coastal communities. The counter-argument is that the only fisheries that need strict monitoring are the high capacity off-shore fisheries upstream, as long as these are limited there will through the interaction of coastal and oceanic fish always be sufficient fish for coastal fishermen.

At the other end there are numerous attempts to marginalise the artisan fisher – or the “quota-free local fisher” and to classify him or her in the category “hobby-fisher”, “cultural fisher” or “leisure fisher”(Leisure Fishing Commission 1994). Strong interests argue that only “quota owners” should be considered as professional fishermen and have management rights in the form of consultations and representation in fisheries management boards. Consequently it should be easy to impose restrictions related to gear and market access on the group of “non-professional fishers”, thus rendering them harmless in the bigger struggle over limited

resources. As there are strong local perceptions related to "everyone's harvesting rights" in coastal waters, and the state has taken upon itself to regulate these rights, the political struggle then becomes the well-known "struggle over control with the state".

As we have tried to show briefly here, a naive application of local perceptions to institutional designs in a legal and political framework that is thoroughly modern, can therefore have a number of unknown consequences.

5.2 The analysis of Institutional Resource Conflicts

If the local perceptions are the lowest level of the multi-layer institutional construction for governing coastal resources, the thickest layer is the legal and organisational structures of the modern industrial era. Here the modern extraction of the important commercial fish stocks are regulated and negotiated one by one. Here are also the laws regulating the harvesting of seaweed and sand. Here is the major body of fishing laws, fishermen's associations, national and international negotiations. Together they try to realise the rationale of the maximum sustainable yield for the stock resource in question. And consequently, the perceptions of the major actors in national fisheries policies are shaped by this kind of institutional framework. Regulatory regimes based on quotas of various kinds have constituted a new logic among the main players; the fishermen, the fishing corporations, the fishing associations, the nation states and the European Union. The quota logic have been hailed by economists as a more efficient incentive system, and criticised by social anthropologists as a major destroyer of coastal cultures. When traditional coastal fishing rights are transformed into semi-property rights and markets for the exchange of these are created, accumulation is inevitable. Most social science critique of quota systems has thus been based on the potential increase in social inequality and on the exclusion of fishers created by these property rights (Pálson and Helgason 1995). The exclusion of coastal fishermen which coincided with mass unemployment in Europe, had serious social consequences. Furthermore the dramatic reduction in the numbers of "authorised fishermen", partly instigated by fishermen themselves, has significantly reduced the political influence of fishermen as a corporate group or a guild.

In the longer run there is, however, another kind of development that has greater significance. Because quotas are akin to property rights, originally meant to be imitated property rights, they are sticky. When something which was no ones property - or common property - was made into someone's property, it becomes virtually impossible to transfer it back to their former stage. That would require a political decision of expropriation and full financial compensation to the individual owner. Thus, when quotas are created and distributed to individuals or companies, they cannot easily be collected and redistributed. It is well known that this creates heavy rigidities in the fishing sector (Sandberg 1991). But the long term effects on the coastal resources are the ones that concerns us here.

An institutional analysis on the deeper constitutional level will reveal that a transfer to a quota system has more fundamental repercussions on coastal resources. Basically the North Atlantic region is characterised by a transfer to the state or to a union of states the property rights of specified marine resources on a coast and within the 200 mile economic zone. Basically these property rights were usurped by the states as they were in general transferred from either no ones property (*res nullius*) or from coastal communities which were governing them through various institutional arrangements. The latter is known as common property (*res communes*) arrangements with uncodified or informal rules for access, harvesting, management and exclusion. The gross long-term effect on the governing of marine resources from this process

of early modernisation, is the creation of a large public property (*res publica*), most pronounced along the North Atlantic coasts. Through the distribution of shares of this property to individual and corporate quota holders, the state or union establishes a direct relationship with individuals, thus at an increasing rate bypassing the secondary groups on the community or professional level. In this respect the Mediterranean institutions for governing marine resources are markedly different, here the secondary groups, in the form of Confradias in Catalonia, Prud'homies in France and Fishermen's' Co-operatives in Greece, have property rights and play an important and decisive role in the governing of marine resources (Alegret & al 1996). Contrafactually, an attempt to reverse the quota system of the Atlantic coasts, e.g. by expropriation, collection and redistribution, would show the true nature of this transfer; it would have to transform the resource - not into no-ones property or common property once again - but into public property. Thus there seems to be a linear logic of development, from common property to public property – and from public property to private property.

An important effect of the early modern industrial age was the emptying of the secondary collectives along the North Atlantic coast of many of their important functions in relation to resource utilisation. As the fishing villages, the brotherhoods of fishermen and the lineage-based economic coastal enterprises were replaced by more individualised relations to the state, this meant a further weakening of the civil society outside of the state and increased problems with legitimacy, monitoring and control in connection with state governing of marine resources. This implied both increased state expenses in monitoring and policing a large number of efficient fishing units with little or no loyalty to the resource, and expenses incurred in establishing state bureaucracies and keeping control of these. Various attempts to improve the current weight based quota systems are undertaken, ranging from satellite monitoring of vessels to complex multispecies modelling. But despite an enormous expenditure of government funds and expertise in developing elaborate quota systems and negotiating the size of these, most of Northern Europe's - and the World's fish stocks - that are managed according to this rationale, are in a bad shape. Even the North-Atlantic cod, which for 8 years was hailed as the success case of the rationalised stock management, have towards the end of the modern period been depleted due to high-grading, discharge and "political quotas". It is therefore a fundamental disagreement among resource managers whether this modern institutional structure is just not yet perfect, whether it is already obsolete, or whether the rationale of maximum sustainable yield is fundamentally unattainable. As most off-shore fisheries are upstream from coastal fisheries, resource tragedies on the high seas have had serious repercussions in coastal societies. Because it was usually the small boats that were squeezed out at every new turn of a resource crisis.

The newest layers of institutional rules of the age of late - or High - modernity are just emerging., They do not yet have any clear cut design. There are a number of conflicting tendencies that arise from advances in evolutionary biology, from technological and organisational innovations, from the detection of new markets, from experienced malfunctioning of the early modern institutions and from new legal and institutional creativity. There are also tendencies of organised counteractions to combat such innovations through political action and legal protection of established interests. Spotting such tendencies, it is the duty of the social scientist to investigate the formation of new perceptions related to the governing of coastal resources and of their institutionalisation. These are perceptions growing from random institutional experiments with the new integrative activities in the coastal zone: Aquaculture; Sea ranching, leisure fishing, tourism, habitat enhancement, fry protection and conservation activities related to marine parks. If any traits should be identified as common to all these processes that take place in the late modern period, it is the weakening

of the sharp distinction between use and protection together with an increased emphasis on **territoriality**. The majority of these new activities are spatial in character and occupies shoreline, sea-bed areas or sea volumes in a fundamentally different way from migratory fishing activities. Sea-territory is, however, not always “areal” in a two-dimensional way. Sometimes, like for aquaculture, both the sea-surface and the entire volume of water down to the sea-bed is occupied. But for other activities, like certain shell cultures, lobster cultures etc., only the sea-bed is occupied, leaving the water column above the sea bed free for other activities. This character of water; the potential for simultaneous activities in layers and the strong interactions between activities in free flowing water, makes the field of institutional development in sea-tenure a fascinating one, where experience from the two-dimensional terrestrial environments has only limited relevance.

This report/book also contains a careful analysis of such new tendencies observed in 3 selected European coastal environments: North-Norwegian Coasts, Western-French Coasts and Greek-Mediterranean Coasts. This ecological and cultural variation alone illustrates some of the complexity of the task. However, through a comparison with similar institutional challenges in other ecological and cultural settings, and with policy processes within the European Union regarding common Integrated Coastal Zone Management institutions, further complexities are added to the analysis. The aim is here to draw conclusions about the deeper changes taking place in European institutions for governing marine resources. It should here be remembered that in a historical perspective, these “late modern thoughts” are not a complete novelty. In the long period between 1864 to 1914, great emphasis was in Atlantic Europe placed on developing technologies for artificial hatching of the eggs of cod and salmon in order to strengthen the natural stocks of fish in certain localities (Schwach 1996). This research activity spread to many countries, notably to Woods Hole in USA and to Hokkaido in Japan. But in Northern Europe this kind of cultivation optimism was criticised by advocates of modernisation and was suppressed in terms of funding and academic prestige. Thus, while the Atlantic coasts of Europe went through the long phase of industrialisation of the large seasonal fisheries from 1914 to 1996, the knowledge of sea-cultures was further refined in research centres in America and in East Asia and extended to a large number of marine species. With the rapid growth of closed cage aquaculture for salmonides in the North Atlantic in the 1980s and 90s, the old ideas of human intervention to strengthen "natural" stocks of fish and enhance coastal environments has again received political attention and fresh research funding - both in Atlantic and Mediterranean Europe (Aarseth. 1995).

A fundamental part of all institutional analysis is the definition of property rights (North 1990). If these are not clear and socially acceptable, the institutions based on such property rights will not be efficient, legitimate and enduring. Especially in the marine environment, where algae, plankton and wild fish are extremely mobile, the ordinary private property concepts linked to locality do not readily apply. Most marine resources combine the public good problem of unrestrained access with the private goods problem of subtractability (Ostrom 1990). Therefore the institutions that evolve around them often fail and have to be reinvented by the resource users. But when economists experience that a traditional property systems fails, they have a habit of immediately turning to state intervention in the form of regulations or substitutes for prices (Arrow 1996). This often disregards the long human tradition of skilful creating and recreating social institutions that are neither private, nor state, but which deals with the simultaneous problems of access-restriction and subtraction-limitation at low transaction costs, with high legitimacy and in systems that are self regulating in the face of rapid ecological changes.

But this also have epistemological consequences which social scientists have to take into consideration. The description and analysis of forms of property rights has been neglected in sociology and economics through most of this century. And when studied, it has been well within a “romanist” paradigm, where private and public property were the two major main forms of proprietorship and where the dynamics were described as the movement between these two forms: between nationalisation and privatisation. In recent years, however, a number of researchers have analysed empirical forms of proprietorship more systematically from an institutionalist perspective. In an interesting overview article from 1996, Ostrom & Schlager deconstruct the conventional property concept and reconstruct property rights as useful analytical categories(Ostrom & Schlager 1996). They see property as composed of various combinations of these five right/duties correlates (=rules):

- The right of Access
- The right of Withdrawal or “Harvest”
- The right of Management
- The right of Exclusion of others
- The right of Alienation.

When combined in the logically possible “bundles of rights”, these 5 property rights elements can explain a large number of observed forms of property rights regimes and consequently the social institutions related to resource use that is based on them. The weakest form of property relation is thus the Authorised entrant who holds only the right of access to a certain resource, e.g. the bona fide tourist in a National park or a Coastal Recreational Area. A fisherman, on the other hand, is often an authorised user of a certain resource as he has both the right to enter particular fishing grounds and the right to harvest a certain amount of fish from the fish stock - or to withdraw an unlimited amount of fish with certain types of gear or within certain time limits. But most fishermen have weak property rights, as they seldom hold property rights on the level of collective choice, i.e. that right to devise operational rules which is inherent in the right to manage the resource and the right to exclude others from entering/harvesting. In coastal areas, these kinds of property rights are increasingly held by the state, who has the right to manage, exclude and alienate most marine resources in national waters, but which seldom can do the actual fishing operations itself (Ostrom & Schlager 1996). As we shall see in the later chapters, these kinds of property rights (management and exclusion rights) have proved very difficult for the state to decentralise or delegate to the level of local government.

A stronger property relation is found when the resource users in addition to rights of access and harvest also have rights to make management decisions and exclusion decisions, i.e. to craft rules of how a resource shall be utilised and who shall be allowed to utilise it. Ostrom and Schlager calls a holder of access, harvest and management rights a “Claimant”, usually these are collective type property relationships in stable societies where export and migration does not threaten the resource base. When the property relation in addition consists of exclusion rights, i.e. 4 of the 5 property rights elements, they call it “Proprietor”. In real life, true “Commons” for resource use are organised by “proprietors” who have all the necessary rights to manage the resource in ways that can be transaction-cost effective, legitimate (for those included) and self regulating, or can be outright disasters. However, they do not hold the right to alienate - to sell out - the resource or “their part” of the resource (Ostrom & Schlager 1996). They are forever “obliged to hold the resource in co-proprietorship” and can as proprietors not enjoy fully the “freedoms of private ownership”.

Only when we add the right to alienate one's property do we get a full "Owner" in the romanist sense. The full ownership category of property relations is the only one who can become "landless" - or in our case "sealess", and it is the only category where the state actually have had to compensate previous owners when it takes over (expropriate) the ownership. In case of the weaker forms of property relations, most historical records show that these have been turned into state property (public property) without compensation to users, whether they are mere harvesters, claimants or proprietors.

In studying institutions for managing - or governing - marine resources in Europe, these conceptual categories are useful in so far as they can help to organise the large variety of empirical institutions in European coastal areas along dimensions that are useful for analytical and comparative purposes. Property rights often give us the foundation for a given institution and are starting points for any institutional analysis, and for the further analysis of institutional conflict. This is because we often find that the transaction cost efficiency or the legitimacy of a given institutional design cannot be improved without fundamental redefinition of the underlying property rights definitions. And we find that such attempts to redefine property rights - often with the sole purpose of achieving greater resource sustainability or reduced transaction costs - leads to debates at the constitutional choice level, where the political construction of whole coastal communities, of provinces, of indigenous groups and of whole nation states are brought into the open. Sometimes European nation-building from 1850 to 1980 implied that the states took over property rights that were the foundation for other collectives or for institutions that were competing with the new states for power. In many cases - notably in the case of coastal resources, this led to institutions with low resource maintenance efficiency, low legitimacy among traditional users and low transaction cost efficiency in the form of high monitoring and policing costs. This is part of the constitutional background for the accumulating problems of uncoordinated institutions for the coastal zone in the member countries that the EU-ICZM Demonstration Programme addressed (EU-Commission 1999).

Now that the European nation states are firmly established, and with increasingly firm institutional frameworks at the super-national level, there might be time to look at the division of labour between the nation-states and other collectives once again. In many cases a renegotiation of the social contract and new definitions of the fundamental property relations to important coastal resources can secure both a more sustainable resource use and more legitimate and fair governing processes in the modern European societies (Martin 1994). The tightly interconnected coastal resources are types of resources that illustrates this very well, as the case studies in this report/book shows.

6. Epistemology – common grounds and disciplinary contributions – or different ways of constructing the reality

There is no doubt that the coast look different when viewed with different eyes. A landscape painter and a real estate developer will most probably have distinctly different opinions on the problems and potentials of a certain coastal area, and so will the trained engineer and the evolutionary biologist. The way professionals are trained determine to a large extent the epistemological basis for their perception of problems and solutions. The knowledge base and the network for filtering and exchanging knowledge and for testing the applicability of new knowledge, is therefore of crucial importance for the «construction of the coastal reality» among planners, managers and policy makers. What appears as a huge problem to the

rehabilitation ecologists will in many cases be regarded as a small detail by the development engineer.

More than other ecologies, coastal areas are characterised by a multitude of interconnected resources and overlapping layers of institutions, each with their «schools» of trained experts and lobbyists. Managers of one particular coastal resource, e.g. beachfront areas, tend to perceive the problems of local fish stocks differently than the manager of fisheries. And the manager of aquaculture resources tend to view the ecological preconditions for wild salmon recovery differently from the wildlife managers. Thus there are multiple - and competing constructions of the coastal reality in any coastal area, both in modern areas and in more traditional areas. This makes rational and integrated coastal zone management difficult, as the management exercise itself becomes an extended negotiation, not only between different interests, but also between different views on crucial relations in nature and between nature and society. Such epistemological conflicts are very hard to solve, as they often become institutionalised both by educational systems and by bureaucratic organisations.

In the cases presented in this report/book, also the conflicts between traditions of knowledge are clearly identifiable, in addition to the institutional conflicts and the more traditional conflicts of interests in ICZM-processes. In a number of cases, the experts of one government agency does not believe - or do not accept, the scientific arguments of experts of other government agencies. Together, all these different kinds of conflicts makes ICZM a very demanding task, which not only have to find balanced solutions that satisfies opposed interests. The management - or governing - exercise also have to get the institutions right so that they can produce the necessary decisions and secure both viable ecosystems and the long term human investments in resource based utilisation of the coast. In addition, the epistemological conflicts have to be resolved in a way that preferably produces new insights that can be shared by different groups of experts.

Some key issues in the report/book illustrates how important it is to resolve also conflicts about knowledge in ICZM:

- Lack of co-ordination between state agencies and lack of common frames of understanding and laws that allow - or stimulate integrated management is the main cause for coastal deterioration. How this affects the coastal environment and the coastal communities in the different European countries is one of the key issues in this report.
- In many countries the laws pertaining to the coast is typically made up of physical planning laws, urban development laws and nature protection laws. Sometimes even this mix does not work because of the inadequacy of local control and the lack of effective land registration, like for instance in Greece. A key issue is, however, to what extent such a composition of «coastal laws» have a tendency to lead to conflicts in ICZM, and whether inclusion of ecosystem laws will improve the institutional foundations for coastal management - or governing.
- A crucial question is whether coastal institutions can be designed so that they can slow down the dynamics of coastal change, e.g. by imposing restrictions on upstream use of rivers in France so better control the coastal erosion or accretion. Or whether institutions (e.g. the inalienable property rights of the *Conservatoire du Littoral*) can be designed to better cater for a dynamic and ever changing, but resilient coast.
- A modern key issue is the role of the present institutions when coastal harvesting in the wet side is being replaced by resource transformation, in the form of marine

cultivations. Institutions for enhancement of ecosystems and ecosystem management are not common on European coasts today and an important question is therefore what the social and epistemological preconditions are for such institutions to evolve at either local level or at the level of the nation state.

7. End note on the crucial dimensions for the rest of the analysis

In the following three chapters, Chapter 2 on ICZM in Norway, Chapter 3 on ICZM in France and Chapter 4 on ICZM in Greece, we will, despite their large differences in institutional culture, attempt to answer at least these 6 common questions in a way that permits comparison between the countries (Chapter 5):

1. What are the driving forces behind support for or opposition to ICZM policies. How can this be linked to the right-claims, problem-identification and the supply and demand of solutions by important structures of interest? How is the role of real ecological problems (ecosystem concerns), local economic interests, national economic interests, international treaties and scientific interests in the actual management of coastal resources?
2. What is the contribution of analysis on the different levels of governance - at what level do these forces work?
3. What are the contributions of international policy formulation regarding coastal development, e.g. in EU, UNESCO/CSI, FAO/ OECD, to the national, regional and local ICZM processes? What are the links to lobby-groups who will advocate these policies? In what way can Union (EU) -initiatives have a different impact from International initiatives?
4. What is the importance of existing property rights (both perceived and real), cultural traditions and traditional ecological knowledge and how is this linked to the potential for an institutional development towards self-governance in coastal areas.
5. What are the main differences in legal framework for ICZM and the culture of decision-making and implementation in different European cultures? And how can we best understand the dynamics of legal change in different legal traditions and how can analytical jurisprudence explain why this is so? And to what extent are the organised interests and the management apparatus structured according to these legal traditions.
6. What are – in analytical terms – the incentives and disincentives for co-operation and co-ordination among coastal interest groups, state agencies, governing levels and scientific/professional disciplines?

CHAPTER 2. DEVELOPING AND PRACTISING INTEGRATED COASTAL ZONE MANAGEMENT; THE NORWEGIAN CASE.

By Bjørn K. Sagdahl, Audun Sandberg and Håkan Sandersen

Introduction

The Norwegian total coastline comprises a distance of 21,465 kilometre. The coast is divided into numerous fjords and isles. The coastline of the isles alone are calculated to be 35,793 kilometres altogether. Roughly, the coast may be divided in two main sectors: the “Leisure Coast” between the Swedish border and the southernmost point of Norway, and the “Working Coast”, i.e. the Western and Northern Coasts. This report is mainly concerned with the latter.

Norway expanded vastly her territory by the Law of the Sea development and came out of the policy process as one of the world winners. Being a small country in population, only 11 other nations have a larger 200 miles economic zone (Andresen and Fløistad 1988). But the whole zone does not have internationally accepted borders. The principle for boundaries between Russia and Norway has not been agreed on. And the compromise to establish a “grey zone” back in 1976, has tended to be rather enduring as time has passed by. Besides, the international waters around the Svalbard Isles and Jan Mayen have also complicated the general picture of national jurisdiction of the extended national sea territory. Although the legal formalities of the Norwegian establishment of the “fish protection zones” in these areas have been disputed, most of the vessels operating in these zones have accepted that Norway manage the resources and police these waters.

The introduction of the 200 nautical miles economic zone from 01.01.1977 gave Norway comprehensive managing challenges, especially in the field of renewable biological resources. Although “sustainable management” according to the principles of The Law of the Sea was new way of phrasing it, it also implied intensified management and commitments to the international community. The nation state took on extended responsibilities and became more important as a managing unit.

Norway has as a typical coastal nation a long tradition in sea based management. Both fisheries and mariculture are the backbone of the economy along large part of the coast. These industries employ mainly people in small, rural communities, but they are also important for larger communities along the coast. Fishing and mariculture are thus vital to maintain a dispersed settlement structure, which is traditionally among the most important political issues in Norway.

Once virtually free and open, the Norwegian fisheries have become a regulated and rather profitable and sustainable industry managed by quotas and licenses. The harvesting, management and protection of the fisheries are regulated pursuant to the Salt Water Fishing Act of 1983 and an enabling act of 1972 that regulates access and catching capacity. In 1997 over 2.8 million tons of fish with a landed value of NOK 9 billion were brought ashore. About 16.000 people have fishing as their main occupation, and some 13.000 are employed in the fish processing industry. Norway has a diversified and technologically advanced fishing fleet, encompassing everything from small inshore fishing vessels to large trawlers and purse seiners. At the end of 1997 the fleet totalled 13,645 fishing vessels of which Northern Norway accounted for about 6.500.

Of almost 300 fish species, only 30 are harvested on a commercial basis. Cod fisheries, predominantly in inshore waters, comprise fishing for cod, saithe, haddock, bream, ling, halibut and a number of other species, are harvested with nets, lines, hand-lines, Danish seines, seines and trawls. The cod quotas are expected to become drastically reduced in year 2000, as a result of severe overfishing. In 1998 approximately 2.8 million tons were landed in Norway⁴, worth NOK 10.4 billion (US\$ 1.3 billion).

Norway is the world's leading producer of farmed Atlantic salmon and the production in 1999 is expected to reach around 430 000 tons (of which more than ¼ is produced in Northern Norway), providing an export value of more than 10 billion NOK. The total number of salmon licenses in Norway today is approximately 850⁵, out of which Northern Norway accounted for about 270 (32%). In addition, Northern Norway also had 126 licenses on farming of other fish species than salmon, and 47 shellfish licenses.

Close to 5.000 people are employed in fish and shellfish farming in Norway. Salmon is by far the predominant species in Norwegian mariculture⁶, however, Halibut, Cod, Arctic catfish, Arctic char, and shellfish such as blue Mussels, Oysters and scallops are increasing in importance.

The major changes in traditional fishing and development of mariculture, have brought about a process of social transformation of coastal areas. But the discovery of petroleum in the Norwegian waters in the 1960s induced a more profound change, especially to the western part of the coast. The first drilling took place in 1966. Some years later, in 1969, the first petroleum field of commercial interest was found. And in 1971 the production from "Ekkofisk" started, initiating a 50-year period of oil related growth that could hardly be foreseen. Oil and gas have become crucial to the Norwegian economy and have brought drastic changes to traditional coastal economic life, especially for the western part of the coastline. And the industry has gradually moved northward, constituting an inherent threat to living marine resources and a challenge to traditional coastal ways of life.

While the economic exploitation of the coastal resources has undergone major changes during a few decades, so could also be said for the challenges to management. Along with increased and diversified economic use of the coastal resources, environmental concerns have also entered the political agenda. In addition the coast also means more for leisure purpose than it used to. And it has been included in nature conservation concerns which in some cases means that it is no longer open for traditional exploitation. Knowledge and attitudes have changed and developed. What used to be unmanaged is today an object for governing. And management has to an increasing degree to comply with international commitments and obligations.

But to understand the development and contemporary changes in coastal resource management, it is crucial to understand that the pillars for institutional reconstruction are old and deeply rooted in the Norwegian society. The traditional "coastal commons" developed over centuries and have been characterised by established property rights and rules. Although

⁴ Of this Northern Norway accounted for 24%.

⁵ According to the Norwegian Fish Farmers' Association some 4000 installations/cages are in operation (NFFA 1999)

⁶ The salmon licenses also comprises farming of rainbow trout, which accounts for about 12% of the volume (1998). In the following "salmon" will cover both species.

mainly uncodified, they are still working as normative foundations for political and judicial governance. This means that the evolution of governance and institutions should not be seen apart from their normative base. But we also find cases where ancient rights have been transformed to modern law. Public access to the shoreline and sea has in Norway been regulated by law. Although its enforcement has led to restrictions on exclusive use of private land and sites and with subsequent protests from the owners, the public right to access as such has not been at stake for discussion. The cultural roots of the ancient right of unhindered access of the public was a “public passage right” (*tjoð*), but is today formalised by law practise as the right of everyone to access the coast (*allemannsretten*).

This chapter deals with the development of governing institutions for the Norwegian coast and the search for integrated coastal zone management (ICZM). We will outline the managing system as it has developed and give some explanations to its development, form and way of functioning. Our main focus will be on public policy formation for the coastal zone. Which activities and interests function as propelling forces for integrated planning and management? What are the managing ambitions in practise? What are the limitations to planning and what strategy for development have been used? At what level is management taking place and what are the relation between sector management, regional and local government? Between planning and action? We choose here to exemplify with North Norwegian experience, a region that always have been almost totally depending on its coastal resources.

We will first explain some of the historic traditions influencing the present ways of posing problems and working out solutions. Then we will proceed with explaining the development and extension of national rights in what formerly used to be international waters and how institutions have been developed and influenced by the international community. In our discussion of the Norwegian experience we will distinguish between the development of the “outer” and the “inner” waters. The major part of the discussion will be devoted to the last category, focusing on planning and attempts at integrated management. Future trends and development will also be included. Finally, for comparative reasons, we will sum up our presentation and discussion in light of the analytical dimensions presented in the previous chapter.

1. Historic tradition, development and extension of national rights and influences of the international community on institutions

1.1 The Origin of North-Norwegian Coastal Management Institutions: Cultural Foundations for Integrated Coastal Management

The earliest traces of coastal management institutions in Northern Norway date back to the Saga period, thus the written sources are much older than human memory or living customs. From around 900 to 1060 A.D, the customary law of the various “tribes” settling the north were gradually codified under a system of local and regional assemblies (*Ting*). These were not legislatures in the modern sense, but “assemblies of all free men”, later representative assemblies, that interpreted the old laws and secured the social acceptability of these as *de jure* rules. With the simultaneous advancement of Christendom and Royal Power, the rules and laws of landscapes and regions were written down - often by monks trained in the Irish monastic culture. As first codification of customary law - or “Law books” for particular “landscapes” or regions -- they were skilful blends of codified customary law and structuring elements borrowed from Roman law. The strict adherence to customary law was also

necessary because the early Viking kings were far from sovereign, but had to rely on the regional assemblies for initial acceptance and for continued legitimacy in the use of power (Frostatingslova 1994). The best strategy for a “candidate-king”, was therefore to identify, codify and stick to the “good old laws that had been there from ancient times” (*af ár alda*) or at least “from the times of Holy King Olav” († 1033). It is important to understand this tradition of the “positivity of law” (Luhman 1985) that originated in a period before a powerful centralised state was established: Law was not something that was decided upon by decrees or designed by committees, it was there from ancient times and was binding both for royal and commoners. Thus it should not be easy to change the law, and when history later proved that the old laws served as the peasants’ best defence against arbitrary decisions by greedy kings, this strengthened these sentiments. These basic perceptions on the role of law in society were vividly alive in the rural population as late as in the 16th century, when attempts by the Danish colonial powers to modernise the country by introducing new rules were met by protests from Norwegians claiming that these were unacceptable as they had no base in the ancient Norwegian laws (Frostatingslova 1994). Thus encoded customary law continued to shape the perceptions of resource users until the country had its own legislature in 1814 and gradually adopted the “modern doctrine” of a society able to change itself by enacting new legislation (Luhman op.cit.).

Most of Northern Norway was during the Viking age and medieval age part of the Frostating legal area. The exception was the Northernmost counties of Finnmark, where the Sami indigenous rules for coastal resource use were respected and were in force up to the liberalisation of the 1830s, while the King had the overall jurisdiction after the peace treaty with Novgorod in 1327 (NOU 1997:4). The Frostating law is preserved almost in total and give valuable insights into the distribution of property rights and the conflict solving mechanisms of the old society. The settlements were usually coastal, with intensive agriculture on the fertile old sea-beds and less intensive grazing, hunting, fishing and gathering from the “outer fields”. In this respect the mountains (the upper commons) and the island archipelago (the outer commons) had a similar function for the households and were treated in a parallel way. The sections of the law pertaining to material objects (*ius in re*), were therefore quite general and well suited to govern a number of different resources in a flexible way. They were also typically “non-roman” in acknowledging “shared property rights” i.e. that the same object could be owned by different judicial persons - for different purposes. However, such general rules required an interpretative body which could apply them to particular cases. Such bodies were the local assemblies (*bygdeting*) which decided in local matters. The exact role of these local assemblies in relation to the governing of resources is not yet fully understood. But initial research into the rich material of *ting*-protocols reveals a central role for these both before and after 1660 (Tretvik 1996).

A central rule in the old legal heritage is the rule of Commons: “So shall Commons be, as has been from ancient times, both the upper and the outer”, (Frostatingslova 1994). This central rule was transformed into identical rules in the unified “country law” of 1274 (*Magnus Lagaboeters Landslov*, 1274) which is among the oldest country laws in Europe. Through the adoption of this into the “Norwegian Law” under Danish rule (*Chr. IV Norske lov*, 1604 and *Chr. V Norske Lov*, 1687), such uniform rules about both mountain, forest and coastal commons survived up to 1993, when the last remaining original “commons paragraph” was removed from the body of active laws - after 950 years ! However, by 1993 the institutional changes in coastal areas had already progressed far beyond the spirit of the codified customary law, and the old “commons paragraphs” pertaining to natural resources in general had been under heavy pressure already since the introduction of supreme rule in 1660. In a

modern “Mountain Law of 1920 (revised 1975), and new Common Forests Laws of 1992, the 950 year old customary rules were given a modern legal function for Common Property Resources in the “upper” areas of most of the country. The exception is Northern Norway. For the “outer” Common Property Resources on the other hand, it is the withering of the coastal commons during the last 350 years which is the typical institutional dynamics of the North Norwegian Coasts.

But still it makes sense to speak of coastal commons in these local Northern coastal communities - today most often referred to as the “fisher-commons” (*fiskaralmenning*). That there are local perceptions of property rights systems that started to wither away more than 300 years ago is linked to a number of single elements that has slowed down the modernisation processes on these coasts.

One was a royal prohibition from 1294 on foreigners and Southerners sea travel to the coasts north of the Hanseatic trade post of Bergen (*farbann* =prohibition to navigate). (Frostatingslova, VII, Ch.27). Only in 1361 were the traders of Bergen given a general exemption for navigation and trade along the northern coasts, but no right to fish. This kept foreign and Southern fishermen away from the 13th to the 18th century and allowed local resource governing institutions to evolve and adapt. The most famous among these are the Lofoten Fisheries Institutions which can be interpreted as a large Provincial Commons that lasted from the Kings’ pledge to the Haloygs (*rettarbot*) of 1105 and until its gradual breakdown in the 19th century. These flexible institutions governed this large scale indigenous (*Haloyg*) fishing commons with easy access for thousands of regional migrant fishers for several hundred years (Jentoft, S. og Kristoffersen, T, 1989). In addition there were large number of smaller and more local fishery governing institutions which have shaped people’s perceptions. The easy access large fishery commons of the North has often been misinterpreted as institutions characterised by Public Property Rights (*Allemannsrett*), and it has been in the interest of the modern state to support this interpretation, since it is the state who is the only possible custodian of public property rights (Oerebech 1991). This notion originates in a doctrine of state from the 16th century, where property rights were divided into the King’s superior property rights (*dominium directum*) and the subordinate property rights (*dominium utile* - different from *ius utendi* - mere user rights). At the introduction of “sovereign rule” in 1660, the King also claimed to be the owner of the subordinate property rights, thus the Commons of the ancient Laws were termed “the King’s Commons” and the right of the indigenous population were reduced to “user rights” (Schiefløe 1957, Tretvik 1996). Although this doctrine of state later proved erroneous in that the nation states’ jurisdiction is not a property right, the King’s Commons survived into what is today “State Commons” for the “upper” resources.

The “outer” commons withered away under this doctrine and was gradually seen by the state as public property which could be opened up to the use of all national citizens irrespective of origin and which could be exchanged with other nations in return for fishing rights in their territorial waters. Thus the breaking down of the fishing commons and its transfer to public property in the 1830s was an important step towards the later privatisation of fishing rights in the 1980s and 1990s. But in spite of the modernisation of salt water fisheries and individualisation of fishing rights (licenses and individual quotas) that has taken place during the last 40 years, the political discourse of fisheries resource management shows that perceptions of a “fisher commons” are still alive in the coastal communities.

Another element is the existence of “shore commons”. Before the boat engine became common, favourable places along the coast were of crucial importance as harbours, beaching places and sites for fishers’ chalets. These did often - especially before enclosure - function as commons for the local population and they had to some degree controlled access so that strangers could not use them. However, neighbouring and migrant fishers with long term relations with the local fishing communities could have a status as bona fide users. At a low level of extraction technology, local control over the “shore commons” thus meant control over the coastal fisheries resources without making explicit property rights to the physical fish stocks themselves. When the king started to issue trade privileges also to non-hanseatic indigenous traders, a number of the relationships in fisheries developed into patron-client relationships. Now it was not only the common harbour facility, but also contractual relationships related to equipment supplies, credit facilities and marketing outlets for fish that constituted the basis for coastal society. This new basis facilitated the introduction of new harvesting technology in coastal fisheries during the 18th and 19th century and facilitated the primary accumulation of capital on few hands - often termed the *vaereier*-system. Some of the common shore was privatised and even today we can find a private fishing harbour and a common fishing harbour side by side.

A third element is the survival of minor commons like “egg-commons”, “berry-commons”, “kelp commons” and “pasture commons” in many coastal communities. At enclosure during the 1890s, a number of coastal communities chose to keep for instance their egg rocks and islets in common rather than subdivide them into what would have been very small private units. From these commons, sea-birds’ eggs are still gathered at intervals during the season, often connected to intricate institutions of sharing of the egg-catch (Sandberg 1994). For a number of the islands “belonging” to coastal communities, we also find local commons institutions for the sharing of cloudberry picked during the season. The existence of such common property arrangements for minor resources contributes to important local perceptions about the existence of a coastal commons in these North Atlantic environments.

Also the grazing of sheep on small islands and the gathering of kelp and sea-weeds required some agreement on property rights. These activities belonged to what was before enclosure termed the “outer commons”. Like for birds-rocks, a number of these continued to be “held in common” even after the enclosure, or if subdivided and privatised, the grazing and harvesting practices are often for operational convenience arranged by voluntary contracts in ways that resemble commons institutions.

The Wild Migrating Salmon also has a very special significance in Northern Norway. Together with Sea Trout and Anadromous Arctic Char they come close to constituting a common property regime. The anadromous salmonides traverses numerous institutional resource managing regimes along their coastal migrations or their homing route from the open ocean to its mating grounds in home river. It is therefore extremely vulnerable to institutional decay and incompatibility in these various regimes. The present predicament of the wild salmon is in many respects a symptom of a breakdown of this complex coastal commons and an indication that something is wrong with the institutions for governing the coastal zones of Norway.

1.2 Institutional development and international co-operation

Despite the rather appalling situation for wild Atlantic salmon, farmed salmon has had a far greater impact on planning and management of the coastal zone. It was the need for physical locations for salmon farming that triggered off the first planning of sea based areas. In a way

it could be argued that the emergence of the aquaculture industry as well as the petroleum industry that more or less coincided in time, brought a new area of management both for the inner and outer sea areas. The latter also brought the need for national control over new areas by increased and extended national jurisdiction. Norway became for that reason an active player in pressing for solutions in international law of the seas, and was one of the first countries to establish a 200 nautical miles exclusive economic zone.

The establishment of the extended economic zone in 1977 ended a rather long period of struggle over national jurisdiction of the Norwegian coastal waters. Since the end of the second world war there was an almost unbroken period of disputes over the extension of the national sea territory and the distribution of rights. What was typical to Norwegian compared with Icelandic policy in this field, was the commitment to act according to recognised legal solutions. Norway as a major sea power in shipping and fishing, and a NATO member, had to find balanced solutions in co-operation with the affected countries.

The first conflict with United Kingdom of asserting a 4 nautical mile sea limit based on a disputed basic line, was brought to the International Court of Justice. The result was positive for Norway and the verdict in 1951 was accepted by both parties. But the court decision did not end the unrest on access to the Norwegian coastal resources. After some few years demands for an extended fishing border soon became a political reality. While Norway sought international acceptance for the extension to a 12 nautical miles fishing border, Iceland chose not to wait for an international solution and proclaimed the new border in 1958. The result was the “cod war” with UK. When Norway followed up in 1961, a transitional period of ten years was granted to foreign trawlers. The result was highly unsatisfactory for the coastal fishermen that had been pressing for the new fishing border. Hence the negotiated solution became a hot political topic throughout the 1960s (Mikalsen and Sagdahl 1982). And with improved fishing efficiency, the fear of depleting the important cod stock became real. Even with the new regime, there were “loopholes” where unrestricted fishing could continue. At the turn of the decade, demands for a new border extension were voiced, especially from fishermen in Northern Norway.

In 1972 Iceland decided to establish a 50 nautical miles fishing border and signalled even a further extension to 200 miles. That led Iceland into her second “cod-war” with UK and a transfer of foreign fishing capacity from Icelandic waters to the coast of Northern Norway. The demand for a national extension to 50 nautical miles, to follow the Icelandic example, followed immediately, especially voiced by the coastal fishermen from Northern Norway. The government, arguing for an expected international solution in the near future, was heavily criticised. And as the internal political pressure increased due to lacking international results, Norway had to negotiate temporary solutions. In 1975 trawl-free zones were established, an event that eased the political pressure for a unilateral extension. These zones gave the coastal fishermen using passive gears some protection to gear losses caused by trawlers, but still there was a considerable political pressure for an immediate extension of the fishing border, especially from the coastal fishermen and their organisations in the northern part of the country.

The Norwegian declaration of a 200 nautical miles economic zone (EEZ) establishment as early as January 1977, was to a great extent a response to internal political problems and the discovery of oil under the sea bed. Still there remained considerable international work in order to finish the new Law of the Sea Convention. And as an emerging oil nation, there was a strong national interest in Norway for an extension of national jurisdiction of the sea

territory⁷. Norway's rush to establish the zone in 1977 is reflected by the fact that the convention became ready for acceptance 17 years later and was ratified by Norway as late as 1996. The nation state had strengthened its position and came out as a winner in the international struggle to exploit and manage the national coastal resources. For Norway, more than 25 years of international work had been devoted to the expansion of national sea areas and rights.

The introduction of the economic zone and the growing public focus on the exploitation of marine resources during the 1960s and 1970s, was followed by an institutional development and continued and increasing international co-operation. The petroleum activities brought forward a new labour market, new professions and new management needs. This was partly reflected in new interest organisations and in new science and education. While the Labour Union (LO) formerly had a weak position at sea, the organisation now expanded its sphere of influence. And competing organisations were also established. The growing importance of petroleum activities at sea and shore led at the end of the 1970s to a new Ministry of Oil and Energy and a subordinated Oil Directorate was also established. With growing importance to the regional and national economy, the petroleum sector became in few years a strong political actor. Contrary to many other oil producing nations, the sea based petroleum industry became in a Norwegian context a state matter and closely controlled by the state. The need for international co-ordination and co-operation, planning and national co-ordination was a state responsibility and had top priority at the national political agenda.

While environmental questions up till then often had been neglected, there was a growing attention towards environmental management needs in the wake of the growing petroleum activities. Besides there was a general shift in political focus favouring environmental question on a broad scale, influenced by an international environmental movement. A Ministry of Environmental Affairs was established in 1972, the former State Pollution Agency was reorganised and became subordinated to this ministry, as well as a Directorate of Nature Management. During the 1970s, environmental policy became increasingly targeted, especially from the younger generation. Green movements developed, calling for an alternative policy. New laws were passed, rendering legal authority for public interference and management of environmental questions and protection of nature. And with the growing internalisation of environmental policy that developed, this field of policy also grew in national political importance. The new ministry had an ambition of attaining a superior position being responsible for all spatial planning. There it challenged the established knowledge system by its ecological approach. The environmental and ecological approach challenged the established governing system and led to an internal conflict in the governmental structure. Pollution was formerly a matter for the Ministry of Industry. Now it was seen in an ecological perspective that could easily imply confrontation with the industrial-economic growth perspective that had dominated most of the post-war period.

⁷ The importance of this political objective was reflected in the establishment of a special designed secretariat, the "Havrettssekretariat", with a corresponding cabinet minister. This organizational solution represented a rather rare incident in the modern history of Norwegian cabinets. Normally the ministers' responsibilities correspond with the one for ministries, but not in this case. The appointed minister, Jens Evensen, was former the most experienced executives in the law of the sea questions at the Foreign Office, and was the one that pleaded the Norwegian case at the Haag Court at the turn of the 40ies. He was also the main Norwegian architect of the distribution of territories in the North Sea and the neighboring sea areas, as well as a central working force in elaborating UN Law of the Sea and strategies for acceptance at the international conferences during the 1970s and the 1980s.

The political focus on marine pollution was not only due to the growing petroleum industry, but also to the general industrial and urban development in the post-war period. Some fjords and coastal areas in the south were reported to be heavily contaminated, while pollution was not regarded as a problem in other areas. The new ministry launched comprehensive programs for the inner Oslo-fjord and for the Mjøsa lake. But the growing petroleum industry also brought focus on the “outer waters” as well as the “inner” ones for the risk of pollution. With an important fishing industry and emerging fish farming at the coast, the fear of pollution became a hot political topic in the fishery-dependent areas. And as experience with the petroleum industry was gained, it became clear that waste and litter at the sea bed in the drilling areas, represented a serious problem that often resulted in gear losses and collisions for those fishing in the areas. The reorganised State Pollution Agency therefore had to expand its responsibility to include also the growing economic activities at sea.

The establishment and growth of aquaculture also had severe impacts for the management needs of the sea areas. Like the petroleum industry, it started in the late 1960s and was well established by the time the economic zone was established. The growth of this industry with its physical need for locations and the pollution that followed, called for policy formation and management at all governing levels. Interest organisations were established within the industry, and the development was also followed by a corresponding growth in public agencies, especially in the Directorate of the Fisheries. Besides, the licensing system that was introduced, increased the managing role of the Directorate in a difficult period for traditional fishing.

The period of the last part of the 1960s and the following decade, brought a growth in multiple use of the coastal and sea areas, and in organisational and institutional development. In 1975 a municipal reform was implemented, improving the county level of local government in its governing capacity. Besides, there was a considerable growth in international co-operation related to questions of environment and natural resources. This process was already established when the process towards extended national jurisdiction of the coastal zones gained ground in the 1970s. The 1970s initiated a shift in attitudes and international agenda formation in relation for management of natural resources and environmental questions. The first global conference on environment held in Stockholm at 1972, paved the way for the later development of international conventions on environmental questions and natural resources. Norway became a central actor heading the UN World Commission on Environment and Development (1983), often referred to as “the Brundtland Commission”. The focus on an ecological and environmentally based economic development, sustainable development, presented in its final report, received world wide attention. This was followed up at the Rio conference (1992) which resulted in two international treaties, two statements of principality as well as an agenda for globally sustainable development. The Agenda 21 asked all governments to elaborate national strategies for sustainable development. The main responsibility should be a national task, but the governments were encouraged to work in close co-operation with international organisations, local councils, industrial actors and voluntary organisations. Norway has ratified the conventions, joined the statements and followed up the agenda work. But the implementation of the Rio results is above all depending on the ability to follow up the principles in conducting an intra-sector environmental policy as well as inter-sector co-ordinated policy, the very challenge of coastal zone management.

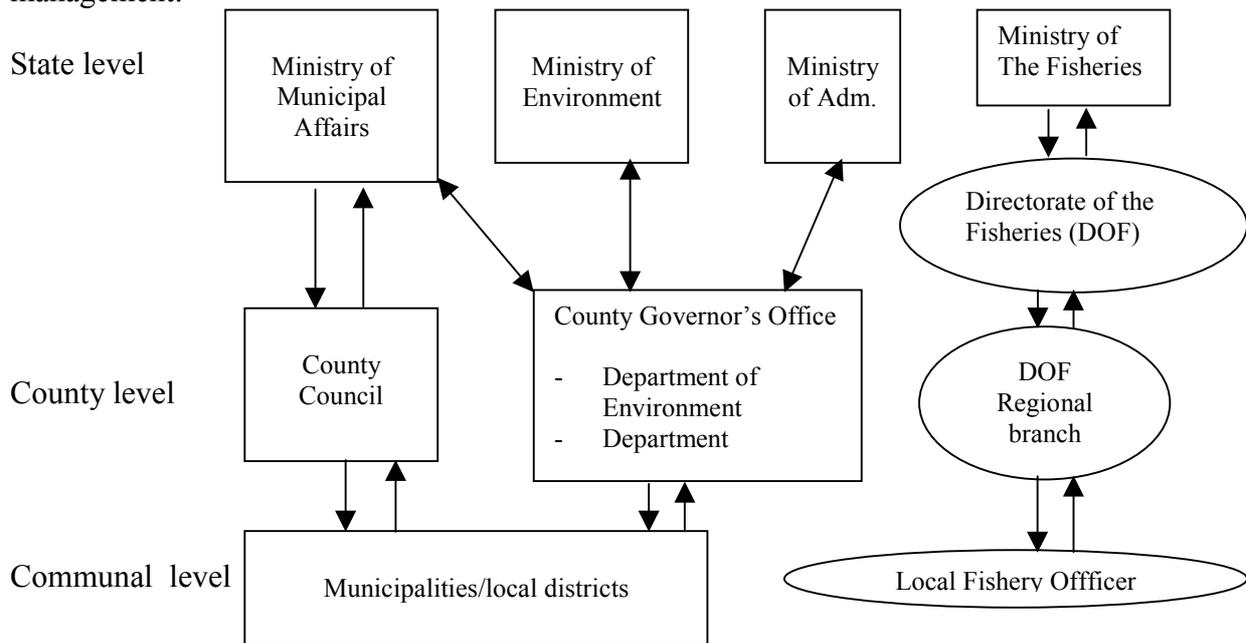
However, the Rio Declaration on environment and development could be said to set new standards for integrated coastal zone management. Among the principles, we should

especially mention the ecosystem approach and the principle of precaution, i.e. that lack of sufficient scientific knowledge shall not be used as a pretext for not taking action to protect the environment. And the Convention of Biodiversity was of special relevance for integrated coastal zone management, as a working programme for marine and coastal biodiversity was included. What especially should be noted, however, is the international frame for national policy and management that resulted from the Rio work. And that UN also followed up by the use of commissions and conferences for unsolved questions and evaluation of national practise (Lafferty et al.1997).

Other conventions with implications for coastal areas could also be mentioned; the Ramsar Convention on wetlands and the Bern Convention on protection, of endangered wild plants and animals in their natural habitats, the OSPAR convention on pollution and safeguarding of the marine environment as well as the similar objectives laid down in the North Sea co-operation to protect marine environment. But we also find more specific obligations for coastal zone management as in the case of the OECD recommendation on Integrated Coastal Zone Management (1992), containing principles and methods to be followed up by the member states. The European Council followed up by elaborating the report “Model-law on Sustainable Management of Coastal Zones. Pan-European Code of Conduct for Coastal Zones” (1998) giving guidelines for law making and management. It initiated the EU Commission’s “Demonstration Programme on Integrated Management in Coastal Zones 1997-99”, including also a Norwegian test case. The recent published publications from this programme; “Lessons from the European Commission’s Integrated Coastal Zone Management” and “Towards a European Integrated Coastal Zone Management Strategy”(1999), give principles and policy options, with an aim to establish The European Union as an important driving force for establishing and improving integrated coastal zone planning and management in the member states.

The Norwegian experience of an integrated coastal zone policy cannot be seen apart from this development work, but also has a background of its own. While the international foundation for conducting integrated coastal zone management gradually became more fully developed, the national obligation for Norway to perform sustainable management for living marine resources according to the principles of The Law of the Sea Convention had then been working for a number of years. Besides, the growing industrial activities at sea and shorelines, petroleum and fish farming, called for improved co-ordination of management of the sea areas during the 1970s. Spatial planning in the sea areas became from now on more important. The institutional development, including the reform of local government at the county level, improved the governing capacity, but implied at the same time more complexity and needs for co-ordinated action. The legal frame for planning in sea had to be improved, and such revisions were later made in the 1980s. However, the challenge of improved co-ordination in management was first and foremost to handle the complexity of the governing structure of the coastal waters, implying all levels of government and affected sector agencies. Some of this complexity and needs of co-ordination is shown in the following figure, pointing at the most important public actors and governing levels.

Fig. 1 Basic structure of the Norwegian governing levels and actors in coastal planning and management.



Success or failures in the efforts to perform integrated coastal zone management is highly dependant on the ability to co-operate among the involved actors and the governing levels. In the further discussion we chose here to differ between the “outer” and the “inner” sea.

1.3 The outer sea areas: towards integrated planning and management?

Some of the challenges Norway was facing in the management of the new sea based territories were new, while others were rooted in the old regime. They all coincided more or less with a division of the sea areas in an “inner” and an “outer” part. The latter brought on new governing tasks for petroleum related activities and national responsibility for conducting a sustainable management policy for fish stocks of the area, held jointly with neighbouring countries. These areas were previously common grounds with common resources. In the following we shall focus on the “outer commons”, where the new regime brought a change to the former property rights and the access structure.

The management of the large ecosystem of the migrating species, the straddling stocks, was one of the new challenges. One of these was the stock of Norwegian-Arctic cod, the economic and politically most important fish stock. While the former regime of international co-operation and management for cod stock, the North East Atlantic Fishery Commission (NEAFC) was losing ground due to its inefficiency (Gjørven & Lundby 1977), the managing task became bilateral with the establishment of the new economic zone. In fact, a co-operation with the former Soviet Union was already established in the wake of the breakdown of the NEAFC. The Norwegian-Russian Fishery Commission, established by a bilateral treaty in December 1974, was already operative at the introduction of the new regime. And from 1976 onwards it negotiated the quotas of shared stocks upon the advise of the biological recommendations from ICES (Sagdahl 1992). Despite some considerable fluctuations in the shared cod stock in the following years, the management policy has succeeded in preventing

the stock from collapse and from a total ban on fishing, as has been the case for the New Foundland cod stock.

Although the co-operation apparently seems to have been rather successful, it has been argued that the policy, as it developed, has not strictly been based on the principle of sustainability but on a varying blend of economic interests, political bargaining and biological facts. It has been characterised as “balancing a brink”, a policy in which the biological considerations have been rather neglected and with drastic variations in quotas as a result (Sagdahl 1985, 1992). Our purpose here is not to discuss this management policy as such, it is more to evaluate its potential contribution to integrated coastal zone management. Two aspects should be especially noted:

- One is the co-management aspect of the management policy which opens up for different strategies and management means. The traditional conflict between the coastal fishermen and the trawlers have accelerated after the quota system was introduced (Sagdahl 1992). An advisory committee for elaborating distributive solutions and regulatory policy has been put up, where representatives from the Fishermen Union and some other affected parties participate. It seems true to maintain that this committee is crucial to the understanding of political aspects of the management policy. What should especially be noted, is the interdependency of the way the decisional process is organised and its legitimising function. With 25 years of experience, this arrangement now seems well established, although the flow of solutions have been heavily disputed in periods when the total quota has been low. But the co-management experience as such, both concerning Russian and Norwegian interests, has proved rather successful in the daily problem-solving. It has represented arenas for learning and compromising where solutions could be worked out. Such experience could be said to represent the very core of the efforts of conducting an integrated coastal zone management policy. Over the years a co-management tradition for conflict resolution has developed, an organisational solution that seem to be gaining ground in the expanding management of the coast.
- The other aspect is not so promising in view of an integrated coastal zone management perspective. The lack of ability to conduct a multi-species-management policy has been prevailing despite the obvious need for such a policy. Although this management perspective has not totally been left out in the policy formation process, it has not been an important platform for creating a practical management policy. Fisheries have developed to be rather specialised and the level of interest conflicts and the political costs of imposing a purely biological based policy on the industry have been high. What has been regarded as biological facts, have also turned out to be inadequate and partly wrong, thus the uncertain and immediate character of the knowledge could also be said to be working against a multi-species model of management. And with interest groups pressing for favourable short-term management solutions, sustainability is not always the key word for understanding the process. One example is the interdependency of the capelin and the cod stocks of the north, where capelin constitute the most important feeding base for cod. Two completely different groups of actors have opposing interests in how these two stocks are managed by fishing regulations. Hence the regulatory policy for these two interacting species have often been poorly co-ordinated. Capelin fishing should not be allowed when a growing cod-stock need this as crucial fodder, but this has been very difficult to achieve. Multi-species management is therefore not only hard to achieve because of incomplete

scientific modelling, but also for political reasons. The political costs of imposing a more biological correct policy have often been regarded as too high.

For the same reasons learning from former experience is not evident. One could easily expect that the learning experience from the depletion of the herring resources by industrialised fishing in the 60ies and 70ies, should have implications for the later crisis of the cod fisheries. There is little evidence of that. Herring management constituted a different decisional segment at a time when single stock management was prevailing (Sagdahl 1992). Retrospectively speaking, the political aspects of management seems to shed considerably more light on the outcomes than biological facts, models and learning experience.

In addition to the management challenges of the renewable resources of the coastal zone, the growing petroleum industry represented a pressing problem since the start in the mid 1960s. The introduction and adjustment to existing economic activities in the zone, represented both politically and biologically careful planning and policy formation. And when oil was found in 1970, the need for a co-ordinated policy increased. Probably no other sea based activity has made a bigger contribution to integrated planning and inter-sector policy formulation of the "outer commons." Although the exploring drilling phase is different from the phase of production, the former has probably been the most political difficult one to handle. When oil is found, the economic values involved will easily lead to a process where other affected interests to the areas have to adjust. But opening up new blocs for exploration drilling, implies the possibility for loosing the area for fishing, if petroleum is found. This has presupposed careful political calculation and outlining of a policy. Besides, there is the potential danger of pollution by a blow-out, which is regarded higher in the exploring than in the production phase.

The expansion of oil activity areas to areas north of the 62 latitude, represented a far more complex political challenge than the situation further south (Seierstad, Sagdahl and Sandberg 1985). A serious blow out on the Ekkofisk oil field in 1977 proved the dangers of severe pollution. The spawning areas around the Lofoten Isles, as a natural barrier for drifting oilspills and pollution from the waters further south due to the Gulf stream, also represented a political barrier to expansion of drilling areas. The sub-arctic climate represented a more fragile ecosystem and a longer period of absorption of any spills. The Fishermen Union argued that the security level was insufficient and that it had to be acceptable before approving the expansion, but the union was not able to prevent it. In general, the fishermen's organisation felt inadequately represented in the oil related decision processes, despite the fact that the fisheries were negatively affected.

The change to a more co-ordinated policy from 1977 onwards, was partly a response to the criticism raised as well as to the expansion plans of drilling in the northern waters. The opening of new exploration areas now demanded Environmental Impact Assessments and further consultative arrangements were made to mitigate the criticism from the Fishermen Union. But despite the measures taken, the expansion to the northern waters were contested by fishermen due to what they still regarded as insufficient security. But once established, the incremental nature of the policy led to a growing and rather widespread exploration activity - although the fishermen union never has accepted the security measures as sufficient. Thus Andresen and Fløistad conclude the following at the end of the 1980s:

"As it seems now, there are so many and such strong interests attached to the continued expansion of drilling on the northern continental shelf that the fisheries sector does not have

much chance of modifying the petroleum activity. They might get compensation, but they probably cannot influence the speed or direction in which the petroleum activity is going”(Andresen and Fløistad 1988).

More than 10 years later we may add that it is not the increased influence of the fishermen, but rather market forces that slowed down oil related activities in the north at the end of the 1990s. The fishery sector is requesting co-ordination with their interests. Or as the mayor of one of the most oilspill- exposed municipalities of the Lofoten Isles publicly stated: he opposed the development of an expanding petroleum sector, but realised that the political battle was going to be lost.

Summing up the experience of management concerning the outer waters, it can hardly be called integrated. Sector management has continuously developed and improved, but there are still considerable lack of both inter-sector and intra-sector co-ordinated management. This is neither a question of giving higher priority to one sector, nor that there is no longer a need for this kind of co-ordination. The main explanation is most likely to be found in the organisation of public sector and the belonging political networks. The state is not a unilateral actor, but appears to be a multi-institutional one with narrow political space for elaborating and conducting a supreme and integrated policy(Olsen 1978). The perspectives on management is first and foremost rooted in the rationales of the sectors and the belonging interest structure despite ratified international conventions and commitment to supreme managing principles. Besides, the considerations of economic growth, sustainable management of natural resources, biodiversity and the precautionary principle on do not easily fit together. But this rationale has never been seriously challenged and put on the national political agenda. The policies therefore still remained rather disintegrated at the end of the 1990s (Lafferty et al.1997).

1.4 The inner sea areas: From coastal commons to planning objects

From being a rather open common with no or few formal restrictions on harvesting of the local resources and access, the activities on the coast are increasingly subordinated to new and restricting institutions. Since 1989 also the small-scale inshore fisheries have been subject to licensing, limited entry and harvest quotas. Further, these functional restrictions have increasingly been supplemented with territorial or spatial restrictions, as the coastal commons throughout the 1980s and 1990s have increasingly been regulated through spatial planning and other measures with spatial consequences.

While the growing petroleum industry and the national responsibility for management of the renewable resources that followed from the establishment of the economic zone gave an impetus to planning and co-ordination for the outer sea areas, the emergence of the fish farming industry were the propelling force for planning of the inner sea areas. This industry developed partly on the basis of the collapse of the industrialised herring fishery in the western part of the country, where capital had been accumulated during previous prosperous years. From an entrepreneurial start in the 1960s, this developed into a promising industry during the 1970s and a spread northward along the coast (Seierstad et al. 1985).

It soon became subject to licensing by the Aquaculture Act of 1981, later revised in 1985. This act provided the legal basis for controlling the size of the farms⁸. Other requirements are pertaining to pollution and fish diseases and that the installations are not in conflict with local interests. The public authorities also decided the total number of licenses granted, and how they should be distributed among counties and communes. The total number of salmon licenses is approximately 760, representing a total license volume of about 9.118.000 m³. Licenses for salmon and rainbow trout is thus a scarce coastal asset in most coastal areas in Norway as very few new licenses have been granted since the Aquaculture Act was approved in 1985. However in 1988 and 1999⁹ a few new licenses were allocated to Troms and Finnmark in an attempt to promote the development of the aquaculture industry also in these counties.

One license holder may have an infinite number of locations¹⁰, but most have between two and five. The number required varies according to the quality of the locations and the cage-volume they are authorised for. When licenses are redistributed, the fisheries authorities emphasise that the applicants already should have licenses for 3-5 localities, in order to ensure that the enterprise will be economically viable. A rule of thumb is that there should be minimum 1 km between ponds with different year classes, and minimum 5 km between licenses with different owners. However, such decisions are based on discretion and are also related to the direction of the main sea currents in the area.

Contrary to capture fisheries, the mariculture industry called for spatial planning to expand and prosper. Capture fisheries are always unpredictable due to its complex and migratory character, while in mariculture many aspects of the production process can be brought under human control. The fish is the critical resource in capture fisheries, and the search for the resource is an important part of the production process. In mariculture based on open cage technology or sea ranching, the location, included water quality, current, depth etc., is the critical natural resource. The environmental conditions under which production takes place can mainly be controlled through the selection of the locations. Smolt or farmed fingerlings are here regarded as input in the production process similar to fodder. So while nature's contribution to capture fisheries is the fish, nature's contribution to mariculture is the locations. The point to be made here is that spatial planning and control of sea territory are generally interfering more with mariculture than with capture fisheries.

To meet these challenges by planning and public management, we find that the first planning efforts focused on facilitating the development of the aquaculture industry, and were aimed at providing infrastructure and sufficient suitable locations. However, as the industry developed¹¹, with and without public support, the planning efforts were increasingly oriented towards solving the conflicts caused by the growth of aquaculture industry. Or at least it should regulate the expansion of the industry and its interference with other coastal activities. Thus, while coastal zone planning in the beginning were aimed at supporting aquaculture

⁸ One salmon license gives the proprietor permission to deploy open cages with a maximum volume of 12000 m³. This volume requires a surface area of approximately 2.800 m². Salmon farming is also currently temporarily regulated through a system of feed quotas per license.

⁹ Troms 6, Finnmark 20.

¹⁰ The total number of approved aquaculture localities in Norway exceed 2.700 (St.meld. nr. 43 (1998-99)pp. 55)

¹¹ The industry tended often to develop in clusters, which exerted pressure on other activities in the coastal zone and thus forcing the communes to act. In the municipality of Herøy in Nordland County, where about 20 permits were clustered too densely in the early 1980s, we find an example of a perceived local need to act for coastal planning. Herøy's coastal plan of 1987, developed in co-operation with the county administration of Nordland and state agencies at the county level, was a pioneer work in this respect.

development, it became increasingly concerned with controlling and regulating the expansion of the industry vis-à-vis other coastal interests.

In the mid-80s the rapid and rather uncontrolled growth of the fish farming industry and the subsequent spatial seizure led both state agencies, communes and counties to focus on how to plan, manage and co-ordinate the activity in their coastal waters (Bennett 1996a:204). The industry both added to the pressure on the inherently sensitive, and in many cases already stressed, environments and caused an increased competition for space and locations along the coast. The rapid growth and the subsequent need for suitable locations led to management and commercial problems as these difficulties were not solved as fast as the industry developed. In addition, the area occupied by each operation became larger due to restriction on traffic and fishing in the adjacency of the plants. The need for space further increased when the industry was struck by diseases during the 1980's. The diseases developed partly as an unintended result of the form for production control chosen (volume) by the government, and partly as a consequence of the fact that farms in the early years were located in sheltered bays and inlets with insufficient current and flow of water. The fight against the diseases, increased area for buffer areas and reserve locations, together with the need to separate different generations of fish, resulted in numerous relocations and a drastic expansion of the spatial requirements of the industry.

It became increasingly clear that decisions on licensing and location of aquaculture plants could no longer be made on a piecemeal basis (Bennett 1996a:204). The potential aggravated conflicts with other uses of the coastal zone made it necessary to co-ordinate resource-related and spatial issues within the framework of a communal structure (spatial) plans.

The Ministry of Environmental Affairs took soon an interest in planning and conflict resolution at the coast, a domain that formerly belonged to the Ministry of the Fisheries. But spatial planning was a responsibility for the environmental authorities, although the legal framework for sea planning was poorly developed. In the early 80s the task of spatial planning of the sea areas was also suffering from incomplete knowledge of the needs and scope of planning. The ministry followed up and co-financed an initiative from the County of Sogn and Fjordane in 1984 to take on a project on coastal zone mapping. The purpose was to map the major interests and conflicts in the county's coastal zone. A steering group appointed and led by the ministry was set up and experience from other counties were collected and evaluated. The project displayed a variety of interests located to the "inner" waters as well as the problem-generating aspects of the growth of the aquaculture industry and the general lack of integration and co-operation among the affected actors. Although other counties could have displayed a somewhat different scenario, this project documented some of the management challenges for the years to come.

The project reports were presented in 1987 and gave valuable background for further policy-making. A comprehensive mapping and planning project for suitable locations for aquaculture was launched the same year (The LENKA project), having matured since 1986 when the Ministry of the Fisheries and for environment had set up an inter-ministerial working group to outline future policy for the aquaculture industry. It was initiated by the department for resources within the Ministry of Environmental Affairs, which with success had carried through an evaluation of watercourses at the national level. Besides this, some of the pioneer fish farming counties at the western coast had started up their own planning. A grand plan for the further development of the aquaculture industry at the coast and balanced against

conflicting interests, was also regarded a handy political tool to avoid future conflicts and to live up to the “Brundtland Commission’s concept of a “sustainable development” of the coast.

The LENKA project aimed at assessing the potential and carrying capacity of the coastline with reference to further expansion of the aquaculture industry. The assessment of the aquaculture locations along the coast and their carrying capacity was carried out through a territorial planning approach. Due to a rigid project design and comprehensive and ambitious data collection and processing, the project was not able to keep up with the rapid development of the aquaculture sector. Thus, the project was said to solve “yesterdays’ problems” and were not of great use to the industry. However, the project provided the communes and counties with rather detailed information about their coastal zones that later became useful as input in the planning processes.

Although the value of the LENKA project became disputed, it represented an important learning process. The ambition of the Ministry of Environmental Affairs to make a grand plan for the coastal zone, had to be revised and adjusted according to the complexity of the task, both politically and geographically. The problem structure showed great variations along the coast, and it was rapidly changing.

The ideas that further LENKA work should be followed up by the counties and the communes as part of their spatial planning, was just a continuation of a process that had already started and were developing. The pioneering fish farming counties at the western coast had already gained some experience in coastal planning. At the northern coast where the fish farming industry had a slower start, a division of the Nordland County administration had supported and guided local sea planning at the communal level since the early 80s. The experience gained from the work of making a coastal plan for the commune of Herøy in 1985-86, resulted in general guidelines for coastal zone planning. They were presented in early February 1987 as guidelines for the communes of the county and recommended that sea planning should be a part of the communal plans and that such plans should contain more than just suitable locations for fish farming.

A revision of the Planning and Building Act in 1985 had opened up for limited planning in the coastal zone¹². Besides, a county reform in 1975 had established a permanent county administration, direct political representation to the County Council as well as direct taxation to fund the new established institution. Planning was considered to be an important task and the new institution had a special responsibility to assist and guide planning at the primary communal level. Nordland County, covering 45 municipalities (communes), well staffed and with a considerable planning capacity, soon became a pioneer in coastal zone planning. A plan for regional development of aquaculture was launched as early as 1985. The regional LENKA plan was finished in 1989 and later followed up in 1992 by a new county plan for aquaculture.

¹² The legal background for sea planning was rendered for in detail with special reference to “Use and protection of watercourses and sea areas at the coast” in The Planning and Building Act of 1985.

The LENKA-project

The objective of the LENKA work (the Norwegian abbreviation of a “countrywide evaluation of the Norwegian coastal zone and watercourses for suitable location of aquaculture”) was to assess the potential and carrying capacity for aquaculture along the coast. It also aimed to provide informational input to commune and county planning in their planning efforts to find suitable localisation of new aquaculture plants. The potential for inter-sector conflicts was also mirrored by the fact that the project involved co-operation by four ministries. A special secretariat was put up under the Ministry of Environmental Affairs, but both the Ministry of the Fisheries, the Ministry of Agriculture and the Ministry of Municipal Affairs contributed to its implementation. Decentralised sub-secretariats were also put up along the coast. The counties and the state sector administration of environmental questions as well as the one for the fisheries at the county level, became central actors in the implementation of the project. The co-operative character of the work reflected the need for a common framework to be developed. The project ended in 1990 and were presented to Parliament as a white-paper with policy recommendations. It was now up to the coastal municipalities to take the gathered information into consideration in their local implementation of the Planning and Building Act. According to the white paper, further LENKA work should be integrated in the revision of the county planning for the sea areas. It was also recommended that future co-operation between the state sector agencies for the fisheries and the one for the environment should be formalised in matters of protection of marine areas (NOU 1990:2).

The evaluation of the project characterised it as a ministerial compromise comprising several unwilling actors. The advocates for the project were outnumbered by the actors opposing or taking part reluctantly. Both the Ministry of the Fisheries and the Ministry of Municipal Affairs were sceptical. Also the nature protection department of the Ministry of Environmental Affairs was sceptical to the scope of planning. And some important actors like the fish farming industry was not included at all in the work. It soon turned out to a situation of rivalry within the state sector, preventing local co-operation and learning. It became a “top-down” oriented project, where most of the energy was spent on the implementation of the negotiated design contrary to a open planning situation of learning and co-operation with the local affected parties. Both the project methods and the way it was organised was said to have been inspired by another grand top-down planning project, the national plan for watercourses, also initiated by the national environmental authorities (Gulowsen, Mariussen and Kanstad 1991).

Even though the outcomes of the project became disputed, some regions found it to be useful. Variations in needs and local organisation of the LENKA work contributed to differences in the regional evaluations of the outcomes. In some regions the planning process had more of a bottom- up character, while other regions were more influenced by the superior organisation of the project.

Besides, some of the counties like Hordland with an already well established fish farming industry, became central as a model and empirical test case, influencing the elaboration of the plan.

To summarise, it seems that the LENKA work displays the very core of the difficulties found in integrated coastal zone planning and management. It affects a multi-institutional landscape, different managing levels with differences in perspectives, perceptions of problems and solutions. Working out legitimate policy solutions under such conditions is less likely to occur than failures.

The general picture of coastal zone planning and management in the 1980s is characterised by a period of development, by governing ambitions and conflicts at different managing levels, by poorly co-ordinated planning, by learning from failures and by learning by doing. It developed rather incrementally, influenced by practises and institutional frameworks used in spatial planning on land. However, one feature of the coastal waters that causes additional difficulties compared to most land-based management, is that many coastal resources are so-called common pool resources. Common pool resources share two basic characteristics, indivisibility and interdependency, that both call for co-ordination or co-operation among the user-groups. First, such resources are difficult to put under private ownership control as they cannot be easily divided. Secondly, the actions of one party are affected by or affect the outcome of others' actions. Thus, the coast does not only cause uncertainties and complexity in terms of biology, it also demands unusual and complex institutional arrangements (Clark 1997:192). The needs and problems of co-ordinated action and integrated solutions will inevitably increase under such terms. This may be seen from the experience in coastal zone planning at the communal level.

1.5 Coastal zone planning at the commune and county level

The development of coastal zone planning at the communal level is closely tied to the development of the legal framework. The first sign of an explicit coastal zone intervention in local waters was the temporary Shore Act of 1965, which was later built into and replaced by the Shore Planning Act of 1971. This Act was intended to provide communes with the means to regulate unwanted building development within 100 meters of the shoreline and to develop co-ordinated spatial plans for these areas. However, as the act was limited in scope, few plans were made and a large numbers of exemptions were granted. This 100 meter zone is now defined as an area of national interest throughout the country¹³.

In order to cope with the increase in actual and potential conflicts in the coastal zone, mainly caused by increases in leisure activities, construction of second homes, and particularly, fish farming, a comprehensive national ICZM program was launched by an amendment to the Planning and Building Act in 1989. Through this reform the legal framework was improved for spatial planning in local sea areas. The main responsibility for planning in the coastal zone (90 126 km²) was delegated to the approximately 280 communes (rural municipalities) and 15 counties (provinces) in Norway that border the sea.

The Planning and Building Act (PBA) is an instrument for weighing political considerations between development and conservation, for co-ordination between sectors and administrative levels and for decision-making by local authorities. It is thus assumed that this Act will co-ordinate state, county and commune activities. The general purpose of the PBA is to strategically co-ordinate physical, economic, social and cultural development within counties and communes. The main planning tool is the communal master or development plan which the "structure plan" is a part of. The plan is seen as a framing device for subsequent detailed planning, management and decision-making (Bennett 1996a:206). Planning according to the Act has an iterative and bi-focal nature as both long-term and short-term planning are required. The plan requires a long-term section that outlines the goals and the guidelines for sectoral planning, and a spatial plan for the management of areas and resources. In addition, a short-term plan for sectoral operation is required.

¹³ In 1985 this Act was incorporated in the new Planning and Building Act as § 17-2. ¹⁴ In some areas are the

In contrast to many other ICZM programs, each coastal commune and county in Norway is a relatively autonomous planning unit that sets its own measures, strategies and goals within the given institutional framework¹⁴. The commune is both the lowest administrative level of the implementation apparatus of the state, and a local political institution in its own right with substantial autonomy. Thus, when it comes to planning, the communes are free to do almost whatever they want as long as the proper procedures are followed, and their plan does not conflict with laws or national interests managed by the ministries, directorates, or the regional state branches.

Thus, by the revision of the Planning and Building Act in 1989, an important step was taken by improving the legal framework for communal planning in the sea. In this revision, the government empowered the communal level to solve their own needs for spatial planning in the sea. But the autonomy of the 280 communes and 15 counties that make up the coastal zone is rather limited and is constrained by the influence of sectoral laws. Neither the communes nor the counties play an important role in monitoring, enforcing and policing the measures decided upon.

The basic purpose of Norwegian coastal zone planning is to control construction and other actions in the coastal zone, and it is thus an attempt to guide future development as well as resolving current user conflicts. In the PBA, planning at sea is defined as a right or entitlement, not an obligation, and the planning can only take place within the baseline (grunnlinje), which is defined as a line connecting the outermost skerries and points of land (Bennett 1996a:201).

Coastal zone planning is discretionary, and as far as necessary the structure plan shall indicate:

“Areas for special use or conservation of sea and rivers, including areas for traffic, fishing, aquaculture, nature and recreation, either separately or in combination with one or several of the use categories mentioned”. (Planning and Building Act § 20-4, no. 5, as translated by Bennett (1996a:207)

However, the legal meaning of these categories is unclear, and whether the list of categories is exhaustive, and it has been disputed whether or not the law allows supplementary rules to be attached to them (Bennett 1996a:207). Furthermore, the interpretation of their content and intention may vary between the communes (Jørgensen 1992).

“This situation carries a good deal of frustration for communes that see planning as a means to gaining greater control over local resources, but find, in attempting to use supplementary regulations, that they come up against special laws and sectoral fields of responsibility” (Bennett 1996a:207)

Both counties and communes have asked for clarification of the relationship between the PBA and the special legislation. However, such a clarification requires a delimitation between several ministries and has so far not been fully undertaken.

The core of the Norwegian ICZM system are the communes, and the responsibility for ICZM is thus fairly decentralised and built into genuine political arenas. Communes are nevertheless supposed to seek the advice and co-operation of superior authorities at an early stage in the planning and decision-making process. The planning authorities are instructed through the PBA to contribute to vertical and horizontal co-ordination by making contacts in the initial

phase with all relevant public bodies, private organisations, stakeholders, and others that have interests in the issue subject to planning. The main issues in the structure plan must, while still at the draft stage, be communicated to the general public so that these issues can be openly debated. After the first approval in the commune council, the plan is sent to the relevant authorities, organisations and others with a particular interest in the plan for comments. It is also made easily accessible to the broader public. When finally approved by the commune council, the spatial part (the “structure plan”) becomes legally binding.

The Planning and Building Act conceives of planning as a continuous process that is required to be sequential and subject to revision every four years. The Act thus reflects a perspective in which planning is viewed as more of a normative social process than a technocratic exercise, and social learning, openness, information and participation is heavily emphasised. A framework for consensus building and conflict resolution processes is thus institutionalised in the PBA.

The expansion of the scope of the Planning and Building Act to include also the sea., encouraged many communes and counties to develop plans for their coastal waters. There is, however, limited information available about the total extent and character of local planning along the coasts and what kind of planning categories that were predominant. The available knowledge about these issues is thus rather impressionistic. However, compared to planning on land, communal planning in sea has so far only taken place to very a modest extent. Of the 280 municipalities along the coast, some 180 did in 1996 report that they had or was about to elaborate planning for their coastal zones (Sandersen 1998). Coastal zone planning in Norway is thus still at an early state of development. This situation is also reflected in the case of Nordland. Of the 45 communes in the county, only 13 have coastal zone plans that have been completely approved and in force. About 14 additional communes have embarked upon the planning process, although of these, five have been stalled due to objections from superior authorities. Judged from this development, it seems that planning at the county level has been an easier task than at the primary municipal level. The counties are responsible for preparing plans in order both to ensure the desired development of society and to adapt national objectives to regional conditions. The spatial parts is supposed to co-ordinate and provide guidelines for spatial planning at both state and commune levels. As already mentioned, coastal zone management in Norway early developed at the county level. However, during the last decade the counties have lagged behind in the process, mainly for structural reasons.

Nordland County was in this respect ahead of the general development. Through guidance of coastal planning at the municipal level in the early 80s, the county administration gained experience and was able to keep ahead of the development at the national level, where the Ministry of Environmental Affairs was pushing for results. The county came up with a new and updated coastal plan in 1997, closely linked to the follow-up of the Rio recommendation of Local and Regional Agendas 21.

The Ministry of Environmental Affairs has encouraged counties to develop such plans, in order to gain experience and competence in co-ordination of administrative routines and planning. Three counties without plans have been chosen to participate in a project on integrated coastal zone planning, these are also backed by the Ministry of Fisheries and the Ministry of Administration. A central criteria was the documentation of an approach for co-operation among the most important actors, the county and the state agencies at the county level, as well as for the coastal municipalities of the county (St.meld. nr. 29 1996-97). The chosen criteria illustrate some of the main problems of integrated planning of the coastal

zone. These problems were highlighted in a former project on regional planning in Nordland County; the Helgeland project.

The communes apparently perceive the needs for planning differently. While environmental questions are regarded important for coastal zone planning in the southern part of the country, they are of decreasing relevance as one moves northward (Bennet 1996). These questions are not regarded as important in the north, where the motivation for planning is more closely linked to questions pertaining to economic development. And as management of the most important marine resources are subject to management by superior sector agencies, coastal zone planning may be regarded as a waste of time (Sandersen 1998).

Coastal zone planning does apparently not seem to be an objective of high priority for many of the coastal municipalities. There is probably a number of reasons for this. Planning implies an activation of interests, conflicts and political noise. To leave out planning and the political responsibility for disputed outcomes, may sometimes be preferable for local politicians. But the implications of this are often neglected. By this they open up for superior sector authorities to settle potential conflicts among affected resource users of the zone. And when such situations occur, they often become disputed at the local level.

Many communes had unrealistic expectations about the scope and space for political action produced by the PBL in the coastal zone. During the planning process they discovered limitations both inherent in the Planning and Building Act and in the institutional tug of war between government agencies at the regional level.

Some communes wanted to regulate the local coastal fisheries and prevent damaging effects on local resources from visiting shrimp-trawlers, purse seiners and Danish seines. The intention was often to protect the local resources and to favour local resource use. Such measures were in most cases rejected by the state sector authorities for fisheries with reference to the Saltwater Fishing Act. According to this, extraction and harvesting of marine resources could not be regulated by commune and county authorities through the Planning and Building Act. Only the Saltwater Fishing Act allowed such regulations and when conflicts arise between the two laws, the specialised Saltwater Fishing Act is the superior. However, the PBA makes it possible to protect for instance the areas for local spawning and the feeding areas for fry. But such concerns are also subject to regulations through the Saltwater Fishing Act if the facts and needs are conceived by the fishing authorities. This double-barrel legal structure is one of the problems in coastal resource management.

The Helgeland Project

Nordland County in co-operation with the Ministry of Environmental Affairs launched the “Regional Coastal Zone Plan for Helgeland”-project in 1994. In the beginning the project aimed at producing one comprehensive coastal zone plan covering the entire region, consisting of 17 communes. However, a “region” is not a juridical subject entitled by law to undertake spatial planning. The aim then changed to provide knowledge and to establish meeting points and to co-ordinate and coach the participating communes through the planning process. The project was finalised in 1995, representing a pioneer work and was entered as the Norwegian contribution to the European Demonstration Programme for Integrated Coastal Zone Management.

The Helgeland project revealed some common fallacies of co-ordinated planning of the coastal zones. The municipalities differed in planning capacity and in the motivation for sea planning. The planning process was also organised in different ways, varying in political centrality and in communicative patterns (Jørgensen 1995).

One of the main objectives of the project was to define the judicial problems of enabling efficient planning and implementation. Conflicts between the municipalities and the state’s sector administration of the fisheries and aquaculture as well as the for environmental department were soon revealed. The most crucial obstacle to efficient coastal zone management was “the objection right” of agencies of the state at county level. Protests from individual or organised interests, combined with such an objection right, did in many cases complicate and modify the governing ambition of the plan. In fact, the experience of the Helgeland project was that it was easier to solve local apposing interests than disputes where superior sector administration was involved. Although representatives from the state sector administration at the county level were brought in during the local planning process, they were still likely to object to the plan afterwards. The conclusion was that for local level coastal zone planning, inter-sector co-ordination at regional and national governing levels were the main obstacles.

By the very organisation of the planning process, making it a meeting place for communication and problem solving, local participants gained experience and found the meetings stimulating for further work (Jørgensen 1995). The project was a seminal example of joint and co-ordinated coastal zone planning refers to this exercise and concludes. In a recent white-paper (St. meld. nr. 29 1996-97) from the Ministry of Environmental Affairs, that the experience of co-operation and the establishment of a shared secretariat for guiding and assistance could improve planning at the municipal level.

The Coastal Zone Plan for Gildeskål Municipality

The coastal zone plan of Gildeskaal was partly a product of the Helgeland pilot project of coastal zone planning and partly a product of the pressure from the local fishermen. This coastal district is typical for the region, a rugged landscape with numerous fjords and isles and communities located close to the sea. The population is rather small, close to 2500 inhabitants. Traditional coastal fishing is still important. Three fish farms with a growing activity and a salmon slaughter plant provide jobs for about 50 persons. The sea belt is also important for leisure purposes and the number of cabins almost balance the number of ordinary houses. Some smaller parts of the isles and the coast have been suggested by superior environmental authorities to become a protected coastal landscape.

The planning process lasted for four years. This was mainly because of a number of conflicts. The way it was organised also reflects the involved tensions and the potential for open conflicts. As in the Helgeland pilot case the conflicts evolved when the superior state sector agencies interfered in the planning process. The state fishery agency made a formal protest to the scope of planning and to restrictions for aqua-culture for the suggested protected areas. The agency was also pressing for fish farming opportunities in general and was not willing to pay any attention to the concerns of wild salmon, arguing that there was no proof of any negative impacts. The state environmental agency exerted some influence on the locations of future salmon ponds close to salmon river inlets, but made a priority of protesting to fish farming in the suggested protected area. The local council had made a deal with the state fishery agency to accept such activities and suggested that the protection status of the area should be changed to a bird protection area. As part of the plan is subject to approval at the Ministry of Environmental Affairs, only the remaining part is working as a judicially binding spatial plan according to the Plan and Building Act.

The Coastman case study of the process (Coping with the Coast) illustrate the rather classic conflict that also evolved in the Helgeland pilot project. Superior state agencies were poorly correlated. A domain conflict was identified while the fishery agency finds itself under pressure from environmental law and transboundary planning and management. The agency defends its traditional position in management and wants to limit planning to a minimum. The local civil service experience themselves as being squeezed in such matters and that local priorities have to give way. Besides, the co-ordination with superior planning seems to constitute a local problem. The concerns for wild salmon and sea trout are for instance poorly addressed in the plan, and especially the concerns for salmon stocks in a neighbouring local district. The local ecosystem limits are not correlated with the local boundaries of planning, something that illustrates some of the shortcomings of coastal zone planning at the municipal level of government.

The Lurøy case

Lurøy commune is located in Ytre Helgeland in the southern part of the county, just south of the Arctic circle. Lurøy is with 1372 islands and islets and a coastline stretching 726 km a typical island commune. Roughly 4/5 of the area of the commune is comprised by sea. About 2/3 of the population of slightly more than 2100 live on the islands. The commune is also home for a rich variety of birds, of which several are protected, among them the rare sea eagle and the sea parrot/puffin. Lurøy was the pioneer commune in Northern Norway in fish farming, with its first fish farm established as early as 1972. The commune is today the largest producer of salmon in the region. The local fisheries comprises some 160 vessels, of which some 130 are under 10 meters, and is in a general state of decline.

During the last half of the last century there have been relatively few space-related or resource-related conflicts in the coastal zone of Lurøy, basically because most uses were multiple and transitory. However, when the fish farming industry slowly emerged in the early 1970's this peaceful picture changed slightly. In the 1980's and the early 1990's there were some conflicts between fishing and fish farming, related primarily to the location of fish farming cages, but also to the spread of diseases and to some extent to genetic pollution. Since late 1980's, however, a general relocation of many of the farms to more open areas has taken place as a result of new technology and improved knowledge. To some extent this has reduced the conflict potential, even if the relocation has also created new conflicts in the short run. Also a general decline in local fisheries have contributed to the low level of conflict.

The commune is generally plan-oriented and developed a fish farming plan in the last part of the 1980's, but it could not keep up with the fast development of the industry and did never had much effect. Lurøy has since 1993 participated in the joint coastal zone planning project "Regional Coastal Zone Planning in Helgeland". The two main purposes of the project were to increase the level of knowledge and competence in coastal zone planning, and to help each commune to prepare and approve a coastal zone plan by the end of the project. Its intentions were furthermore to insure planning quality, to improve co-ordination between communes, and to improve communication between communes and regional and national authorities.

Large part of the project in Lurøy was conducted as an administrative process, with substantial participation by the stakeholders mainly in the registration phase. The registration was comprehensive and was intended to form the basis for a coastal resource database. The greatest benefits for Lurøy were probably related to capacity-building, the creation of learning environments and arenas for discussions, informal networking and exchange of information and experience. The lack of interest on the part of local politicians remained a problem throughout the project period.

The County Governor's Environmental Division had since early 1982 worked with a comprehensive county-wide coastal protection plan comprising areas of zoological, geological, and botanical importance. Thus, the values the plan sought to protect were terrestrial. In 1995 a draft coastal protection plan was launched. Lurøy had previously been in communication with the Environmental Division about several areas and issues in connection with various spatial plans. After instructions from the Environmental Division three large areas in Lurøy (Lundeura, Svenningen, Risvær/Sandvær) had already been protected as nature conservation reserves in the commune's 1993 structure plan, in anticipation that they would later become protected through the coastal protection plan. The protection plan for Sandvær/Risvær (bird protection area) also included parts of the Solvær-area. The commune's main concern regarding protection was the restriction of the building of cabins in the archipelago.

The Environmental Division's draft plan, however, also excluded fish farming in the Solvær-area. Four of the fish farmers in Lurøy operate adjacent to this area and several applications for additional fish farming locations were now turned down by the Environmental Division. Commune representatives and the fish farmers felt "ambushed" by the Environmental Division, and heavily resisted their restrictions on fish farming in the area. Even the Environmental Division's right to stop certain activities many years in advance of a coming plan was questioned. The fact that more than 90% of the protected area was sea, while the objects of protection were on land was also hard for the commune to accept, particularly for the fish farmers, who were generally very upset about the suggestions in the draft coastal protection plan. Many also clearly rejected the argument that buffer zones in water might be required.

The fish farmers' arguments were supported by the Directorate of Fisheries regional branch. In 1994 the Fisheries Officer had approved an application for a fish farming location in the area, and some claim this was done to challenge the Environmental Division. Thus the area became "a battleground" for the two state institutions. In this situation Lurøy became trapped in a deadlock. If the commune planned the area for aquaculture, the Environmental Division would reject it, and if the commune on the other hand designated it for protection, the Fisheries Officer would disapprove the plan.

The coastal zone planning process in Lurøy was put to an halt during fall 1995 as the planner did not want to waste time and energy running the process as long as the dispute between the Fisheries Officer and the Environmental Division remained unsettled. In addition several other fields, related to harbors, residential areas etc., were in need of planning, and with limited capacity the planner decided to put more efforts into these plans, at the expense of coastal zone planning. Also, to some extent these other plans, particularly the local plans and the harbour plan, covered issues that would otherwise have been dealt with in the coastal zone plan, and, thus, reduced the need for it. Thus, the situation in Lurøy today is that only an unapproved draft coastal zone plan from 1995 exists, and this is not explicitly or deliberately used as a guiding tool in communal decision-making.

Other communes wanted to exclude fish farming in some parts of the commune. Typically, these areas were designated as multi-purpose areas, which did not include aquaculture. This gave rise to conflicts with both the County Governors' Environmental Department and the Directorate of the Fisheries' regional branch. The latter often held that communal planning in the sea should only take place in areas with documented conflicts, and were generally reluctant to endorse communal coastal plans that were not "aquaculture-friendly". However, this meant that the communes should plan as little as possible, which implies that they are not allowed to decide their own planning need. Many local politicians were upset about this encroachment on the communes autonomy. Most of them regard aquaculture as a promising industry in terms of employment and local development, and would only establish barriers to aquaculture development if they had very good reasons for doing so. However, on some occasions the communes were also "instructed" by the Environmental Division of the County Governor's Office to exclude aquaculture in some areas, particularly when the given areas were expected to be protected at a later stage according to the Natural Protection Act. These communes experienced that if they designated an area for aquaculture, the Environmental Division would object, and if they designated it to purposes that excluded aquaculture, the regional branch of the Directorate of the Fisheries would object.

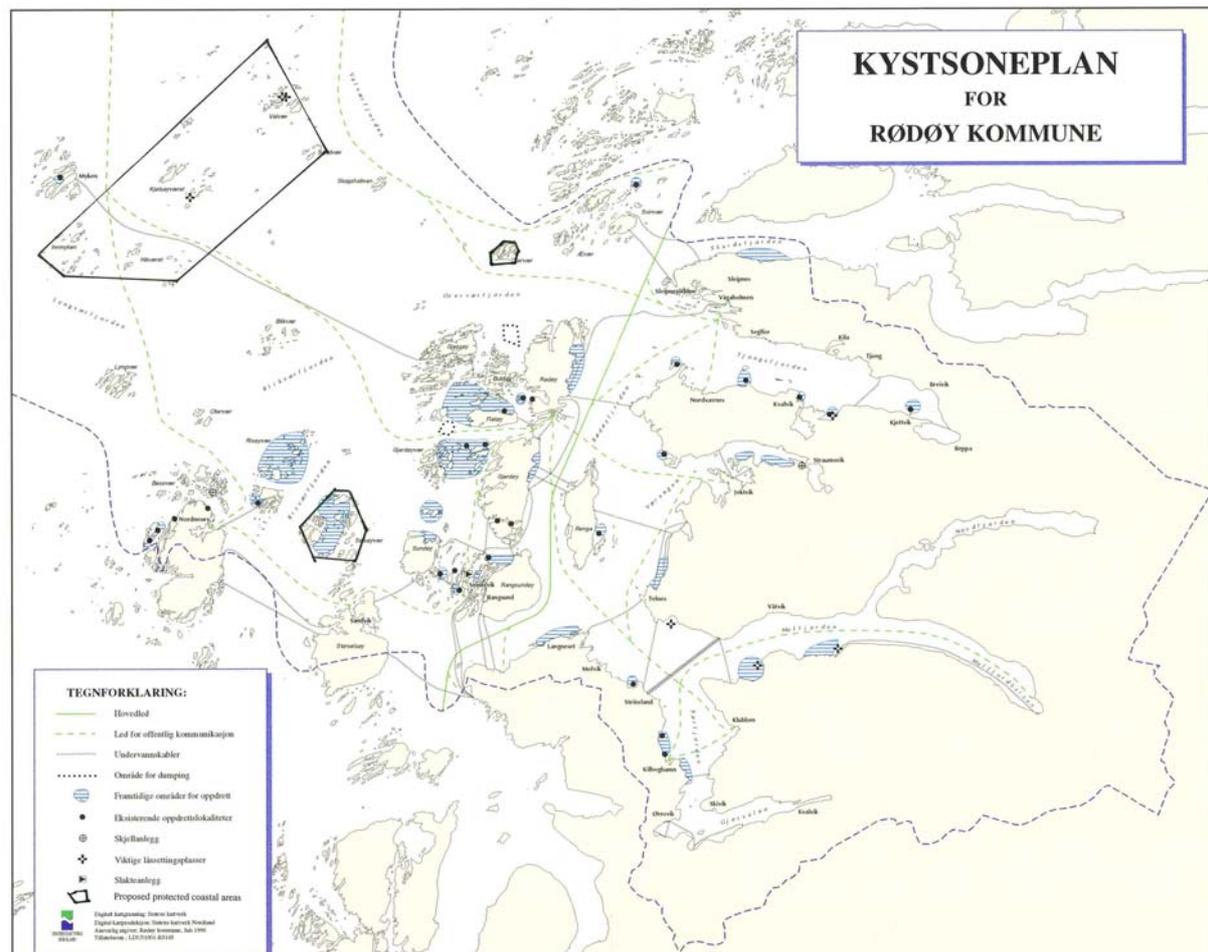
Coastal zone planning has for that reason been characterised as "planning in an institutional battle field" (Sandersen 1998). While planning is supposed to solve problems, it may on the contrary bring dormant problems up front and provoke sector agencies in defence of their traditional way of functioning rather than creating a climate for common problem-solving. The planning approach, the organisation of the planning process, the arenas for communication and learning are for that reason vital aspects of coastal zone planning as a managing tool.

Besides, planning implies restrictions to the traditional free use of the zone for the coastal dwellers, although this has more to do with cultural rooted perceptions than reality. The coastal zone and its resources is not any longer an arena for flexible adaptations. It is now rather strictly regulated, although not on the basis of local terms and perceptions (Seierstad et al. 1985). But planning will imply even more regulations, and the local attitudes towards this kind of planning could for that reason vary from rejection to support. The political priority to coastal planning is for that reason not evident for coastal municipalities, especially when it is not imposed on them from superior authority and not supported by special grants. The Planning and Building act makes it a voluntary task although it is highly recommended where sea based activities are taking place.

The lessons learnt by coastal zone planning in the 1990s is first and foremost a need for improved co-operation among the sector authorities. The core of the underlying problem has been the attempts to balance between the use of and the protection of coastal nature and resources. How difficult this has been, has effectively been demonstrated in the process of making environmental protection plans for two of the northernmost counties.

The Rødøy coastal zone planning case

The municipality of Rødøy belongs to the Helgeland region and was included in the Helgeland coastal zone planning project. The coastal zone plan for Rødøy started out as a communal planning process for the combined traditional and modern use of the coastal zone. A large number of potential localities for aquaculture and coastal fishing activities were identified and included in the plan. In total there were more than 20 localities planned for aquaculture. These are shown on the map as blue-shaded areas. Three areas for Nature Protection were proposed from the county level, these are marked with solid black lines on the map. One of these areas were overlapping with an area planned for aquaculture. This angered the communal politicians and the communal council voiced strong views against all protection plans. Their argument became a matter of principle, that that existing rules at the commune's disposal were adequate for protection purposes and that it must be a task for the commune itself to govern, protect and utilise all the coastal resources for the benefit of local communities and its inhabitants. This strong contest with the Environmental Section at the county level stopped the entire planning process in Rødøy and the various proposals were shelved together with the county coastal protection plan. The planning officer changed his job and coastal plan for Rødøy never materialised. When the Parliament has discussed the relationship between use and protection of the coastal zone, the planning of protection areas will most likely pick up again. Whether Rødøy then also will pick up their coastal planning exercise still remains to be seen.



1.6 The Emergence of Environmental Protection Plans in the coastal zone

In order to preserve a representative cross-section of Norwegian habitats, national parks, protected landscape areas and nature reserves have been established. About 6.5% (21.260 km²) of the total area of Norway (excluding Svalbard) is protected in one of these ways. When the new nation-wide plan for national parks, the county protection plans and the national plan for the protection of coniferous forests have been implemented, the plan is that the total area protected will rise to approximately 12% (St.meld.nr 43 (1998-99)). Protection pursuant to the Nature Conservation Act of 1970 provides formal protection against development for the most important remaining localities where these types of habitats are found. Localities that are not protected in this way must primarily be safeguarded by means of land-use/structure planning at municipal level according to the Planning and Building Act.

The Nature Conservation Act has for quite a while been used to protect habitats in the coastal zone. Currently about 1.130 km² of sea areas are protected pursuant to this act. So far mainly terrestrial objects have been protected, but an Advisory Committee for Marine Reserves has submitted a report listing 41 marine areas (of which about 15 is in Northern Norway) that should be considered for protection as representative or unique habitats (Directorate for Nature Management 1995). However, marine protection plans lay way ahead, and will not be further addressed in this paper.

Comprehensive coastal protection plans based on the Nature Conservation Act came into existence for the first time during the middle of the 1990s. The background for the coastal protection plans was a government White Paper about "New national plan for national parks and other larger protected areas" (St.meld.nr. 62 1991-92). The document states that the coastal areas are underrepresented in Norwegian area-based protection planning, and some proposals about areas suitable for protection were made. In accordance to this, the County Governors Environmental departments in Nordland and Troms presented comprehensive draft coastal protection plans (1995 and 1996) comprising areas of zoological, geological, and botanical importance. Thus, the values that the plan sought to protect were terrestrial. These draft plans were the first attempts to prepare comprehensive, integrated, coastal protection plans in Norway.

The draft plans comprised areas designated as nature reserves (Nordland 63, Troms 23), protected landscape areas (Nordland 4, Troms 14), bird protection areas (Nordland 4, Troms 1), nature monuments (Troms 1), and extension of existing national parks (Troms 1).

These plans caused a lot of public outcry and press coverage, both in the two counties and at the national level. The Directorate of Fisheries' regional branch in Troms rejected the proposal completely, and also to make a statement about the plan. They later agreed to proceed only after pressure from superior authorities. One of the main issues debated was that the protected areas comprised mainly sea (Nordland 90%, Troms 56%), despite the fact that the objects intended to protect were terrestrial. A frequent complaint was that there were little connection between the objects of protection and the suggested restrictions. The documentation on how the various protected objects were negatively influenced by the excluded activities were perceived as doubtful, incomplete or missing. Another issue frequently contested was the lack of routines for evaluation of the protected areas. Decisions made pursuant to the Nature Conservation Act are rarely lifted, and the protection is per definition everlasting, no matter whether it is effective or not. Also the seasonal access restrictions were hard to accept for many local people along the coast.

Neither of the two proposed plans had any considerations on the commercial consequences. Generally, traditional fish farming is not allowed in nature reserves¹⁵, and nature reserves were the dominating form of protection in both of the proposed coastal protection plans. Accordingly, both regional and national fish farming organisation objected heavily to the plans. The aquaculture sector as a whole claimed that spatial planning and nature conservation areas in the sea have to be approved with reference to the Saltwater Fishing Act and not to the Planning and Building Act or the Nature Conservation Act¹⁶.

Also the fishermen's organisations criticised the plans, even if the suggested restrictions were not interfering much with their interests. They, however, supported the fish farming sectors and fisheries authorities criticism of the planning procedure and the alleged lack of possibilities for participation. Whether, and to what extent, the Environmental Departments fulfilled the participatory requirements of the Nature Conservation Act (§18) is disputed, but it is likely that they could have done a better job in this respect¹⁷. Due to all the outcry and criticism, the County Governors Environmental Department in Nordland was forced to extend the closing date for comments to the draft plan, in order to give the various stakeholders involved time to assess its consequences and implications.

The reception the plans got in the communes were mixed. Of the 13 communes in Troms affected by the draft plan, two were heavily against¹⁸ and one supported it. The rest accepted the proposal with some suggestions and remarks regarding certain areas (Andreassen 1999). The coastal protection plan proposals, in contrast to most other nature protection efforts, enjoyed little support from environmental organisations. Some were actually against them. The Directorate of Fisheries on the other hand, had strong support from many well-organised interest-groups within the industry. The proposed plans also created an alliance between the fishers and the fish farmers, while the environmental authorities were pretty much alone.

The revisions of the draft coastal protection plans in Nordland and Troms led to some reductions in both the size of the protected areas and in the proposed restrictions for three areas¹⁹. Despite these changes, the problems and the criticism continued. Finally, with reference to the serious conflicts, particularly with fish farming interests, but also with outdoor recreation interests, the coastal protection planning process was halted by the Parliament in March 1998. Also the draft plan in Troms was halted in anticipation of the parliamentary process.

¹⁵ Nature reserves are areas where nature is unspoiled or virtually unspoiled, or which have special biota that are of particular scientific or educational interest, or have a distinctive character. This is the strictest form of protection. Both national parks and nature reserves exclude aquaculture. In protected landscape areas aquaculture is generally prohibited, and allowed only after a careful consideration of the potential for conflicts with the aim of the protection.

¹⁶ Whether the Nature Conservation Act applied in sea was a major issue to many of the actors who opposed the plans. However, among legal experts this has not been questioned.

¹⁷ In 1989 the participatory requirements of the Nature Conservation Act were harmonised with the participatory requirements of the Planning and Building Act, and thus strengthened. At this point the planning process had already started with departure in the older legislation.

¹⁸ Karlsøy and Bjarkøy, the two most affected in terms of size of protected areas. 60% (more than 400 km²) of the areas proposed for protection were in Karlsøy.

¹⁹ In Nordland one bird sanctuary and one nature reserve were removed, borders of 20 areas adjusted, and parts of two areas changed category from nature reserve to protected landscape area. In addition, in both counties several of the restrictions had been eased. In Troms four areas were removed, five changed from nature reserve to landscape protection area (Andreassen 1999:79).

A government White Paper addressing some of the general aspects of the problems generated by the draft protection plans were presented in June 1999 (St.meld.nr. 43 (1998-99)). Here it was emphasised that all the area included in a protected area shall meet the requirements of the given category of protection as stated in the Nature Conservation Act. Further, the protection should not be more restrictive, and cover more areas than what is required to fulfil the purpose, and it shall not prevent activities that are not in conflict with the purpose of the protection. The Environmental Department is also encouraged to consider each case on an individual or piecemeal basis when assessing whether a certain activity should be allowed or not within a protected area.

The White Paper also state that the criteria for including sea in the protection of terrestrial objects should be clarified, co-ordinated, and standardised. When an area comprises several islands it should be clarified whether it is necessary to protect also the sea between them, or whether it should be established smaller zones around each island. The government will also consider the categories nature reserves and national parks, and their suitability in sea, and assess whether new specialised protection categories for sea are required (St.meld.nr. 43 1998-99). The White Paper further made it clear that the fisheries authorities are supposed to consider the consequences on the surrounding environment of aquaculture development, and that environmental authorities is required to consider the effects of protection on commercial activities such as fisheries and aquaculture.

2. Policy development; From coastal planning to the challenge of integrated coastal zone management?

With growing environmental concerns and international obligations to fulfil, the coastal zone has become an exposed field of work for the Ministry of Environmental Affairs. The present experience has documented that superior governing attempts at comprehensive management often brings about political costs that influence the final outcomes in a negative way. Bringing the sectors together in co-operation for balanced solutions and common problem-solving, seems for such reasons now to be the main strategy after many years of confrontation and disputes. The development projects for coastal zone planning at the regional level that were launched in 1996, were to a great extent motivated by the need for improved co-operation among the sector agencies and the municipalities (St. meld. nr. 29 1996-97). As responsible ministry for area planning as well as for environmental, conservation and protection of nature question, there is a great potential for conflicts, especially with the Ministry of Fisheries, in handling the interests of the traditional resource users of the zone. Although co-operation among these ministries have improved during the 1990s, as in the case of preparing joint guidelines for coastal zone planning and resource exploitation (T-4/96), both planning and the implementation of sector policy still turns out to be rather disintegrated.

This was strongly demonstrated in the work to establishing a coastal protection plan for Nordland County. Managing the Nature Conservation Act, the Ministry of Environments's regional branch is legally entitled to take care of the protection planning needs. Its authority in this respect was not disputed, but so was the way the agency perceived the needs and communicated with those affected. The fact that the plan represented a pioneer work in presenting an integrated county- wide plan as the first one to be made in Norway, made it extra difficult to carry the planning process through. Earlier established national parks that also affected the coast as well as future plans for more national parks in the county, was not a favourable background for an enlargement of protected areas. The agency was therefore met

with suspicion at the outset and the planning document became heavily disputed. The whole coastal political network became mobilised, bringing the case to a parliament decision. Even a new coastal party was created as a result of the conflict. The result was that the plan should be parked until new directions for managing the balance between use and protection had been worked out. The Ministry of Environment had therefore to start a delicate political task to review the case and present a white paper for a later parliament decision on this matter. The similar case from Troms County that developed some months later, also contributed to this outcome²⁰.

The most influential and leading opponent was in both cases the regional branch of the Directorate of the Fisheries. In the Troms case the agency was not willing to review the plan at all, rejecting the very approach to the protection question. A fundamental conflict was thus displayed, partly anchored and supported by locals and adjacent interest organisations. But it was first and foremost a conflict between two state sector agencies at the regional level, the environment sector and the fisheries sector, where the latter was defending traditional practise and hegemony of management of the coastal zone.

2.1 Local fish stocks and management

A recent study on regional management of renewable marine resources supports the impression of a fishery sector administration unwilling to change former practise (Sagdahl 1998). Fishery regulations are still matters exclusively for the state fishery administration. The fishery sector has a long tradition of co-management and consultative practise in resource management, but only within the fisheries sector. The decisions are made at the state level in close co-operation with the Fishermen's Union.

A special arrangement has been made for solving user conflicts in fjords and the inner waters by presenting the cases for a regional advisory committee. The representation is here mainly made up by specialised fishing interests of the county, suggested by the County Fishermen Union. Due to former criticism of lack of influence from the local level, the County Council is allowed to have one representative and the cases presented are to be channelled through the affected local councils.

Traditionally there has been conflicts among local users and visiting vessels drifting with net and trawl, especially in fjords where the local users are depending of the sustainability of the local resource system. Most of the disputes are gear conflicts, but they often include arguments of protection of nursery areas and spawning grounds for local fish stocks as well as a fear of over-fishing of the available local resources . These resources have not only been exploited by local registered fishermen, but also by locals in general, representing a traditional way of life with access to local common resources. In addition, the establishment of fishing camps for tourists, taking advantage of access to local fish resources, has increased the diversity of affected interests in the management of these resources.

New and improved fishing technology has sharpened the conflict. Visiting auto-liners have proven to be highly efficient in their fishing. And fishing by Danish seine has developed into a kind of small-scale trawling with damaging effects for local fishermen using passive gear types. The recovery of the almost formerly depleted Atlantic-Scandic herring stock has also

20 It should be added that thematic protection plans existed in other counties, but the coastal protection plans for Troms and Nordland were the first attempts to produce integrated plans for the coastal areas. And by this they challenged the coastal traditions, established practice and "rights" to a degree that was hardly foreseen.

brought the purse seiners, including the fleet of deep-sea seiners, into the fjords and coastal waters. The pressure on the fjord and coastal resources has thus increased.

Besides, when the resources in the “outer commons” are over-exploited and therefore subject to strict regulations, the pressure on the fjord and coastal fish stocks seems to increase. This relation was demonstrated at the turn of the 1990s when the Norwegian-Arctic cod stock was over-exploited. Some ten years later a new crisis in the cod fishery developed with growing focus on available fjord and coastal fish resources. Improved knowledge about the existence and spread of local fish stocks, also calls for improved regional management. In Finnmark County an initiative was taken by the county branch of the Fishermen Union at the turn of the 90s to improve protection of local fish stocks and traditional local drift forms. There was a wide regional demand for more strict operating rules for visiting auto-liners and Danish seines, in order to get them out of the fjords.

Despite the fact that the Planning and Building Act have provisions for mapping marine sea areas for protection and conservation, the Salt Water Act as handled by the fishery sector administration is formally regarded as superior in the handling of specific cases. Local fishermen unions and county councils have mostly been turned down in their efforts to introduce specific regulations for local areas. In Nordland County the dominating practise has been access for all gear types, and this gives no protection for local interests. Nor is there any support from the National Fishermen’s Union to demands for local regulations²¹. Besides, the question of the existence of fish stocks as recognised local stocks has been disputed. And the local advocates for regulations have had difficulties in substantiating their demands with scientific evidence.

Marine research have by now improved the knowledge on local fish stocks, but still there has been a entrenched resistance in the sector against adjusting to such facts and move away from top-down sector policy and to a more integrated, locally and regionally based one. In a way both the above mentioned cases demonstrate a sector defence, a state sector agency being pressed to share influence in management of what has been regarded as exclusive fishery matters. This is position which is backed by the argument that the agency already has decades of experience in handling sustainability, environmental and protection questions.

2.2 Wild salmon management

As mentioned, another actual example of disintegrated sector management is the way the relation between stocks of wild salmon and farmed salmon is handled. Salmon is reported to be extinct in 44 river-systems, in addition to being threatened in 55 more rivers. A “Wild Salmon Committee” appointed by the Ministry for Environmental Affairs has focused especially on the pressure on wild salmon in the marine waters (NOU 1999:9). While wild anadromous species are managed by environmental authorities under the Salmon Act of 1992, the fisheries and the aquaculture industry is a matter for the Ministry of the Fisheries. The growth and economic importance of the fish farming industry for the national economy, regions and municipalities along the coast, have made the industry considerably more influential in policy-making than the advocates of wild salmon conservation. Besides, the

²¹ A more strict practice is found in the two northernmost counties, Troms and Finnmark. The consideration for Samii fjord fishermen, bringing in an ethnical dimension in local regulatory disputes, has probably influenced the outcomes. Besides, the county branch of the Fishermen Union in Nordland is more influenced by the general policy of the union as the biggest county branch. Samii fjord fishermen are fewer and less influential in this county.

present organisational solutions for management of anadromous species has for a long time been resented by the fishery administration. Anadromous species form an exception to fish management in general, weakening the position of state sector fishery administration.

Due to its roughly 650 salmon rivers and several large-grown salmon stocks, Norway is considered a key nation with respect to wild Atlantic salmon. However, the stocks have declined since the 1970s, and have in recorded history never been smaller than now²². This tendency has accelerated in the 1990s despite the introduction of measures such as a ban on drift net fishing (1989), restrictions on the use of fixed gir-types etc.

The reason for the decline is not very clear, but it is likely that several factors such as climate changes, overexploitation, acid rain, hydropower plants, and watercourse regulations etc. are at work simultaneously. Also the expansion of *Gyrodactylus salaricus* has a significant impact in some of the watercourses. And the escape of several hundred thousand farmed salmon annually and the following loss of genetic diversity and increased competition over resources and spawning sites, are believed to be important parts of the explanation. In addition the dramatic increase in the parasite salmon lice (*Lepeophtheirus salmonis*) infections are believed to correlate with fish farming, and is a serious cause of loss in migrating smolt and is increasingly threatening the wild salmon stocks.

In a collaborative effort between the Department of Fisheries and Department of Environmental Affairs to reduce these problems, 52 provisional protection zones for anadromous salmonids were in 1989 introduced²³ in fjords corresponding to 125 of the roughly 650 salmonid rivers in Norway. These zones, ranging from 10 to 1.500 km² in size²⁴, accounts for 6,7% of the sea area within the baseline (St.meld.nr. 43 1998-99), and is by far the largest pre-emptor of sea areas that exclude salmon farming (Ibrekk et al. 1993:64).

In these zones new farms of anadromous species are prohibited (farming of marine species were not affected), while farms established in the area before the buffer zones were introduced remain unaffected. Less than half of the zones are without fish farms, and some zones have as much as 11 farms (NINA 1994). However, given the fact that hardly any new licenses have been granted in recent years, the zones are mainly causing problems for fish farms already established within the zones when they are in need of new locations.

The system is currently under revision, but will most likely continue with some revisions of the borders. These zones are likely to become co-ordinated with the Wild Salmon Committee's proposal to establish nine national salmon fjords, corresponding to 50 national salmon watercourses (NOU 1999:9). Of these watercourses 15 are in Northern Norway, 2 in Nordland, 3 in Troms, and 10 in Finnmark.

²² Wild salmon catches in Norway have fallen from 2 000 tons in 1980 to 630 tons in 1997. In 1997 the production of farmed salmon totaled more than 330.000 tons (NOU 1999:9, p. 29).

²³ Pursuant to the Aquaculture Act, §5, subsection 3.

²⁴ About 75% of the zones are smaller than 200 km².

Wild Atlantic Salmon

In Northern Norway wild Atlantic Salmon has a very special significance, together with Sea Trout and Anadromous Arctic Char. The Salmon traverses numerous institutional resource managing regimes along its homing route from the open ocean to its mating grounds in home river. It is therefore extremely vulnerable to institutional decay and incompatibility in these various regimes. Property rights to Salmon have for one thousand years been an important part of river rights, often separated from navigation rights of rivers or the rights to the kinetic energy in the water (*fallrett*). The co-operation of river salmon-rights holders and government agencies with respect to the various local stocks of salmon, are the best examples of co-management in Norway. At the mouths of rivers and in the fjords leading to important salmon rivers, there are also important property rights to permanent net- or weir- sites at strategic points (*kilnot*) with a secure steady catch. These require intricate floating constructions and the property rights are usually tied to individual farmsteads with property rights to shore lines and were part of the old property tax base for the farmstead. Even in rivers where wild Salmon have disappeared, these weir-rights are dormant and tend to be revitalised if the river salmon stock is rebuilt through a stock enhancement programme (Sandberg 1998). Further out towards the open sea, salmon catches are less secure and property rights less strictly defined. Also in Northern Norway a special drift-net fishery for salmon did develop along the coast, where certain coastal communities specialised on salmon drift-netting. These were usually fishermen with no previous salmon rights connected to rivers or permanent net-sites.

Today the drift-netting for salmon is prohibited along the entire Norwegian coast. The ban was introduced as a temporary measure in 1989 to help rebuild the dwindling stocks of salmon, after heavy pressure from the river-salmon-rights-owners and the sport fishers' associations. However, the various local stocks of salmon were not rebuilt as a result of the ban, but continued to diminish. This was now allegedly as a result of "genetic pollution" from runaway farmed salmon, but it was probably also caused by a reduction in stock enhancement effort due to a stricter ideology of genetic purity of the separate river stocks (PUSH Sluttrapport 1997). But in spite of this unclarity in the causal relationships, drift-netting for wild salmon is not likely to be reintroduced along the Norwegian coast. In many respects the transverse salmon is an excellent indicator organism for measuring the institutional health of the coastal zone. When the stocks of wild salmon are dwindling, it indicates that something is wrong with the institutions governing the coastal zones of Norway

The rationale for the proposition is to locate new fish farms, and relocate the existing ones²⁵ to areas outside those who are important wild salmon areas. This proposal will, if approved by the Parliament, include a prohibition on further intervention in the national watercourses and a ban on salmon farming in the national salmon fjords. The watercourses and fjords are selected on the basis of biological, cultural and social criteria. Outside national watercourses where national salmon fjords are not proposed, the Committee recommend that protection zones and actions zones are approved in accordance with the recommendations of an 1996 Evaluation Committee (Directorate of Fisheries, 1996). Further, the Committee recommend that the existing protection zones are reduced outside watercourses not proposed as national salmon watercourses.

If the parliament follow the suggestion from the Wild Salmon Committee, this will most likely lead to smaller, but better protected areas. This will generally be beneficial to future aquaculture in most areas, but establish greater barriers to aquaculture in and adjacent to the protected fjords and watercourses. However, the Directorate for Nature Management does not support the suggestions from the committee and argue that most of the existing protection zones should be maintained and/or expanded. When 20 new salmon licenses recently were allocated in Finnmark, neither the Environmental Department nor the Directorate of Fisheries regional branch paid any attention to the committee's suggestions. Six of the licenses were actually located to the areas in Eastern Finnmark where the committee suggested there should be absolutely no salmon farming.

According to an evaluation of the protection zones (Directorate of Fisheries 1996:43f), the majority of the representatives of the Directorate of Fisheries regional branches could not see the need to extend in time the provisional protection zones. However, because of disagreements about the effects and the inconsistencies in the knowledge about this issue, they agreed to extend the zoning for another five years. The representatives of the County Governors' environmental departments, on the other hand, was of the opinion that the protection zones had to be expanded, several new zones should be established, and the zoning should become permanent. Interestingly, the joint advisory working group in Nordland, consisting, i.a., of the Directorate of Fisheries regional branch and the Environmental department, were unable to present a joint recommendation to the Directorate of Fisheries (Directorate of Fisheries 1996:93-99). This is probably an good indication of the "hostile" attitude between the two state agencies.

The Norwegian Fish Farmers' Association claimed that they accepted the temporary zoning when it was introduced, as they saw it as a "cease-fire", based on the precautionary approach, while the interrelationship between wild and farmed salmon was further investigated. In the evaluation they claim that significant negative effects of salmon farming on wild salmon stocks have so far not been documented, and that the protection zones and the regulations should be lifted (Directorate of Fisheries, 1996:47). As mentioned earlier, zones are now more likely to become larger and permanent.

The Directorate of Nature Management is currently about to extend the seasonal restrictions on all fishing, both commercial and recreational, targeting salmonids in the areas close to the river mouths. In Nordland 37 such zones have been established outside the outlet of 49 of the approximately 300 rivers with anadromous stocks since 1993. The County Governors Environmental Department proposed in January 1999 to establish another 77 zones outside 85

²⁵ In this area 5 fish farming licenses on 11 localities are established.

rivers. Most of the suggested zones reach between 1 and 2 km from the river mouths. This proposal would introduce restrictions on salmon fishing within the entire zone, and restrictions on fishing with seines for saithe and herring in the inner parts (less than 500 meters from the outlet) because of the by-catch problem. The regional branch of the Directorate of Fisheries does not regard this proposal and the suggested restrictions as very important to commercial fisheries, but is in principle reluctant to such restrictions on fishing.

While the interest structure attached to wild salmon and salmon rivers is fragmented and not used to behave as pressure groups, their opponents are politically well-trained organisations, with direct access to important political-administrative networks. Despite formally adhering to the principles of precaution and bio-diversity, there is a long way to go for Norwegian authorities from these principles to abstract actual policy formation when confronting interests collide in the coastal zone. Integrated coastal zone planning is one step, but merely a wishful vision in a situation where the managing tools belong to sector administrations, and is embedded and guarded in regional and national organised economic interests. Besides, there is no sector authority which is superior to the others in such matters. Co-ordination has to be gained by dialogue and co-operation, working out acceptable compromises. Consequently, integrated coastal zone management problems very often end up at the cabinet level.

A case in point is the protection and conservation of remaining, non-exploited watercourse areas. The cabinet has decided on state guidelines, giving special political attention to the matter. The Ministry of Environmental Affairs states in a later white-paper on regional planning and area policy, that these guidelines should not only work for planning reasons, but should also be used within the frames of sector laws in the running management.

2.3 Balancing the brink

Although positive results have been reported in relation to public works like road construction in watercourse areas, a change of former practises into a co-ordinated policy will easily challenge the established interest structure and management within the actual sector. Especially in cases of managing living marine resources. This conflict is well reflected in the government's white-paper of 1997 on regional planning and area policy (St meld nr. 29 1997-98), where it is stated that the Plan and Building Act has less relevance in matters of resource management and questions of protection of marine bio-diversity. These should be matters for the sector administration to handle according to sector laws like the Aquaculture Act and the Salt Water Fishing Act. According to our information the most balanced formulations were made and decided on only at the top level of the involved ministries.

Although the link between environment and industrial exploitation was focused, the white paper did not give any signals of formal co-ordination with the management of living marine resources. What was needed, it was argued, was improved knowledge, a better dissemination of information and guidance as well as mutual co-operation. As an example of this was given the elaboration of shared guidelines for planning and resource use of the coastal zone (T-4/96), a following-up of the interaction of the Planning and Building Act with other acts. But although this was only a modest step towards integrated coastal zone management, it represents a signal of improved contact and co-operation between the fishery sector and the environmental authorities.

The ministry's white-paper on planning documents the shortcomings of integrated coastal zone planning and management so far. It also documents that the national level is the one

lagging behind the local development and that the real challenge is to provide co-operation and co-ordination among the involved state's own sector agencies. To establish co-operation among these actors and gain more experience in concerted problem-solving is the main idea of the pilot projects in county coastal zone planning, launched by the involved ministries. Thus an incremental process of mutual learning seem to be the strategy, where the Ministry of Environmental Affairs has taken on the role as a path finder. The governing ambition was spelled out in a earlier white-paper, "Environmental policy for a sustainable development" (St. meld. nr. 58 1996-97). The policy for sea areas and activities was here seen in a broad perspective and in relation to international co-operation and a number of treaties. Among the announced policies, the protection and enhancement of biological diversity was given high priority. The sector responsibility to implement environmental objectives should be strengthened as well as the role of the municipalities in the follow-up of the Rio-conference, through the Local Agenda 21. Crucial here was the use of the Planning and Building Act.

Comparing the ambitions expressed out by the Ministry of Environmental Affairs to ambitions found in later policy documents from the Department of Fisheries, we find that the environmental scope now is narrower and the international obligations hardly mentioned. In a white-paper on aquaculture presented to the Parliament almost three years after the Rio Conference, reference to this is hardly found (St. meld. nr. 48 1994-95). A change of the main objectives of the Aquaculture Act to include *sustainable development* was mentioned, but this change took place prior to the Rio Conference. Critical remarks were made concerning the pressure on the industry through planning in coastal areas and the efforts to establish areas of marine protection. What characterised the white-paper, was a rather traditional sector perspective under pressure from external environmental concerns. But if we examine a later paper by the ministry concerning policy for the development of the fishing industry as a whole, the environmental approach has been strengthened. The principles of sustainability and optimal resource use according to the Law of the Sea convention, the precautionary principle as well as the need for ecosystem management are mentioned. Gradually the influence from international environmental work seems to be gaining ground in the fishery sector administration, at least in policy documents. On the other hand, the fishery sector claims to have a long established practise of sustainable management regardless of later environmental policy obligations.

In addition to the influence from the international community, the actual conflicts between sectors, between use and protection of the coastal resources, as revealed in the cases of coastal protection planning, have also contributed to a sharper focus on the need for co-operation among the sectors and with different local users. The governments white paper (St. meld. nr. 43 1998-99) which was presented in 1999 as a response to this conflict, stressed this recipe. The overlapping authority for sea based areas which The Nature Conservation Act was founded on, implied close co-operation with the fishery sector. Thus further work was necessary to clarify its use for such areas. But the ministry made it clear that the law should also apply for protection of sea areas, eventually subjected to a revision to make it more suitable for such purposes.

The white paper represents the latest updating of the governmental policy for "integrated" coastal zone management. International obligations, protection and sustainable use of the coastal resources, advocating the Precautionary Principle in matters of resource use in protected areas were stated as guidelines for the policy. But fishing activities should be combined with the protection purposes, although some areas of special value should be kept as exclusive parts of reference areas. The size, number and rules of protected areas should be

subject to careful consideration, and future policy should be based on the advice from an advisory committee, representing affected public and private interests (St.meld. nr. 43 1988-99).

The political signals in the white paper were that use and protection could be combined. Besides, evaluation for eventual updating of the protection rules should be considered, so that the protection status could adjust to the development of science and the society. Further work should be based on the results from the mapping and activities of marine bio-diversity, launched by a former white paper on “Environmental Policy for a Sustainable Development” (St.meld. nr. 58 1996-97). In relation to the cases that had caused the preparation of the policy document, the marine protection plans for Nordland and Troms, it was stated that such comprehensive plans should only apply to these counties. The consequences should be carefully considered and the size of the area in the Nordland case was to be reduced. The Nordland case was suggested to be a test case where possible applications for dispensation to the protection rules, should be handled by an inter-sector advisory group.

The bottom line of the new policy document was extended co-operation among affected sector authorities, local participation and devolution of power. These signals could be seen not only as direct responses to the experience gained in planning and management of common property resources, but also to principles laid down in international environmental work as exemplified in Local Agenda 21. There is a rich body of literature documenting positive experience of co-management of common pool resources (Jentoft 1998). The main advantages have been improved legitimacy and reduced levels of conflict by formal co-operation and user group influence. One should bear in mind that resource management is not a technical-biological device, but a regulation of human behaviour by selecting and implementing policies.

State regulation of areas and natural resources has caused increased suspicion and distrust of the ability of state sector agencies to handle conflicting interests. Long lasting conflicts have over the years worked for a devolution of power, and for decentralisation, delegation and local influence. The most frequently challenged ministry has been the Ministry of Environmental Affairs. To enable local government to live up to environmental standards and international obligations, the ministry has worked for an improvement of the local managing capacity. Although there was a set-back in this development when a state subsidy for environmental officers was removed, environmental work is gradually gaining ground at the local level (Sagdahl 1998). Despite shortcomings of relevant administrative expertise and managing capacities, the municipalities have been pressing for local management of common pool resources. Especially state management of national parks has been disputed.

The political signals in the presented white paper “Protection and use in the coastal zone” (St. meld. nr. 43 1998-99), represent a strengthening of a development that has been asked for. Close co-operation in planning for protected areas was underlined and local management of protected areas should work for improved legitimacy and efficiency. But areas with high international protection values, so called “Ramsar areas”, should be managed by state sector agencies at the county level. Still the message was that improved co-operation, decentralisation and delegation constituted important policy elements for the future. The parliamentary review could even end up by strengthening this course.

3. The Challenges to Norwegian ICZM of the Blue Revolution

Most of contemporary coastal zone planning has been based on the assumption that improved co-ordination between sectors and administrative levels would solve most of the problems in the coastal zone. However, a number of new challenges, subsumed under the heading “The Blue revolution”, shows that the coastal zone is more complex than at first thought. When questions of resource utilisation are gradually replaced by questions of resource transformation, the coastal ecology and socio-cultural environment becomes considerably more complex than its terrestrial counterpart.

Within the European Union a “European Demonstration programme for Integrated Coastal Zone Management” was started in 1997. This Programme was motivated by a realisation that the Coastal Problems were of a larger European Dimension and could not be solved by the member states alone. The Mediterranean, Baltic and North Sea are “Common Seas”, and fishers, pollutants, sediments, recreationists, tourists and marine traffic flows freely.

All the Policies of the European Union - (and of the states of the greater EEA) have massive influence on the development of the European coastal zones: the Regional policies with its development and support programmes, the Policies for transports planning, licensing and technical solutions, the Fisheries policies with its effects on the Common Pond, the Environmental Policies with rehabilitation of coastal landscapes (wetlands etc. from the 1st industrial revolution, the Agricultural policies with its support for fertiliser use and plowing practices, the Energy policies and its management of rivers and nuclear and thermal plants and the Industrial policies with support for location of new industries.

The European demonstration programme placed great emphasis on the level of “Co-ordination, co-operation and consultation” and it was believed that a high level should secure the integrative character of coastal zone management, but that poor co-ordination was the general trend throughout Europe. In addition the principles of **subsidiary and policy integration** should be tested out in the programme, this meant that the local level should have secure authority and be able to take responsibility and that the national sector agencies and the European Commission DG’s should integrate their policies. However, in working out “The Common Fisheries Policy beyond 2002”, there are few attempts to link the strategies for sustainable fishing to strategies for sustainable coastal development (European Parliament, 1997).

In Norway, who as a non-member only has to worry about internal policy integration, the Helgeland Project demonstrated that the hypothesis of “insufficient co-ordination” is correct. Even if co-ordination was achieved at the local level, it often broke down when questions were lifted to the regional level (Bennet & Skjerdal 1996). And even when co-ordination and co-operation were achieved, there were serious difficulties connected to practising the principles of subsidiarity and national/regional policy integration. Thus it is erroneous to think that improved co-ordination alone will solve all the problems of Integrated Coastal Zone Management. The other Norwegian entry, the three county wide coastal zone plans, showed an improvement in co-ordination levels from the Helgeland cases, but still the sectoral way of thinking is prevailing (European Commission 1999).

One of the lessons to be drawn from the European demonstration programme is that the dynamics of coastal development, and of its attached political processes are more complex than so far acknowledged. In the remainder of this chapter we shall try to give some insights

into why this is so, and indicate some areas where analytical powers should be applied in order to be prepared for more fundamental changes in the coastal areas of Europe.

A lot of attention has in recent years been directed towards the struggle between single sector oriented bureaucracies and territorial planning approaches. The political objectives have been that the latter should gain hegemony over the former. Following the nation's territorialisation of Coastal Waters (EEZ) after UNCED, the belief was that co-ordinated planning would automatically bring about co-ordinated action that will be beneficial to the coastal environment.

This could have been the case for these access and harvesting regulations where these were based on territoriality rather than sectorality (e.g. fishing, hunting, gathering). But empirical experience so far points in the opposite direction; the mobility of fishers is so highly valued that it counteracts the political wish of territorially based resource management by coastal community involvement. Thus instead the single sector oriented bureaucracies are strengthened and the concord between these and the professional fishers' association is strengthened. Attempts have also been done to integrate fisheries into territorially based coastal area management, but if no attempts are made to control industrialisation of fisheries, these attempts remain feeble (FAO 1995 §10).

Area based planning might be effective in preventing some obviously conflicting activities in the coastal zone, like for instance between polluting industry and fish farming. But planning does not guarantee that certain activities will actually take place on the coast. Activities are depending on initiatives from individuals, corporations, associations etc. And even if a plan permits certain activities, this is no guarantee that these activities will come about:

- It depends on available technology, knowledge and capital.
- It depends on available entrepreneurial capacity and the corresponding financial institutions assessment of profitability and market risks involved. (Thus the role of insurance companies is becoming increasingly important in deciding the coastal environment).
- It depends on the assessment of environmental risks by insurance companies.
- And it depends on the licensing authority - a plan "slot" does not imply a permission - or a licence. And a licence can specify or allow operating conditions that undermines either the viability of the individual enterprise or the collective intent of the plan.

Even when all these preconditions are met, we find that ICZ planning procedures have serious shortcomings. One important reason for this is that the **transformation** of resources is fundamentally different from the harvesting of resources. Resource transformation adds a completely different dimension to resource management. Especially when dealing with the cultivation of coastal resources, this often means transformation of "wild" coastal ecosystems into different coastal ecosystems. In such cases it is often hard to decide whether this is resource degradation or resource enhancement.

The wet part of the coastal ecology is usually a 3-dimensional dynamic environment - and vastly more complex than the terrestrial environment. This again means that it is highly insufficient with a single sector industrial approach to transformation of coastal resources. And it means a need to question the ability of conventional Integrated Coastal Zone Management competence to deal with these new and more complex questions:

- Can traditional Integrated Coastal Zone Management based on Planning Act Platforms deal only with use/harvest and protection issues related to Coastal Development?
- And if so, what does it take to enable modern ICZM to deal also with transforming of coastal resources: cultivation, augmentation, rehabilitation and ecosystem enhancement in relation to Coastal Development?

To answer these questions it is necessary to look at the more profound rationality's of resource transformation. The most fundamental idea is that the transformation shall be worth the effort. That means that the investments done must be profitable in relation to the expected harvest. Resources are usually transformed by human labour or by investment of knowledge, technology and capital. In very general terms we can distinguish between sowing, enhancing and investing. Sowing and harvesting has its own logic. In order to have an incentive to sow, one must be assured - with some probability - of a harvest. This creates a demand for property rights. (re: Proposed Law of Sea Ranching in Norway, NOU 1994:10 and a new proposal in 1999). Thus the logic of investments, and the demands of rentability, leads to specialisation of production, technological optimisation, concentration of ownership and increasing scales in production.

The common experience is also that there soon appear externalities and diseconomies of scale in coastal cultivation which threatens the viability of enterprises. It also seems like the usual strategies for cultivators: monocultures and ecosystem simplification, makes the cultures increasingly prone to diseases, parasites and predators and at a faster rate than in terrestrial environments. This is because ecosystem simplification as a rationale is difficult to achieve in a fluid environment where effective fencing is virtually impossible. It is therefore a need to develop new rationales for coastal bioproduction based on the opposite strategy of ecosystem complexification. Only recently have new rationales of ecosystem complexification based on new theories of beneficial bio-diversity started to gain ground among marine cultivators. But so far, experiments with balanced multicultures are only in their infancy in the North Atlantic coastal environment.

So in the Norwegian case, we think there is an empirical basis for assuming serious externalities and diseconomies of scale in specialised coastal industrial cultivation and that this calls for regulations, the internalising of external costs – and/or balancing of complex biological processes in marine cultivation.

An overriding question in Norwegian coastal management has been whether the nation – and the coastal communities, would be better off by managing the wild multispecies environment in a better way rather than by spending increasing capital and human effort in transforming the coastal resources through enhancement and cultivation?

This is not an isolated problem for a few large fisheries nations, but for the whole world. Today 1/3 of the world fish catches are “biomass fishing”, after the depletion of important and highly valued predator stocks has forced fishermen to fish further and further down in the food chain. An increasing share of this biomass fishing is not used for human consumption, but as fodder for aquaculture organisms. Thus it is in line with a 1000 year old tradition of transforming cheap marine protein from the Northern/Arctic seas into more refined and more highly priced protein for export to commercially more powerful markets in Central Europe. But in contrast to the traditional stockfish production and trade, the “biomass fishing” for marine cultures is “resource mining” in so far as it changes the multispecies composition of the ocean itself – it is thus a marine resource transformation that benefits only the emerging

coastal cultivators. The effects of this resource management strategy is also well known: deprivation of food for sea-birds and sea mammals, and impoverishment of coastal people depending on the harvest of commercial species of wild fish. Numerous attempts by coastal people to regain local control over fish resources exploited by industrial type fishing have in Northern Norway often been thwarted by fisheries sector managers, thus disempowering local coastal communities (Sagdahl ed. 1998).

But not all increased transformation of coastal resources in the form of marine cultivation have negative environmental impacts. A number of smaller and more integrated cultivation systems have unchallenged positive environmental effects. Best known among these are the traditional Asian mixed rice/fish/shrimp cultivation systems which closes the nutritional cycle and thus recycles agricultural waste into valuable protein food (Ruddle & Zhong 1988). Similar recycling of marine waste from fish processing was found in the “fodder-kitchen” of pioneer aquaculture in Northern Norway in the 1970s and 80s (Seierstad, Sagdahl & Sandberg, 1985). But with increasing rationalisation of Norwegian Salmon farming, this local recycling was replaced by biomass based factory feeds suitable for photovoltaic automatic feeders.

Another important aspect of the later phase of the “Blue revolution” is the increased importance of marine plants. About half of the world’s marine aquacultural production is today made up of marine algae, kelp and seaweed. As most of these are immobile organisms in Northern Waters, the harvesting of kelp and seaweed tend to be sustainable. This is because unsustainable harvesting practises are so much more visible than for mobile organisms and because coastal communities have a certain capacity to learn from past mistakes. Interesting examples are here found in kelp harvesting on Helgeland, where the crucial relations between property rights and incentives for sustainable harvest are demonstrated.

As coastal cultivation and enhancement increases, the competition increases for river mouths, estuaries, shallow waters and other areas that has a multitude of potential uses. As mentioned above, the area based planning model of LENKA has been tried in Norway – with aquatic carrying capacity as the crucial rationale for balancing the needs of marine cultivations, and spawning and feeding areas for juvenile stages of fish species. Ideally, this kind of planning process could bring clarity and consent in these kind of competing uses, but the lack of institutional infrastructure and non-use of the local marine management councils made LENKA mostly an academic exercise (Sagdahl ed. 1998).

An important part of the “Blue revolution” is the increased use of biotechnology in marine cultivation. The creation of transgenic organisms (fast growing, freeze tolerant or disease resistant) attracts research money and high quality researchers. There is also a potential for creation of sterile organisms that can reduce the potential hazards of mass escapes from aquaculture cages. But the overall assessment is that these transgenic organisms, especially if released into coastal waters by Sea-Ranching operations, will add further stress to marine ecosystems and should be prohibited. There is also a real danger that this kind of advanced technology with patented solutions will increase the marginalisation of coastal communities. However, the state of the art of genetic engineering of fish shows that this so far has been very inefficient and has only had very random success (Martinez 1998).

Like in terrestrial environments, there are also a number of hazards connected to enhancing and cultivating activities in coastal and marine environments. In addition to the hazard of ecosystem simplification resulting from marine monocropping, there is the danger that in the

competition for key-stone environments it is the marine wildlife that tends to loose. The result is often local eutrophication and biomass concentration which have unexpected ecosystem effects in the form of degraded environments, mass escapes of cultivated organisms, blooms of algae or parasites and increased predator pressure on wild species. One example here is the massive increase in salmon lice that now appear as a result of 20 years of salmon farming in northern waters – a development that threatens to make a number of wild salmon stocks extinct.

Contrary to agriculture in the subarctic zone, coastal cultivation here involves marine ecosystem risks that are too large for local entrepreneurs. Such known negative effects of intensive, high density cultivation of fish is the accumulation of unconsummated feed and faces that can lead to local eutrophication, depletion of oxygen, spread of unicellular algae (some of them toxic) and pollution by pesticides and antibiotics. The danger of escapes of farmed organisms and their inbreeding with wild ones has been defined as the “wild salmon tragedy” of Norway. In 1994 570.000 individual salmon escaped from caged aquaculture, in 1995 this had risen to 650.000 escapes and approx. 42% of coastal fished salmon was of farmed origin. In addition the danger of environmental degradation forces cultivators to change their location frequently or practice shifting cultivation. They therefore need large areas, thus the cages and enclosures and buffer zones can imply a loss of access for traditional fisheries to important spawning areas and fishing grounds.

The instability of intensive, specialised cultivation systems often means that local communities are unable to participate over longer period. The total loss of harvest in at least 1 in 10 years, maybe even in 2 out of 10 years, means that only large corporations with many farms, and possibly larger diversity in production, can absorb this kind of risk. During a series of aquaculture crises – both market crisis and environmental crises, a large number of small Northern aquaculturalists have gone bankrupt and larger corporate concentrations and insurance companies has taken over as stakeholders in the field of coastal cultivation. As long as North Atlantic Aquaculture continue to imply ecosystem simplification with monocropping of high value species to supply the international markets, these processes of corporate concentrations are likely to continue.

Increased vulnerability is most likely to be the result of the high reliance on fodder based on “biomass fishing”, on few species in aquaculture (mostly salmonides) with a high vulnerability to both markets, parasites and diseases and few links with other forms of coastal harvesting or production. There is only a limited trickle-down effect from intensive corporate aquaculture to local coastal communities and these tend to become increasingly marginalised. At the same time the large profits from export gains of farmed salmon hide the environmental and social costs to coastal communities. A crucial question in relation to ICZM is therefore to what degree these corporate processes reduce the effects of local governance and coastal community co-management of coastal resources.

It is important to be aware that access and harvesting rights are property rights on the operational level and that they in principle are sufficient for fishing operations – and it was thought – also for floating fish ponds. The important factor was that they did not transform the resource itself, the basic coastal ecosystem. But as mentioned above, the large floating pens and their shore infrastructure, plus the large “reserve areas” and buffer zones for shifting cultivation, are difficult border cases here.

When a cultivator wants to undertake investments, to enhance or transform a resource in order to reap profits later, this requires additional and more clearly defined property rights. These are management rights and exclusion rights on the collective choice level which are necessary in order to undertake investments or improvements with a long time-horizon.

Such rights (*de jure*) also implies duties, which in most cases are interpreted as the duty to enhance and not degrade the resource. More clearly defined property rights are thus a precondition for resource transformation aimed at enhancing the resource – in opposition to resource mining, which often results from “open access” or poorly defined / poorly enforced property rights (Hardin 1998, Ostrom 1990). Such secure property rights can be used as collateral for credit and are often crucial for an insurance cover. The Aquaculture law gives the salmon farmers the needed security for their investments, although ownership to the locality is not established, the licence itself attains a property-like character and a price in the market. For other kinds of sea-cultivation activities, such property rights instruments have not yet been developed, both because sea ranching is at very embryonic stage in Norway and because there are strong conflicts attached to ideas of granting exclusive and permanent property rights to sea areas. The Department of Fisheries have recently (Oct. 1999) proposed a New Sea Ranching Act to establish a legal framework to facilitate sea ranching of the more stationary crustaceans, molluscs and sea urchins. This law propose to grant exclusive recapturing rights to the farmed organisms. The limitation of the law to these stationary species is believed to reduce the potential for user-conflicts to a minimum. However, if marine and anadromous species are included at a later stage, the potential for conflicts will be substantial.

But the other side of the urge for secure property rights is that there develops a market for coastal property rights, also on the wet side. The demand for secure collateral also generates a demand for marketability and this leads to a demand for alienation rights, i.e. the right to sell-out. Therefore the ultimate consequence of issuing property rights to transformation of coastal resources is in the long run the sale of what was formerly coastal commons to private corporations. It is therefore of crucial importance that an ICZM-process faced with the “Blue Revolution”, carefully specifies how the property rights are to be designed.

4. From institutional battles towards institutional integration

Within a time-span of only two decade, both aquaculture, mariculture, spatial planning and spatial environmental protection zones have been introduced in the norwegian coastal zone. With new technologies and biological knowledge, also the cultivation larger parts of the coastal zone itself has become a possibility. This implies both an ecological transformation and a demand for more secure property rights.

The conflicts in the coastal zone thus seem to comprise both conflicts between users, between institutional designs, and between cultures.

4.1 Use conflicts and no-use conflicts

Fish farming in open cages introduced new institutional aspects to the coast of Northern Norway, that of permanent and single use of certain areas. This was both a practical and a cultural problem. For some coastal fishers it was often a practical problem that good fish farming localities in the 1970's and 1980's often coincided with good places to cast their land-

seines (*kastevåger*) or good places for live holdings (*låssettingsplasser*). When the diseases struck the fish farming industry, local fishermen often had to surrender, at least temporarily, even more of those locations to fish farmers, and some fishers claim the fish farmers often settled there on a permanent basis. In some cases also the fish farming localities interfered with the traffic and forced the fishermen to change sailing routes. However, this new industry also gave rise to "cultural" reactions, as the fishermen often saw this as an encroachment by new actors on their territory and new activities that in their eyes did not belong on the coast. To the fishers the fish farming plants represented a new and more permanent use of the coastal waters and as we have seen also a transformation of the coastal resource itself. The localities, cages and surrounding zones with restrictions on fishing and traffic strongly resemble ownership rights. In the case of shellfish farming and bottom cultures this is even more pronounced. To the fishermen this represented something new that might challenge their traditional access and use-rights. The fish farming organisations, on the other hand, held that fishers due to their affinity for mobility had no particular monopoly or prescriptive rights to any particular sea territory.

Since the 1980's, however, ordinary fish farming have become a more environmental friendly activity, with less conflicts with environmental interests. In addition, a relocation of many of the cages to more open and exposed localities has taken place as a result of new technology and improved knowledge. To some extent this has reduced the conflicts and conflict potential. Currently there is no urgent need for new locations, at least as long as the government does not grant new licenses, and as long as there are restrictions on the movement of licenses. Thus protected zones and the availability of suitable locations have so far not been a major obstacle to the further development of the industry.

The concerns about their need for locations expressed by fish farmers are therefore not primarily related to current problems, but mainly to possible future ones. Experience from the last 5-10 years indicates that public coastal zone planning is particularly unpopular with the increasingly powerful and wealthy aquaculture industry. This sector has more or less objected to every measure that could be to its future disadvantage. The industry has, nevertheless, at least some potential benefits to gain from the fact that communal coastal zone planning is expected to speed up the location-related application process. It is therefore likely that the fish farming industry in the final analysis will benefit from improved communal coastal zone planning.

However, when it comes to coastal protection plans it is clear that the fish farmers and nature protection agencies have opposite opinions about what is an enclosure of the coast and the value and potential it represent. Whether the differences between farming of anadromous species, marine species and shellfish in terms of environmental effects will be one of kind or one of degree remains to be seen.

Fisheries for wild species are very modestly restricted and will not be influenced by coastal protection plans and provisional protection zones for anadromous salmonids. In a few areas (mainly in the vicinity of sea bird colonies) gill-net fishing are restricted, but the effect on fishing is generally negligible. In some areas the traditional places for casting seines or establish live holdings may be lost. More important are restrictions on seal hunting in some areas, which local fishers claim must continue as seals are harmful to their fishing, both in terms of increased predation on the resources and increase in the number of mammals entangled in fishing gear.

To a large degree the use or non-use related conflicts are both fuelling and fuelled by the corresponding institutional conflicts.

4.2 The coastal zone as an institutional battlefield

Fisheries authorities have for decades been used to manage the coastal harvesting activities more or less undisturbed. To a large degree the establishment of new institutional actors such as the communes and the environmental departments were perceived as an intrusion on their field. However, while most of the communes were understaffed, inexperienced and often lacked the required expertise, the environmental authorities were experienced, knowledgeable, well-staffed and ambitious counterparts, and the Directorate of Fisheries' regional branches apparently perceived the environmental authorities to be strong contenders. Previously there had also been disputes between the environmental and fisheries authorities related to various issues, but it was with the comprehensive coastal protection plans the conflicts became manifest and escalated. Particularly so as the environmental authorities did not do a good job in terms of facilitating and encouraging participation from the fisheries authorities and the fisher and aquaculture organisations during the planning process.

But the disputes and differences in viewpoints are also deeper rooted in perspectives and knowledge by professional staffing within the sectors and the involved network. Governing institutions are embedded in networks of science, education, professions and organised interests, which smoothes the administration and lower the decisional costs. The Scandinavian model of government is known for its tradition of consultation co-operation and co-management with affected actors in public management (Olsen 1983). These governing links also structure the space for political solutions, what kind of interests, problems and solutions that are found legitimate within the sector frame. So when disputes and conflicts occur in the coastal zone, we are facing segments or institutions in a broad sense, where the space for solutions is limited. In this perspective protection of traditional management practise is more likely to occur than is cross-sectorial co-operation.

As we have seen, the conflicts first arose in connection with communal coastal zone planning when the Environmental Department started to advise the communes to protect certain areas against aquaculture that were expected to later become protected through the approval of the coastal protection plan. This could be done by communes according to the Planning and Building Act. Often these restrains were pertaining to fish farming. Some communes also made plans by themselves where aquaculture was excluded in certain areas. The Directorate of Fisheries regional branches generally advised against those plans. The County Governors Environmental Departments on the other hand, advised against the communal structure plans if the communes did not planned for exclusion of aquaculture in the disputed areas. On several occasions conflicts between these two parties forced communal coastal zone planning to an halt. Thus the communes triggered a conflict and then got caught in the subsequent cross-fire.

Apparently, the conflicts are not as dominating in single cases as in planning matters. The Environmental Department in Nordland, for instance, have had remarks to about 65 of the 700 applications for aquaculture locations, and have only warned against a DOF's license being granted in 20 cases.

The division of labor between the County Governors Environmental Department and The Directorate of Fisheries' regional branches appears to be polarised and sharp particularly in

Nordland and Troms. With reference to the Aquaculture Act the regional branches of the Directorate of Fisheries focus on industrial and commercial development in rural areas and other aspects of regional policy. They perceive aquaculture as the main way to compensate for the decline in local employment in the traditional inshore fisheries sector. Both regional fisheries and veterinary authorities are reluctant to take action in environmental issues when it is in disfavour of aquaculture, even if they have the authority and competence, and are actually supposed to do so. The environmental authorities, on the other hand, does not consider local or regional economic and social effects of the measures they are proposing.

The government White Paper opens for a more fish farming friendly practising of the Nature Conservation Act. If the Parliament decide to follow the recommendation given by the government, which is rather likely, the tide will turn against the environmental authorities, at least temporary. If the suggestions from the Government is followed, it is likely to become more difficult to introduce pure conservation measures for larger systems that include both land and sea areas and to establish buffer zones around islands. It is, however, still the environmental authorities who have the final word when it comes to decide whether and when a given activity is negatively influencing the objects of protection.

It seems like the process related to these coastal protection plans actually has led to fragmentation and inter-sectoral conflict rather than integration. The two management traditions on the battlefield represent different views on the nature, where one part emphasise the use or utilitarian values of nature, while the other focus on its intrinsic values. It certainly takes time for such highly specialised institutions to get used to each other, but this does not mean the conflicts and differences between them are insurmountable. However, in between them are also the communes – as the true political bodies. The sector-oriented government agencies are, in contrast to communes and counties, not used to the co-ordination and consultation oriented working style necessary in ICZM. Nor are they used to dealing with a political body like the commune council.

These agencies defend their turf and yield authority and prerogative only grudgingly. As demonstrated, however, several coastal activities and forms of resource extraction are subject to special, sector related legislation and are outside the scope of the Planning and Building Act. Such superior-level legislation leaves little institutional room for communes to manoeuvre in the coastal zone. In most communes the coastal zone planning has been disturbed by lack of inter-governmental integration, mixed or overlapping jurisdiction, and dispersal of authority. Jørgensen & Kjørsvik (1995) comment on the fact that commune-based ICZM efforts often become a battlefield of regional sector authorities and concludes that successful ICZM depends as much on solving conflicts between these as on local planning processes.

Thus, coastal zone planning at the commune or county level is still not a very relevant tool for sustainable management of marine resources such as fisheries and other harvest-based coastal activities which the communes can use. This is because the legislative and regulatory power is insufficient and does not allow these public bodies to make decisions that are explicitly aimed at regulating resource extraction and define user rights to such resources.

4.3 The question of consultation and participation

We have seen that the environmental authorities in Nordland and Troms did not fulfil the expectations of active participation by stakeholders, especially in view of the fact that they are new actors in the coastal zone and ought to attempt to give a good first impression. This was partly due to the fact that they had been working with these plans for 10-12 years, something that made participation at one stage become almost worthless at a later stage-as both actors and circumstances in the meantime have changed. Further, nature conservation's measures in Norway have, until the last decade, generally been implemented in a top-down manner, and it is reason to believe that some of these traditions are left, even if the environmental authorities have improved substantially in this respect²⁶. Some also argue that the environmental authorities were novices on the coast and not used to the complexity and dynamics of the coastal zone and the related activities. Previously they had protected mainly remote and sparsely populated areas of little commercial value and with well-defined ownership rights. This criticism against the environmental authorities is particularly serious as the County Governor is responsible both for the environmental planning and co-ordination between the other planning actors.

The felt lack of participation by fishers and fish farmers, also explain the extensive use of media as the main arena for the battle. Both fisheries and commune representatives along the coast have longstanding traditions in creating media-based political turmoil when they find their interests threatened. On the other hand, it is a paradox that this criticism about too little participation came from the fisheries authorities, which have little user-group participation in the local or regional decision-making processes.

Participation from the user-group organisations is particularly important, considering the fact that fishers does not own the resource they are dependent on, nor does the fish farmers own the water volume. However, the Directorate of Fisheries regional branches have longstanding traditions for working very close with the sectoral interest organisations, therefore they will usually be allies, at least when confronting the environmental authorities and they tend to use the same arguments. While the environmental authorities are representing an abstract and more or less non-inhibited "nature", the fisheries authorities are representing concrete people and interests in living coastal communities.

There will also be limitations on how far a regional state agency, as part of a larger civil service, can go in terms of negotiating with their counterparts. However, in this case the local and regional conflicts are reflections of conflicts at the national level between ministries, and the central authorities often prefer to decentralise such conflicts to the regional level, were they might be handled in more practicable and pragmatic ways.

Various kinds of co-ordinating bodies have been established at the regional level, both in Troms and Nordland. In the Government White Paper it is also suggested that local co-ordinating and co-operative bodies should more often be established when protection plans are prepared (St.meld.nr. 43 (1998-99)). In such local bodies where authorities and local stakeholders are represented, many of the considerations and deliberations can be made

²⁶ According to Andreassen (1999:103), the regional environmental authorities followed the procedures outlined by the Directorate for Nature Management. However, these guidelines proved to be insufficient in the coastal zone, given the political turbulence that occurred and the subsequent criticism. It's likely that the participation fulfilled the formal requirements in §18 in the Nature Conservation Act. It is rather doubtful, however, whether it fulfilled it's intention.

regarding consequences, required form of protection, the size of the areas that need to be protected, etc.

There are, however, limitations to how much can be gained through participation and consultation alone, but this is not an argument for not facilitating this. Extensive consultation and participation is costly, both in terms of resources and time, but after some learning experiences it is likely that such an investment will prove to be profitable in the long run. Thus, given the dynamic and complex character of the coast and the related industries, it can be argued that the establishment of legitimate problem-solving institutions are more important than detailed “once for all” problem-solving.

4.4 Knowledge, future needs, power and the precautionary principle

Both the regional branches of the fisheries authorities and the fish farming organisations seem to use the uncertainty and limited knowledge about casual factors in marine ecology and uncertain effects of protection zones as their main strategy against the environmental authorities. The environmental authorities defend themselves by maintaining that the knowledge is actually not as limited as the fish farming sector claim, and by stating that the precautionary approach should apply when we do not know the consequences of certain activities. The main point here is that the precautionary approach (Article 15 in the Rio Declaration) opens up for action on a less documented basis than normal.

The fish farming sector is generally critical to this strategy, and claim that this way of thinking will ruin the coast. Some representatives from the fish farming industry even reverse this principle and assert that the precautionary approach also applies to their cause, in the sense that the concern about the future and well-being of the coastal communities is an argument for facilitating aquaculture development and protecting as little as possible. However, by asserting that protection should not take place due to possible future needs for aquaculture localities, also the fish farming sector enters a discursive field were the arguments cannot be supported by irrefutable documentation and evidence. Knowledge is power, but power is also knowledge, in the sense that those in power decides over which knowledge counts in different circumstances.

Mariculture is a young and rapidly developing industry, and it is impossible to assess the future need for localities and what kind of localities future fish farming will consider as suitable. Both new species and new technology are swiftly entering the industry, and in a decade or two everything may look different. Some argue that a surplus of good localities is beneficial to the industry and the surrounding environment, as good localities are vital in order to keep the production as environmentally friendly as possible. Thus the lack of suitable localities may generate environmental problems. Others again argue, however, that spatial restrictions and scarcity of locations as is has done in the past, again will become an incentive to develop technologies that change the requirements to a locality and gives a more optimal solution.

The question, then, is whether this unpredictability and lack of certainty should favour mariculture or nature conservation, and to what extent one should try to integrate or reconcile these two apparently conflicting interests. The source of the problem lies in battles ahead about what constitutes the politically designated management area for both established and new institutions.

5. Synthesis

From international experiences, it is getting more clear that resource management and governing regimes have to be able to serve both social and environmental needs. The question now is to what extent the institutional arrangements are capable of simultaneously co-ordinating multi-use competition and socio-economic development.

As demonstrated in the previous discussion, the dominating territory-related conflicts in the coastal waters of Northern Norway are those between fish farming and environmental protection. The first conflicts arose in connection with the introduction of communal coastal zone planning. However, these plans were not a large part of the conflicts, unless they became caught in the cross-fire between the Environmental Department and the regional fisheries authorities. With the emergence of draft coastal protection plans the previously latent conflicts between environmental protection and fish farming became manifest and further escalated. These conflicts have remained more or less unresolved in anticipation of the Parliaments' decision. On top of these conflicts, the wild salmon related problems have entered the scene as well as new problems related to large shell-cultivations and sea-ranching.

The experience both from Nordland, Troms and Finnmark show that in most cases it is possible to agree on a solution even in the most complex and dynamic coastal environments. Improvements can be made simply through better co-operation and co-ordination among the various actors on central and regional level. In addition there is a need to emphasise the inter-sectoral responsibility of state agencies for the common ecosystem resources.

5.1 Towards commune-centred coastal zone management?

Under the present system there are currently severe limitations regarding what can be co-ordinated and integrated through the planning related legislation. As a result, the communes and the counties, which are the principal political ICZM authorities in Norway, do not have much influence on the policies of the ministries and government agencies involved. Without any legislative power to co-ordinate these actors, such co-ordination has to take place through voluntary measures, negotiations and deliberations.

As in most other countries, also in Norway the legislation that regulates activities in the coastal zones is contradictory and insufficiently comprehensive to respond adequately to the complex relationships that exist. In order to avoid jurisdictional conflicts, better demarcations between institutions within government have to be made. Also better and more unambiguous criteria have to be agreed on which more clearly indicate when it is justifiable to protect areas or to favour fish farming.

With reference to such institutional conflicts, it has been suggested from the level of the commune – that an institutional reform is needed. This would involve a strengthening of the Planning and Building Act at the expense of the sectional legislation and sectional interests. The Planning and building act is now under revision and such a reform to make this more of an ecosystem management law could be feasible. But this will require changes also in the specialised legislation which currently not very likely to occur, as the political will and courage seem to be lacking. Such changes would remove much of the authority of existing sectoral agencies, and such suggestions are met with heavy resistance by the "powers of expertise". It is, however, likely that institutional reform is required to expand the space and potential for integration at the commune and county levels. The problem, then, is that an

institutional reform that strengthens the Planning and Building Act in relation to the Salt Water Fishing Act or the Natural Protection Act may cause new problems. It is always a risk that communes will be vulnerable to development proposals, because of the short-term economic benefits in the form of employment and tax revenue these can offer. In addition, conservation measures are generally poorly regarded by fishers and fish farmers when they restrict their actions and options, and in many communes along the coast these constitute strong and dominant interest-groups. Both social, cultural, economic and environmental consequences have to be addressed and incorporated in any ICZM evaluation scheme. The hard part, however, is to strike the right balance between the limitation of opportunities for economic development versus a socially acceptable reduction in environmental quality. As Burbridge (1997:178) points out, what constitutes an acceptable balance will vary among different communities and will also vary within a community over time. Thus, the communes should be heavily involved in these questions in their efforts to govern where development should take place, how resources should be maintained, and where the social benefits, should be distributed.

5.2 Effects of long-term tendencies in fisheries and Mariculture

The general tendency towards larger and fewer fishing boats may to some extent lead to reduced pressure from coastal fishers on inshore areas. However, also the increased mobility of the fleet may interfere with spatial planning as a larger number of boats fish in waters far away from their home port. It will thus become more difficult to secure the rights and representation of fishers that does not belong in the commune or the region, but only participate in seasonal or occasional fisheries in the area.

Comprehensive research, new technology and further “ecofriendly” development of the aquaculture and expanded mariculture industry may ease some of the conflicts of interest in the coastal zone. Less location-sensitive and more environmental friendly fish farming may reduce the potential for conflicts between aquaculture and other interests in the coastal zone. New marine species introduced in mariculture (halibut, lump-fish, cat fish, shellfish) are less likely to interfere with the sustainability of the wild salmon stocks. On the other hand, new species may also lead to new ecological interactions with wild organisms and new environmental problems. Time will show whether these new species have other locality requirements and will give raise to a location pattern that are consistent with the present salmon farming or whether they will compete with salmon farming over similar locations. The future level and character of conflicts in the coastal zone in Norway will depend on the answer to this question.

Amalgamations and concentration in the ownership structure lead to some extent to geographical concentration of the production, as firms with several licenses reduce their costs by co-ordinating the use of licenses, localities and feed quotas. More smolt can be put out at a smaller number of locations, which means reduced labour costs and a more efficient use of the technology (Jakobsen 1999:123). Thus, economy of scale motivate the managers to use few localities intensively, and to rather alternate between the various locations to minimise environmental risks. The net effect of these opposite tendencies in terms of spatial requirements and potential user-conflicts is yet to be seen.

The essential elements of ICZM-processes are simultaneous integration and co-ordination on multiple levels in an iterative assessment, planning, and implementation process, incorporating both national, regional and local government as well as community and

stakeholder groups (Christie & White 1997:163). ICZM is particularly complex because of the super-imposition of many human activities along coastlines, and the many dimensions of integration that need to be addressed. As stated by Clark (1997:205), the most difficult part of the creation of an ICZM-type program is to get the co-ordination mechanisms working right.

One of the frequent challenges to most ICZM efforts is the fact that institutional and legislative frameworks are inadequate and competing. As demonstrated in this chapter, this is the case also in Norway. Coastal zone management has not been unambiguously successful in terms of institutional integration, and particularly not on the regional level. The dispersion and the poor integration between administrative bodies at different levels and with different scopes is striking.

5.3 Towards institutional reconciliation?

The main difference between coastal cultivation's and ecosystem enhancement on the coasts is the nature of property rights. In a strict sense both kinds of activities are resource transformation. For cultivations, like e.g. localised mussels cultures or enclosed pens of farmed salmon, it is possible to establish legitimate and enforceable property rights so that those who invest to a certain extent can be secured a harvest. Thus the "surplus" resulting from the resource transformation can be extracted and to some extent be reinvested by the owner. If the subtraction of this surplus is perceived as legitimate in a community – or in a wider region, the exclusion of non-owners will be a function of this kind of property rights. But even the limited occupation of coastal territory by marine cultivation's is a subtraction by private users of parts of coastal resources from the common – or public use. The Subtractability Problem is thus the typical private goods problem; areas that are enclosed by private property rights cannot be accessed and harvested from by other users, e.g. fishermen harvesting from highly mobile fish-stocks.

On the other hand, for larger or smaller ecosystem enhancement efforts, the problem is the Exclusion Problem. This is a typical public goods problem where the difficulty of excluding some categories of users might jeopardise the whole enhancement effort. In Norway, this has been the case with both Salmon stock enhancement programs and Lobster stock enhancement programs. Potentially successful restocking programs became unsustainable because uncommitted bystanders are not legally prevented from harvesting from the improved stock or from the results of the restored habitat. Thus investments in restocking, stock augmentation, improved spawning habitats, artificial reefs, regrowth of seaweed etc. are discouraged and are in many cases not undertaken (PUSH 1998). Coastal ecosystem enhancement will as public undertakings always be depending on the willingness of tax-payers to spend public funds. In this respect the open access character often results in overuse and overharvest from an enhanced environment, and thus in "political failure", thereby barring further use of public funds for this kind of enhancement efforts. And it should be kept in mind that all kinds of mariculture also use coastal ecosystem resources.

But analytically there is here a need to distinguish between public and common property rights: What is common to the inhabitants of a fjord or an archipelago, need not necessarily be treated as public property with open access for all citizens of a nation state – or of a union of states. Still the organisation can be internally inclusive at the same time as it is externally exclusive. Experience shows that organisational strength can be achieved when all who live in a community or a region in principle are invited to participate in an enhancement effort (see also Jentoft, McCay and Wilson 1998). And that by limiting the harvesting rights to those

who show a credible commitment towards the enhancement effort, it is possible to ensure both sustainability and legitimacy. However, this distinction challenges some fundamental doctrines in modern societies, which to a certain degree is built on the duality between public and private property rights. Therefore, for the purpose of practical institutional design beyond these doctrines, this requires profound renegotiations of the “social contract” between state, individuals and various intermediary collectives. An important part of the COASTMAN project is therefore to investigate what form this kind of renegotiations takes in the process of ICZM in different coastal communities in different European countries. In Norway, we have seen that the dominant role of competing state agencies have made these kinds of processes difficult.

Linked to the problem of suitable property rights for resource transformation, is the old problem of cultivation versus harvesting from the wild nature. The surplus generated from the costs incurred in enhancement and sowing must always be weighed against the costs and benefits of regulation only or nature protection only. Some times the experience shows that the output from natural coastal and marine systems can be reaped far more efficiently than the output from man’s cultivation, provided the former are managed in a sustainable way. This was the case with cod, where optimistic attempts to farm cod in coastal communities were soon rendered unprofitable by the high natural fertility of the cod and the vivid growth in natural stocks (PUSH 1998). In most cases, therefore, cultivation’s are only commercially viable if the wild stocks and their supporting natural ecosystem is harmed or modified to such an extent that the wild harvest cannot challenge the cultivated harvest in the market. This has been the typical phenomenon during the 10.000 years of agricultural revolution, that tame organisms drive out wild organisms. In the coastal zone this is most strikingly the case with salmon, where the cultivation of salmon in cage aquaculture through various mechanisms prevents the regrowth of the wild salmon stocks in a large number of rivers in Norway (NOU 1999:9). In this perspective, cultivation in coastal environments is often not the result of a conscious calculation, but more a necessity resulting from a degradation of the wild ecosystems by human influence. The transformation of the coastal resource through cultivation is in such cases the short term solution close at hand, while the full restoration of the wild coastal ecosystem is perceived to be too long term to be economically and politically realistic.

Thus the management of coastal zones also involves difficult considerations in the field of political ecology: whether to transform the coastal resources into a production oriented “coastal cultural landscape” - or - to restore the full productivity of the wild coastal ecosystem for an optimal harvest. The wild, larger, marine ecosystem is of fundamental importance for all ecological processes on the coast and it is therefore of crucial importance that fisheries issues are not treated in isolation from the coastal questions, but that local political governing of marine resources plays a larger role in shaping the future of the coast.

As this study has shown, and as the FAO Code of Conduct also points out, there is a strong need to integrate fisheries into Coastal area management (FAO 1995 §10). This means both that the fisheries sector and fishing communities are consulted in the coastal planning and management processes – and that these processes shall have an impact on the way the fishing industry conducts its business. In the case of Norway, the latter concern is probably the most problematic with the present institutional set-up.

Despite an improved environmental approach in later policy documents, integrated coastal zone management is still embryonic and the sector management approach is still prevailing.

Improved co-operation in planning does not necessarily imply co-ordination in the daily management when opposing interests meet. But it could also be argued that the emergence of sea-shore based protected areas, improved wild salmon management by stronger links between rivers and fjords as well as the emergence of new types of coastal activity (e.g. sea-ranching, will strengthen the links between sea and shore and revive the focus on rights and access to common grounds. This could start a process of institutional reconciliation. These are some of the challenges we are facing in the new century, as the traditional administrative structure and way of functioning has grown inadequate and overripe for change.

The political objective of integrated coastal zone management (ICZM) will most likely be an objective to be reached for, although the term is frequently used in denoting managing processes for coastal areas. The empirical facts in the Norwegian case shows an institutional structure and development of policies that could hardly be called integrated. Improved co-ordination seems to be a more adequate term in the Norwegian case. It should also be noted that ICZM is both an objective and implies certain methods and is not a policy analysis approach as such. Further it should be noted that the environmental and ecosystem approach has to be an integrated part of sector management, not only between sectors. To understand processes working for or against these political objectives, sociology and political science with their focus on institutions and processes can give major contributions. So far, the literature on integrated coastal zone management is rather poor when it comes to such contributions. At the beginning of a new millennium where environmental questions set the political agenda, this field of study represents a challenge for both ecological and, social and political science.