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Paper presented at Coastman's Third Workshop,
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DEVELOPING INTEGRATED COASTAL ZONE MANAGEMENT THE CASE OF NORWAY

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Introduction

This study will focus on the development of coastal management in Norway and how to explain the development of the repeated ambition of conducting a policy of integrated coastal governance. The *Mare Liberum* concept has been prevailing for a limited time of historical development, although enduring up to so-called modern times. The origin of institutionalised governance is, however, older and far more complex. If we limit our time frame to the post-war period only, it appears as coastal zone management in a Norwegian context is the result of a broader and more diversified economic base in coastal areas. But in order to understand the contemporary changes in coastal resource management, it is crucial to understand that the pillars for institutional construction are far older and more deeply rooted in the Norwegian society than the span of one generation.

The evolution of governance and institutions should not be seen apart from their normative base. This is often done through historical analysis of their origin combined with studies of their adaptation to changes and investigations into their self-perpetuating capabilities.
Institutions for governing natural resources are in addition 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 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, mussels farmers, aquaculturalists and stock enhancers often have characters resembling a “coastal commons”. In these the property rights are mainly uncodified, but they still represent constitutional frames for the designing of informal rules that function as supplements to the official laws and 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 in the following see to what extent we can identify such rules and perceptions, empirically based on experience from Northern Norway, to illustrate the more general analytical aspect of normbased regimes. We will 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.

Another dimension in this discussion of the nature of property rights, is the development of integrated coastal zone management in Norway, especially the ambitions of integrated coastal zone management (ICZM). How is the decisional system organised? How does it function, and how do we explain that it sometimes does not.? Finally, we are interested in the emerging challenges we are facing in the governance of the Norwegian coastal waters and how these involved questions of property rights in new and unknown ways.

Some analytical perspectives

Layers of norms, rules and institutions as mentioned above do not necessarily work together. Nor have they done so in the past. The challenge of integrated coastal zone management is as such a comprehensive political-administrative project. The ultimate indicator of its success or failure is the state of the ecosystems of the targeted areas. That makes integrated coastal zone management (ICZM) somewhat different to public policy in many other fields, where political "failures" often have less measurable consequences. Besides, nature does not normally speak for itself, nature's "interests" have to be "interpreted" and advocated by human actors. Their interpretation is, however, highly dependant on their "social construction of nature", which in the case of the complex wet/dry coastal ecologies, makes coastal zone planning and management quite different to shore-based management alone.

The concept of ICZM could be regarded both as a goal to be reached as well as a method for dealing with inter-related and complex management situations. The literature has tended to focus primarily on land-sea interface and methods for management of multiple use of such areas. Economic activities in the littoral zone, siting policy, protection of wetlands and public access to the shoreline are some of the causes that has triggered off efforts of co-ordination. The methods of planning to prevent and solve user conflicts are frequently used in such situations. And with the rather strong Norwegian tradition of public planning, the littoral zone has also been targeted (Langdalen 1994). It can here be instructive to divide the Norwegian coast 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. The main actors dominating the struggles over the coastal zone here are municipalities and the sector agencies of the state (the public) as well as private actors, corporations and organisations (the private). Thus the property rights characterising the coast are usually seen as being either of a private or a public character. To secure public access to the shoreline and sea has in Norway been regulated by law. And although its enforcement has lead to restrictions on exclusive use of private land and sites in the shoreline 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 rather a "public passage right" (*tjoð*), but is today formalised by law practise as the right of everyone to access the coast (*allemannsretten*). While other countries with another tradition of property rights in this particular zone, have addressed these institutional questions somewhat differently and have found other solutions.

Moving to the sea based areas the arena was more dominated by a traditional common access to its resources and with less public interference as the shoreline fades in the distance. Coastal waters and the high sea areas have traditionally been common grounds for coastal dwellers. The tradition of planning is besides considerably weaker than for the littoral zone. The property rights have been those of the commons and the state has been the central policy maker, mediator and peace-keeper. Relations to other nations are also aspects to be found on this arena, a matter for the highest level of government to take care of. The tradition of the coastal waters as common grounds and the high seas as "free" areas have been strong and prevalent and is reflected in international law. Policy-making and conflict resolution has therefore been different in the "wet" part of the coast compared with the shoreline and adjacent areas. Another body of literature, not so much linked to co-ordinated management of the shoreline areas, has focused on marine waters, fish stocks, sea-territories etc. as basis for different 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).

Technological and economic development has brought an increased and diversified use of the coastal zone, bringing the two parts together. Introduction of coastal economic zones have brought former commons to a matter for national management and international law. A rather large body of literature has developed, focusing on integrated coastal zone management, treating the shore line and the belonging coastal waters as a single interacting unit. According to Clark, the key is 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 meant to be an answer to managing problems where co-ordinated action is needed. This is not often achieved by top down policy and management, but by co-operation of those affected. Legitimacy to 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. Arenas for learning and problem solving could be said to be more important than ambitious master plans. And the mediator role has become more important than the formal decisional one in the case of integrated management. This is because public policy making in many cases in imply the bringing opposing interests together for problem-solving, bargaining and compromises, rather than top down rule by decree or law. The analytical perspective of an incremental policy-making, seems by such reasons to have more explanatory value in this context than simple models of rational choice.

Developing ICZM does not necessarily means developing new institutions. Moreover it implies bringing about co-ordinated action of those established in a sustainable ecosystem perspective. Some of the established actors are well rooted in coastal zone management, backed by formal organisations and established political-administrative networks, having a well established perspective on problem formulations and solutions out of their own experience and interests. Likewise there are other clusters of interest, dominating on other fields of the coastal zone, with other interests and perspectives on needs and solutions. Not all of them are confronting and disposed for conflicts, but some are. And as the total resource base in the coastal zone has been taken into use to an increasing degree, the potential and number of conflicts has also risen. Multiple use of the resources or areas, linking sea and shore, 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."

The purpose of this report is somewhat more modest; to outline the managing system as it has developed in Norway and to give some explanations to its development, form and way of functioning. The need of management has undergone substantial changes over time. Those who first dominated the arena have had to let others in, and some of them have constituted conflicting interests. An actual example is the conflict between fishing and petroleum activities. But besides accounting for actors and interest structure, our main focus will be on public policy formation for the coastal zone. What activities and interests could be said to function as propelling forces for integrated planning and management? What are the managing ambitions in practise? What are the limitations 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? These are some of the dimensions we meet in outlining ICZM in a multi-institutional perspective. But to understand the nature of the system's way of functioning, we have to trace its roots in former institutions, peeling off the layers to the time when the nation state still was in its early birth. We choose here to exemplify with North Norwegian experience, a region that always have been almost totally depending on its coastal resources.

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 also here 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 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) and the island archipelago (the outer) 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 is 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 dispensation of 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. 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 was a large number of smaller and more local fishery governing institutions which has 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*) (Oerebech 1991), 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. 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" (Schiefloe 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 Commons for the "outer" resources 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 has show that the 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 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” coastal communities, we also find local commons institutions for the sharing of cloudberries 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 were often for operational convenience arranged by voluntary contracts in ways that resemble commons institutions.

The Wild Migrating Salmon has also in Northern Norway 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 (PUSH Sluttrapport 1997). Further out towards the open sea, salmon catches are less secure and property rights less strictly defined. Also in Northern Norway did a special drift-net fishery for salmon 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. 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.

Growing management needs and expansion of the governing areas

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 that triggered the first planning of sea based areas at different management levels of society. 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 of sea based territories. The latter brought also 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 economic zone.

The establishment of the extended economic zone at 01.01.1977 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 sea based borders and the distribution of rights. What was typical to Norway compared with Icelandic policy in this field, was the chosen commitment to act according to recognised legal solutions. Norway as a major sea power in shipping and fishing, being a NATO member, had to find balanced solutions in co-operation with the affected countries.

The first dispute with UK of asserting a 4 nautical mile sea limit, 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 coastal resources and demands for an extended border soon became a political reality. While Norway sought international acceptance for the extension to a 12 nautical miles fishing border, Iceland chosed not to wait for an international solution and proclaimed the new border in 1958. The result was the “cod war” with UK. And 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 a border extension. Hence the fishing border question 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 lead Iceland into her second “cod-war” with UK and a transfer of foreign fishing capacity in 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 from the coastal fishermen from the northern part of the country. The government was heavily criticised, arguing for an expected international solution in the near future. And as the internal political pressure increased due to lacking international negotiated 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 working for an

immediate extension of the fishery border, especially from the coastal fishermen and their organisations in the northern part of the country.

The Norwegian announcement of a 200 nautical miles economic zone (EZ) establishment as early as the 01.01.1977, was to a great extent a response to internal political problems. Still there remained considerable international work to finish and agree upon the new Law of the Sea convention. And being an emerging oil nation, there was an undisputed national interest in an extension of national jurisdiction of the sea territory. The importance of this political objective is reflected in the establishment of a special designed secretariat, the "Havrettssekretariat", with a corresponding cabinet minister being responsible just for a rather narrow field of work. This organisational solution represented a rather rare incident in the modern history of Norwegian cabinets. Normally the ministers' responsibility corresponds 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 neighbouring 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. 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.

Institutional development and international co-operation

Norway, with a coastline of 2650 km. when bays and fjords are included, 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 economic zone (Andresen and Fløistad 1988). The "new territory" was rich in resources and the challenge was now to govern these resources according to the principles laid down in the new convention. The rather incomplete and temporary solutions in the north, where the border line and the principles involved drawing it, was a matter of discussion with the former Soviet Union, meant an extra challenge to management. And the negotiated compromise of 1976 to establish a "grey zone" tended to be enduring as time passed by. Besides, there was the international waters around the Svalbard Isles and Jan Mayen, that complicated the general picture of national jurisdiction and ability to govern in accordance with the principle of sustainable resource management laid down in the Law of the Sea. Although the legal formalities of the Norwegian establishment of "fish protection zones" in these areas have been disputed, most of the vessels operating in these zones have accepted Norway policing these waters.

The introduction of the economic zone and the growing public focus on marine resources during the 1960s and 1970s, was also followed by an institutional development 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, science and education. While the Labour Union (LO) formerly had a weak position as to the sea based labour market, the organisation now expanded its sphere of influence. And competing organisations were also established. The growing importance of petroleum activities at sea and shore lead 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 for regional and national economy, the petroleum sector became in few years a strong political actor. These activities were of an international character from the outset. Contrary to many

other oil producing nations, the sea based petroleum industry was in a Norwegian context a state matter and closely controlled by the state. The need of international co-ordination and co-operation, planning and national co-ordination was a state responsibility and had top priority at the national political agenda. As the North Sea was still international waters when the first drilling occurred, the activities were founded on co-operation with the neighbouring countries.

While environmental questions up till then most 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 become subordinated to the ministry, as well as the 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 political focus on marine pollution was not only due to the growing petroleum industry, but also to the general industrial and city development in the post-war period. Some fjords and coastal areas were reported to be rather heavily contaminated, while pollution was not regarded to represent any problem for other areas. 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 aquaculture at the coast, the fear for pollution became a hot political topic in the fishery dependant areas. And as experience with the petroleum industry was gained, it became clear that waist 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 had therefor to expand its responsibility also to include the growing economic activities at sea.

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

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, organisational and institutional development. Besides, there was a considerable growth in international co-operation in questions of environment and natural resources. This process was well established when the work for extended national jurisdiction of the coastal zones was gaining ground in the 1970s. The 1970s initiated a shift in attitudes and international agenda formation as to 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. It was followed up at the Rio conference (1992) that resulted in two international treaties, two statements of principality as well as with 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 a co-ordinated sectoral 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 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 on biodiversity was also of special relevance for integrated coastal zone management. But what especially should be noted, is the international frame for national policy and management that followed from the Rio work. And that UN also followed up by commissions and conferences for unsolved questions and evaluation of national practise (Lafferty et al.1997).

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 law of the Sea principle had then been working for a substantial number of years. Besides, the growing industrial activities at sea and shorelines, petroleum and aquaculture, called for improved co-ordination of management of the sea areas during the 1970s.

The outer sea areas - integrated planning and management

Some of the managing challenges Norway was facing concerning the new sea based territories, were new ones while others were rooted in the old regime. They all coincide more or less with a division of the sea areas in an “inner” and an “outer” part. The last one mentioned brought on the new governing tasks as for petroleum related activities and the national responsibility of conducting a sustainable management policy for fish stocks of the area, mostly in common 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 managing challenges. One of these was the stock of Norwegian-Arctic cod, the economic and politically most important one. While the former regime of international co-operation and management dealing with the cod stock, the North East Atlantic Fishery Commission (NEAFC) was loosing 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 December1974, was already operative at the introduction of the new regime.

And from 1976 on it negotiated the quotas of shared stocks on the advise of the biological recommendations from ICES (Sagdahl 1992). Despite some considerable ups and downs of the state of the shared cod stock in the following years, the management policy has succeeded in preventing the stock from depletion and a total ban as has been the case for the one at New Foundland.

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 of which the biological considerations have been rather neglected and with drastic variations in quotas as a result (Sagdahl 1985, 1992). Our purpose is not to discuss this management policy as such, more to evaluate it's potential contribution to integrated coastal zone management. Two aspects should be especially noted.

One is the co-management aspect of the management policy opening up for strategies and management means. The traditional conflict between the coastal fishermen and the trawlers have become accelerated after the quota system was introduced (Sagdahl 1992). An advisory committee for elaborating distributional 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 the clue to understand the 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. And with a record of close to 25 years of experience, this arrangement seem to be well established, although the flows of solutions have been heavily disputed. But the co-management experience as such, both with Russia as well as the one for national distribution, has proved rather successful in the continuing 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.

The other aspect is not so promising in view of an integrated coastal zone management perspective. The lacking 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. The fisheries have developed to be rather specialised and conflicting interests and the political costs to impose a purely biological based policy on the industry have been too high. What has been regarded as biological facts, have also turned out to be inadequate and partly wrong, so 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 constitutes 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 often have been incompletely 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 reasons, but not at least for political reasons. The political costs of imposing a more biological correct policy have often been regarded as too high.

For the same reason learning from former experience is not evident. One could easily expect that the learning experience from the rather industrialised fishing on herring in the 60ies and the 70ies, leading to an almost total depletion of the resource, should have learning implications for the later crisis of the cod fisheries. Such a link could hardly be argued to be found (Sagdahl 1992). It seems true to assert that retrospectively speaking the political aspects of management shed considerably more light on the outcomes than biological facts, models and learning experience.

Besides 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 inter-sectorial and integrated planning and policy formulation of the "outer commons." Although the exploring drilling phase is different to the one of production of oil and gas, the exploring phase has politically 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, that is regarded higher in the exploring than in the production phase.

The expansion of oil activity areas to north of the 62 degrees latitude, represented a fare more complex political challenge than the situation further south (Seierstad, Sagdahl and Sandberg 1985). The previous Ekkofisk blow out in 1977, had proven the dangers of severe pollution. The spawning areas around the Lofoten isles, functioning as some kind of a geographical barrier for drifting spill and pollution from the waters further south due to the Gulf stream, represented an extra barrier to expanding the drilling areas. The sub-arctic climate represented also a more fragile ecosystem and a longer period of break down 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 decisional 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 consultative arrangements were made to mitigate the criticism from the Fishermen Union. But despite the measures taken, the following expansion to the northern waters were objected to by fishermen due to what they still regarded as insufficient security. Once established, the incremental nature of the policy led to a growing and rather widespread exploring activity although the fishermen union never has accepted the security measures as sufficient. Andresen and Fløistad concludes 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 contrary to the lacking influence from the fishermen, it is rather the market forces that has slowed down the oil activity in the north at the end of the 1990s. Co-ordination with the fishery sector is still being questioned. Or as the mayor of one of the most oil- exposed municipalities of the Lofoten Isles publicly stated: that 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 could hardly be denoted integrated. Sector management has been developed and improved, but there still are considerable lack of both inter-sector and intra-sector co-ordinated management. This is not merely questions of giving priority or that there is no need for these types 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 a 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 living up to the principle of precaution do not easily fit together. But this rational has never been seriously challenged and put on the national political agenda. The policies remains still rather disintegrated at the end of the 1990s(Lafferty et al.1997).

The inner sea areas and integrated planning

While the growing petroleum industry and the national control with 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 aquaculture industry could be said to constitute the propelling force for planning of the inner sea areas. This industry grew out of the collapse of the industrialised herring fishery at the western part of the country, where capital had been accumulated during previous prosperous years. The entrepreneurial start in the 1960s developed into a promising industry during the 1970s and a spread northward along the coast (Seierstad, Sagdahl and Sandberg 1985). Nordland County with the longest coastline of the counties, well suited for aquaculture, was facing a growing management need for a location policy. Public regulation of the growing industry by permits was introduced, but the local problems of location was not solved. Although municipal planning was well established, it had traditionally not focused on the belonging sea areas. The entrepreneurial pattern was from the beginning characterised by clusters of aquaculture industries, exercising pressure on suitable areas for location and thus forcing local municipalities to act. Municipal planning at sea therefore grew out of local problems as in the municipality of Herøy (Helgeland), where about 20 permits were clustered too densely in the 1980s. Herøy's coastal plan of 1987, a very early plan developed in co-operation with the county administration of Nordland and state agencies at the county level, was a pioneer work. And Nordland County produced a county plan for aquaculture as early as 1985, thus pioneering sea based planning at the county level.

At the state level the Ministry of Environmental Affairs was the driving force behind improved planning and co-ordinated action for the inner sea areas (the coast). The former Building Act of 1965 was revised in 1985 to the Planning and Building Act, comprising planning for wetland and sea areas although limited to what could be denoted as municipal harbour areas. Another revision soon passed Parliament in 1989, extending the planning for

sea based areas to 4 nautical miles from the outermost points at mainland or isles. This meant a substantial expansion of planning tasks, imposed on the municipalities if planning was needed. And from 1989 on an approved coastal plan was needed to establish fish farms. The approving authority for the municipal plans was delegated to the State County Agency, an agency also being responsible for several forms of natural resource management and controlling tasks.

Previous to the emergence of planning, the county of Sogn and Fjordane at the request from the State Executive of the fisheries of the area, in 1984 initiated a case study of making a coastal zone map. This work was supported by the Ministry of Environmental Affairs and represented an early stage of the following- up of coastal planning. This early mapping documented the diverse actors, interests and the potential for conflicts of the inner coastal waters. The following interests were mapped; aquaculture, fisheries, sea-weed and sea tangle harvesting, sand and gravel from the sea bed, protection of nature, recreational activities, recipient concerns, pollution, potential locations for sea wave electricity plants, landing of oil and gas, deposition of cables, water pipes, traffic, road construction and general construction concerns in coastal shore areas. This list of interests widen the scope of managing needs for co-ordinated action. Although other counties could have mirrored a somewhat different list of interests, it documented the challenges of management for the years to come. It was presented in 1987 and the ministry followed up the very same year by initiating a complex evaluation of the coastal zone denoted the LENKA project, actualised by the fast growing aquaculture industry.

The full title of the LENKA project was the “countrywide evaluation of the Norwegian coastal zone and watercourses for suitable location of aquaculture.” Its main objective was to pave the way for further growth of the industry by a territorial planning approach, estimating the carrying capacity of the coast line and elaborate guiding principles. It was also meant to contribute to the municipal and county planning for coastal areas and watercourses and to running management of localisation of new plants. The potential for inter-sectoral conflicts was also mirrored in the involvement of four ministries supporting the project. A special secretariat was put up at the initiating 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. Some de-centralised sub-secretariats were also put up. 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 its implementation. The co-operative character of the work reflected the need for a common framework to be developed. The work was ended in 1990 and presented to Parliament as a white-paper with policy recommendations. All of the coast open for aquaculture had been evaluated and especially the one north of the south-west to the Russian border. It was now up to the coastal municipalities to follow up the work in their 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 environment should be formalised in questions of protection of marine areas (NOU 1990:2).

Nordland county had at that time already gained considerable experience in coastal planning. But it was a process of learning, how to limit and determine the scope of sea based planning and to define the actual areas. The county administration was as earlier mentioned in 1984 involved in guiding municipal planning for sea areas in the Helgeland region. This was before the scope of the planning law was expanded to include also sea areas. In 1987 the county

followed up by presenting guidelines for coastal planning as a part of the municipal plan, and underlined that such plans should comprise far more than just suitable areas for aquaculture. The county was in a way some steps ahead of the general planning movement initiated by the ministry in the late 1980s. The municipal planning experience from the Helgeland region was some years later, in the early 1990s, followed up by the county in co-operation with the Ministry of Environmental Affairs. This time in developing a coastal plan for the whole area. In this project 17 municipalities co-operated. The plan was presented in 1995, representing a pioneer work and was entered as the Norwegian contribution to the European Demonstration Programme for Integrated Coastal Zone Management. At that time the planning act was already revised (1989), opening up for municipal coastal zone planning. The county presented shortly thereafter a coastal zone plan (1997). Still the county was in a lead of sea based planning in Norway, and significantly ahead of the policies of the responsible ministry. The county also followed up the Rio Declaration with a Regional Agenda 21 the following year. Besides, a comprehensive coastal nature protection plan had been elaborated by the environmental office of the county's State Agency, representing also a pioneer work as the first ever made. It seems to be fair to conclude that Nordland county has set a record in coastal zone planning in a rather broad context. The county administration is also one of the biggest in the country, something that probably shed some light on its capacity to carry through planning and adapting to political signals from superior governing levels at an early stage.

Planning experience from the Helgeland region has set an example for co-operation in planning for the municipal sea areas. It is referred to in a recent white-paper from the Ministry of Environmental Affairs, presented in March 1997, that the experience of co-operation and the establishment of a shared secretariat for guiding and assistance could improve planning at the municipal level. It was followed up by the ministry in 1996 when a development project of coastal planning was launched. Counties were encouraged to develop such plans, to gain experience and competence in co-ordination of administrative routines and planning. Three counties have been chosen to participate in the project, which also are backed by the Ministry of the 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. The chosen criteria illustrate some of the main the problems of integrated planning of the coastal zone.

While all of the sea neighbouring municipalities and counties have the authority to initiate their own coastal plans, according to the Planning and Building Act, the Ministry of Environmental Affairs have elaborated specific state guidelines for coastal planning of the densely populated areas. Almost 40% of the Norwegians reside in a driving distance of one hour to the Oslofjord and Skagerak coastline. These areas are popular as holiday resort spots during the summer and are rich of natural and cultural values. Public availability of the shore areas have been dramatically reduced, by 75-80%, during the last 30 years. A state initiative and close co-operation with the counties and municipalities of the area are thus required by the centrally made guidelines. A similar development close to densely populated areas at the western and middle part of the country may call for similar state initiatives and influence of how problems are to be perceived and met. Traditionally the state has had and still has a strong position in the Norwegian governing processes at all governing levels of society, and the state is easily called upon when problems arise.

Coastal zone planning in Norway is still at an early state of development, but an increasing number of coastal communities are gaining experience from this form of planning. Of the 280 municipalities along the coast, 180 reported in 1996 that they had or was about to elaborate planning for their coastal zones (Sandersen 1998). But planning for such areas differ substantially from shore based area planning. The sea areas are penetrated and scattered by sector interests, where sector agencies exercise influence and power over their share or function of the zone out of jurisdiction that are not necessarily harmonised. Coastal zone planning has by that reason been characterised as planning in an institutional battle field (Sandersen 1998). While planning is supposed to solve problems, it may contrary bring dormant problems to the fore and provoke sector agencies in defence for their traditional way of functioning rather than making a climate for common problem-solving. The planning approach, the organisation of the planning process, areanas for communication and learning are by that reason vital aspects of coastal zone planning as a managing mean.

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 it's resources is not any longer an arena for flexible adaptations. It is rather strictly regulated, although not on the basis of local terms and perceptions (Seierstad, Sagdahl and Sandberg 1982). But planning will imply even more regulations, and the local attitudes towards this kind of planning could by that reason vary from resistance to support.

Besides, the coastal communities perceive the planning needs differently. While environmental questions are regarded important for planning at the southern part of the coastline, they are of dwindling relevance going northward (Bennet 1996) These questions are not regarded as important in the north, where the motivation for planning is more closely linked with questions of economic development. And as management of the sea based resources, the most important ones, are subject for management by superior sector agencies, coastal zone planning may be regarded as a waste of time(Sandersen 1998).

Bringing the sectors together and to co-operate for balanced and common problem-solving, seems for that reason to be regarded as the main task by the Ministry of Environmental Affairs. 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 of improved co-operation among the sector agencies and the municipalities (St. meld. nr. 29 1996-97). While the Ministry of Environmental Affairs is the responsible ministry for area planning and for environmental, conservation and protection question, the traditional resource use and the licensing authority belongs to the Ministry of Fishing. Although co-operation among these ministries have improved during the 1990s, as in the case of elaborating the mentioned guidelines for coastal zone planning and resource exploitation (T-4/96), the implementation of sector policy still turn out to be rather disintegrated.

From coastal planning to the challenge of integrated coastal zone management

The Helgeland project revealed some of the fallacies of planning for co-ordinated management of the coastal zones. The municipalities are the basic actors for planning of the areas, but not all of them had planning capacity or was willing to make a priority to planning. Planning were also organised differently, varying in political centrality and communicative patterns (Jørgensen 1995). Area planning has not been regarded as important in coastal municipalities where other tasks are regarded much more pressing to be solved. It could also bring limitation to a more traditional free behaviour and could be opposed for that reason. Giving political priority to coastal planning, is not evident for coastal municipalities, especially when it is not imposed on them from superior authority. The Planning and Building act makes it a voluntary task and needed only if a location of aquaculture is to take place.

One of the main objectives of the project was to define the judicial problems of enabling efficient planning and implementation. The relation between the municipality as responsible for area planning and the state's sector administration of the fisheries and aquaculture nature conservation and protection was targeted. The most crucial obstacle to efficient coastal zone management was "the objection right" of agencies of the state at county level. These operate under specific sectoral laws which are regarded to be legally superior to general laws such as the Planning and Building act. The municipalities are therefor in a weak position to implement their coastal plans in matters where the state agencies for the fisheries or the environment have the decisional power by sector laws. 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 experienced of the Helgeland project was that it was much easier to solve local confronting interests than questions where superior sector administration was involved. By the organisation of the planning process, making a meeting place for communication and problem solving, local participants gained experience and found the meetings stimulating for further work (Jørgensen 1995) Although representatives from the state sector administration at the county level were brought in during the local 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 challenges.

A recent study on regional management of renewable marine resources supports this finding (Sagdahl 1998). Fishery regulations are matters for the Chief Executive of the Fisheries, a regional state agency under the Directorate of the Fisheries. The fishery sector has a long tradition of co-operative, or consultative resource management, but within the fisheries sector only. These decisions are made at the state level in close co-operation with the Fishermens Union. A special arrangement has been made for solving user conflicts at fjords and the inner waters by presenting the cases for an regional advisory committee. The representation is 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 council.

Traditionally there has been conflicts among local users and visiting vessels drifting with net and trawl, especially at fjords where the local users are dependant of the sustainability of the local resource system. This is mainly gear conflicts but include often arguments of protection of nursery areas and spawning grounds for local fish stocks as well as fear of over-fishing of

the available local resources . These resources have not only been exploited by local 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.

Despite the fact that the Planning and Building Act have provisions for marine protection and conservation areas, the Salt Water Act as handled by the fishery sector administration is regarded as superior in the handling of specific cases. Local fishermen unions and county councils have mostly been turned down in their efforts to have introduced specific regulations. In Nordland county a practise of equity in gear types have dominated the policy, giving no protection for local interests. Besides, the question of the existence of fish stocks as recognised local stocks have been disputed, as something the local advocates for regulations up to recent time could not scientifically prove. Marine research have now documented the existence of such local fish stocks, but still there has been a sectoral resistance to adjust to such facts and move away from top-down policy and to a more integrated, local and regional based one, including the multi-interest structure where territorial local interests are included.

Another actual example of disintegrated management is the way the relation between stocks of wild salmon and raised salmon is handled. Salmon is reported to be extinct in 44 river-systems, in addition to being threatened in 55 more rivers (NOU 1999:9). Although the causal explanations to this development may be complex and disputed, the establishments of salmon farming enterprises are regarded as one of the major reasons. The spread of diseases and salmon lice, huge numbers of escaped fish from the ponds invading the rivers and spawning areas, have been pointed at as some of the explanations to the dwindling stocks of wild salmon. While wild salmon is managed by the Ministry of Environmental Affairs, the aquaculture industry is a matter for the Ministry of the Fisheries. And the growth and economic importance of the industry for the national economy and municipalities along the coast have been considerably more influential in policy-making than the advocates of wild salmon conservation. While the interest structure attached to wild salmon and salmon rivers are scattered and not used to behave as pressure groups, their opponents consist of politically well-trained organisations, with direct access to important political-administrative networks. Despite adhering to the principles of precaution and biodiversity, there is in Norway a long way to go from these principles to the actual policy formation when confronting interests meet 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 regionally and nationally organised economic interests. Besides, there is no sectoral authority being superior to the others in such matters. Co-ordination has to be gained by dialogue and co-operation, consequently coastal management problems very often end up at the cabinet level.

As to questions of 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. Although positive results have been reported as to road construction in watercourse areas, a transition of former practise to co-ordinated policy will easily challenge the established interest structure within the actual sector. And as argued above, 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 biodiversity. These should be matters for the sector administration to handle according to sector laws as the Aquaculture Act and the Salt Water Fishing Act. The most balanced formulations were made and decided on only at the top level of the involved ministries according to our information. Although the link between environment and industrial exploitation was focused, the white paper did not give signals of any formal co-ordination with the management of living marine resources. What was needed, it was argued, was improvement of knowledge, a better dissemination of information and guidance and mutual co-operation. An example of this was given, i.e. the elaboration of shared guidelines for planning and resource use of the coastal zone (T-4/96), a mere collection of relevant acts and prescriptions for planning and resource management. But although being only a modest step towards integrated coastal zone management, it represent a willingness of improved contact and co-operation between the fisheries sector and the "environmental sector".

The ministry's white-book on planning documents indirectly the shortcomings of integrated coastal zone planning and management so far. Further it documents that the national level is the one lagging behind the local developments and that the real challenges are to provide co-operation between the state's own sectoral agencies and co-ordination between the sectoral managing levels. To establish co-operation among the sectoral actors and gain more experience in common problem-solving seem to be the main idea of the previous mentioned developing projects, launched by the ministries. 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 former white-paper, "Environmental policy for a sustainable development"(St. meld. nr. 58 1996-97). The policy for sea based 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 should be given high priority. And 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, the results of the Local Agenda 21, all through the use of the Planning and Building Act.

Comparing the ambitions spelled out by the Ministry of Environmental Affairs to the one found in later policy documents from the Department of Fisheries, the environmental scope is now 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 the outcomes of 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 by planning in coastal areas and the work of establishing areas of marine protection. What characterised the white-paper was a rather traditional sector perspective under pressure from the superior environmental concerns. But if we move on to a later paper by the ministry concerning policy for the development of the fishing industry as a whole, the environmental approach is clearly improved. The principles of sustainability and optimal resource use according to the Law of the Sea convention, the one of precaution as well as the eco-system approach for management, are introductory mentioned. Gradually the influence from international environmental work is seen to be gaining ground in sector administration. The Norwegian Government will table a new white-paper on Coastal zone management in 1999, which is expected to clarify the major political dilemmas of use and protection in the coastal zone.

Despite an improved environmental approach in later policy documents, integrated coastal zone management is still embryonic and the sector management approach is still prevailing. And improved co-operation in planning does not necessarily imply co-ordination in the daily management when confronting interests meet. But it could also be argued that the emergence of new types of coastal industry, sea ranching, will strengthen the links between sea and shore, revive focus on rights and access to common grounds. These are some of the challenges we are facing at the turn of the century, making the traditional administrative structure and way of functioning inadequate and disposed for change.

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 **subsidiarity 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 most likely lessons to be drawn from the European demonstration programme are that the dynamics of coastal development, and its attached political processes are more complex than so far acknowledged. In the remainder of this paper 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 is that co-ordinated planning will automatically bring about co-ordinated action that will be beneficial to the coastal environment.

This could have become true for access and harvesting regulations in those cases where these become 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 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 they 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 and environmental risks involved. (Thus the role of insurance companies is becoming increasingly important in deciding the coastal environment).
- ✓ 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 transformation of coastal resources, this often means transformation of 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 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 with only use/harvest and protection issues related to Coastal Development?
- ✓ And if so, what does it take to enable modern ICZM to deal with cultivation, augmentation, rehabilitation and ecosystem enhancement in relation to Coastal Development.?

To answer these questions it is necessary to look at the more profound rationalities 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).
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 that 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 are empirical basis for assuming substantial 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 efforts in transforming the coastal resources through enhancement and cultivations?

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 transformation of 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. 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 "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 harvestisng 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 carrying capacity as the crucial rationale for balancing the needs of marine cultivations, of 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 adds 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 coastal and marine environments. In addition to the hazard of ecosystem simplification resulting from marine monocropping, there also 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 algea or parasites and increased predator pressure on wild species. One example here is the massive increase in salmon lice that now appear as e 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 uncellular algea (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 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 realise 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 is that they do 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" 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. 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 are used as collateral for credit and are often crucial for an insurance cover.

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. A few examples from the current debate in Norway will make these dilemmas clearer.

Conclusion

The main difference between coastal cultivations 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 cultivations 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 become 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.

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 the 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.

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 cultivations, provided the former are managed in a sustainable way. This was the case with cod in , 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, cultivations 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 marked. This has been a common 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.

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.

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