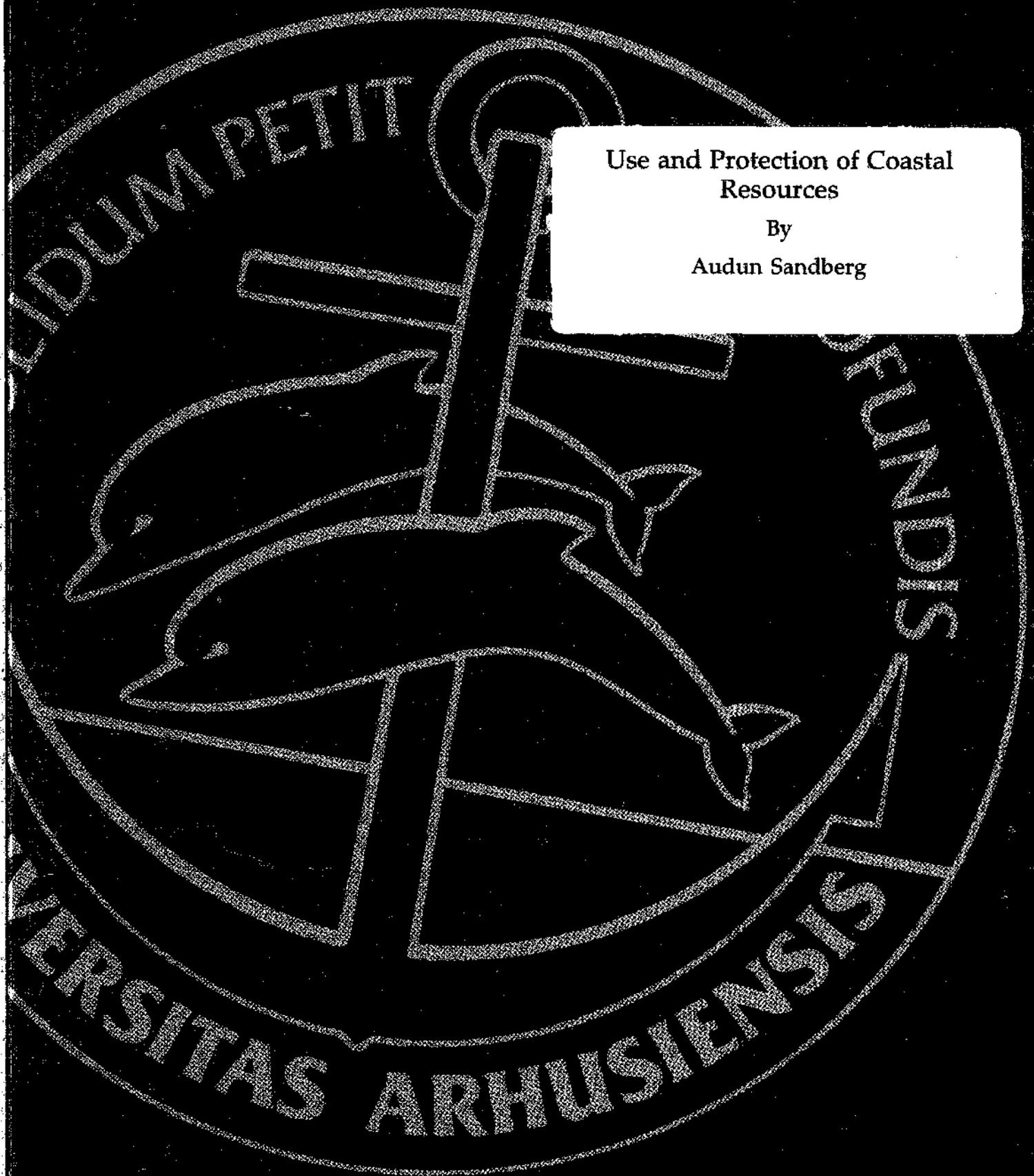


# MARE WORKING PAPERS

Use and Protection of Coastal  
Resources

By

Audun Sandberg



MARE WORKING PAPER SERIES

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Mailing address:

Department of Social Anthropology

Att., Elisabeth Vestergaard

Aarhus University, Moesgård

DK-8270 Højbjerg, Denmark

Ph. +45 89 42 46 69

Fax +45 86 27 07 08

E-mail: [etnoev@moes.hum.aau.dk](mailto:etnoev@moes.hum.aau.dk)

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# THE MARE WORKING PAPER SERIES

## Introduction

MARE is an acronym for the EU funded project: *Management of Renewable Resources: Institutions, regional differences and conflict avoidance related to environmental policies and illustrated by marine resource management.*

### *Working Paper Series*

The title *Working Papers* indicates that papers in this series are not necessarily 'finished and polished'. The *Working Papers* are by-products of an ongoing research and are meant for discussion. Publishing this series we aim at stimulating the debate on fisheries and resource management and on receiving feedback from colleagues.

The papers will be conference papers, preliminary empirical studies, methodological considerations or theoretical analyses. The *Working Papers* will be published when there is a need.

### *The MARE Project*

The aims of the MARE-project are to explore the cause-effect relationship between

- 1) institutions designed to regulate the protection and exploitation of the environment,
- 2) socio-cultural institutions including modes of utilisation, organisation and knowledge in the local areas and regions involved, and
- 3) the renewable resources of the relevant environment.

The MARE Project intends to develop general tools for a sustainable development in planning and management that can be effective in understanding and managing dysfunctions, conflicts and socio-political instability. Research focus is on marine resources as an important type of renewable resource in relation to public management.

The broad scope of the project is chosen in order to make the conclusions applicable to the study of any type of environmental protection measure that by its nature must encompass a large geographical and culturally diverse area. Particular attention is paid to the study of institutions as tools for managing and solving conflicts.

The selected regions under study are situated in Spain, Norway, Ireland, Greece, France and Denmark.

The research team comes from *Nordland Research Institute*, Bodø in Norway; the *University of Girona*, Girona in Spain; *OIKOS*, Rennes in France; *Environmental Impact Services Ltd.*, Dublin in Ireland and *Aarhus University*, Aarhus in Denmark,

## **Use and protection of coastal resources<sup>1</sup>**

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This paper examines the interrelationship between the competing uses of coastal resources and the institutional frameworks that shape this governing of such resources. These Institutions often have the character of layers, where for instance the local perceptions are rooted in institutions that governed traditional use, the contemporary legal framework is rooted in economic activities of the modern age, while the institutional dynamics is caused by emerging integrative activities, often activities that challenges the previous distinction between use and protection.

The paper uses Northern Norway as an example and carries out an analysis of use and protection of North-Norwegian coastal resources as a dynamic blend of Non-EU institutional designs, local institutional structures and the institutional challenges from new activities like coastal recreational fishing, aquaculture, conservation and habitat improvements sea ranching and sea cultivation.

In carrying out this analysis, the paper will link with other analysis in the EU Environment Programme and with the ELOISE programme on the Land/ocean interface. The paper thus establishes grounds for comparing the institutional development in one part of Europe with the institutional development pertaining to coastal regions in other parts of Europe, e.g. the West Coast of Ireland.

### **Coastal Social Science**

**Within the Environmental Research Programmes of the European Commission, there is great emphasis on the environmental problems of the fragile European Coasts. In the period 1991 to 1994, as much as 51 projects of coastal research were carried out within the Environmental Research Programme. These have been partly independent projects, partly coordinated projects within the ELOISE**

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<sup>1</sup> Original Paper presented at the MARE Workshop /  
EAFE- Conference in San Feliú de Guixols/Barcelona  
25 March - 3 April 1996

framework and within the LOICZ international project within the IGBP international programme. In addition, the MAST programmes have addressed the challenges of the coastal zones for a number of years (Nolan 1995).

In spite of all this ongoing research effort, little attention has been paid to the institutional and social aspects of developments and use of the coastal zone. The human impact has to a large *extent* been interpreted as the epiphenomena that are measurable in natural science terms: habitat loss, eutrophication, contamination and physical disturbance. To the extent that "socio-economic" factors have influenced the research designs, it is mainly interpreted as failures or imperfections in the Coastal Zone Management Strategy of the nation states (CZMS) or as a search for "mitigating strategies for human impacts",

One of the reasons for this is the awkward position of the social sciences within the family of "Environmental Sciences", which seriously hampers their effectiveness in addressing environmental problems (Dunlap & Catton 1993). The foundations of Sociology are in themselves a major obstacle as they require that social phenomena should be explained only by social facts - there is no place for the physical and the biological world in sociological explanations (Durkheim [1895] 1964),

In recent literature various ways of overcoming this difficulty can be observed, the objective of which is to establish credible schools of "Social Environmental Sciences.". One way of constructing an "Environmental Sociology" is to consciously violate the rules of the founders and include the technological and the biophysical factors in the sociological analysis - to construct a "Social complex" akin to O.D. Duncan's "Ecological complex" (Dunlap & Catton 1993). Another way to overcome this problem is to acknowledge the epistemological "fact" that social constructivism is more in line with sociological thought and that the natural environment, with all its ailments, is basically a social construction. Thus the "environmental problems" cannot be understood outside of a particular social context, they are themselves social constructions (Lidskog 1995). However, leaving a lengthy epistemological discussion aside, they both suffer from a certain lack of applicability when it comes down to tangible policy relevance. The <Social Complex> might explain well the entangled environmental crisis in an adequate way, but it also makes it seem inevitable. The <social constructivist> approach on the other hand, keeps the social scientist busy with endless philosophical discussions of whether there really are environmental problems, leaving it to the natural scientists to measure toxic levels and habitat deterioration.

This article therefore take a point of departure which is different from these two. It is a more simplistic, but at the same time more operational approach for practical research and policy action - especially when confronted with the complexity of man/nature interrelationships in the coastal areas:

1. Most environmental problems can with some approximations be defined as failures in the Governing of Resources or resource management As such they are produced by human activities and can be studied with the conventional tools of institutional analysis. Environmental problems will then typically arise because of institutional voids, inappropriate institutions, illegitimate institutions or inflexible institutions. The environmental discourse, and the distinct disagreements on what are really environmental problems, can be seen as the interplay of norms, ideas and interests connected to the different layers of resource governing institutions.
2. Property rights are employed as the most relevant and feasible links between the social world and the biophysical world. Property rights does not necessarily - mean private property or *dominium*, but acknowledges the fact that there will always be some form of property rights relationship between humans as individuals or organisations and our physical and biological world A resource will either be no-one's (*res nullius*), the public's (*res publica*), a commons (*res communes*) or private property (*dominium*). This allows for the utilisation of a whole tradition of analytical tools from the ancient *ius in re* to the modern sociology of law, Property rights are also at the base for a number of institutional economics analysis that has proven highly effective (North 1990).

This linking of an institutional perspective with the challenges of a sustainable and legitimate governing of resources can give social science a handle on some of the problems related to environmental analysis in a modern age where primordial corporate actors are replaced by purposive organisations. This would also be in line with the call by the late J.S, Coleman for a New Social Science appropriate for analysis of New Corporate Actors (Coleman 1990).

But in addition there are a number of deep epistemological problems that needs reflection, especially related to the environmental discourse and the perceptions at various levels of what is really a sustainable and legitimate resource governance. Here the social constructivism would re-enter the analysis because such perceptions are social constructions of reality and are frequent themes of contestation in social and political processes. But as such, they are also within the realm of long-established analytical tools for studying ideas and political processes within the various social sciences,

At the risk of oversimplifying the last 100 years of environmental debate, four major rationales for resource governance can be summarised in this way:

- The Opportunistic Harvesting Rationale, where natural abundance is always temporary and has to be reaped while it is at hand.
- The Maximum Sustainable Yield Rationale, where biological resources should be managed for the highest possible persistent harvestable yield for each single stock.
- The Ecological Balance Rationale, where a precarious balance has to be maintained both within and between the various life systems in order to avoid an environmental breakdown.
- The Ecological Resilience Rationale, where the largest possible diversity in genetic forms and the natural dynamic adaptability to exogenous shocks have to be maintained in order to maximise the robustness of the complex socio-ecological system.

To the trained resource manager, all these resource management rationales can be identified among the professional tools of the practitioner: The opportunistic harvesting is usually the despised original practise of the natives before government officials and urban masses entered the stage. In modern administrative language it can be labelled for instance "free fishing for boats under 20' " or "free fishing within a group quota". While the Maximum Sustainable Yield rationale is often the foundation for the optimistic bio-economic management tools of cod-stock managers or moose stock managers. The Ecological Balance rationale is usually the conceptual basis for the conservationist approach to natural resource management, often this is attempted within the territorial limits of a Marine Park or a Coastal Protection Area. But this rationale has also inspired the recent attempts at "multispecies modelling for sustainable yield". In terms of a model for active harvesting that preserves the ecological balance in large and complex marine ecosystems, this might be a contradiction in terms.

Therefore the last rationale, the Ecological Resilience rationale, has received considerable attention. Based on an idea of the importance of biodiversity, it acknowledges the basic instability in biological resource systems akin to the perceptions of the native opportunistic hunter (Holling & al 1994). But the maximum diversity requirement implies that there for all species are certain threshold values above which or below which a certain specie should not be allowed to develop. Resource management based on such principles would mirror the functions of natural predators, that of preventing any particular specie to become dominant. At the same time the human society introduces the theoretical rationale of maximum diversity as a safeguard against future shocks in the biophysical world, Thus no single specie stock should be allowed to fall below a size that guarantees a genetically sound reproductive capacity. However, practical

institutions and management tools based on the biodiversity rationale are still scarce and not developed to an advanced stage. And above all, they would require a high degree of flexibility and "switching capability" in the harvesting sector. While the results of practising the quota systems has been the opposite - an increased rigidity tied to gear and specie.

At the moment it does not seem possible to design a management regime on one clear cut rationale for sustainability and thus optimise all the decisions accordingly (Liberatore 1993), Most of the possible rationales are already present in a community, in a bureaucracy and in the codified rules and working institutions. A large number of fee present resource conflicts, notably those between the state and the local community level, are often founded on such fundamentally different perceptions of resource governing rationales. Remote coastal communities that are harvesting at a low technological level, might still tend to maintain an Opportunistic Harvesting Rationale for their local fishing grounds and will be strongly opposed to government quota regulations with basis in a bio-economic rationale of maximum sustainable yield for a particular specie. They would see this as an unjust restriction on their traditional flexibility, Likewise will a high technology corporate harvester, with heavy investments in specialised fishing gear and a specie-specific quota as a collateral security, be strongly opposed to a multispecies management regime that would attempt to maximise ecological balance in the longer ran. Therefore different resource governing rationales will normally co-exist at the same time in the same society and an important part of resource politics is the struggle over hegemony for such rationales.

Thus a comprehensive analysis cannot just be a straightforward comparison between countries and regions - the task of the MARE-project is to dig deeper. An institutional comparative analysis does not only compare the existing institutions and social practices by comparing differences on certain variables while keeping similarities on other variables constant. In addition it is necessary to work historically/comparatively, i.e. to contrast different chains of events in environments and cultures that have some common aspects. The analysis of such different "processes of institutionalisation" are crucial to the understanding of the different perceptions of rights and duties regarding resource use in the various European Regions. Thus it-is easier to understand that resource governing institutions often have the character of layers, where for instance the local perceptions are rooted in institutions that used to govern traditional use while the contemporary legal framework is rooted in economic and industrial activities of the modern age. At the same time this kind of analysis can also help us to understand the emerging changes and the embryonic institutional dynamics that is caused by new integrative activities, often activities that challenges the previous

distinction between use and protection. These latter activities are most pronounced in the coastal areas where there has been a gradual infusion of ideas connected to territoriality and sea tenure - as we know them from East Asian countries. These kind of integrative activities are analysed in more detail below. While the overall MARE project analyses fisheries and coastal activities in widely different ecological and cultural settings, from the Aegean Sea in the East to the Irish Sea in the West, from the Catalonian Mediterranean in the South to the Arctic Seas in the North, there is also a need to conduct more partial comparative analysis in order to sharpen the analytical tools sufficiently to undertake a wider comparison.

In this article a foundation is therefore laid for a limited comparative exercise - a comparison of institutional developments on the Irish West Coast and the North-Norwegian Coast. These coasts share a number of common elements, but are significantly different in many other ways. Despite their similar ecosystems, similar species and habitats, they have experienced markedly different processes of institutionalisation of the usage of coastal resources. However, a common theme runs through all institutions that have evolved on or for these coasts, that is the straggle between use and protection of these areas.

At the outset it can be convenient to distinguish between three different phases of resource use on both the Irish West Coast and on the North Norwegian Coast.

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

But in real life the situation is much more complex. A number of traditional harvesting practices have survived through the modern age and we find that most local perceptions regarding sustainable harvesting are still stubbornly persistent. Founded on a basically opportunistic harvesting ideology that know of no aggregate effects of international industrial fishing fleets, coastal communities in

Northern Norway often exercise local rules that has no size limits to the catch, but are often related to operational rules or rules pertaining to other parts of the coastal environment. After the relatively recent introduction of a quota system in coastal cod fisheries in Northern Norway in 1989, there has been persistent lobbying from artisan fishers and coastal samii fishers in Northern Norway for a "free fishing". This has in turn resulted in acceptance of the continuation of fishing by the smallest boats after the quota is filled. Founded on local perceptions of local ownership to a local fjord stock, but dressed in modern regulatory terms, this means institutionalising some of the local perceptions - and now into a modern framework. But these efforts has also challenged conventional marine-biological knowledge and spurred alternative marine-biological research on separate stocks of both fjord cod and other local stocks of fish. Over time, this tend to create also a natural science basis for these local perceptions.

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

At the other end there are numerous attempts to marginalise the «quota-free local fisher» and to classify him or her in the category «hobby-fisher», «cultural fisher» or «leisure fisher»( Leisure Fishing Commission 1994). Strong interests argue that only quota owners should be considered professional fishermen. Consequently it should be easy to impose restrictions related to gear and market access on the group of «Bon-professional fishers», thus rendering them harmless in the bigger straggle over limited resources. As there are strong local perceptions related to "everyone's' harvesting rights" in coastal waters, and the state has taken upon

itself to regulate these rights, the political straggle is now mostly over control with the state.

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

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

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

But it is the deeper constitutional effect of a transfer to a quota system that is of major concern to us here. Basically the North Atlantic region is characterised by a transfer to the state or to a union of states the property rights of specified marine resources on a coast and within the 200 mile economic zone. Basically these

property rights were usurped by the states as they were in general transferred from either no ones property (*res nullius*) or from coastal communities which were governing them through various institutional arrangements. The latter is known as common property (*res communes*) arrangements with uncodified or informal rules. Any attempts to reverse the quota system, e.g. by expropriation, collection and redistribution, would show the true nature of this transfer; it would turn the resource - not into no-ones property or common property once again - but into public property

The gross long-term effect on the governing of marine resources from this process of modernisation, is the creation of a large public property (*res publica*) along the North Atlantic coasts. Through the distribution of shares of this property to individual and corporate quota holders, the state or union establishes a direct relationship with individuals, thus at an increasing rate bypassing the secondary groups on the community or professional level. In this respect the Mediterranean institutions for governing marine resources are markedly different, here the secondary groups, in the form of Cofradias in Catalonia, Prud'homies in France and Fishermen's' Cooperatives in Greece, have property rights and play an important and decisive role in the governing of marine resources (Alegret & al 1996), 1996)

A farther effect of the emptying of the intermediate level of its important functions on the North Atlantic coasts, is a further weakening of the civil society outside of the state and increased problems with legitimacy, monitoring and control in connection with state governing of marine resources. Various attempts to improve the volume based quota systems are undertaken, ranging from satellite monitoring of vessels to complex multispecies modelling. But despite an enormous expenditure of government funds and expertise in developing elaborate quota systems and negotiating the size of these, most of Northern Europe's - and the World's fish stocks that are managed according to this rationale, are in a bad shape. At the end of the modern period, it is therefore a fundamental disagreement among resource managers whether this modern institutional structure is just not yet perfect, whether it is already obsolete, or whether the rationale of maximum sustainable yield is fundamentally unattainable

The newest layers of institutional rules are just emerging, and they have not yet any clear cut design. There are a number of conflicting tendencies that arise from technological and organisational innovations, from the detection of new markets and from legal and institutional creativity. There are also tendencies of organised counteractions to combat such innovations through political action and legal protection of interests. Spotting such tendencies, it is the duty of the social scientist to investigate the formation of new perceptions related to the governing

of coastal resources and of their **institutionalisation**. These are perceptions growing from random experiments with the new integrative activities in the coastal zone: Aquaculture; Sea ranching, leisure fishing, tourism, habitat enhancement, fry protection and conservation activities related to marine parks. If any traits are common to all **these** processes that take place towards the end of the modern period, it is the increased emphasis on **territoriality**. The majority of these new activities are **spacial** in character and occupies shoreline or sea volumes in a fundamentally **different** way from migratory fishing activities. Sea-territory is, however, not always **two-dimensional**. Sometimes, like for aquaculture, both the sea-surface and the entire volume of water down to the sea-bed is occupied. For other activities, like certain shell cultures, lobster cultures etc., only the sea-bed is occupied, leaving the water masses above free for other activities. This character of water; the potential for simultaneous activities in layers and the strong interactions between activities in free flowing water, makes the field of institutional development in sea-tenure a fascinating one, where experience from the two-dimensional terrestrial environments has only limited relevance.

A careful analysis of some of the new tendencies observed on the North Norwegian Coasts can illustrate the complexity of the task. Then, through the comparison with similar **institutional** challenges in other ecological and cultural settings, valuable conclusions can be drawn about the deeper changes taking place in European institutions for governing marine resources. But it should be remembered that in a historical perspective, these are not new thoughts. In the **long** period between 1864 and 1914, great emphasis was in Northern Europe placed on developing technologies for artificial hatching of the eggs of cod and salmon in order to strengthen the natural stocks of fish in certain localities (**Schwach** 1996). This research activity spread to many countries, notably to Woods Hole in USA and to Hokkaido in Japan. In Northern Europe this kind of cultivation optimism was criticised by advocates of modernisation and was suppressed in terms of funding and academic prestige. Thus, while the coasts of the European North Atlantic went through a long phase of industrialisation of the large seasonal fisheries from 1914 to 1996, the knowledge of sea-cultures was further refined in research centres in America and in East Asia and extended to a large number of marine species. But with the rapid growth of closed cage aquaculture for salmonides in the North Atlantic, the old ideas of human intervention to strengthen "natural" stocks of fish has again received political attention and fresh research **funding** (Aarseth. 1995)

## The greening of the coastal commons

Correlated with the growth in new integrative activities that occupies space, there has been a demand for planning instruments to deal with these. In Norway most of the sea-activities have during the modern period been governed by sectoral laws that regulate the activities of fishermen or aquaculturalists or sea freighters or tourists. As long as these are singular and unconnected activities, this institutional set-up is satisfactorily. But when these different activities increasingly take place within the same territory, in the same season or at the same time, there is a demand for rules that can regulate simultaneous activities and which can resolve conflicts and work out compromises between conflicting activities. Thus the demand for Coastal Zone Planning in Northern Norway is fuelled by the emergence of new activities and advocated from below, from administrators and politicians at the local and municipal level and from coast users without strong sectoral laws to back them up.

Coastal Zone Planning within the territorial waters of Northern Norway is carried out under the Planning Legislation. At the municipal level, plan-related rules about area use in coastal seas are legally binding - usually for periods up to 8-12 years. At the provincial level a plan for the use of sea areas will not be legally binding, it will be only indicative. Therefore the municipal level is the most relevant level for decisions about the use of sea areas. The planning instruments for sea areas are rapidly developing, especially instruments relating to multiple use categories of sea-areas. For instance can one area be designated an FFFN area - which is a multiple use area for fishing, traffic, recreation and nature, while another area can be designated an FA area - a traffic and aquaculture area. In principle any Mod of single use or combined use of sea areas should be possible, provided that user conflicts are prevented or managed by appropriate institutional arrangements. In essence then, a coastal zone plan is negatively defined; a number of economic activities are barred from taking place in a certain area, while the plan is no guarantee that the permitted activities will actually take place.

In Nordland Province, a provincial coastal zone plan is now attempted for the first time. Its total coastline of 14.000 km is about 1/4 of the total coastline of Norway. Along this, about 0.02 % of the sea area is at present occupied by aquaculture, including a 20 meter no traffic zone around the fish cages, but not including a 100 meter no-fishing zone or the minimum separation zone between fish farms.(Fylkesdelplan 1996). An estimated 9-11 % of the sea area in Nordland is considered suitable for aquaculture. As both owner and Nature Protection Agency, the state has proposed that a total of 1% of the sea area should be protected as Coastal Parks or Marine Parks with considerable restrictions on fishing, traffic during spawning and nesting, aquaculture development etc. These

proposals has ignited a lot of conflicts with local authorities and is the main reason why the Province has started work with coastal zone planning.

In Norway the municipalities are <planning Authorities> and can pass their own municipal area plans if the sectorial interests at the Provincial and State level does not have objections to the proposed use of areas. These sectorial interests are authorised by different special laws and they can raise objections based on these laws. If they do object, the Municipality level loses its competence to pass its own plans. They can now either accommodate the objections and adjust the plans - or they can try to negotiate a compromise. If this fails, the Ministry of Environment will decide in the conflict - in consultation with the Ministries of the sectorial interests that have raised objections. Because these often are loyal to the sector, conflicts about the use of sea areas in the coastal zone often have to be resolved by the cabinet

Planning a sea area for one or multiple forms of use is still a separate matter from the actual use of a certain area; the latter requires a licence, a concession, a quota or a permission from the relevant sectoral authority. In addition, there is a third corner in the power triangle of sea use, usually harvesting, cultivating or any other economic activity also requires a permission from the owner of the area. And even if the Municipality has the Planning authority over most coastal areas, the basic property rights still belong to the state. Thus we find the state at least on two sides of the table, as both owner and sectoral authority and consequently in firm control of most coastal activities. In addition we have a majority of Municipalities, where no Coastal Zone planning has ever taken place, here the development of sea tenure has been by piecemeal licensing by separate state agencies.

But as more and more Municipalities make Coastal Zone Plans, often through intermunicipal collaboration, the strength of the Planning Act will at an increasing rate be tested in practice against the more specialised laws that govern the economic activities of fishers, aquaculturalists, tourist enterprises etc. Until now the specialised laws: the Salt Water Fishing Act, the Harbour Act, the Pollution Act, the Nature Conservation Act etc. have taken precedence over the more general planning legislation. Thus territorially based governing of coastal activities has been difficult to achieve; organised economic interests with supportive government departments have been stronger actors in the political/legal field (Sandersen & Buanes 1995). But as the planning instruments get refined and the processes of expert consultations, environmental assessments and public hearings strengthens the local legitimacy, it will be increasingly more difficult for state departments to licence activities that are not in line with the plan. As mentioned, planning for certain activities in the coastal zone does not

automatically mean that these activities will take place, nor that they will be granted a licence. Therefore the transfer to local government of actual implementation authority for coastal zone plans will be a lengthy process with many twists and turns.

Still, due to the basically integrative character of the coastal resource utilisation in the late modern age, the balance of strength between the different layers of the legal structures will slowly be changing, and more governing institutions based on territoriality will be emerging. This will in turn affect the deep constitutional structures of institutional! preconditions for governing coastal resources. More locally based governing of coastal resources is the most likely outcome of this process, which has been termed «the greening of the coastal commons».

Some recent examples of such new integrative activities will help in understanding the social processes connected to these structural changes:

One recent development that puts stress on the existing modern institutions for governing marine resources in the whole North Atlantic area, is the increase in leisure fishing, either from nearby large urban populations or from a large influx of seasonal tourist fishers. A large number of coastal communities, and a large number of fishermen's families are involved in the tourist industry. In the popular resorts, this is therefore intimately integrated with the household economy of fishermen, providing crucial income in the off-season and utilising the infrastructure (boats, chalets etc.) for income generating activities. In some areas the value of the "fishing experience" is thus much higher than the market value of the alternative catch. However, in these areas the fishermen are painfully aware that they also have to keep the genuine fishing activities and the fishing culture alive *in order to be attractive to tourists, as "fishing villages"*.

The rules that apply to Norwegian leisure fishers regarding volume of fishing gear are quite generous, while leisure fishers from other countries can use any hand-held gear without any fee or quantity restrictions (Fritidsfiskeutvalget 1994). In total this means that around some resorts, quite substantial quantities of important fish stocks are harvested by leisure fishers. The Norwegian Leisure Fishers Association has called for local regulations to help in adjusting the fishing pressure from leisure fishers in certain localities. In many fjords and archipelagos there has also been joint initiatives to design local regulations that can benefit both local leisure fishers, tourist fishers and local professional fishermen. Such initiatives can be interpreted as expressions of a deep-rooted local perception that there is something we could call a coastal commons where the harvesting activities of different groups of coastal inhabitants should be able to coexist - given appropriate rules.. But the sectoral fishing authorities want uniform rules for the whole country and has rejected local regulations for leisure fishing

(Fritidsfiskeutvalget 1994). The main argument from the state is that leisure fishing in marine environments is legally "every-one's right" and that it is the prerogative of the State - as sovereign public authority - to regulate the public's use of this right.

However, with strict quota regulations on free professional fishermen, the increased activities of leisure fishers rocks the legitimacy of the quantity restrictions aimed at protecting the wild species against overfishing. On the one hand this undermines the whole quota rationale, the catchable quantity as an imitated property right which together make up an incentive system that was meant to maintain the resource and produce a maximum sustainable yield. On the other hand, with fishermen as important agents in coastal tourist development, a continued growth in leisure fishing will strengthen the demand from coastal communities for more comprehensive territorial, community or collective rights to nearby fishing resources and for an increased say in the managing of such resources. The rationale behind this is the simple fact that the balance between income from marketed fish and income from the sale of «fishing experience» can only be found at the local level.

Another interesting finding is the strong antagonism that exists between the conservationists and commercial fishers in many European countries. In Northern Norway the State Environmental Agency has recently proposed the protection of some 70 marine parks or reserves. These will have varying degrees of restrictions, usually related to surface activities and are part of larger international initiatives to protect representative types of coastal landscapes. Also the mouths of rivers with anadrome fish and sea-bird colonies are among the proposed protected areas. In addition there are proposals for the protection of special fjord environments as well as some underwater areas of special importance. The national conservationist associations has praised all the new proposed protected areas, while their local chapters have been more critical to the large amount of protected areas. From the point of view of the State, it was crucial to push these proposals, as an upcoming change in the Nature conservation Act (§ 18) would require a closer co-ordination with Coastal Zone Planning at a later stage. As marine fishing rights are defined by the state as every-one's rights in the Norwegian system, with no territorial claims tied to a quota or a licence, there are no legal grounds for compensation for the "loss" of fishing grounds. However, all these proposals for protected areas have been met with fierce opposition from fishermen and Fishermen's Associations, and consequently also from local government in the coastal communities. A closer analysis of this opposition reveals a number of typical traits related to the conflict between conservation and fishing:

On the surface, one should think that the protection of crucial habitats, often important spawning grounds and feeding areas for small fish fry, would benefit the fishermen in terms of securing the recruitment to the fish stocks and an improved control over fry-fishing. But from the state conservationists point of view, this has never been the purpose. The crucial purpose has been to protect representative samples of coastal nature types and landscapes. In these areas, which will always be too small to have any significant effect on the replenishment of major fish-stocks, the natural scientists can observe the «ecological balance» in its original state. Thus, conservation has never had a resource governing ambition and fishermen or coastal communities were never properly involved in the process leading up to a proposal for protected areas. Not surprisingly, this also means that the legitimacy of the conservation process has been extremely low in these areas.

On the fishermen's side, the preliminary analysis shows that it is the deep-rooted fear of any limitations to the unrestricted mobility of fishermen that is overriding. Fishermen must be free to pursue the mobile fish wherever and whenever they want. And the absence of compensation for loss of fishing grounds to off-shore oil exploration, to aquaculture enclosures and to nature protection areas make has shown that this fear is a hard reality. But the strong reaction to the proposed conservation measures could also be an indication of an <opportunistic> hunting rationale\* that is still the underlying cognitive pattern of fishers and that the adoption of a rationale of regulating for a «maximum sustainable yield» by quotas is only half-hearted. The real test of this comes only when multispecies management regimes - now at the modelling stage - are to be put to actual use in the national and international negotiation systems. Therefore it seems like sensible compromises between conservationists and fishermen, despite their objectively common interests, are ruled out. As many of these conflicts are conflicts of perceptions and conflicting decision making processes, based on fundamental cognitive differences of what coastal resources are, they cannot be resolved until more common and agreed rationales for governing coastal resources are established. Such a rationale can be the search for <Ecological Resilience>, but that idea will not be pursued here.

The Norwegian Aquaculture "Industry" is an interesting case as it has gone through a major transformation during the last 10 years. In addition to a deep structural change from a coastal based smallholder structure to a modern industrial and corporate structure, aquaculture has also made a transition from a polluting and disease-inflicted activity to an environmentally sound and healthy activity. However, this has required strict separation of age classes, strict feeding controls, "shifting cultivation" and other eco-control measures. The effect of all these improvements is the use of larger coastal area resources and a dramatically increased demand for sea territories for aquaculture and for future aquaculture

development. Together with central government regulations for homing channels for wild salmon, veterinary safe zones and a 100 meter non-fishing zone around aquaculture installations, aquaculture growth has thus meant that an increasing part of the coastal territories are already becoming occupied. From a small government licence for "first occupancy" of maybe 1200  $m^3$  of sea volume, the aquaculture "plant" has now grown to the extent that the most common sized plant (12.000  $m^3$ ) now will occupy up to 7 hectares coastal area, but without this being planned for by municipal planning authorities. The growth has been facilitated by state agencies eager to promote the new industry, often against opposition from local interests: fishers, leisure fishers, recreationists, tourist enterprises etc. And the growth has been farther accelerated by other government agencies, concerned with pollution control, veterinary quality etc.. With more marine species gradually introduced in marine aquaculture, there will also be an increased need for multiple separation zones and other measures to avoid contamination and interaction effects. New species, like e.g. halibut, will also require shallower water than salmon, which again increases the competition with other coastal activities. And as no aquaculture plant can be closer than 2 km to another plant, the *de facto* occupation of sea territory is between 1 and 2  $km^2$ . In the zone between aquaculture installations ordinary fishing can take place, but mussel cultures, lobster cultures, sea ranching and marine enhancement measures are -difficult to undertake. Therefore, as the number of coastal communities become involved with new integrated coastal activities in addition to aquaculture, the potential for conflict of interests over this kind of occupation of coastal sea territories increases and the demand will increase for Coastal Zone Planning and legal processes that can pre-empt or resolve this kind of conflicts at the local level.

Recently Sea Ranching has been promoted along the coasts of Norway. This involves the release of large numbers of juveniles at favourable release points or in habitats that need replenishment. The crucial point is the propensity for re-catching of these marine organisms after a lengthy «grazing» period in the «wild environment». Some NOK 200 million have been spent on a research program that analyses the biological and economical preconditions for Sea Ranching with four species: river salmon, cod, arctic char and lobster (PUSH 1995). The potential of this as more than a government stock strengthening programme has raised the fundamental problem of exclusive property rights to the re-catch of fish that is hatched, start-fed and released by a private person, a commercial enterprise, a local community or an association of organised interests. An analysis of the massive reactions to a proposed law for Sea Ranching (NOU 1994:10) - granting exclusive property rights for a certain sea area to the releasing enterprise - shows that the notion of "coastal commons" is not dead. As the role of the state in governing marine resources is closely inked to the notion of every-

ones right to harvest from coastal resources, any limitations to these rights by enclosures and exclusive rights are highly problematic for the state. By granting such territorial privileges, the state would undermine its own role as the principal caretaker of every-one's rights. The only way out is that in one way or another an institutional framework for Sea Ranching contains a mandatory analysis of the social benefits of the exclusive rights compared to the social costs of loss of fishing grounds for commercial fishers and the loss of welfare to leisure fishers and coastal people in general (FiskericSerektoratet 1996).

From regional fisheries authorities, municipalities, Fishermen's Associations, Leisure Fishers Associations etc., there is more emphasis on the local traditional rights to all parts of the local coasts, but with a positive attitude to sea-ranching activities, provided they are under local control. Accordingly only certain kinds of enterprises should be able to operate with legitimate rights on these coasts. With such perceptions of a coastal commons still alive in these communities, only community based enterprises or associations of organised interests that are crucial for the survival of the coastal communities can legitimately contract for such property rights.

A final crucial and emerging activity which is analytically important, is habitat improvement in the form of enhanced spawning areas in rivers and estuaries and in the form of artificial reefs as hiding places for small fish fry. The latter is often combined with feeding stations with acoustic signals for conditioning the young fish. Even large scale reef construction, e.g. by using obsolete oil rigs, is discussed. This kind of "coastal carrying capacity enhancement" also raises fundamental questions of responsibilities for investments and property rights to the improved catch. Experiences from other areas in the world that have had success with the same technological innovations under widely different cultural conditions (e.g. Japan), show that some form of contribution from those who harvest towards those who sow, is an absolute necessity. The best results are therefore obtained where the enhancement agency also has legitimate property rights to the increased catch, for most practical reasons this will be a coastal community based association. If the public (state or union) takes upon itself to enhance the stock of marine organisms, it can either secure the necessary revenue by general taxation, by a resource licence or by a specific contract with a coastal community or a limited group of harvesters. The effectiveness of these different ways of organising a long-enduring and sustainable marine resource enhancement program will depend on the fundamental relationship between the state and the coastal communities. In the North Norwegian setting, the traditional position of the state as a welfare provider is so strong that the realism of recovering heavy state expenditures on marine resource enhancement is rather slim. Therefore the most feasible institutional arrangement for habitat enhancement seems to be

community or municipally based associations which more effectively can commit its participating members in a binding agreement.

Taken together, these briefly reported findings point towards "modern" marine resource governing institutions under considerable stress. It farther points towards a <**greening** of the coastal commons> and towards **territoriality** gradually replacing sectorality as a governing **rationale**. Thus the space the resource occupies and is depending on will be a more important basis for the design of future institutions than the functional sector **it** belongs to, Especially in the coastal areas, where a number of competing activities takes place in the same sea-space and with economic actors from the same communities; the area-based integrative planning, the local community involvement and the redistribution of property rights to users with clear duties are observable tendencies.

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