COASTAL RESOURCE MANAGEMENT: INSTITUTIONS AND CONFLICT AVOIDANCE

Introduction

This paper presents the results of the first year's work on the Irish part of the project entitled *Management of Renewable Resources: Institutions, regional differences and conflict avoidance related to environmental policies and illusrated by marine resource management.*

Objectives

The objectives of the project are to investigate the potential for sustainable development of the coastal zone through sectoral integration with particular reference to the Irish situation. It is hoped that this will lead to the development of potential strategies for the future management of this resource.

Brief Description of the Research Project :

This sub-project is evaluating the coastal marine resource and the actors and spatial factors presently involved in its management. Current and planned strategies governing the exploitation of the resource shall be evaluated as well as the actual practices presently in operation.

Arising from the above, potential strategies for the future management of the resource shall be explored with particular emphasis on the evaluation of potential for implementation of sectoral integration. Within this project, two case studies are being undertaken. One concentrates on a localized spatial area, examining factors at play from the terrestrial hinterland to the ocean, across a range of coastal zones including communities within the area. The other case study focuses on one particular element of the resource, the Atlantic Salmon. As this species is anadramous, crossing international boundaries during marine passage and entering freshwater to spawn, it should provide useful analysis of the issues affecting various zones, how they interact and their effects on the resource.

Objectives for the Reporting Period:

The objectives for the first phase of this project may be organised on three levels.

The first of these is the *general* level and objectives here comprise the following:

- To define that which comprises the coastal zone, broadly identifying all relevant elements on a national scale whilst having regard to EC policies in this field.
- To identify the actors and administrative frameworks related to the coastal zone, outlining their respective roles. Also to outline developments in coastal zone management.

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Secondly there is Case Study A which looks at the area of South Connemara on the west coast of Ireland. Objectives of this part of the study comprise:

- To identify a geographic area for study which includes a wide range of uses related to the coastal zone.
- To describe the various elements of the coastal resource, also the actors and administrative frameworks which interact with and govern it.

The final element is a second Case Study (B) which looks at one specific element of the resource, the Atlantic Salmon. Ojectives here are:

- To describe the life cycle, habitats and geographic range of the Atlantic Salmon.
- To describe the actors which affect or depend on the species directly and indirectly, also the administrative frameworks, international, national and local which affect it.

Results to Date

The first phase of this project has come up with results which are now discussed following the same *General*, then *Case Study A*, followed by *Case Study B* format.

General

The coastal zone is a dynamic environment where change is wrought by forces, natural and man made, which shape and reshape its form. Marine and terrestrial environments differ greatly in their physical conditions and biota yet they interact and are inter related in many different ways. This marine influence can penetrate some distance inland and the terrestrial area likewise influences the marine environment to a significant extent seaward.

By its very nature the definition of the coastal zone needs to remain flexible rather than spatially precise. In attempting to define the coastal zone, a suitably flexible definition needs to recognise the dynamic nature of the coastal zone and the demands for and uses of, its resources. As such, a suitable definition refers to the coastal zone as an area:

"embracing inshore waters, intertidal areas and maritime lands including those significantly influencing or influenced by coastal activities and processes whether natural or human."(CNCC 1994)

The coastal zone is unusually rich in terms of the variety of its natural resources and has the highest biological diversity of any part of the marine environment. It is also the area of greatest human impact in the marine environment. The particularly rich resources of the coastal zone have long made it attractive to human settlement and use. Coastal zones attract industry, housing, recreation, trade, fishing, aquaculture and a plethora of other activities and are extremely attractive areas for human settlement, to the extent that 200 million out of 680 million Europeans live within 50km of the coast.

This century in particular has witnessed an expansion and intensification in the use of coastal land and nearshore waters - reflecting the great economic, social and environmental significance of the coastal zone to most coastal nations, with new activities and uses developing alongside the more traditional uses for coastal and inshore waters. At present rates of change in coastal areas are extremely rapid. Human activity is now a major forcing function on coastal zone dynamics and this influence looks set to continue.

The diversity of natural resources and the consequent variety of activities to be found within the coastal zone suggest that the potential for unsatisfactory interactions and outcomes, both socio-economic and environmental is great and consequently that the potential gains to be obtained through effective management may be considerable. Without an adequate understanding of the nature, scale and extent of these changes, future management and uses of coastal areas and resources will be extremely difficult. (ELOISE 1994).

Ireland's Coastal Zone·

The island of Ireland has a coastline of approximately 6,500km in total with a remarkable variety of coastal land and seascapes. Of the total coastline of the Republic of Ireland (5,800km) between 600 and 700km are sandy coasts including some of the most important dune areas in Europe. The north-west coast also incorporates machair sand plains unique in Europe to this area and aréas of Western Scotland. The Atlantic coasts have accumulations of shell beaches, rugged cliffs and wide embayments providing internationally important nesting sites for birds. The eastern coast of the Irish Sea has low eroding coastal fringes rapidly giving way to terrestrial environments and a series of drowned inlets. 17.6 % of the Irish Coastline is classified by the IUCN as "scenic" or "highly scenic".

The marine environment surrounding the island has a rich biological value with a mix of northern "cold" and southern "warm" palaeartic species which have migrated into Irish waters over the last 18,000 years. With the influence of the Gulf Stream, the waters around the island are relatively warm. The Irish sea to the east is generally less than 100m in depth creating a rich habitat for many forms of marine life. It is, however, at present subject to major pressures of over-fishing and pollution. Waters off the south coast including the Celtic Sea, reach greater depths and provide particularly rich habitats for a wealth of marine flora and fauna due to their southerly latitudes and the prevailing Gulf Stream influence. To the west and south west the sea ranges from roughly 150 to 300m in depth until the edge of the continental shelf drops steeply to depths in excess of 4000m. To the north, declining Gulf Stream influence and more northerly latitudes mean lower water temperatures supporting a considerably different range of species.

In line with global trends, economic pressures on the Irish coastal zone are increasing rapidly from an array of interests and users. More than 50% of the 3.5 million total population of the Republic of Ireland live in the immediate coastal zone. 70% of domestic and overseas tourism is focused on the coast bringing a total revenue value in excess of IR£2 billion in 1994. Commercial fisheries exist all around the coast , fishing pelagic, demersal and shellfish with a total revenue in 1993 of almost IR£98million and providing employment for nearly 16,000 people. Aquacultural

development has also proceeded at a rapid rate in the last 20 years, focused on the west coast.

Managing the Coastal Zone:

Planning and management of coastal resources in Ireland, has traditionally progressed in a sectoral way with no specific national policy or provision for the coastal zone. Responsibility for managing coastal resources is at present spread over a vast array of government departments and agencies at national, regional and local level .

Many of these agencies are involved in specific aspects of the coastal resources, with defined responsibilities. The degree of interaction between the various regulatory and development bodies varies considerably and integration between sectors, departments, agencies and local authorities is mainly confined to non- statutory consultation processes in issues of mutual interest.

(See Appendix 4 : Government Departments and Agencies with a Remit in the Coastal Zone)

There are no explicit management policies for coastal resources in existence at national level and at government level no department or agency has a specific coastal zone policy. The coastal zone is, however, recognised in the current National Development Plan (1994-9) as requiring special consideration:-

"deriving from the especial environmental significance and vulnerability of the coastal zone and from the widely different pressures to which it is subjected from land based and sea based activities. "

(See Appendix 1 : Actors)

Activities in the coastal zone are managed and controlled for the most part by a body of legislation and regulations relating to separate activities and sectors. By virtue of the cross-sectoral nature of coastal resource exploitation, a wide range of legal instruments implemented by public authorities at national and local level contribute towards the management of coastal resources.

Many existing EU policies, programmes and regulations influence activities taking place at the coast. Although no specific European coastal zone management or coastal resources policy exists to date, EU legislation such as water quality, habitat and environmental impact assessment directives have been a major driving force for environmental legislation in Ireland with a consequent impact on the management of coastal resources.

(See Appendix 5 : Legislation related to the Coastal Zone.)

Mean High Water Mark forms the boundary between terrestrial and marine planning and management regimes in the Republic of Ireland. Landwards, the Department of the Environment, administered by local authorities, regulates activity through the planning system, development control, inclusion of policies and objectives in county development plans, pollution control and management of small harbours and piers. Seawards, management of marine resources is undertaken by the Department of the Marine and the Regional Fisheries Boards, controlling fisheries, aquaculture, marine

monitoring, rescue services and harbour development. Nature conservation is the responsibility of the Office of Public Works' National Parks and Wildlife Service who have (in theory) jurisdiction to the 12 mile limit. Management and planning of the Irish coastal zone is complicated by the extent to which territorial authorities have remit in offshore areas and vice versa for Maritime authorities. There is little consistency between these boundaries of jurisdiction.

(See Appendix 3 : Jurisdictions in the Coastal Zone)

Coastal Zone Management in Ireland:

In 1972 coastal planning was advocated by the National Coastline Study (Brady et. al 1972), which sought to balance coastline development with conservation. The study focused mainly on tourism and scenically related issues. The report has to some extent directed planning in coastal areas by its incorporation in county development plans but its influence has been patchy due mainly to its non statutory nature, lack of involvement of local authority in policy formulation and lack of political will.

As increasing pressures and environmental problems have become obvious, renewed interest in the need for an integrated pragmatic approach to the management of the coastal zone has been promoted by the National Coastal Erosion Committee (1992) and the Irish Coastal Environment Group (1994). The Council for Nature Conservation and the Countryside (1994) have also produced a coastal zone management strategy for Northern Ireland.

At national level, a small inter-governmental committee consisting of representatives of the Departments of the Marine, and Environment and the National Parks and Wildlife Service was established in 1994 to examine the issue of coastal zone management. Apart from this small committee, coastal zone issues continue to be dealt with through non-statutory consultation processes between departments and agencies.

Case Study A - South Connemara

A suitable study area was selected for study in the area of south Connemara, County Galway on Ireland's West Coast (see Appendix A1 Location Map). This area was selected for a number of reasons including: it has an extensive length of coastline in relation to the land area; settlements and other developments are concentrated along the coast; it contains one of Ireland's principal fishing harbours; it is within a designated area of outstanding natural beauty; it is an important area for tourism; it contains five significant freshwater sport fisheries, all of which support salmon populations; it includes sheltered bays which provide valuable locations for aquacultural development; it is a culturally rich area where Irish is the principal language; and due to its cultural significance it is designated as a priority area for development funding.

In this area, the coastal zone can be said to contain a rich variety of resources which include:

Natural Resources

Geology;
High quality landscape;
Sheltered, relatively clean, sea bays;
Rich diversity of marine and terrestrial flora and fauna;
Abundance of fresh water (and high precipitation);
Clean air;
Moderate maratime climate.

Historical Resources:

Strong folklore traditions;
Several sites of archaeological interest;

Socio-Economic Resources

The study area has a population of nearly 6,000 persons of which 52.5% are male and 47.5% female. Age distribution is biased towards the under 20s with a marked drop in the 20-30 year age group and a large older population meaning that there is a high dependency rate in the area.

According to census figures, employment in the area is mostly provided in the agricultural and light industrial sectors with clerical, commercial, service and professional/technical employment making up the bulk of the remainder. In practice much of the agricultural employment is not adequate to provide an income on which to live or support a family so most of this labour supplements its income through social welfare payments. Much of the light industrial employment is brought about through funding allocated on the basis of the area's Irish speaking status. This is principally provided by marine produce processing and packaging. Other industry is for the most part in the areas of technology production and assembly.

The most significant other areas of employment are services to the fishing fleet and in the tourism sector. Much of the employment in the area is seasonal or part-time with a large part of the population dependent to some extent on social welfare assistance.

Overall the area presents a broad range of resources, uses and users, particularly in direct and indirect relation to the coastal zone. This background will provide a wealth of material for analysis as part of this study and is likely to provide a useful input to the development of strategies to increase sustainability in the management and exploitation of coastal resources.

Case Study B - The Atlantic Salmon

The salmon has been chosen as a subject for case study due to its special life-cycle and value. During its life a salmon may be fished by a wide variety of predators, human and natural, over a wide geographic range. It may face an assortment of other, indirect threats to its survival due to introduced diseases or pollution for example. Because of these factors this species is greatly affected by the actions of a number of states - in the riverine, estuarine and marine environments. In the country of origin (Ireland in this case) disparate interests often have counter-productive effects on this highly valued resource.

The life-cycle of the salmon has been extensively documented. A diagram illustrating the various stages of development and the transition between fresh and salt-water is included in the appendices to this report. The basis of the cycle is that the fish are born in freshwater, after one to three years they migrate to saltwater and swim to feeding grounds across a broad band of the North Atlantic roughly from the Faroe Islands to Greenland. After approximately one to three years at sea they return to their river catchments of origin to spend about 3 to 13 months in freshwater before spawning and completing the cycle.

During the life cycle of the salmon it encounters fishermen of various types. Until the early 90s the first interceptors were the deep-sea netsmen who operated on feeding grounds since the discovery of these grounds in the 60s/early 70s. These fisheries have now closed due to the efforts of those countries to which salmon caught there would otherwise have been destined. Another fishery which operated until recently was the Scottish drift-net fishery, through which many Irish origin salmon passed. This fishery was closed largely due to the efforts of freshwater sport fishery owners.

The only remaining offshore fishery is the Irish open sea drift net fishery. In 1992 this fishery accounted for 71% of the Irish salmon catch, providing 58 full-time job equivalents. In effect, this employment takes the form of more numerous seasonal jobs, many of which are part-time.

As the remaining salmon approach the river systems they may encounter inshore drift nets, draft, snap or loop nets. Fixed traps may then be in operation on some river systems. Rod anglers will also take a portion of the stock before any remaining fish ascend the rivers to spawn.

With all of these interceptory fisheries, from the open seas to the rod anglers, many of the participants operate illegally. Those whom have a legal involvement are often associated with representative organisations which engage in lobbying to defend their particular share of the catch.

Many actors have indirect involvement in the salmon fishery. These are listed in Appendix B4.

Responsibilities for the regulation of salmon fisheries, due to their migratory nature, lie with a wide range of bodies. Because of their disparity, the policies of these bodies can sometimes be counter productive. A list of these bodies is given in Appendix B5.

Objectives for the Next Period

To conclude this paper, the objectives for the next reporting period are outlined.

General

To examine the broad patterns of exploitation and management of the resources of the coastal zone.

To select examples of problems encountered in the exploitation process which can be related to strategic level policies, with a view to further analysis (in the final project phase). These examples are to be examined to a sufficient level of detail to allow for meaningful analysis.

Case Study A - South Connemara

- To study the general management and utilisation of the resources in this study area.

- Arising from this, to identify elements which give rise to conflicts and/or other problems of exploitation which can be associated with strategic policy. These aspects are to be studied to a sufficient level of detail to allow for meaningful analysis.

Case Study B - The Salmon

To examine the management regimes and exploitation patterns associated with the resource, identifying instances where management practices and/or strategies cause problems to arise, particularly where conflicts occur. These particular cases are to be inspected in detail with a view to further analysis.

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