

Review Of Integrated Coastal Zone Management & Principals Of Best Practice



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ABBREVIATIONS	
ABBREVIATION	MEANING
ASI	Area of Scientific Interest
BIM	Bord Iascaigh Mhara
CAP	Common Agriculture Policy
CFP	Common Fisheries Policy
CHaMP	Coastal Habitat Management Plan
CLAMS	Co-ordinated Local Aquaculture Management Systems
CMPP	Coastal and Marine Planning Programme
CMRC	Coastal and Marine Resources Centre
CZM	Coastal Zone Management
DAHGI	Department of Arts, Heritage, Gaeltacht and the Islands
DCMNR	Department of Communications, Marine and Natural Resources
DCRGA	Department of Community, Rural and Gaeltacht Affairs
DELG	Department of Environment and Local Government
DMNR	Department of the Marine and Natural Resources
DoE	Department of Environment
DP	Demonstration Programme (in ICZM)
DPSIR	Driver, Pressure, State, Impact, Response Indicators
EIA	Environmental Impact Assessment
EEA	European Economic Area
EPA	Environmental Protection Agency
ESDP	European Spatial Development Perspective
EC	European Commission
EMP	Estuary Management Plan
EU	European Union
EEZ	Exclusive Economic Zone
EFZ	Exclusive Fishery Zone
FAO	Food and Agriculture Organisation
GESAMP	Joint Group of Experts on Scientific Aspects of Marine Environmental Protection
GIS	Geographic Information Systems
ICZM	Integrated Coastal Zone Management
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
LEAPs	Local Environment Agency Plans
LGA	Local Government Area
MAFF	Ministry of Agriculture, Fisheries and Food
MHWM	Mean High Water Mark
NBP	National Biodiversity plan
NDP	National Development Plan
NGO	Non Governmental Organisation
NHA	National Heritage Area
NOP	National Oceans Policy
NZCPS	New Zealand Coastal Policy Statement
OSPAR	Oslo Paris Convention (for the protection of the marine environment of the North East Atlantic)
RBMP	River Basin Management Plan
RMA	Resource Management Act (New Zealand)
SAC	Special Area of Conservation

SCF	Scottish Coastal Forum
SEA	Strategic Environmental Assessment
SER	State of the Environment Report
SDI	Sustainable Development Indicators
SMP	Shoreline Management Plan
SPA	Special Protection Area
TEN-T	Trans-European Transport Network Policy
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Conference on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNEP	United Nations Environment Programme
WFD	Water Framework Directive
WSSD	World Summit on Sustainable Development

EXECUTIVE SUMMARY

This report compiles existing information, to inform the Heritage Council about the issues to be considered when formulating ideas concerning approaches to Integrated Coastal Zone Management (ICZM) in Ireland. The report should provide increased understanding of the process of ICZM to facilitate future policy development.

Integrated Coastal Zone Management is described within an international, regional and European context to set the scene. Particular attention is given to the EU level in line with the tender brief, which requested a focus on the lessons learned from the EU Demonstration Programme for ICZM. The European Commission implemented the Demonstration Programme in the late 1990s to provide concrete examples of ICZM in practice. The outcome was the publication of the EU strategy for Integrated Coastal Zone Management. EU Recommendations for the implementation of ICZM were subsequently issued to Member States. At present, there is an unbalanced approach to implementation of the EU Recommendations, with some countries yet to initiate the process.

National case studies from the UK, Norway, New Zealand and Australia were selected for specific review for comparison against the status of ICZM in Ireland. Coastal management in Ireland is characterised by a sectoral approach to resource exploitation and management. Sectoral activities include shipping, fishing, aquaculture, oil and gas exploitation, aggregate and mineral extraction, conservation, tourism and dumping. Unless decision makers facilitate the development and implementation of an integrated management strategy for the coastal area, by adopting a broad perspective and a multisectoral approach, the policies, which will prevail, will continue to be driven by sectoral interests placing sustainable development of the coast beyond the reach of current and future generations.

The final section suggests that it is timely to convince our government of the worthiness of pursuing ICZM as both a philosophy and a mechanism for ensuring the sustainable future use of our coastal and marine area resources. To do this, we need to quantify the benefits of ICZM for the country. Key areas of research to be pursued involve the development of models to quantify the tradeoffs between physical, social, economic and cultural resources in the occupation and exploitation of the coastal frontier. Improvements in the availability of such information will assist the ICZM policy formulation process. The next step, the effective implementation of policy, will depend on improved governance structures which need to be reviewed on the basis of developing a cross cutting approach to resource management.

The implementation of ICZM within the Irish planning process needs to be explored. Top down versus bottom up approaches to management are examined within the study, in addition to mechanisms for ensuring public participation in ICZM. The long-term sustainability of ICZM, which is inextricably linked to overcoming the constraints of the shortsightedness of the political process, is outlined as an objective which needs to be considered at all levels of the process.

It has been seven years since the draft policy for coastal zone management in Ireland was produced by Brady, Shipman, Martin (1997). Since then, there has been a lack of consultation on the issue. There is a need for renewed consultation to establish an agreed strategy for ICZM, particularly as the EU Recommendations need to be implemented. This report should form the basis for discussion on priorities for ICZM and potentially suitable approaches to achieve best practice.

A wide range of source material was used in the preparation of this report. A reference list is given at the back of the document.

SECTION 1 - INTRODUCTION

1.1 Background

This initial two-month study, commissioned by the Heritage Council, commenced in December 2002. It was added to in July 2003 and in December 2003 following consultation with the Council. The purpose of the study is to examine approaches to Integrated Coastal Zone Management (ICZM) with a view to identifying best practice. The review considers ICZM at a number of levels: international, regional, EU, national, and local.

Particular emphasis is placed upon organisational and legislative structures, policies and European Union (EU) demonstration projects, in accordance with the tender brief. This study aims to put ICZM in Ireland in context with the state of progress in selected countries including the UK, Norway, New Zealand and Australia.

A review of ICZM practice in the UK is pertinent as the UK is Ireland's closest neighbour and co-member of the EU. Norway has been dealing with the management of its hydrocarbon and aquaculture industries and the impacts of these industries on coastal environments since the 1970s. These industries are major growth industries in Ireland, which makes it relevant to examine the approach to ICZM in Norway. Norway also falls within the European Economic Area (EEA). New Zealand and Ireland have comparable coastal taxonomies and for that reason New Zealand's ICZM initiatives are introduced and discussed. Australia is included in the review because it is well advanced in the development and implementation of coastal and ocean policy at all levels of government.

1.2 Coastal Issues

On a global level, coasts comprise 20 percent of the Earth's surface, yet they host a significant portion of the entire human population (approximately 50 percent of human population live within 200km of the coast (UN, 2002). Coastal ecosystems are highly productive containing high biological diversity, rich fishery resources and significant seabed minerals. Coasts also support a diverse array of related industries (e.g. fisheries and aquaculture, tourism, shipping, oil and gas industries), which provide enormous economic productivity.

However, the shared demands placed by densely populated coastal regions impose stresses on finite coastal systems and resources. For example, at a global level, 48 percent of fish stocks are fully exploited and 28 percent are depleted, overexploited or recovering (FAO, 2001). Water quality is impacted by pollution from ships (GESAMP, 2001) and pollution from land-based sources (e.g. intensification of agricultural practices contributes to the impact of nutrient loading and eutrophication of estuaries and bays). Fossil fuels continue to exacerbate global climate changes with severe consequences for coastal ecosystems and coastal inhabitants (IPCC, 2001).

Similar issues cause widespread concern in Ireland. In 1997, almost 60 percent of the total population resided in coastal areas (Department of the Environment, 1997). The expansion of the Irish economy over the past decade has further increased pressure on the coastal marine area and its resources. Development of hard structures along the coastline restricts the ability of inter-tidal habitats to move landward as sea level rises. Over development is impacting on seascapes and landscapes, and is limiting traditional public access to the foreshore. Coastal industries such as fishing, aquaculture, tourism and shipping play significant roles in the support of the large Irish coastal population. However, the multitude of activities associated with these industries can also have a detrimental effect on coastal habitat and water quality, in addition to

creating conflicts of use among stakeholders. Impacts on the coastal area, as described by Connolly *et al.*, (2001) were categorised as:

Coastal Development: Developmental pressure on the coastal area continues as a result of social and economic driving forces such as urban expansion, retirement, second homes and the tourism industry. For example, coastal tourism has led to increases in the numbers of marinas, golf courses and residential buildings near the coast. There is insufficient information by which to judge the current rate and long term environmental implications of coastal development (EPA, 2000).

Coastal Agriculture: Agriculture has been identified as the biggest source of pollution in Irish rivers and lakes, which has implications for coastal water quality (McGarrigle, 1999). Intensive agriculture in Ireland has also led to a reduction in semi-natural habitats and to a decrease in biological diversity (Lee, 1999).

Coastal Erosion and Flooding: It is now recognised that the regional impacts of climate change are becoming more severe (IPCC, 2001). Climate studies in CMRC and the Department of Geography, University College Cork, indicate that increased impacts from storminess are likely to be significant for Ireland. If sea level rises in tandem with greater and more frequent storms, coastal flooding and erosion problems will become exacerbated in vulnerable coastal areas (Devoy, 2000).

Tourism and Recreational Use: Coastal tourism depends on the quality and diversity of the coastal environment; increases in tourist numbers have been shown to threaten areas of high ecological and resource value in our coastal marine environment. Furthermore, tax relief on property investment schemes aimed at generating economic activity in seaside resorts (Section 48) has resulted in increased ad hoc development without significantly boosting tourism revenues in coastal locations.

Coastal Industry, Ports and Harbours: Many chemical and pharmaceutical industries are based on the coast, particularly in Cork Harbour and the Shannon Estuary. Major ports are located in Dublin, Cork, Shannon-Foyes and Belfast. Demand for port expansion has resulted in loss of various habitats in harbours around the country. There is increased competition between leisure activities and commercial shipping in ports. Maintenance dredging in ports can also lead to disturbance and dispersal of contaminated sediments.

Fishing and Aquaculture Industry: Serious concerns exist regarding the sustainability of our fisheries. Some fish stocks have been seriously over fished including cod and whiting from the Irish Sea. Some coastal communities have diversified by developing aquaculture industries (particularly along the coasts of Donegal, Mayo, Galway, Kerry and Cork). Aquaculture activities are set to increase by 300% from 2000 to 2015 (DMNR, 2000). Developments in aquaculture need to be balanced with requirements for protecting coastal habitats. Loss of seascape due to the siting of aquaculture installations can cause potential conflict with the tourism industry.



Plate 1.1 Boats in Dingle Harbour ©L. O Dea, CMRC

Water Quality: Direct discharges into Irish coastal waters include urban wastewater, domestic sewage and industrial (trade effluent) inputs. Non-source discharges such as agricultural run-off are also known to have a detrimental effect on water quality.

Offshore Resources: If not carefully managed, exploitation of our offshore oil and gas reserves can have negative impacts on the coastal regions where the reserves are brought ashore, through loss of landscape and seascape because of terminal developments, to potential for pollution as a result of accidental spills. Demands for sand and gravel for the construction industry have extended to offshore resources. The location of wind farm sites is being considered, particularly off the east coast. The potential impacts of such offshore developments may include impacts on herring spawning grounds, salmon migratory routes, migratory birds and cetaceans.

For a complete review of the environmental conditions in Ireland's coastal and marine areas, reference should be made to Boelens *et al.*, (1999) which provides a full assessment of environmental change resulting from human activities and/or natural variation. This document warrants consultation in a coastal policy-making process. For the purpose of ICZM, it increases understanding of the issues that drive the need for an integrated management of the coastal area. Reference should also be made to the JNCC Directory of Celtic Coasts and Seas (2000),

which focuses on the nature of the physical coastal environment of OSPAR region III, including a description of the habitats and species around the coastline of Ireland.

1.3 Why ICZM?

Human impacts, such as those described above, coupled with global climate change place continuous pressure on coastal environments. In addition, conflicts of interest arise from demand for coastal space and resources. ICZM aims to reduce or eliminate such problems, resulting in ethical and economic benefits. Ethical benefits include sustainable development, the promotion of social equity (through consideration of the viewpoints of all stakeholders) and protection of traditional uses of coastal resources. Economic benefits accrue from an integrated approach to management, which can have cost benefits when compared to management for separate sectors. Effective planning for the future also provides cost benefits. For example, decisions relating to coastal development should consider long-term implications where the cost of implementing response measures, such as remediation in the case of heavy industry, should be offset against potential economic gain.

Sustainable Development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (The World Commission on Environment and Development, 1987).

1.4 The Term ICZM

What is now widely recognised in the literature as Integrated Coastal Zone Management (ICZM) was conceived in the early 1970s as Coastal Zone Management (CZM). The concept was consolidated in the USA in 1972, when the CZM Act was passed (Millemann, 1995), as an attempt to resolve the increasing anthropogenic pressures on coastal resources. This act set the scene for what is acknowledged as the first national CZM programme, prompting countries of the developed world to take an interest in the quality and management of their coastal environments. Subsequently, a number of countries worked on coastal management plans independently, without the use of a formal title; examples include Australia and Sweden (WWF, 1994).

In the 1980s, the term *integrated* was added when it became clear that the effective management of coastal areas requires an inter-sectoral approach. The main difference between ICZM and the earlier CZM, as noted in the Noordwijk Guidelines for Coastal Zone Management (World Bank, 1993), is that the former attempts a more comprehensive approach – taking account of all of the sectoral activities that effect the coast and its resources and dealing with economic and social issues as well as environmental/ecological concerns (World Bank, 1993).

The inclusion of ICZM as one of the principal recommendations of Agenda 21, at the United Nations Conference on Environment and Development (UNCED) – the Earth Summit - in Rio de Janeiro, 1992 gave the concept both international prominence and political legitimacy.

1.5 Definition of ICZM

There is no shortage of definitions for Integrated Coastal Management. A comprehensive definition, provided by Knecht and Archer (1993) defines ICZM as:

"A dynamic and continuous process of administering the use, development and protection of the coastal zone and its resources towards common objectives of national and local authorities and the aspiration of different resource user groups".

Sorenson, (1993) gives a definition of ICZM as:

"Integrated management provides policy direction and a process for defining objectives and priorities and planning development beyond sectoral activities. It adopts a systems perspective and multi sectoral approach which takes into account all sectoral interests and stakeholder interests, and deals with economic and social issues as well as environmental and economic issues".

The main principals of ICZM as identified by the EU include:

- Adopting a wide ranging view of inter-related problems;
- Decision making based on good data and information;
- Working with natural forces;
- Involving all stakeholders and all relevant parts of the administration;
- Using a range of instruments (laws, plans, economic instruments, information campaigns, Local Agenda 21s, voluntary agreements, promotion of good practices, etc.) for coastal management.

(DG Environment, Nuclear Safety and Civil Protection, 2001).



Plate 1.2 Common Dolphins Bow riding the FRV Scotia © M. Mackey, CMRC

1.6 Dealing with the Issues

Section 1.2 outlined some of the coastal activities that can have an adverse effect on sustainable coastal development. In order to achieve sustainable development, we must reconcile economic advancement with environmental protection. The principal of sustainable development gained precedence following the United Nations Conference on Environment and Development (UNCED) – the Earth Summit - in Rio de Janeiro, 1992. Chapter 17, the oceans chapter of Agenda 21 (the action plan emanating from the Earth Summit) gave international prominence to the concepts of ICZM and sustainable development, whereby coastal states are required to provide for an integrated policy and decision making process, including all involved sectors, to promote compatibility and a balance of uses in the coastal marine area (Robinson, 1992).

Progress since UNCED was reviewed at the most recent summit – the World Summit on Sustainable Development (WSSD), held in Johannesburg, September 2002. At a global level, there has been a marked increase in the number of nations engaged in ICZM initiatives since the early 1990s (59 nations in 1993, [Sorenson, 1993]; 98 nations in 2001 [Cicin-Sain *et al.*, 2002]). Advances have been made in international agreements and in the collection of scientific data and information about coastal processes, mainly through the deployment of improved instrumentation and developments in technology. Despite improvements in these areas, when considering progress achieved in the implementation of the oceans chapter of Agenda 21, it becomes clear that any advances in ICZM have had a limited effect on the global condition of marine resources and coastal communities, which show alarming declining trends (Cicin-Sain *et al.*, 2002).

Thus, the need for successful policy concerning the management of coastal resources is more urgent than ever before. Section 2 provides a theoretical overview of the implementation of ICZM. Sections 3 & 4 describe the reality of the administrative and legislative frameworks for the management of coasts currently employed in the EU and in Ireland, which are earmarked by fragmentation and sectoralisation. Against this backdrop, we seek to establish examples of current practice from around the world, and to identify protocols for monitoring the effectiveness of policy which succeeds in promoting the interest of mankind / the sustainable development of our coasts.

SECTION 2 – THE ICZM PROCESS

2.1 Introduction

Coasts are not uniform by nature; they are shaped by differing physical, social, economic, biological and cultural factors. As a result, there is no one standard for implementing an ICZM solution. In general though, the implementation of an ICZM policy, programme or project in a region usually requires a number of iterative stages, which form part of a typical policy or project development cycle. These stages can be broken down into five steps as described by Olsen *et al.*, 1998:

1. Identification of issues
2. Plan preparation
3. Formal adoption and funding
4. Implementation
5. Monitoring and evaluation

Mature ICZM programmes are those that have completed a sequence of coastal management cycles to achieve improvements in coast management scenarios and ultimately in integrating coastal management between sectors. This process is presented diagrammatically in Figure 1.

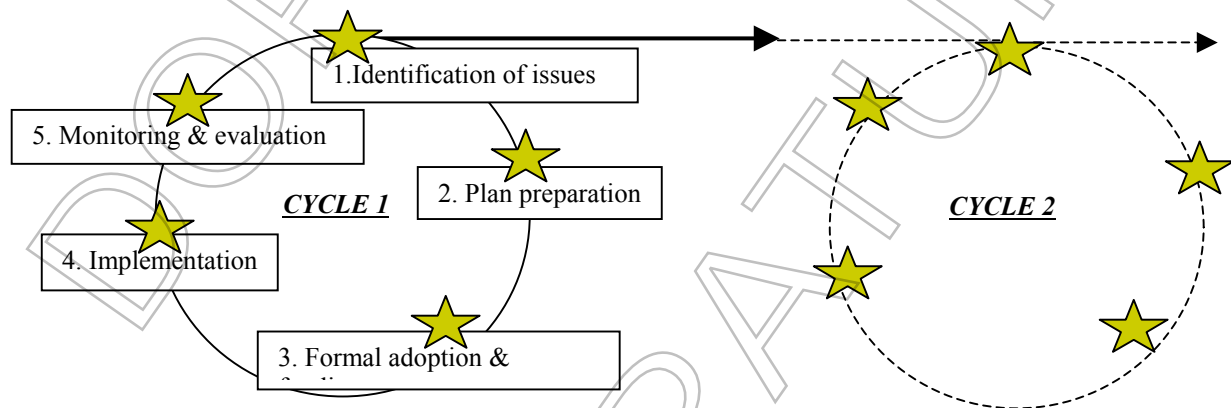


Figure 2.1 The stages of the ICZM cycle representing an iterative and circular approach (Adapted from Olsen *et al.*, 1998). The iterative nature of the ICZM process requires feedback among the stages, which may alter the sequence or require repetition of some stages. The circular nature of the ICZM process occurs when a programme matures warranting a repeat of the cycle.

The rest of this chapter provides a conceptual overview of each section of the ICZM cycle.

2.2 Identification of Issues

The forces that drive the initiation of the ICZM process can stem from a number of influences, including response to a crisis situation, response to a strategy e.g. The EU Strategy for ICZM, or the desire for proactive management. However, the common denominator in each case is the need to solve certain coastal problems. Thus, the first stage of the ICZM process involves the definition and assessment of the issues relating to these problems. This usually involves a comprehensive evaluation of the current status of the physical, social and economic, engineering and management fabric of the coastal environment, bringing together information from a wide variety of sources to produce a *coastal profile*.

Information gaps are identified which can result in the undertaking of specific surveys to acquire new data. The contribution of science to ICZM is important at this stage. The GESAMP report on that topic (1996) describes an essential pre-requisite for successful ICZM as:

'collaboration between managers and scientists at all stages of the formulation of management policy and programmes, and in the design, conduct, interpretation and application of research and monitoring'

The Contribution of Science to ICZM – GESAMP (1996)

The importance of the role of science in each stage of the ICZM process is outlined in the report. Case studies, including a case study of the Great Barrier Reef Marine Park and the Chesapeake Bay ICZM Programme, are presented in the context of factors affecting the contributions of science in ICZM. Despite great differences in the social and economic makeup of each of the case study areas, the report showed significant consistency in the lessons learned about the contributions of science to ICZM. The most important message is the fact that scientists and managers must work together if scientific results are to be translated and properly applied for management purposes. The report advocates the development of close working relationships between nearby scientific institutions that are likely to be familiar with the historical and social roots of conflicts, and may therefore be able to deal with them. Physical proximity also facilitates close working relationships between scientists and managers.

The involvement of community and stakeholders is also important in the identification of issues. Their active involvement at an early stage provides local knowledge, encourages dialogue, fosters support and raises awareness of the programme. The outcome of this stage should provide decision makers with a clear overview of the nature of the human and physical coastal environment, the urgency of the issues to be resolved and the limitations of the contemporary management regime. This information enables decision makers to judge how ICZM can initiate change for the better and to move towards Stage 2 – Plan Preparation.

2.3 Plan Preparation

The aims of the plan preparation stage are to:

- Outline the objectives of the ICZM programme
- Define directions and levels of integration
- Plan institutional arrangements

2.3.1 Outlining Objectives

A fundamental component of any programme is a clear statement of its objectives. The objectives to be achieved within an ICZM programme can become clear following the *coastal profile* which should reveal the extent of coastal problems and the inefficiencies of the current management regime. Programme objectives should be accompanied with a vision of when and how these objectives are to be achieved, including plans for proposed institutional arrangements and funding mechanisms. Widespread consultation should accompany this phase of plan preparation to ensure that the plan will be endorsed by all decision makers and supported by stakeholders.

2.3.2 Defining Directions and Levels of Integration

There are several types of integration that can be achieved by the ICZM process. The expressions 'vertical integration' (across levels) and 'horizontal integration' (across sectors) are commonly used to describe two primary types of integration perceived as important for effective ICZM (See Figure 2).

Other types of integration include international integration, which is particularly relevant across shared borders; integration of government and non-government organisations; and the integration of science and management. Various options for institutional reorganisation can provide improved integration within predefined structures such as government bodies. While bureaucracy and administration can hinder the direction and advancement of integration in these types of organisations, an even greater challenge exists to integrate coastal communities within the ICZM process (Cummins *et al.*, 2004).

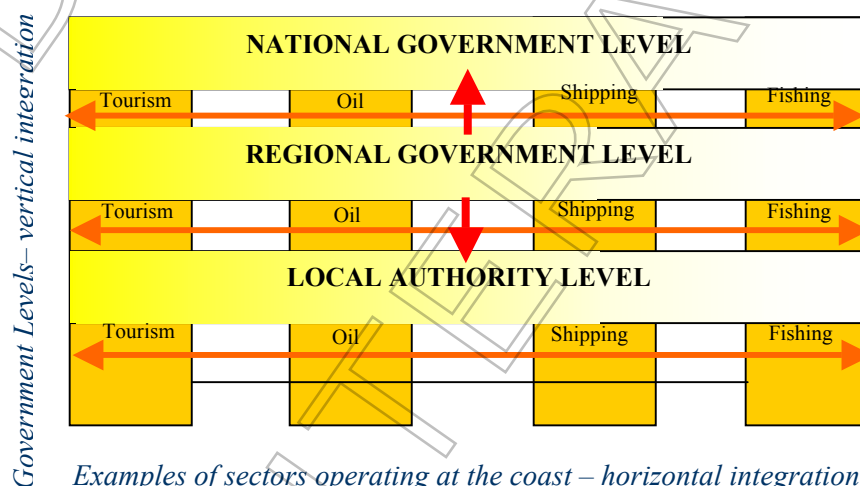


Figure 2. 2 'Vertical integration' (across levels) and 'horizontal integration' (across sectors) are commonly used to describe two primary types of integration perceived as important for effective ICZM (Adapted from Fletcher, 2002).

2.3.2.1 'Top Down' Versus 'Bottom Up' Approach

Top down approaches to coastal management have the advantage of ensuring that things get done according to specified time frames, and the involvement of experts promotes good decision-making. Community involvement in ICZM takes more time and effort than the top-down approach, however, the role of communities is directly related to the levels of successful implementation of coastal management initiatives (Cicin-Sain & Knecht, 1998). Thus, the inclusion of key agencies and stakeholders is a vital element for best practice in ICZM. As a result, due consideration must be given to community involvement in the decision-making process. Mechanisms for stakeholder engagement in the ICZM process are discussed in Section 2.7.

2.3.3 Planning Institutional Arrangements

It is necessary to institutionalise ICZM to:

- a) Sustain ICZM efforts
- b) Strengthen integration and co-ordination
- c) Streamline budget and human resources

This stage of the plan preparation involves defining the roles of institutions that will participate in the ICZM process at all levels – at national, regional and local level. It is necessary to specify the relationships between the institutions and to establish structures for enhanced integration between them. These arrangements can be legal or otherwise. The introduction of radical institutional change is often less favoured than the gradual introduction of mechanisms for strengthening institutional communication and integrated decision-making.

2.4 Formal Adoption and Funding

Funding for ICZM initiatives tends to occur on a piecemeal basis, often involving the appointment of designated coastal managers for a specific duration. The potential benefits to be gained from a project-based approach to ICZM are often overshadowed by the need to secure more funding to ensure continuation of the ICZM project process (the 'hamster wheel'). Thus, a coastal officer can often spend more time writing proposals than engaging in concrete initiatives to support ICZM programmes. In many cases, it is not possible to secure additional funding because of a lack of available resources. A 'stop-start' approach to coastal management projects can generate mistrust among stakeholders thereby jeopardising the viability of future projects, particularly where public participation is an important part of the ICZM process. As a result, it is important to obtain high-level support for ICZM programmes to ensure that funding will be sustained.

ICZM can be financed through central government funds, either by the allocation of a new budget category, or by optimising budgetary allocations and human resources of participating institutions. Decentralisation of funds towards local authorities can ensure local government buy-in to the ICZM process. An alternative strategy is to provide local authorities with greater autonomy providing them with the ability to generate specific funds through tax and other revenues.

Innovative ICZM financing mechanisms were identified by a working group, which focused on that topic at the recent Global Oceans, Coasts and Islands Conference, UNESCO, Paris, 2003 (Thia-Eng *et al.*, 2003) as:

- *Public Private Sector Partnerships*: This approach involves cooperative ventures between local government and the private sector.
- *Revolving Funds*: Used successfully to implement ICZM in parts of Asia, this financing mechanism involves a pay back mechanism and can be useful for supporting environmental improvement projects or services. It increases responsibility on behalf of

participants at the national or sub-national level. It also ensures sustainable use of financial resources.

- *Private Sector Funds:* Involving co-financing from coastal users. This approach can enhance responsibility and increase cost effectiveness.
- *Investment Funds:* This financing approach involves the identification of investment opportunities to generate capital.

Investment Funds

A study by the Scottish Executive (2001) on the feasibility of a coastal management trust for Scotland is worth considering. A number of mechanisms for distributing funds for coastal management are investigated, including continuation of the current approach, delivery of funds through an existing agency, a strengthened Local Coastal Fora network, creation of a new agency, or establishment of a dedicated funding mechanism. The latter option provides an interesting model. The report concludes that the development of a dedicated funding mechanism in the form of a management trust is the best option for the future of ICZM in Scotland, and that it could make a significant contribution to sustainable coastal management in Scotland.

A Perpetual Capital Trust (PCT), as advocated by the Scottish Executive is a funding mechanism, which draws from the budgets of existing and potential stakeholders. Initial funding is secured to create a capital endowment through the investment of capital in equity or other financial instruments. The annual income generated by the investment is then used to cover the cost of the organisations activities and/or it can be reinvested into the endowment fund. Lessons can be learned from the Scottish experience, which aims to be fully capitalised and operational by mid-2004 (Scottish Executive, 2001).

2.5 Implementation

2.5.1 Levels of Implementation

ICZM programs can be implemented at a number of levels including at national, regional and local levels. The level of implementation should be selected according to the geographical scope of the problems to be managed. National programmes ensure that a plan exists for the entire coastline. They can also identify hotspots where coastal issues require the development and implementation of specific ICZM plans. Regional programmes are appropriate for stretches of coastline with common coastal issues and characteristics, (e.g. rural coastlines). Local ICZM programmes are suitable where particular problems exist within a clearly delineated geographic area e.g. Bantry Bay and Cork Harbour. There are no restrictions on the number of programmes that can be implemented at a given level in any one country. However, it is important to ensure compatibility between programmes at different levels and to ensure the availability of sufficient resources to implement effective plans.

2.6 Monitoring and Evaluation

2.6.1 Measuring the Effectiveness of ICZM

The final stage of the ICZM process involves monitoring and evaluation of the programme once it has been implemented. The success of ICZM programmes can be evaluated according to: *performance evaluations, evaluation of management capacity and outcome evaluations* (Scottish Executive, 2001).

Performance evaluations address the quality of execution of an ICZM project in relation to the funding requirements. This is probably the most frequent type of evaluation of ICZM, although it is also the least informative in terms of assessing the actual achievements of a project in relation to improved coastal management.

Evaluation of management capacity determines the adequacy of management structures. The purpose is to improve project design and to make adjustments to the internal working of a project or programme.

Outcome evaluations assess the impacts of ICZM programmes on the physical coastal environment as well as looking at impacts on the social fabric. These types of evaluations are the most infrequently completed type of assessment, although they could be seen as the most important. Project and programme managers may be seen to protect themselves from unfavorable assessment by adopting vague goals and targets, choosing objectives that cannot be measured and selecting indicators that place an emphasis on effort over outcomes.

Scottish Executive, 2001

Indicators can be used to enhance our understanding of the impacts of sectoral or integrated coastal policies by providing a simplified view of a more complex phenomenon. They provide insights into trends or events that cannot readily be observed.

The necessity for further work in coastal indicator development was expressed at the 33rd Executive Council of the IOC of UNESCO held in Paris in 2000. This motivated a response within the ICZM community and an international workshop on *The Role of Indicators in Integrated Coastal Management* was organised by DFO and IOC in 2002. Following the outcomes of the workshop a document entitled *A Reference Guide on the Use of Indicators for Integrated Coastal Management* (UNESCO, 2003) was published.

Indicators used to monitor and evaluate the performance of an ICZM initiative can be defined as environmental, socio-economic and governance indicators (UNESCO, 2003). To date, much of the emphasis on indicator development and their application has focused on environmental indicators, typically describing the physical or biological state of the coastal environment. Socio-economic indicators have been developed but are more common at the sub-national (e.g. Atlantic Living Coastlines EU Demonstration Project) than the national level. The use of governance indicators to examine the performance of ICZM is still very much in the embryonic stages of development.

There is a need for formal reporting systems to allow indicators at different scales (national and sub-national) and localities to be fed into national reporting procedures to facilitate inter-country comparison. An emphasis on indicator assessment linked to performance and outcomes rather than effort and input needs to be implemented within ICZM initiatives, this is particularly true for governance indicators (Ehler, 2003). Indicators should be considered an integral component of any ICZM programme and should be incorporated from the beginning and assessed throughout the ICZM cycle (Olsen, 2003).

The European Working Group on Indicators and Data (WG-ID) have been working on a suite of coastal sustainability and progress indicators. Sustainability indicators are complex because they take social, economic and environmental criteria into consideration:

- Restrict further development of the undeveloped coast
- Protect, enhance and celebrate natural and cultural diversity
- Promote and support a dynamic and sustainable coastal economy
- Reduce social exclusion in coastal communities
- Use natural resources wisely
- Ensure appropriate and ecological responsible coastal protection

Progress indicators inform us about how far ICZM has been implemented. The EU progress indicators use a step-wise methodology to pass from a situation where there are no ICZM activities to where the process of ICZM has been fully implemented.

2.6.2 Lack of Baseline Data and Information

A lack of consistent baseline datasets makes it difficult to apply indicators to measure the effectiveness of ICZM. Measurement of the success of ICZM policies requires an established baseline from which progress can be marked, including physical, biological, social and economic data and information. There is a need to agree common methods of collecting statistics and a common definition of the coastal area throughout Europe to allow meaningful comparisons to be made. In a review of progress of ICZM development in European countries the study team highlighted the serious difficulties in making assessment of progress in ICZM according to six predefined indicators, primarily due to the absence of reliable baseline data (Elburg-Velinova van *et al.*, 1999).

2.7 Mechanisms for Engagement in the ICZM process

A wide range of mechanisms are available to promote public involvement in ICZM. The importance of involving the public underpins each stage of the ICZM process. Engaging with relevant stakeholders is a cross cutting theme which is important throughout each stage of the iterative policy development cycle outlined above. For this reason, they are given greater consideration here. The most common methods for engagement in the ICZM process can be divided into public participation, consensus building and conflict resolution and management. These are described below.

2.7.1. Public Participation

A fundamental aspect of ICZM is public participation. This process provides the public with an opportunity to make their views known prior to the adoption of policy by government. Public participation differs from public consultation. Public consultation is a more limited form of participation where communities are presented with a choice of options without having the ability to directly influence the development of policy.

Opportunities for public participation are provided on a number of levels for direct and indirect communication from the public. At the national level, national bodies should adopt an open door approach, with a willingness to meet with representatives of all coastal managers and other interest groups, including the private sector. At the regional or local level, the involvement of the public is principally through the planning process, where planners seek widespread consultation and involvement in the plan preparation process.

Govan and Hambrey (1995) in their comprehensive review of participatory management in ICZM, summarise the strengths and weaknesses of this style of management as follows:

Advantages of participatory management of coastal resources:

- Active participation of the whole community can lead to a stronger commitment to comply with management strategies for sustainable use of coastal resources.
- The potential for increased equity can enhance the legitimacy of regulations in the eyes of the stakeholders.
- Participatory management can lead to increased awareness of sustainability issues among stakeholders.
- Cost effectiveness: some of the burden of information gathering, planning, routine management and enforcement can be shifted from central government.
- More effective use can be made of local knowledge and existing linkages.
- Direct involvement of all the stakeholders across a wide section of the community ensures that decisions better reflect local, social, economic and environmental conditions.

Weaknesses of increased participation in coastal resource management:

- Access or investment may be denied to more enterprising or economically efficient outside interests.
- Economies of scale may not be achieved.
- Management may be influenced by political whim or prejudice.
- It may be less practicable in open diversified societies in urban areas than in smaller, identifiable, communities in peripheral areas.
- Certain interests such as large-scale fisheries, heavy industry and mineral exploitation will not perceive any benefits to themselves in this approach and may not participate or actively resist such initiatives.

Participatory management potentially provides an effective and democratic method of addressing the main objectives of ICZM. The increased involvement of the parties involved should enhance sustainability and more effective compliance with regulations. However, problems may arise where communities may act to benefit themselves at the expense of the interests of society at large.

2.7.2 Consensus Based Approach to ICZM

Consensus building has been described as:

"A process leading to an agreement (or synthesis) that is reached by identifying the interests of all concerned parties and then building an integrative solution."

(CDR Associates, 1986)

The central objective to consensus building is the involvement of stakeholders in the project or policy design, as the lack of involvement of groups of stakeholders in project design can lead to conflict. Consensus methods generate ownership for the project/policy that is eventually developed. It could be said that public participation methods are more outcome-orientated, while consensus building methods are more process-orientated. The main steps in consensus building are similar to those used for public participation, that is, including methods focusing on reaching stakeholders that are not necessarily organised or well represented such as:

- Workshop based methods.
- Methods for stakeholder consultation such as beneficiary assessment (a systematic investigation of the perceptions of beneficiaries and other stakeholders to ensure their concerns are heard); systematic client consultation (a group of methods to improve communication so that policies are more demand driven. Includes systematic listening to clients attitudes and preferences and devising a process of continuous communication); and stakeholder committees.
- Multi-criteria decision making methods (enveloping a range of techniques to rank project alternatives or conflict solutions based on valuation of multiple objectives).

2.7.3 Conflict Resolution Techniques

Conflict management has been defined by Anderson *et al.*, (1996) as a multidisciplinary field of research and action that seeks to address the question of how people can make better decisions collaboratively. It is an approach that attempts to address the roots of conflicts by building upon shared interests and finding points of agreement that accommodate the respective needs of the various parties involved.

Conflict among stakeholders is prevalent in issues of coastal management, due to the sectoral nature of resource use. Conflict resolution can be a time consuming process. Problems exist for stakeholder groups with little experience of complex multisided negotiations. Facilitators can be used to help groups through the conflict resolution process. For maximum effectiveness, participation is required from all legitimate stakeholders in a group. Consideration may need to be given to the actual use of the term 'conflict resolution' as many stakeholders do not recognise that they have a problem. This lesson was learned in the Bantry Bay Charter Project where stakeholders objected to outside facilitators using the term conflict, where no conflict was actually perceived by some of the stakeholder groups brought into the process.

Further reference can be made to a study commissioned by DG XII entitled '*The role of value conflict assessment techniques in the formulation of implementable and effective coastal management policies*' (Valcoast).

2.7.4 Citizen Science Toolbox

In 2003 the Australian Coastal Cooperative Research Centre (CRC) developed a citizen science toolbox to facilitate and foster community and institutional participation in sustainable initiatives for their coastal localities. The toolbox contains an annotated list describing 63 established tools for use in engaging coastal community participation <http://www.coastal.crc.org.au/toolbox/index.asp>. This is a useful resource for further information on mechanisms for engagement in the ICZM process.

SECTION 3 – SETTING THE SCENE: INTERNATIONAL, REGIONAL SEAS AND EU APPROACHES TO ICZM

3.1 International Policies

A number of international conventions exist which are of relevance to the coastal area. These conventions address issues such as biodiversity, marine pollution, fishing and maritime safety. The inclusion of ICZM as one of the principal recommendations of Agenda 21, at the United Nations' Earth Summit in Rio de Janeiro (UNCED, 1992) has already been discussed in Section 1.4. Other international conventions of significance are:

- United Nations International Convention on Laws on the Seas (UNCLOS), 1982;
- International Convention for the Prevention of Pollution by ships (MARPOL), 1978;
- The UN and Food & Agriculture Organisation (FAO) Conference on a Voluntary Code of Conduct for Sustainable Fishing, 1995;
- RAMSAR Convention on Wetlands of International Importance, 1971;
- UN Framework Convention on Climatic Change, 1992;
- Washington Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (United Nations Environment Programme [UNEP]), 1995;
- Bonn Convention on the Conservation of Migratory Species, 1979;
- Bern Convention on the Conservation of European Wildlife and Natural Habitats, 1979.

Ireland is a signatory to all of the above conventions, with the exception of the Washington Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

3.2 Regional Seas Policies

While some of the threats to ocean and coastal area environments can be approached more effectively on a global scale, their individual characteristics and relevance tend to vary from region to region, and from sea to sea. The regional seas focus is based on periodically revised action plans adopted at high-level intergovernmental meetings. In most cases the plans are implemented within the framework of legally binding regional conventions, under the authority of the signatories or of the intergovernmental meetings (<http://www.gizc.com>). The regional seas approach to management allows for greater collaboration between signatory nations and for the transfer of technology, information and experience in ICZM.

- *Barcelona Convention*: The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean; adopted on 16th February 1976, in force 12th February 1978; revised in Barcelona, Spain, 9-10th June 1995 as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. The 1995 text of the Barcelona Convention is still under ratification.
- *OSPAR Convention*: The Convention for the Protection of the Marine Environment of the North-East Atlantic - Oslo and Paris Conventions; adopted 1974, revised and combined into OSPAR Convention 1992, in force 1998.
- *Helsinki Convention*: Convention on the Protection of the Marine Environment of the Baltic Sea Area; adopted 1974, in force 1980, revised 1992, in force 2000.
- *Bucharest Convention*: Convention on the Protection of the Black Sea Against Pollution; adopted 1992, in force 1994.

<http://www.gizc.com>

Of the above, Ireland is a signatory to the OSPAR Convention.

The OSPAR Convention, to which Ireland is a signatory, is designed for the protection of the North Atlantic Ocean. As part of the convention, Ireland and the UK have cross-border responsibility for the Celtic Sea.

3.3 EU Approaches to ICZM

While no EU legislative measure applies exclusively to the management of the coastal environment, there are various EU policies and Directives that have an immediate impact on the coastal marine area such as:

<ul style="list-style-type: none"> • EU Policies Impacting on ICZM: <ul style="list-style-type: none"> - EU Structural Funds - Common Agricultural Policy (CAP) - Common Fisheries Policy (CFP) - Fifth Framework Environmental Action Programme - Sixth Framework Environmental Action Programme - European Spatial Development Perspective (ESDP) - Trans-European Transport Network Policy (TEN-T) • EU Legislation Impacting on ICZM: <table> <tr> <th><u>Horizontal</u></th><th><u>Sectoral</u></th></tr> <tr> <td>EIA Directive SEA Directive</td><td> <u>Water Quality Legislation:</u> Bathing Water Directive Shellfish Water Directive Waste Water Treatment Directive Nitrates Directive Water Framework Directive <u>Nature Protection Legislation:</u> Birds and Habitats Directives </td></tr> </table> 		<u>Horizontal</u>	<u>Sectoral</u>	EIA Directive SEA Directive	<u>Water Quality Legislation:</u> Bathing Water Directive Shellfish Water Directive Waste Water Treatment Directive Nitrates Directive Water Framework Directive <u>Nature Protection Legislation:</u> Birds and Habitats Directives
<u>Horizontal</u>	<u>Sectoral</u>				
EIA Directive SEA Directive	<u>Water Quality Legislation:</u> Bathing Water Directive Shellfish Water Directive Waste Water Treatment Directive Nitrates Directive Water Framework Directive <u>Nature Protection Legislation:</u> Birds and Habitats Directives				

Of the above, the **Habitats** (92/43/EEC) and **Birds** (79/409/EEC) **Directives** are of fundamental importance to the management of European coastal areas. Together, the Special Areas of Conservation (SACs) designated under the Habitats Directive by Member States and the Special Protection Areas (SPAs) created under the Birds Directive to safeguard sites of valuable bird species, make up a European network of protected sites, NATURA 2000. The national designation in Ireland, the National Heritage Area (NHA), (under the Wildlife Amendment Act, 2000), replaces the earlier Area of Scientific Interest (ASI). All other national, European and global nature designations overlap with and are sub-sets of the NHA designations.

The Habitats Directive contains requirements for assessment of plans or projects that will have an impact on areas designated for protection. Plans for developments of a particular scale are also subject to the **Environmental Impact Assessment (EIA)** process as laid out in the EIA Directive (85/337/EEC) and amended by (97/11/EC). EIA procedures ensure that the environmental consequences of specific projects are taken into account when the project is authorised. The developer is required to outline in great detail the extent of potential environmental impacts of the proposed project. The **Strategic Environmental Assessment (SEA) Directive**, to be transposed in 2004, will strengthen EIAs by facilitating the early identification of environmental impacts and cumulative effects. SEA is fundamentally different to EIA in a number of ways, most notably because SEA looks at the whole environment and reviews

how that environment can support development; SEA not only looks at the physical environment, but also at the social and economic context. The SEA Directive is applicable to many sectors of activity that are significant within an ICZM context e.g. transport, town and country planning, industry, energy, waste management, and tourism (Mercadié, 1999).

There is considerable scope for synergy between the principals of ICZM and the SEA Directive relating to the decision making process, the information available, and the assessment tools employed (Mercadié, 1999). SEA will contribute to more transparent planning by involving the public and by integrating environmental considerations. This will help to achieve the goal of sustainable development.

3.3.1 Water Framework Directive (WFD)

Although a number of EU policies and Directives have an influence on coastal management, as indicated above, the Water Framework Directive is viewed as one of the most significant in facilitating ICZM. The EU Water Framework Directive (2000/60/EC) came into force in December 2000, establishing a new framework for Community action in the field of water policy. The WFD takes an holistic approach, addressing inland surface waters, estuarine and coastal waters and groundwater. A coordinated approach will therefore be required for the implementation of programmes and measures to achieve the objectives of the Directive. A 15-year period is allowed to each Member State, by which time the State must ensure compliance. Objectives of the Directive include:

- Protection and enhancement of the status of aquatic ecosystems (and terrestrial ecosystems and wetlands directly dependent on aquatic ecosystems);
- Provision for enhanced protection and improvement of the aquatic environment by reducing / phasing out of discharges, emissions and losses of priority substances;
- Protection of territorial and marine waters, and
- Establishment of a register of protected areas e.g. areas designated for protection of habitats or species.

The WFD is based on the river basin as the natural unit for management, and will require the development of River Basin Management Plan (RBMP). The WFD is moving towards ecological quality by incorporating within its environmental objectives quality in biology, hydrology, morphology and chemistry. As well as maintaining water quality, the objectives specifically refer to protecting ecosystems:

- Protect ecosystems and achieve compliance with any standards and objectives for protected areas (e.g. areas designated for protection of habitats/ species).

Measures adopted must include:

- Review of the impact of human activity on the status of the waters.

The WFD is viewed by the Commission as part of the mechanism within which to adopt ICZM. Its application to waters up to one nautical mile beyond the national baseline goes some way to minimising the current sectoral approach to water quality management (See Figure 3). In Ireland, the Department of Environment and Local Government is the regulatory body charged with competence in implementing the WFD. The WFD uses biological communities as long-term indicators of health of the water. This will be a particular challenge in estuarine and coastal waters. The WFD is regarded as the most important legal stimulus at EU level for integrated planning, both coastal and inland.

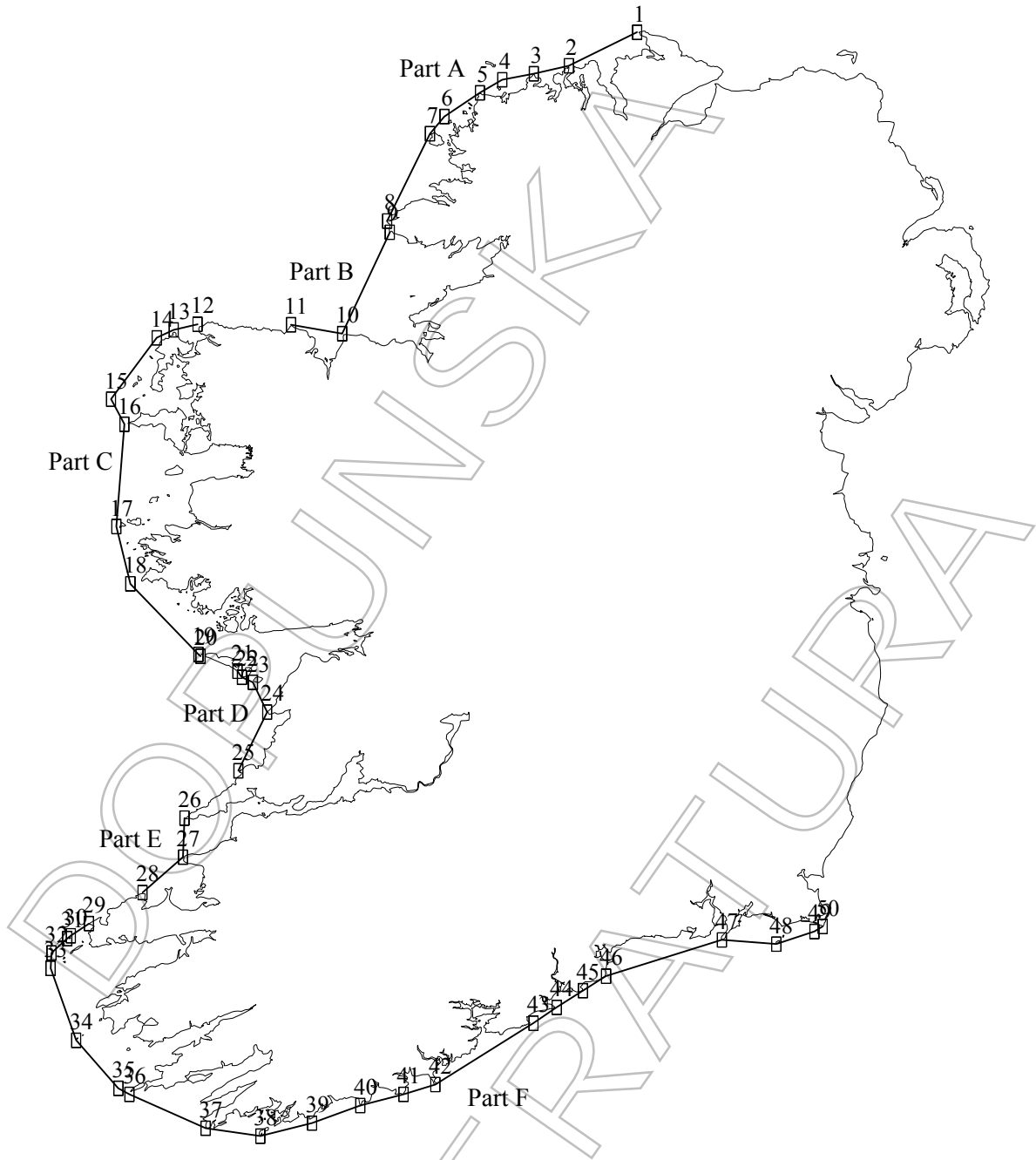


Figure 3.1 Location of the Baseline as set out in the Maritime Jurisdiction Act, 1959 (Straight Baselines) Order 1959, *Courtesy of the EPA.*

3.3.2 European Strategy for ICZM

The much anticipated, official announcement of a **European Strategy for ICZM** was announced in September 2000 (EC, 2000). The structure of the EU ICZM strategy and its priorities were determined by the analysis of the EU Demonstration Projects (see Section 3.3.7), the thematic studies, and the national responses.

The strategy states that:

- Our coastal zones are facing serious problems of habitat destruction, water contamination, coastal erosion and resource depletion.
- There has been a lack of knowledge, inappropriate and uncoordinated laws, a failure to involve stakeholders, and a lack of coordination between the administrative bodies.

The strategy was designed to meet prior commitments to the sustainable management of the coastal and marine area, including the EU's obligations under international agreements: Chapter 17 of Agenda 21; the Jakarta Mandate on Marine and Coastal Biodiversity under the Convention on Biological Diversity, and the FAO's Code of Conduct for Responsible Fisheries (Article 10 of which is devoted to ICZM).

The strategy is designed to be flexible, and defines the *EU's role* as one of *leadership* and *guidance* to support the implementation of ICZM by Member States at local, regional and national levels. The strategy is expected to improve implementation of existing EU legislation and policies in coastal areas. However, the strategy does not go far enough to have a significant impact as it lacks the force of a legislative framework, as is the case in Ireland (Connolly & Cummins, 2002).

In May 2002, the European Council and Parliament signed the **ICZM Recommendations** to encourage action on ICZM within Member States. The Recommendations towards the EU Member States propose the formulation of national strategies and measures based on the principles of integrated coastal management, which includes "working with natural processes and respecting the carrying capacity of ecosystems".

Member States are requested to conduct or update an overall stocktaking¹ procedure to analyse which major actors, laws, and institutions influence the management of their coastal zone and consequently to develop a national strategy to implement the principles for integrated management of the coastal zone. The stocktaking should provide the government with a sound, objective basis to develop national strategies for implementing the principals of ICZM as set out in the EU Recommendation.

They should also promote public participation, identify sources of durable financing for ICZM initiatives, and install adequate systems for monitoring and disseminating information to the public about their coastal zone. These systems should collect and provide information in appropriate and compatible formats to decision makers at national, regional, and local levels.

National training and educational programmes as well as co-operation with neighbouring (including accession) countries are also recommended. Member States have to report to the Commission on their experience in implementing the Recommendations after a period of 45 months. These reports should include information concerning:

- The results of the national stocktaking exercise;
- The strategy or strategies proposed at the national level for implementation of ICZM;

¹ The stocktaking should include (but not be limited to) fisheries and aquaculture, transport, energy, resource management, species and habitat protection, cultural heritage, employment, tourism and recreation, waste management, agriculture, industry and mining, regional development in both rural and urban areas and education.

- A summary of actions taken, or to be taken, to implement the national strategy or strategies;
- An evaluation of the expected impact of the strategy or strategies on the status of the coastal zone;
- An evaluation of the implementation and application of Community legislation and policies that have an impact on coastal areas.

3.3.3 Towards a Strategy to Protect and Conserve the Marine Environment

The communication: *Towards a strategy to protect and conserve the marine environment* was issued by the Commission in October 2002 (EC, 2002). It was the first communication addressing a marine strategy for Europe. It reviews information essential to the advancement of policy development in this area including:

- Current information concerning the environmental status of the seas and oceans and identification of main threats;
- The present situation with regard to the development and implementation of policies to control these threats, both within the EU and at regional and international level;
- Identification of gaps in knowledge and of the present situation with regards to monitoring assessment and research.

The review identifies a significant number of information gaps on the state of the marine environment and inadequacies concerning existing measures of data collection and management. The document highlights the fact that most of the Community legislation addressing the protection of the marine environment was not designed specifically for that purpose, which means that it is often ineffective and difficult to enforce. Measures to deal with a number of threats to the marine environment are specified in the Communication.

Many of the threats/pressures outlined in the report affect the coastal environment, where the impacts of such threats are often several orders of magnitude greater: biodiversity decline/habitat destruction; hazardous substances; eutrophication; chronic oil pollution; radionuclides; impacts of maritime transport; and climate change.

Development of an ecosystem-based approach to a marine policy is recommended as an overarching objective within the Marine Strategy. This reflects current trends in the growing importance of the concept of the ecosystem approach to sustainable coastal management. Ecosystem targets and benchmarks will be developed as tools to ensure conservation and sustainable use of biodiversity. Full implementation of the Habitats and Birds Directives in the marine environment including Exclusive Economic Zones (EEZs) and/or Exclusive Fishery Zones (EFZs) will be a priority action.

The International Council for the Exploration of the Sea's (ICES) current working definition of an **Ecosystem Approach** is the integrated management of human activities based on knowledge of ecosystem dynamics to achieve sustainable use of ecosystem goods and services, and maintenance of ecosystem integrity.

3.3.4 The Sixth EU Environmental Action Programme (6th EAP)

The 6th EAP (2002-2006) establishes a programme of Community action on the environment, following the completion of the 5th EAP. The 6th EAP promotes the integration of environmental concerns throughout Member States by providing funds for environmental research and dissemination of information. The programme represents a political commitment on behalf of the EU to the achievement of sustainable development.

Unlike the 5th EAP, there is no specific thematic area covering coastal and marine activities. However, the 6th EAP includes a thematic strategy on Global Change and Ecosystems, which contains strategies for ICZM as a sub component.

3.3.5 Integrating Marine Science in Europe

The position paper *Integrating Marine Science in Europe* (ESF, 2002) represents an initiative to establish a Europe wide summation of marine research, prioritise recommendations and to identify where future scientific challenges lie, while incorporating European societal needs. Key recommendations concerning Europe's coastal area emerging from the position paper are:

- Baseline interdisciplinary research is required to meet the challenge of progressing ICZM and governance;
- Within ICZM research, prioritisation should be given to investigating the environmental impacts and the consequences on biodiversity of increasing tourism and leisure on the littoral zone, port developments, intense aquaculture in inshore locations, selective fishing of top predators, and deep ocean disposal of domestic and industrial wastes;
- Systematic research on biogeochemical budgets of nutrients (carbon, nitrogen, phosphorous) and their ecological effects are required for contrasting estuaries and shelf systems;
- Europe should rapidly adapt new array-biotechnological chips to provide non-invasive, affordable, and high throughput systems for ecotoxicological screening of water quality;
- Natural and anthropogenic causes of ecosystem variability should be characterised and distinguished, particularly in the coastal seas;
- An integrated network of coastal monitoring stations are required to contribute to monitoring and forecasting the effects of global warming (e.g. coastal flooding, increased wave height, storm intensity);
- Understanding marine biodiversity is the blueprint for ecosystem regulation. Areas of high species and genetic biodiversity should be a focus for conservation and management efforts;
- A forum of marine scientists and policy makers should be convened to ensure effective communication and synergy between both parties for timely deliverance of relevant and sound scientific knowledge to policy makers.



Plate 3.1 Shoreline Protection at Castlefreake Beach, South West Ireland © V. O'Donnell, CMRC

3.3.6 Lessons learned from the EU Demonstration Programme for ICZM

The Commission Communication 511/95 launched the EU Demonstration Programme (DP) on ICZM. The ICZM DP was devised in response to concerns with regard to the degradation of coastal land, waters and resources (Commission of the European Communities, 1995). Its aim was to provide concrete examples of good practice in ICZM in a range of socio-economic, cultural, administrative and physical conditions, in addition to providing the background information necessary for the formulation of the recent EU Strategy in ICZM for the sustainable development of coastal areas. Specific ICZM problems in 35 representative areas across Europe were studied (two in Ireland: Bantry Bay and Donegal Beaches).

Table 3.1 provides a summary of the Demonstration Projects in each participating Member State, based on the final report on *Lesson Learned from the European Commission's Demonstration Programme on Integrated Coastal Zone Management* (Anon, 1999). In summary, a review of the EU DP projects shows that:

- Institutional restructuring is often a prerequisite for effective ICZM;
- Reliance on planning policy is insufficient when dealing with the complexities of the coast and,
- Lack of national policy and national legislation are almost universal hindrances to advances in ICZM.

The Demonstration Programme highlighted that there is no one correct approach to ICZM. Cultural differences within and between countries make it difficult to indicate which approach to ICZM might work best in a given area. However, it is true that there are a number of common issues and concerns present in many coastal areas and there is much to be learned from the experiences of others. The most successful projects in the DP were those that were shown to have followed certain general principals. Ultimately, eight key principals were identified from the DP as necessary for the achievement of best practice in ICZM. The eight key principals, described below, can be applied to all situations and thus they should be a priority focus for any country or body seeking to move forward in the area of ICZM.

Table 3.1 Summary of Representative EU Demonstration Projects in ICZM

Country	Project	Partnership	Focus	Lessons learned
England	Isle of Wight - Integrated Management of Coastal Zones	Isle of Wight Council, SCOPAC & English Nature	<ul style="list-style-type: none"> To examine mechanisms used to deliver sustainable policy To highlight 'good practice' in a number of areas leading to integrated management 	<p>The local voluntary approach works best within the bounds of national legislation.</p> <p>Employment of a project officer is crucial.</p> <p>Visioning – towards preferred future state of coastal area is often successful.</p>
	South West Peninsula – Devon and Cornwall-Atlantic Living Coastlines	Cornwall and Devon County Councils	<ul style="list-style-type: none"> To develop a coastal strategy To focus on participation, environmental indicators and information 	
Scotland	Forth Estuary Programme - A Demonstration of Effective Integrated CZM	Forth Estuary Forum (voluntary partnership of approx. 250 agency & organisation representatives)	<ul style="list-style-type: none"> To address the key issues facing the Forth 	<p>Integrated coastal zone management can be policy or issue driven.</p> <p>Action plans have a significant role to play in helping to realise specific goals.</p>
	Cromarty Firth Management Strategy	Cromarty Firth Liaison Group (local voluntary partnership)	<ul style="list-style-type: none"> To develop policy statements & to set out framework of consensus 	
Ireland	Bantry Bay Charter Project	Cork County Council, Coastal and Marine Resources Centre and Nautical Enterprise Centre	<ul style="list-style-type: none"> To address the challenge of implementing successful consensus based approach to coastal management in Bantry Bay 	<p>Public participation is crucial to building a consensus based approach to ICZM.</p> <p>The involvement of coastal communities was a key feature in the development of management plans that introduced sustainability into the utilisation of beach and dune systems.</p>
	Donegal Sand Dune Management	University of Ulster and Donegal County Council	<ul style="list-style-type: none"> To develop beach and dune management systems for seven sites in Co. Donegal 	

Country	Project	Partnership	Focus	Lessons learned
Norway	The Helgeland Project	Helgeland Municipal Region	<ul style="list-style-type: none"> To learn from the experience of local management, particularly as regards use and protection of the coastal and marine zones 	<p>Use of seminars, information folders, lectures, working groups, GIS & meetings are important.</p> <p>The experiment demonstrated the need for consultation between local, regional and national interests at an early stage in the planning process.</p>
Denmark	Storstrom County – The Southern Danish Archipelago	Municipal, county and national authorities and stakeholders	<ul style="list-style-type: none"> To develop sustainable use of coastal resources 	Project revealed that local participatory efforts can work within bounds of regulated planning system.
France	The Rade de Brest Project	Large number of partners including: authorities; NGOs; representatives of industry; etc. alongside the scientific community	<ul style="list-style-type: none"> To prepare a programme for integrated management of the area To tackle environmental problems resulting from past developments 	<p>A descriptive information book was produced to motivate the local population and actors and to allow the formation of priority issues, prior to actually undertaking activities.</p> <p>Need to strengthen cooperation between many partners and to establish permanent mechanisms to that end.</p>

Country	Project	Partnership	Focus	Lessons learned
Greece	The Cyclades Project	University & Islands	<ul style="list-style-type: none"> To address loss of coastal population, skill shortage and poor infrastructure. To create networks to stimulate exchange of information and mutual support 	<p>Coordination in the form of a legally instituted management body is indispensable for implementation of ICZM.</p> <p>Deficiencies in legislation can pose substantial obstacles to concerted management of the coast.</p>
	The Magnesia Project	University, consultants & commercial entities.	<ul style="list-style-type: none"> To integrate environmental awareness with changes in local coastal activities 	<p>Information centers can be beneficial for supporting actions for environmental awareness, training, dissemination of information & promoting participation of public and local authorities.</p>
Portugal	The Maria Project	University & open fora	<ul style="list-style-type: none"> To develop participation and coordination 	<p>Multiple use management and zoning was suggested as a way of integrating objectives and also of bringing together the various government sectors.</p>
Spain	The CONCERCOST project (La Costera-Canal, Gandia/Valencia)	Municipality Associations in Spain (& Portugal)	<ul style="list-style-type: none"> To develop consensus between the public officials responsible for the integrated management of the territory & the coordination of management policies through comprehensive land use planning 	<p>Integration between the different administrations & improved participation are necessary to advance ICZM.</p>

Country	Project	Partnership	Focus	Lessons learned
Netherlands	The Haringvliet Project	Decision makers, consultative group, policy analysis group & technical working group	<ul style="list-style-type: none"> To recreate lost and polluted wetlands 	<p>Complex stakeholder interests were mapped.</p> <p>Comprehensive stakeholder involvement slowed the process, but is also reduced animosity and created trust.</p> <p>Ranking of solutions allowed conflicts of interests to be effectively addressed.</p>
Sweden	The SUCOZOMA Project		<ul style="list-style-type: none"> To promote management of marine coastal ecosystems based on their contributions to society in terms of ecological services To create local jobs in coastal communities that are ecologically and economically sustainable 	<p>Careful consideration should be given to who should take part in discussion and in which context.</p> <p>Adapt the working methods per group.</p> <p>Clarify rules of the game.</p> <p>Listen carefully.</p> <p>The immense value of the coastal zone must be recognised in economic and political decision-making.</p>

Country	Project	Partnership	Focus	Lessons learned
Finland	Coastal Planning on the Gulf of Finland Life Environment Project	Municipalities of Tammisaari, Inkoo, Porvoo, Pernaja, Ruotsinpyhtaa, Pyhtaa, Virolahti & Southeast Finland Regional Environmental Centres	<ul style="list-style-type: none"> o To draw up approx. 200 master plans for coastal areas to promote sustainable development 	<p>Regional & local levels of administration are instrumental in adopting regional strategies.</p> <p>Delineate areas for summer cottages.</p> <p>Finland needs to draw up a national strategy for coastal management. Regional councils & municipalities should join to start the national ICZM process.</p>

The Eight Principles of Best Practice from the EU DP on ICZM:

1. Adopt a broad holistic perspective

This principle advocates the need to take a 'systems' approach to ICZM due to the complexity of the physical, biological, cultural and socio-economic factors shaping coastal areas. The delineation of the coast according to administrative or jurisdictional boundaries does not facilitate effective ICZM. Therefore, it is important to take a more wide-ranging perspective, which traces coastal influences to the extent of their natural and/or social boundaries.

2. Local specificity

In addition to taking a wide-ranging perspective, it is necessary to compliment the approach with a thorough understanding of specific issues in the coastal area of interest. The collection and analysis of data and information concerning local conditions is required to achieve this goal.

3. Use adaptive management

Using adaptive management means having the ability to respond to new information and conditions during a gradual process of developing and implementing ICZM programmes.

4. Work with natural processes

Working with natural processes is particularly relevant in the case of coastal engineering. In order to mitigate against negative impacts of hard engineering, alternative solutions which work with natural processes should be sought, including the use of soft engineering and/or 'setback and retreat' options where possible.

5. Take a long-term view

Taking a long-term view means planning ahead for the future to ensure that current management plans will have long-term benefits for the coast. Consideration should also be given to the life span of coastal management programmes to ensure the sustainability of coastal management initiatives.

6. Use participatory planning

Participatory planning involves the collaboration of all stakeholders in the formulation and implementation of ICZM plans. This inclusive process has many direct benefits and is essential if consensus is to be achieved.

7. Ensure the support and involvement of all relevant bodies

While participatory planning ensures the involvement of all stakeholders in the development and implementation of ICZM ('bottom up' approach), there is also a need to ensure equality of input to the process by responsible administrations. ICZM can only be effective if it is supported by all of the relevant administrative bodies ('horizontal integration' e.g. between government departments), and across all levels of government ('vertical integration' e.g. between local and central government).

8. Use a combination of instruments

Effective implementation of ICZM involves the utilisation of multiple instruments including a mixture of legislative measures, policy programmes, economic incentives, technology solutions, research, voluntary agreements and education. The mix to be applied depends on the specific situation, which will differ according to: the geographic area, the nature of the issues to be addressed, the level of participation and cooperation among stakeholders, institutional structures, the legal basis of the initiative and the level of political and financial support available.

3.3.7 Focus on the Bantry Bay Coastal Zone Charter DP Project

The Bantry Bay Charter Project, which commenced in September 1997, ran for just over three years. The project was managed by Cork County Council in partnership with the Coastal & Marine Resources Centre, University College Cork and the Nautical Enterprise Centre. During that time, significant achievements were made and lessons were learned in relation to the development of a consensus based integrated coastal management strategy for Bantry Bay. The extent of public participation in the process was a unique feature of the project. The summary below gives an insight into the problems that were encountered and surmounted by adopting such an approach. The Charter document can be viewed at www.bantrybaycharter.ie.

Bantry Bay hosts a diverse mixture of coastal activities, including aquaculture, tourism, fishing (e.g. Castletownbere is the second largest fishing port in the country), conservation and shipping (e.g. Bantry Bay is home to Ireland's only oil terminal). Bearing this in mind, the overall aim of the Bantry Bay Charter Project was to develop:

"a consensus-based integrated coastal zone management strategy for Bantry Bay; through the adoption of a stakeholder's charter, the use of innovative dispute resolution techniques and a community based GIS catalogue of resources."

This objective was achieved through the implementation of a series of six work programmes. These are outlined in more detail in the Final Technical Report (Cork County Council *et al.*, 2001). The main conclusions from the Final Technical Report are summarised below.

Achievements and Lessons Learned:

The Bantry Bay Charter project produced a collection of integrated management proposals for the coastal area of Bantry Bay agreed by stakeholders in a unique process of public participation and consensus building. The output was a range of over 200 distinct management proposals, which were distilled into 21 issues of concern, ranging from issues dealing with shoreline access to waste management, housing and economic development. In response to each issue of concern an objective was described, challenges to achieving the objective were realised, and specific proposals were developed towards achieving the objectives.

Care for stakeholders

There was no budget allocated within the Charter project to cover stakeholder expenses for time and travel given towards attending round-table or working group meetings. The emphasis was on voluntary contributions. To compensate in part for this, the project team provided refreshments at all working group meetings. Lunch and dinner were provided at round-table meetings. While it may appear to be a trivial factor, these efforts were appreciated by the stakeholders and were important for fostering a nature of goodwill (K. Lynch, *pers. comm.*, June 2003).

There were discrepancies between voluntary stakeholders and stakeholders representing regulatory bodies. In contrast to community sector stakeholders, individuals representing regulatory bodies were generally paid for their time and received expenses. This did not present a level playing field for all those participating. Thus, the issue of the cost of participation is an important factor, which should be carefully considered in the development of future projects. When a large commitment on behalf of voluntary time is expected, projects should have long-term objectives including commitment to the implementation of actions to improve quality of life and local coastal environments as indirect payment to those involved.

Staff turnover

A major difficulty faced by the project was high staff turnover. The project had three project managers during its lifetime, which resulted in a difficulty in ensuring continuity on the project. The short-term nature of project management positions does not lend itself to effective project implementation. Staff retention measures should be considered at the inception of similar future projects.

Flexible timeframes and deadlines

The lack of flexibility in the implementation of a project dealing with the general public was a major constraint on the project managers. It was not always possible to adhere to predetermined administrative time constraints for delivering on work packages when human factors and the need to reach agreement were involved. This factor should be considered in the development of any new pilot or demonstration coastal management projects.

Conflict resolution

Alternative Dispute Resolution (ADR) was initially outlined as a single work programme in the overall project structure. The implementation of a work programme of this nature requires a conflict scenario, which was not immediately apparent at the early stages of the project. The ADR process became an effective component of the Charter work programme towards the end of the project in an organic way which was more helpful than inventing a conflict or elaborating on a potential conflict situation for the purpose of testing the effectiveness of ADR techniques.

External consultants

Care should be taken in the engagement of external consultants in a project of this nature. Consultants should only be used when really necessary and their expertise should be directly relevant to the issue at stake. The use of consultants with expertise in mediation but with a lack of understanding of coastal management issues was not deemed to be effective in the development of the Charter.

Involvement of all regulatory stakeholders

The Charter aimed to ensure the participation of all stakeholders in the Bantry Bay area, however it was time consuming to bring external agencies into the process. Convincing the external agencies to participate took extra valuable time and resources. Cooperation and predetermined structures at the Government Department level for the involvement of government agencies in coastal management initiatives would prevent this happening in future projects. An additional issue was the perception on behalf of some agencies of an apparent encroachment of the Charter initiative on their official remit. Encouraging regulatory bodies to see the wider benefits of an integrated approach was regarded as important and should be taken into consideration in future similar projects.

Need to meet the expectations of local stakeholders

Actions to resolve coastal problems may not be forthcoming in the early stages of a project, particularly as the identification and prioritisation of issues affecting the coast can be time consuming tasks. As a result, objectives and stages of the ICZM process should be made clear from the outset to avoid unrealistic expectations on the part of all involved.

Appropriate language

Because of the involvement of a wide number of disparate sectors in the integrated coastal management process, it is important that interpretation and use of language, especially language that is particular to a specific group, is made clear and is agreed by all stakeholders. Efforts were also made to ensure that the Working Groups did not develop their own language or interpretations of language.

Sustainable implementation

The Bantry Bay Charter was the result of a huge effort on behalf of the project team and in particular on behalf of the local population, involving an enormous contribution of voluntary time and effort. The ultimate aim was to pursue the implementation of the Charter following the conclusion of the EU DP programme. This long-term view was shared by Cork County Council who proceeded to fund a project office over a two year period between 2001 and 2003. However, the project office was closed in February 2003 because of funding problems within the local authority, which were augmented by a lack of support from government departments. This occurred despite the fact that the Bantry Bay Charter project was one of the most successful projects in the EU ICZM Demonstration Programme. One of the most serious lessons to be learned from the Bantry Bay Charter project is the need to ensure sustained financial commitment before engaging in a process, which raises expectations among stakeholders. Stakeholders in Bantry and in other coastal areas will be reticent to trust or invest their time in such initiatives in the future. This presents a major obstacle to the development of ICZM at the local level in Ireland. There has been a lack of debate on the lessons that have arisen from the Bantry case study, at a time when these issues need to be examined in the context of the forthcoming implementation of the EU ICZM recommendations.

3.3.8 The EU Demonstration Programme Thematic Studies

Six thematic studies, examining legislation, participation, sectoral and territorial cooperation, information needs, technologies and EU policies were commissioned, to extract lessons learned from the 35 demonstration projects. It is pertinent to document the main conclusions of these studies in the context of identifying best practice.

1. Legislation:

Gibson (1999) stated that a thorough understanding of the strengths and weakness of a State's existing laws is an essential precondition for determining the need for reform and selecting the means for achieving it. The first stage in the improvement of any national system should therefore be a comprehensive review of the laws that already govern the State's coastal area. Gibson (1999) outlines three main alternative legal approaches for implementation of ICZM:

Non-statutory coordination of existing laws – achieved by coordinating the decisions of all the authorities responsible for every sector without new legislation. Commonly agreed objectives must be contained within plans which need not themselves take the form of legislation, but are policy documents instead. (This approach is adopted in the UK, - Section 4.3).

Statutory framework for coordination of existing laws – requires the enactment of ICZM legislation setting out a framework in which existing laws can be coordinated. This type of legislation should define: the coastal area, the objectives of ICZM, mechanisms for the financing of ICZM and how existing laws should be used to implement ICZM.

New legal procedure for authorising developments in the coastal area – involving new coastal area legislation, which would be similar to above, but there would also be a new procedure for integrating the authorisation of developments in the coast. An example is the Resource Management Act 1991 of New Zealand (Section 4.9), which abolished numerous existing authorities and Acts and included a requirement to adhere to the National Coastal Policy Statement.

2. Participation:

The objective of a report to the Commission by King (1999) was to explore the role of participation in ICZM. The need for participation was recognised as one of the principals needed to achieve Best Practice. The general conclusions stress the need for participation at all levels in an open and transparent fashion.

3. Sectoral and Territorial Cooperation:

A review by Humphrey and Burbridge (1999) at the end of the DP confirmed that serious inconsistencies between sectoral and territorial policies fail to provide for an integrated approach to coastal planning and management. This issue also arose repeatedly in each of the case studies presented in the report.

The authors made a series of recommendations based on EU, national and local level initiatives. At the EU and national levels it is important to ensure that policies relating to the coast are compatible and able to facilitate integrated approaches to coastal management. At a national level it is also important to provide a national focal point for local initiatives to provide cohesion between different initiatives. Recommendations for local level initiatives are to: plan ahead to build the foundation for an effective coordination mechanism; consider the broader perspective in the assessment of coordination needs; and adopt an adaptive and incremental approach to create a resilient coordination structure.

4. Information Needs:

A major challenge for ICZM lies not only in the acquisition and quality of data and information, but in the way it is presented to those who formulate policy and are responsible for decision making. As a result, it is crucial to take a strategic view of information management. This was undertaken by Doody *et al.*, (1998) following lessons learned from the EU Demonstration Programme. Key recommendations, which stem from that report are to:

- Be issue led, not data led – effective ICZM must be led by the issues and not by what data happen to fall easily to hand.
- Understand the true cost/benefit of information management tools – information management tools such as models and GIS can support decision making in the coastal region, however, the study by Doody *et al.*, (1998) shows that the successful use of such tools requires careful management in their own right.
- Develop local information exchange networks – by establishing local observatories to facilitate local information exchange between data providers and users.

5. Technologies:

Technologies can provide an important contribution to sustainable development in the coast. Neglect of technology as an integral component of the ICZM loop can effectively limit the effectiveness and success of the ICZM initiative (Capobianco, 1999). The level of use of technology is determined by availability of funds, human resources, and the scale of coastal problems to be addressed. Best Practice in ICZM must factor how technology can assist in problem identification and decision support. A plethora of technologies can assist in gathering information to the coastal environment. GIS was identified as a particularly useful tool within the DP.

6. EU Policies:

A thematic study to assess the importance of EU policies for coastal areas and their implications for ICZM was carried out by the Institute for European Environmental Study (1999). The conclusions presented recommendations for a future EU strategy for ICZM which would involve either the introduction of explicitly focused policy instruments, including legislation, or a more incremental approach taking greater account of the requirements of ICZM in existing and new policies. It is now known that the Commission subsequently chose to adopt a European Strategy for ICZM (Communication from the Commission to the Council and the European Parliament on Integrated Coastal Zone Management: a Strategy for Europe (COM/2000/547) (EC, 2000).

3.3.9 Conclusions on the Approach to ICZM in the EU:

- The EU's contribution to ICZM is supportive rather than regulatory. The Water Framework Directive is expected to provide a key mechanism within which to adopt ICZM. However, this approach is inadequate as the complexity of coastal issues requires a more comprehensive legislative framework.
- A legal framework for ICZM would encourage greater adherence to the principles of ICZM throughout Member States. Despite this, legal support for ICZM does not appear to be forthcoming from the Commission.
- The EU Recommendation on ICZM will advance progress in ICZM throughout the Community. However, there are no guidelines to specify the level of commitment required per Member State, which will result in an unbalanced approach to implementation of the recommendations.
- The Demonstration Programme projects on ICZM provide examples of good practice particularly with regard to the role of local government and stakeholder involvement. Furthermore, DP projects emphasised the need to use spatial planning integrated with sea use planning as a way to manage the dynamic coastline.
- The eight principles of best practice to emerge from the EU Demonstration Programme on ICZM warrant consideration in the implementation of the ICZM process at all levels. The need for participation and an integrated approach are perhaps the criteria that reappear as most important throughout the case studies. These are reinforced in the thematic studies undertaken to analyse the outcome of the programme.
- Specific lessons on stakeholder participation from the Bantry Bay Charter Project warrant careful consideration; particularly the lack of ongoing support and funding towards this ICZM initiative despite its achievements and the level of regard for the project within the EU Demonstration Programme.
- The EU Strategy to Protect and Conserve the Marine Environment will benefit the coastal zone by delivering policies to deal with the threats and pressures placed on the marine environment.
- The importance of biodiversity and the need to adopt a holistic ecosystem approach to coastal management are emphasised in recent policies emanating from the Commission. Consideration of these key elements will be essential in future ICZM projects, particularly under the Sixth Environmental Action Programme.
- Priorities for the future direction of marine science research in ICZM are outlined in the ESF's recent publication (ESF, 2002). This includes the need to place priority on biodiversity and ecosystem functioning.

SECTION 4 – NATIONAL APPROACHES to ICZM

This chapter outlines national approaches to implementing ICZM in Ireland, the UK, Norway, Australia and New Zealand.

4.1 Integrated Coastal Management in Ireland

In Ireland, a plethora of Government Departments, Local Authorities and national agencies have roles to play in the management of the coastal area (Table 1). The Department of the Environment and Local Government (DELG), in association with the Local Authorities, is responsible for the management, use, activity and development of the physical environment up to Mean High Water Mark (MHW). However, powers introduced under the Planning and Development Act, 2000, give Local Authorities jurisdiction as planning authorities over development on the foreshore that adjoins the functional area of the planning authority. This does not replace the need for a foreshore licence and does not apply to pipelines. Any development on the foreshore still requires a foreshore licence from the Department of Communications, Marine and Natural Resources (DCMNR) as well as planning permission from the relevant planning authority. The DCMNR is responsible for all developments seaward of the MHW. The Environmental Protection Agency (EPA) is unique in having functions that extend across the landward-seaward divide.

The complexity of the management situation is further heightened by the number of separate pieces of legislation relevant to the coastal area. O Keefe (1990) identified 23 different acts of relevance at the time. However, the most important acts with direct consequences for coastal management, as described by O Hagan and Cooper (2001) are: The Foreshore Acts, the Local Government (Planning and Development Acts) and the Harbours Acts. Local level studies of legal jurisdictions over two Donegal beaches by O Hagan and Cooper (2001), indicated that while powers for the control of coastal activities were adequate, problems exist because the legislation enabling these powers is unknown or unused, leading to the conclusion that the range of legislative tools pertinent to coastal management are in need of review.

There are no special strategies or national plans for ICZM in Ireland. A sectoral approach to managing marine and coastal affairs remains predominant in Ireland where activities such as fisheries, tourism and recreation, pollution control and shipping are governed by different government bodies. In effect, the county development plans may incorporate aspects of ICZM in the planning process, although progress by Local Authorities in this area is limited.

A strategy document entitled *Coastal Zone Management - A Draft Policy for Ireland* was published in 1997 (Brady Shipman Martin, 1997). It is a discussion document and there is, as yet, no national policy on ICZM in Ireland. Key issues and recommendations to emerge from the document included:

- Ireland's legislative and administrative framework in the coastal zone is sectoral and complex, with a strong land/marine divide.
- This sectoral approach is characterised by a lack of integration in coastal planning. In addition there are both real and perceived weak linkages, most frequently expressed as inadequate consultation.
- ICZM should be introduced by means of a phased approach by adopting a programme that progressively moves from an inter-departmental committee, in a number of steps or phases, to an independent unit.

(Brady Shipman Martin, 1997).

Brady Shipman Martin (1997) identified four models for the introduction of ICZM at the national level in Ireland:

1. Inter-Departmental Committee
2. Inter-Departmental Unit
3. Independent Unit
4. Agency or Authority

Reference should be made to the report for a complete review of the advantages and disadvantages of these potential options as it is beyond the scope of this study to make detailed recommendations on potential organisational structures. It should be noted that a phased approach to the introduction of ICZM in Ireland is recommended in the report.

Table 4.1. Key Regulatory Stakeholders in Ireland dealing with Coastal Management at Government and Regional Level.

DEPARTMENT	DESCRIPTION, including key relevant state organisations	
Department of Communications, Marine and Natural Resources (DCMNR)	Policy and legislation for the sustainable management, development and contribution of Ireland's marine territory, seafood sector seaward of the Mean High Water Mark, inland fisheries and marine tourism and leisure; maritime transport and port services; minerals and hydrocarbon explorations. Licensing for: foreshore developments; dumping at sea; aquaculture; oil and gas exploration, communications and broadcasting. The Department is responsible for 29 State bodies, 10 Port Companies and 14 Harbour Authorities. The bodies pertinent to the coastal and marine area are outlined below:	
	Central and Regional Fisheries Boards	Co-ordination of fisheries conservation, protection and development. Management and promotion of inland fishing and sea angling.
	Bord Iascaigh Mhara	Development of seafish industry. Fleet development. Aquaculture. Market & marine services.
	The Marine Institute	Support for existing marine activity and employment and underpin future innovation and growth.
	Foyle, Carlingford and Irish Lights Commission	Responsible for fisheries and marine tourism and leisure in the Foyle and Carlingford area.
	Commissioners of Irish Lights	Management of marine aids to navigation.
	Aquaculture Licence Appeals Board	An independent appellate body in respect of aquaculture licensing.
	Irish Maritime Development Office	Promotion, assistance and development of the Irish Shipping and shipping services sector.
	Port Companies (10)	Management and development of the main commercial ports under the Harbours Acts 1996-2000.
	Harbour Authorities (14)	Management and development of harbours under the Harbours Acts 1996-2000.
	Geological Survey Ireland	Ireland's national seabed survey is managed by the GSI with the Marine Institute.

Department of Community, Rural and Gaeltacht Affairs (DCRGA)	Responsible for rural development. Funding for, and in some cases administering of, a range of programmes of support for community development. Programmes addressing social inclusion. Promotion of the social, physical and economic development of Gaeltacht areas.	
	<i>Údarás na Gaeltachta</i>	Development of jobs. Support of cultural & sporting activities.
Department of Environment and Local Government (DELG)	Policy formulation and legislation for environmental matters on landward side of Mean High Water Mark (MHW). Responsible for the issuing of planning permission to all developments on the foreshore. Manages the National Heritage information: designations, national parks, nature reserves, monuments and heritage etc., which adjoin the functional area of the local authority.	
	<i>An Bord Pleanála</i>	Responsible for the determination of appeals related to planning and development.
	<i>Environmental Protection Agency</i>	Environmental monitoring. Licensing certain effluent discharges. Data management. Coordination of environmental research.
	<i>Local Authorities</i>	Over 40 local authorities responsible for local planning and development.
	<i>Heritage Council</i>	Advisory functions - identification, protection and enhancement of national heritage.
	<i>National Parks and Wildlife Service</i>	Management of the State's nature conservation activities under national and European law.
Department of Defence	To provide military services which meet the need of the government and public and encompass and effective civil defence capability.	
	<i>Naval Service</i>	Fisheries protection; Marine pollution control including monitoring breaches in pollution control; Security and defence.
Department of Agriculture and Food	Development and implementation of national and EU schemes in support of agriculture. Monitoring and control of all aspects of food safety, animal and plant health and animal welfare.	
Department of Arts, Sport and Tourism	Development and evaluation of policy in relation to the arts, sport and tourism sector. Agencies under this department with potential influence on coastal areas include Bord Fáilte, National Tourism Development Agency and Shannon Development.	
	<i>Bord Fáilte</i>	Development and promotion of tourism.
	<i>National Tourism Development Authority</i>	To promote the sustainable development of tourism facilities and services.
	<i>Shannon Development</i>	To initiate, participate in and promote integrated tourism development in and throughout the Shannon region.



Figure 4.1 Examples of how ICZM can be implemented in Ireland at national, regional and local levels, including examples of some of the players that could be involved at each level.

4.1.1 Current Status

It has been seven years since *Coastal Zone Management - A Draft Policy for Ireland* was published (Brady *et al.*, 1997). In the period 1997 to 2002, there were no new national initiatives to further the case of ICZM, despite statements of support for the concept from the government and from leading departments:

The DMNR did, in its Strategy Statement 2001 – 2003 (DMNR, 2001), reiterate the need for a comprehensive integrated framework for sustainable management and development in the coastal area. The strategy states that the Department is committed to developing, as a priority, in cooperation with other relevant Departments, an ICZM strategy and legislative framework (DMNR, 2001).

The Department's Strategy Statement for 2003 to 2005 goes a step further. In it, the Department makes the following pledges:

- **Protocols** on cooperation and coordination in respect of ICZM to be agreed by December 2003
- Coastal Zone Management **Bill** to be published in 2004
- Preparation of **stocktaking** and **strategy** in accordance with the timeframes specified in the EU Recommendation.

The most recent statement is an important commitment to updating of the law relating to foreshore management, and for the development of strategies and processes that support a more integrated and coordinated approach to planning for, and managing, the coastal area. These are key factors that currently impinge on making ICZM a more integral part of the planning process. Adherence to the strategy for coastal management as outlined in the most recent Strategy Statement from the DCMNR will have implications for coastal management at the national level in the near future. Thus, feedback from coastal practitioners and those with an interest in coastal management should be sought at this stage.

The current Programme for Government also states that:

"We will develop new devolved service structures to support the sustainable management, development and protection of the marine coastal zone and seafood resources".

(Anon, 2002).

4.1.2 ICZM in the Context of the National Spatial Strategy

A *National Spatial Strategy for Ireland 2002-2020* was published in November 2002. The strategy is a twenty-year planning framework designed to deliver more balanced social, economic and physical development between regions. The key concepts of the Strategy are defined as:

- Potential (the capacity of an area);
- Critical mass (size and concentration of population in relation to services);
- Gateways (provide national scale social economic infrastructure and support services. There are currently five gateways: Dublin, Cork, Limerick/Shannon, Galway and Waterford. Four new national level gateways will be created – Dundalk, Sligo, Letterkenny and Athlone/Tullamore/Mullingar. Eight of the nine gateways have a coastal location);
- Hubs (towns which support the gateways and energise smaller towns and rural areas: Cavan, Ennis, Kilkenny, Mallow, Monaghan, Tuam and Wexford);
- Complementary roles (other towns, villages and rural areas); and
- Linkages (in terms of transport, communications and energy networks).

The Spatial Strategy contains a commitment to sustainable development. From the point of view of strategic spatial planning with consequences for ICZM, sustainable development is listed, among other things, as meaning:

"Avoiding adverse impacts on environmental features such as landscapes, habitats and protected species, river catchments, the maritime environment and the cultural heritage".

(DELG, 2002a).

The Strategy also states that ICZM:

"Provides a holistic approach to the interactions between sectors, agencies and legal codes. The articulation of an integrated coastal zone management strategy will be taken forward by the Government Departments concerned, drawing on EU recommendations on the implementation of ICZM and national and international ICZM research and experience."

Of the research papers commissioned during the preparation of the National Spatial Strategy, one dealt specifically with ICZM and examined the status of current policies, and their implications, and the requirements for coastal management structures (DELG, 2001). The objective of the study was to identify coastal areas with special policy and management requirements in relation to coastal erosion, sea level changes, amenity, tourism and aquaculture activities. In addition, it elucidated existing problems that occur as a result of the current level of development in those coastal areas.

Key statements from the research paper included:

- The urgent requirement for an ICZM policy to guide Local Authority Development Plans;
- The need for viable/logical groupings of Local Authorities to facilitate better cooperation (similar to the Waste Management Strategy groupings);
- The need to establish a coastal forum at a national level to link with the UK Coastal Zone fora (England/Scotland/Wales and Northern Ireland) particularly in relation to responses to developments in OSPAR.

4.1.3 The National Biodiversity Plan (NBP)

Ireland's National Biodiversity Plan (Department of Arts, Heritage, Gaeltacht and the Islands [DAHGI], 2002) sets out Ireland's response to its obligations under the Convention on Biological Diversity (1992). The Biodiversity Plan focuses in detail on biological diversity and the measures required for its conservation and sustainable use. It was developed in tandem with the National Heritage Plan, which establishes the framework for the protection and enhancement of all aspects of Ireland's heritage.

The challenge of cross-sectoral integration of biodiversity considerations is well addressed in the plan, particularly by the Sectoral Action Plans, which must be implemented in all Government Departments and agencies.

Each Sectoral Action Plan must outline how the department or agency will:

- Minimise adverse impacts on biodiversity;
- Eliminate significant adverse impacts; and
- Encourage and promote beneficial effects on biodiversity.

The Sectoral Action Plans are subject to review every five years. Biodiversity officers must be appointed in each Government Department and agency to coordinate implementation of the National Biodiversity Plan.

The plan also calls for:

"...a National Integrated Coastal Zone Management Strategy making specific provision for the conservation of biodiversity."

(DAHGI, 2002)



Plate 4.1 The South Coast of Ireland © L. O Dea, CMRC

4.1.4 Strategy for Sustainable Development

The Irish Government's sustainable development strategy *Sustainable Development – A Strategy for Ireland* (Department of the Environment, 1997) takes the form of a framework rather than a series of dedicated initiatives. The strategy includes overall aims, goals and sectoral programmes for agriculture, forestry, marine resources, energy, industry, transport, tourism and trade. There are ten overall priorities for action; these are general and lack quantitative targets and deadlines. Examples of priorities include to:

- Maintain the quality, quantity and diversity of natural endowments;
- Undertake a high level of environmental protection;
- Set out sustainability objectives for agriculture, forestry, marine, energy, industry, transport, tourism and trade so as to encourage long-term growth and competitiveness within a quality environment.

The aims set out under the sectoral programmes are also general, but the strategy does represent a change in thinking about the progress of development in Ireland. The strategy recognises the need for integration with policy actions and interlinking between Government Departments to promote environmental quality.

The overall aim of *Sustainable Development – A Strategy for Ireland* is referred to in Appendix IV of the National Development Plan (NDP, 2000; p 301). This aim makes explicit the need to ensure that development occurs without compromising the quality of the environment. Appendix IV of the NDP concerns the approval of a pilot procedure for eco-auditing the NDP. It is intended that an Environment Co-ordinating Committee be established for the life of the plan, and indicators of environmental performance be developed and implemented.

A comprehensive overview of many relevant developments is provided in *Ireland's Environment – A Millennium Report* (EPA, 2000; Chapter 15).

To coincide with the World Summit on Sustainable Development (WSSD), which marked the tenth anniversary of the Earth Summit in Rio de Janeiro, the Department of the Environment and Local Government, produced *Making Ireland's Development Sustainable – Review, Assessment and Future Action* (DELG, 2002b). This document reviews Ireland's current position on sustainable development and maps out future actions needed to meet our national commitment to sustainable development.

Documented progress achieved since 1992:

- The introduction of various legislative and policy measures to protect the environment, (e.g. licensing systems for potentially polluting activities);
- Strategies for addressing climate change (DELG, 2000), biodiversity (DAHGI, 2002), and waste management (DELG, 1998);
- Initiatives to improve water and air quality; and
- The establishment of Comhar – The National Sustainable Development Partnership.

The report also acknowledges the fact that while progress has been made, additional issues have arisen over the last ten years that will persist in the near future. The continuation of existing actions and the implementation of future measures are essential for economic progress and sustainable development.

4.1.5 Implementation of the Water Framework Directive (WFD)

A comprehensive review of monitoring and research to meet the needs of the EU Water Framework Directive was prepared for the EPA, the agency responsible for implementation of the Directive with the DELG, in 2002 (Irvine *et al.*, 2002).

In a move towards implementing the WFD, the Department of Environment and Local Government is promoting the establishment by Local Authorities of River Basin Management Plans (RBMPs) for river basin districts (See Figure 4) in relation to all inland and coastal waters, the development of which will involve participation by local stakeholders, and lead to the identification of effective measures to ensure improved water quality.

Since 1997, Ireland has promoted a catchment-based approach to deal with eutrophication of rivers and lakes (e.g. in respect to Lough Derg, Ree and Leane and the Rivers Suir, Boyne and Liffey). The work done on these projects underpinned development of the RBMPs in the context of the WFD. The framework for implementation of the WFD is provided in Table 4.2.

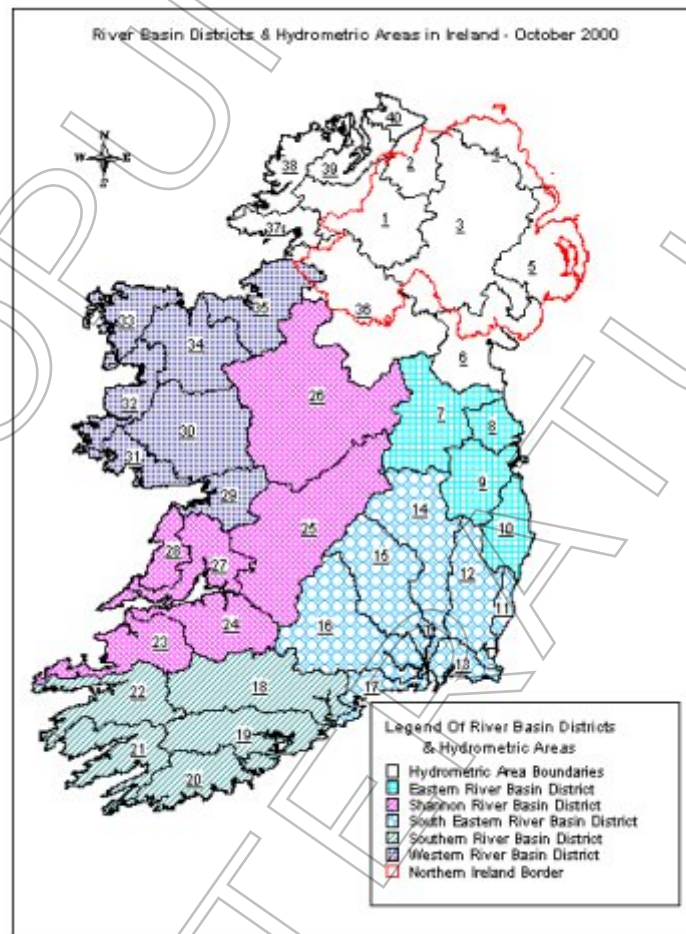


Figure 4.2 Outline of the River Basin Districts in Ireland. Source EPA.

Table 4.2 Summary timetable of the milestones for implementation of the Water Framework Directive.

<i>Year</i>	<i>Milestone</i>
2000	Directive enters into force
2003	Transposition into national law Identification, location and boundaries of RBDs Identification of Competent Authorities Establish a framework of coordination for the achievement of the environmental objectives for each RBD
2004	Characterisation of river basins and their water bodies Review of pressures and impacts on water bodies Economic analysis of water use Definition of reference conditions for <i>good</i> ecological status of water bodies Review the list of <i>priority</i> substances Register of Protected Areas Register of sites for use in an intercalibration network to test definition of <i>high</i> , <i>good</i> and <i>moderate</i> status
2006	Monitoring programmes operational Production of timetable and work programme of the RBMPs, including consultation measures
2008	Draft RBMPs to be made public
2009	Production of RBMPs and Programmes of Measures
2010	Water pricing to provide efficient water use with regard to recovery of water costs
2012	Implementation of the Programme of Measures
2015	<i>Good</i> water status to be achieved for all surface, artificial and heavily modified waters, and ground waters

Implications of the WFD for ICZM

The implementation of the Water Framework Directive will have significant implications for the coastal environment of Ireland. As stated in Section 3.3.1, the WFD is viewed by the Commission as part of the mechanism within which to adopt ICZM.

It is expected that the WFD will have significant implications for the monitoring of coastal waters by forcing a re-examination of the effectiveness of the current system. It is anticipated that each River Basin Management District (RBMD) will include strategies for improved water quality monitoring which will have positive implications for ICZM.

Each RBMD will also have a Geographical Information System (GIS) as a data management and decision support tool. Each GIS will contain baseline maps of physical and biological features, in addition to information on administrative responsibilities and management structures. The systems will be developed in a framework that will ensure compatibility between districts and datasets. This effort, depending on timescales, will create potential synergy with the stocktaking audit required under the EU Recommendations on ICZM.

The input of local stakeholders is a major consideration in the WFD. Each RBM Plan must cater for interactions between local stakeholders and responsible authorities. Thus, the WFD will foster relationships and mechanisms for dialogue that are important for successful ICZM.

The protection of areas designated for conservation receives high priority within the context of the WFD. The WFD advocates an approach whereby those involved in water management must interact with those involved in nature conservation. The integrated link (e.g. between WFD,

Birds and Habitats Directives) ensures the protection of the water body in addition to the aquatic and terrestrial ecosystems dependent on that water body. In preparation for the WFD, the EPA have initiated a scoping study to identify and rank nature conservation designated areas, where the status of water is an important factor.

4.1.6 Local Authority Approaches

Despite an increased awareness of the need for ICZM among planners, Local Authorities have been slow to incorporate the concepts of ICZM into their County Development Plans. No Local Authority has been pro-active to the stage of developing a separate policy for ICZM to date. Key obstacles to the development of ICZM at the Local Authority level include:

- A lack of **guidelines** for planners for the development of coastal policies at the Local Authority level.
- A lack of specific **expertise** in coastal management and coastal processes among Local Authority planners. (to date, Donegal County Council is the only Local Authority to employ a Coastal Officer to deal specifically with coastal issues).
- A problem with the extent of **jurisdictions**, which exclude Local Authorities from planning below the MHWL.

Effective planning for the coastal area requires a combination of integrated terrestrial and sea use planning. However, sea use planning does not occur in Ireland because of the limitations of the planning remit. Changes in the extent of Local Authority jurisdictions are needed to overcome this major barrier to effective planning for coasts at the local level. Many coastal Local Authorities are starting to pay greater attention to coastal management in their current development plans.

Cork County Council

Cork County Council has taken the lead through its participation in the EU Demonstration Programme on ICZM and the development of the Bantry Bay Coastal Zone Charter. The Charter is the first Integrated Coastal Management Plan for Ireland, developed on the basis of consensus among coastal stakeholders. Cork County Council has drawn from the Bantry experience in the development of its objectives for coastal management in its current County Development Plan (Cork County Council, 2003). Objectives for approaches to coastal management are cited as follows:

RCI 2-2 (a) It is a particular objective to promote concepts of coastal zone management that strive for meaningful participation of all stakeholders to address issues in coastal zones, that are as fully integrated as possible and that deliver appropriate responses to local requirements.

RCI 2-2 (b) It is an objective as a County Council, to continue to work with the Department of the Marine and Natural Resources, the Department of the Environment and Local Government, the Department of Arts, Heritage and the Gaeltacht, and other relevant bodies in the promotion of the coastal zone.

The Cork County Development Plan also makes significant reference to the potential role of Local Area Plans to identify coastal areas with particular coastal management requirements (RCI 2-3). Local Area Plans can provide mechanisms for dealing with ICZM on a particularly local scale. The potential of implementing ICZM in planning at this scale as suggested by the Cork County Development Plan warrants further investigation.

Shannon Estuary Development

In 1996, the Shannon Estuary Group was established to draw up a strategy for the development of the estuary. A management company was created by Shannon Development, (Shannon Estuary Development Company Limited [SEDL]), to take the strategy forward.

SEDL was asked by the then Department of the Marine & Natural Resources to undertake the task of preparing an ICZM strategy for the estuary as a pilot national project. In September 1999, a Technical Steering Group of officials comprised of individuals from key agencies was established:

- Shannon Development
- Clare County Council
- Clare County Development Board
- Limerick County Council
- Kerry County Council
- Kerry County Development Board
- Shannon Foynes Port Company
- Shannon Regional Fisheries Board
- Dúchas
- Department of the Marine and Natural Resources
- Marine Institute
- Department of Agriculture, Food & Rural Devt.

The Shannon Estuary Inception Report published in 2001 (Shannon Development, 2001), outlined a proposed strategy for ICZM. An audit of statutory and non-statutory plans identifying where responsibilities for the estuary lie, was the next step in the proposed ICZM development programme. While the intentions are good, difficulties in fund raising have had implications for the speed of progress of the Shannon ICZM plan to date (B. Warner, *pers. comm.*, September 2002).

4.1.7 Harbour Authority Approaches

Currently, there are no national guidelines for the implementation of ICZM within ports and harbours. A small number of port authorities are making progress towards achieving sustainable development at the local level.

Dingle Harbour

While most of the activities within Dingle Harbour under the jurisdiction of the harbour commissioners are dependent on the continued good health of the local environment, many of the factors affecting environmental quality are beyond the remit of the Dingle Harbour Commissioners; a sectoral approach is insufficient to meet the management needs of the harbour. Thus, Dingle Harbour Commissioners commissioned the Coastal and Marine Resources Centre to undertake a scoping study of the harbour's resources (Connolly *et al.*, 2002). The study, financially assisted by Udarás na Gaeltachta, was a preliminary step in a process, which ultimately resulted in the formulation of a joint policy regarding the use of the harbour's resources. The final report puts forward a series of recommendations on the establishment of an institutional framework for the future management of the harbour conducive to best practice in ICZM. The ICZM process was driven by agencies with statutory responsibilities in the harbour.

4.1.8 Community Approaches

Relative to the situation in the UK, which will be described in the next section, there are a limited number of bottom up, local led initiatives concerned with coastal management in Ireland. This does not detract from the importance of community based partnership approaches, which often have significant impacts on the quality of local coastal environments. See Cummins *et al.*, 2004 for further discussion on community based approaches to ICZM. Some examples are given below, including the Bannow Bay initiative, the Roundstone Beaches project, and the Bere Island Conservation Plan.

Bannow Bay

A local voluntary initiative was set up in Bannow Bay, Co. Waterford in 1996 to encourage and assist the development of a coastal management plan for the bay. Bannow Bay is designated as a Special Area of Conservation (SAC) and hosts a wide variety of activities within its relatively small, sheltered estuarine environs. The volunteers succeeded in bringing representatives of different users of the bay together, to share views and develop understanding of the sometimes

conflicting activities present. The work of the Bannow Bay Group laid the foundation for further development of ICZM in the local area. However, such work is hugely dependent on the personal commitment of a few local individuals and is not sustainable without adequate funding and Government recognition.

Roundstone Beaches

The Roundstone Beaches Environmental project provides a good example of local environmental awareness and action. The aim of the project is to conserve the natural beach environments of Gurteen and Dogs Bay through a number of proactive management measures. The project demonstrates the effectiveness of dealing with an issue that is driven by local interests. The project has received crucial support from Galway County Council and agencies such as Dúchas and Teagasc.

Bere Island Conservation Plan

The Bere Island Conservation Plan is an integrated strategy to ensure the long-term sustainability of the island's natural and built heritage. The development of the plan involved cooperation between the islanders, Cork County Council and the Heritage Council. The consensus based approach to coastal management, adopted for the Bantry Bay Charter project was used in the development of the Bere Island Conservation Plan. The plan includes policies for agriculture, maritime activities, tourism and heritage.

4.1.9 Agency Approaches

In 1998 Bord Iascaigh Mhara (BIM), together with the Marine Institute, introduced a system for coastal aquaculture management known as Co-ordinated Local Aquaculture Management Systems (CLAMS). The **CLAMS** initiative aims to produce tangible outputs in the form of: description of the site (physical characteristics, history, aquaculture operations, future potential); integration of codes of practice for aquaculture, expansion of single bay management; a development plan for aquaculture; and communication networks. Bannow Bay (Co. Wexford) is one of three initial pilot areas successfully implementing the system; the others are Roaringwater Bay (Co. Cork) and Killary Harbour (Co. Mayo). CLAMS initiatives are now delivered at a local level through a network of Regional Development Officers based in Wexford, Cork, Kerry, Galway and Mayo.

It is envisaged that by the end of the National Development Plan (NDP), every major aquaculture embayment in Ireland will have a completed CLAMS plan and an active local group (www.bim.ie). CLAMS allow for the successful integration of aquaculture into coastal development, taking cognisance of the need to improve environmental compliance, product quality and consumer confidence. However, CLAMS is committed to the development of the aquaculture industry and not intended to be of use in mitigating against objections to the industry. CLAMS do not incorporate a strategy to promote further integration of activities with sectors other than aquaculture.

Developments in 2002, such as the transfer of the management of the CLAMS Plan for Killary Harbour from BIM to Galway County Council, and the incorporation of Clew Bay CLAMS group into the Clew Bay Marine Forum (CBMF), have demonstrated the opportunities that exist for synergy between CLAMS, other environmental initiatives and administrative structures. The consultative approach fostered by CLAMS is fundamental to an integrated approach to planning for the future of Ireland's coastal waters.

4.2 Conclusions on ICZM in Ireland:

- Despite statements of support for ICZM within government strategies there have been no advances in policy or legislative developments for ICZM since the publication of the draft policy for Ireland in 1997.
- It is timely to reopen the debate on how to proceed with implementing ICZM in Ireland given the need to respond to the EU Recommendation.
- Ireland's legislative and administrative framework in the coastal area remains sectoral and complex, with a strong land/marine divide, as noted in the Brady, Shipman, Martin report (1997). It is also characterised by a top-down approach to decision making.
- There appears to be a lack of motivation towards developing an ICZM policy for Ireland; the focus is on implementation of EU Directives, which have implications for the protection and management of the coastal environment, namely the Habitats Directive, the Birds Directive and most significantly in the last few months, the Water Framework Directive.
- The Water Framework Directive will pave the way for ICZM in Ireland by encouraging activities that coincide with the initial steps in developing an ICZM plan: audits of resources, policy frameworks and management structures; development of communication mechanisms to facilitate dialogue with stakeholders; development of GIS for mapping and decision support; incorporating protection of the coastal environment through cooperation with the Habitats and Birds Directives. This provides an opportunity to take advantage of the synergies to arise from this instrument.
- Cross cutting plans such as the National Biodiversity Plan provide potential benefits to the coastal zone and warrant consideration in the development of a national coastal policy in the way they address the challenge of cross sectoral integration and local level implementation.
- A limited number of County Development Plans and Harbour Development Plans incorporate aspects of ICZM. The absence of a national framework for ICZM prohibits progress at this level.
- The closure of the Bantry Bay Charter ICZM Office is a major setback for ICZM in the Bantry area considering the time and effort spent in fostering a consensus based approach to the management of local coastal resources; and at a national level as Bantry is regarded as an important case study in the implementation of a stakeholder led approach to ICZM by European Member States and further afield.
- BIM have been pro-active in their CLAMS programme, which has increased its geographical presence in the country. Lessons can be learned from the consultative approach used by CLAMS, however CLAMS cannot be considered as an appropriate approach to ICZM as it is too focused on a single issue i.e. aquaculture.
- Voluntary or community led initiatives in support of ICZM are limited in Ireland. These are usually dependent on individual champions and are strongly reliant on government support and external sources of funding.
- There is a lack of coordination of the few coastal management initiatives that are underway in Ireland which prevents the systematic transfer of knowledge of best practice.



Plate 4.2 Rural Coastal Landscape, South Coast of Ireland © V. O'Donnell, CMRC.

4.3 Integrated Coastal Management in the United Kingdom

Like Ireland, there are a multitude of public players with responsibility for the management of the UK coast, which include: local authorities, government departments like the Department for Environment, Food and Rural Affairs (formerly the Ministry of Agriculture, Fisheries and Food [MAFF]), the Department of Transport and the Office of the Deputy Prime Minister. There are also a number of national and local statutory bodies such as the Crown Estate Commissioners, the Environment Agency, English Nature, the Countryside Commission, harbour authorities; and a number of special interest groups, such as the Marine Conservation Society, the Royal Society for the Protection of Birds.

The UK does not have any overall national ICZM legislation. Management of the coast therefore falls under the realm of certain statutory and non-statutory instruments which guide the individual sectors rather than geographical areas. The procedure employed is basically top-down but recognises voluntary initiatives whereby local voluntary fora work within the bounds of national, sectorally-driven legislation, towards the goal of achieving sustainable coastal management.

In 1992, the House of Commons Environment Select Committee produced a report, (Coastal Zone Protection and Planning) which highlighted that *"coastal protection, planning and management in the United Kingdom suffers from centuries of uncoordinated decisions and actions at both the national and local level"* (HMSO, 1992).

The UK government's response to the 1992 report was to produce review documents and a guide to promote best practice in managing the coasts of England (DOE, 1996). The idea of national coastal fora took root following the publication of the 1996 guide. The coastal forum of England was the first to be established in 1994. However, it lacked focus and it has failed to meet since October 2000. Its present status is unclear. The Scottish Coastal Forum (SCF) and the Wales Coastal and Maritime Partnership, on the other hand, are very active groups (there is no national

coastal forum for Northern Ireland). The SCF provides an opportunity for networking and to keep up to date with coastal issues. It has a membership of approximately 20 organisations. It benefits from the availability of Scottish Executive funds to employ a full-time project officer. Its recent activities include:

- An audit of Scottish coastal plans to ultimately inform a national coastal strategy;
- Responding to the 2002 Review of the Common Fisheries Policy;
- Dissemination of coastal management information.

The recently established Wales Coastal and Maritime Partnership (March 2002) evolved from the Wales Coastal Forum. It employs a part-time officer in the Welsh Assembly and aims to review the EU recommendations on ICZM. The partnership helps to inform policy development, advise on specific topical issues and help implement ICZM. Key interest groups have been drawn from public, private and voluntary sectors.

To date, national coastal fora have had limited success in influencing government policy and in facilitating action on the ground. Part of the difficulty lies in the voluntary nature of the fora. Nevertheless, coastal fora have been successful in initiating dialogue and in providing an opportunity for networking (Gubbay, 2002).

The approach to coastal fora in England, Scotland and Wales reflects a major change in the pattern of governance in the UK in the late 1990s, which has had considerable impact on the organisation of coastal management in the regions. Policy development and decision making power has been transferred to the devolved administrations including the Scottish Executive, the National Assembly for Wales and the Northern Ireland Executive.

National guidance on planning policy for the coast is set out in Planning Policy Guidance 20 for England, National Planning Policy Guidance 13 for Scotland, Planning Policy Wales with Technical Advice Note (Wales) 14, and the Regional Development Strategy *Shaping Our Future* (DRD, 2001) for Northern Ireland.

The level of detail concerning planning guidance for coastal areas varies between the national guidelines. For example the Welsh assembly's objectives for the coast are clearly set out in Chapter 5 of *Planning Policy Wales* concerning "*conserving and improving the national heritage of the coast*" (Welsh Assembly Government, 2002). The Welsh guidance is the most recently published and therefore contains the most current thinking on ICZM. The policy states that local planning authorities will need to consider landward and seaward pressures on the coastal area, when, for example, they develop their Unitary Development Plans, which are the main planning reference documents produced by Local Authorities in the UK.

In contrast, policy guidance specific to the coast in Northern Ireland is minimal other than a brief mention in *Shaping our Future* (DRD, 2001). The need to reconcile development, to protect undeveloped coastline and to conserve distinct coastal habitats is recognised, but there is a lack of guidance on how to deliver on these objectives.

A fundamental issue with planning policy guidance is that guidance documents do not have the same level of weight or impact as legislation. Another issue with planning guidance documents in relation to ICZM in the UK, as identified by Gubbay (2002) is that, because they are aligned to the land use planning system, they inevitably have a landward focus. The UK guidance documents all fall short in advising on how to deal with the marine element of ICZM.

Six of the most significant plans, as identified by the Department of the Environment (DOE, 1996), are as follows:

- **Development Plans** - these plans are statutory in nature and are prepared by Local Planning Authorities. There are two types:
 - strategic policies - which cover key planning issues over a broad area and provide a framework for local planning;
 - local policies - which are more detailed and guide individual planning decisions; they may include proposals for individual sites.
- **Marine SAC Management Schemes** - the legislation that implements EC Habitats' Directive in the UK gives relevant authorities the powers to initiate non-statutory management schemes for marine SACs and SPAs. These plans are prepared by a management group, which is made up of relevant authorities with jurisdiction in the area, with guidance from English Nature;
- **Heritage Coast Management Plans** - the designation of an area as a heritage coast is agreed between the relevant Local Authorities and the Countryside Commission. The Local Authority in whose area the heritage coast is located, and the Countryside Commission, with the involvement of other interested parties, prepare the plans. Heritage Coast Management plans need to agree with the development plans;
- **Local Environment Agency Plans (LEAPs)** - these non-statutory plans deal with the strategic planning interests of the Environment Agency. LEAPs provide information on coastal activities and environmental quality therefore they are often the most up to date strategies that cover existing coastal problems and issues. While there is consistency in approach between the plans, the degree of coverage of coastal issues across the main topic areas varies according to the nature of the area they encompass. There is however an overall absence of socio-economic considerations within the LEAPs (Ballinger, 1996);
- **Shoreline Management Plans (SMPs)** - the aim of these plans is to provide sustainable coastal defence policies for virtually the whole length of the English coast. The relevant coastal defence authority prepares them; this may be the Environment Agency or a maritime Local Authority;
- **Estuary Management Plans (EMPs)** - these non-statutory plans which have been promoted by English Nature and by other agencies, including Local Authorities, aim to provide an integrated plan for the sustainable use of an estuary. They are prepared by one or more of the local authorities, as appropriate, working with English Nature. (DOE, 1996).
- **Coastal Habitat Management Plans (CHaMPs)** - This initiative aims to establish Coastal Habitat Management Plans (CHaMPs) to identify best practice methods necessary to achieve the creation of new habitats and the protection of designated habitats from coastal erosion (English Nature, 2000). The trial period for testing the CHaMPs methodology extends to 2003.

The completion of the EU demonstration programmes (several of which took place in the UK), and the recommendation from the European Parliament and the Council of Ministers on ICZM in Europe generated renewed interest in addressing the issue of ICZM policy in the UK. A significant development occurred last year with the publication of the *UK Marine Stewardship Report* (DEFRA, 2002). The report sets out the principals that underpin policy for the marine environment in the UK as:

- Sustainable development
- Integrated management
- Conservation and biological diversity
- Robust science
- The precautionary principal
- Stakeholder involvement

The report also endorses the adoption of an ecosystem based management approach following an official declaration in support of this approach at the 5th North Sea Conference in March 2002. Chapter 3 deals specifically with ICZM. A “flexible, discretionary approach to the overall management of coastal areas” is promoted, by building on existing administrative structures and by encouraging local partnerships to deliver local solutions. Despite the depth of the Marine Stewardship report, a policy vacuum for ICZM remains an outstanding issue in the UK. This places greater emphasis on coastal partnerships, which occur at the sub national level. A number of well regarded local and regional partnerships, which have evolved across the UK, are highlighted in the Marine Stewardship report as representing good practice:

- **The Severn Estuary Partnership** – for actively facilitating cross border collaboration between English and Welsh agencies. <http://www.severnestuary.net>
- **The Strangford Lough Management Committee** – for resolving local problems since its formation in 1992 and for acting in an advisory capacity towards the Northern Ireland Government.
- **The Dorset Coastal Forum** – for raising awareness in communities along the South West Coast. www.dorsetcoast.com
- **The Moray Firth Partnership** – for developing a community grants scheme to encourage local stakeholder participation in ICZM projects. <http://www.morayfirth-partnership.org>

Fletcher (2002) highlights the difficulties of ensuring standard practice within a plethora of ad hoc coastal partnership initiatives that exist in the UK, in the absence of an over arching policy. Results of a survey of 36 coastal partnerships showed considerable variation in membership criteria, unclear decision making procedures and uncertain representative structures, which Fletcher argues questions the democratic basis of coastal partnerships in the UK.

Most recently, the UK government’s commitment to implement the EU Recommendation in a timely manner resulted in the publication of the UK Stocktake in April 2004 (Atkins, 2004). It is expected that national policy for England, Scotland, Wales and Northern Ireland will follow to fill the policy vacuum by the EU deadline of 2006.

4.4 Conclusions on ICZM in the UK:

- Planning is land based and lacks integration of the marine environment.
- ICZM maintains a relatively low profile in the UK; it has not been allocated any significant funding.
- While the impact of national coastal fora is achieving limited success at the local level, the influence of national coastal fora is weak when it comes to impact on government policy. The existence of coastal fora characterises the approach to ICZM in the UK, indicating a level of goodwill towards finding solutions for coastal management.
- The Marine Stewardship Report does not commit to reshaping the existing structures or to implementing any new specific legislation dealing with ICZM. Instead, it sets out a target for developing an overarching vision for the future of the UK's coastline, underpinned by a set of integrated strategies for England, Wales, Scotland and Northern Ireland for 2006, in line with the key recommendations from Europe.
- Despite the lack of a national coastal policy in the UK, ICZM programmes are implemented by coastal partnerships at the sub national level in an ad hoc manner. Local coastal partnerships play an important role in the implementation of ICZM throughout the UK. They take a variety of formats ranging from estuary management plans to shoreline management plans. Valuable lessons can be learned from the success of these partnerships by analyzing their outcomes and outputs and by studying their structures and sustainability.
- The lack of a central, coordinating mechanism for ICZM means that there is no standard approach to implementing ICZM, which ensures that the views of all stakeholders are taken into consideration.

4.5 Integrated Coastal Management in Norway

The development of the offshore petroleum industry in Norway from the 1970s led to a growing awareness of the need for effective management. The need for international and national planning and co-ordination for the new offshore industry was given top priority at the national political agenda at that time. Subsequently, the political focus on managing marine and coastal affairs resulted from increased pressures of coastal development and the rapid growth in aquaculture.

The major issues currently driving the need for Integrated Coastal Zone Management in Norway compare with issues in Ireland: the impact of intensive fish farming (Norway is a world player in the aquaculture industry; Ireland's aquaculture industry is set to grow by 300% by 2015 [DMNR, 2000]), pollution, second home building, management of offshore developments and user conflicts. While Norway does not have a dedicated ICZM policy at a national level, a number of key policies and legislative measures have implications for management of the coast:

The Planning and Building Act (1985) - promotes decentralised spatial planning. The Planning and Building Act, 1985, (revised in 1989) extended the planning for sea based areas to four nautical miles from the outermost skerries and points of land at low tide (usually between 2km to 15km from the mainland). On the landward side the law makes no delimitation. The intention is that planning on both sides of the shoreline should be fully integrated. In practice, most communes have a plan for their landward side already in place and, in order to meet planning requirements, they supplement this with a plan for the sea areas (Connolly & Hegarty, 1999).

According to the Planning and Building Act, all of the coastal municipalities and counties have the authority to initiate their own coastal plans, however this is a voluntary task, which only becomes mandatory when a new aquaculture development is instigated for the area. Of the 280 municipalities along the coast, Sagdahl & Sandberg (1999) report that 180 municipalities were involved in the development of plans for their coastal areas in 1996.

The Planning and Building Act (1985), provides for the incorporation of local interests, such as the fishermen's association, the salmon breeders association, the telephone company, the electricity company. These groups are informed at the start of the planning process and they have a right to make suggestions to the local authorities. The method here is more one of consultation than participation.

The coastal plan is supposed to be worked out in co-operation with the local authorities, the sectoral authorities, local associations and the inhabitants through a process of public hearings. However, sectoral laws relating to fisheries and aquaculture, oil and gas, and conservation and protection are regarded as legally superior to general laws such as the Planning and Building Act. The power of the municipalities is thereby weakened by the national sectoral agencies who have a stronger decision making influence.

Public access to the shoreline and sea - In Norway, there is a traditional Everyman's Right (*allmannsretten*) according to which the public is allowed to walk, bathe, fish and land boats anywhere, except in built-up or cultivated areas or places where those activities are prohibited by law (nature reserves, military zones) (<http://www.coastalguide.org>). Although its enforcement (this right has been formalised by law) has led 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 (Sagdahl & Sandberg, 1999).

Development at the coast - There is a national policy guideline stating that there should be no development within 100 metres from the shoreline.

Other relevant acts affecting the coastal zone are: the Pollution Act (1981), the Nature Conservation Act (1985), the Saltwater Fisheries Act (1983), and the Harbour Act (1984).

Several counties have prepared Coastal Zone Plans in association with communes and sectoral interests, in particular fishing. The intention is to use these coastal zone plans as a basis for the more detailed commune or master plans. The experience of preparing these plans has highlighted the need for co-operation and integration between sectors and levels of administration and especially across municipal and county boundaries. Examples of areas where ICZM is in progress in Norway are: Nord Trondelag (Local management plans on the Norwegian coasts – EU Demonstration Programme); Hordaland (Norcoast); Rogaland (Seagis); Vest-Agder; Aus-Agder.

The Helgeland Experience

The Helgeland municipal region within Nordland County administration was one of the most proactive regions in the application of Integrated Coastal Management in Norway, commencing with the development of guidelines for coastal planning in 1987. This action laid the foundations for the development of a coastal plan for the entire Nordland County in which 17 municipalities participated as the Norwegian contribution to the EU Demonstration Programme for Integrated Coastal Zone Management. The county presented an ICZM Plan in 1997, significantly ahead of other counties and of the policies of the responsible ministry at the time. The county also followed up the Rio Declaration with a Regional Agenda 21 the following year.

4.6 Conclusions on ICZM in Norway:

- Integrated Zone Coastal Management in Norway exists primarily within the framework of county/municipal planning. This facilitates the development of locally specific coastal management plans, which deal with the issues relevant to the area.
- Integrated spatial planning dealing with the land/sea divide is dealt with in Norway through a process of a decentralised planning system. Norway is one of the few countries in Europe with a framework for marine spatial planning.
- Despite a decentralised approach to spatial planning, the state retains a strong position in the Norwegian governing process and the state is called upon as the final decision maker when problems arise. National agencies with sectoral agendas (e.g. fisheries and hydrocarbons) can overrule proposals for planning issued from the municipal level.
- Public rights of access and restrictions on development within 100m of the shoreline are dealt with by traditional rights of way and policy guidelines respectively.
- Because of a lack of a national policy on ICZM, the success of ICZM depends on the motivation and commitment of various coastal municipalities leading to various level of implementation in the coastal planning process as a result of a range of resources and development pressures between municipal areas.

4.7 Integrated Coastal Management in Australia

Integrated Coastal Management in Australia is conducted at three levels: federal, state and local level. State governments became active in coastal management in the 1970s, while the first federal National Oceans Policy (NOP) was enacted in 1998. Local governments have long experience in dealing with coastal issues.

Federal Level

In a prelude to the NOP, coastal resources and critical issues pertaining to the coastal area were dealt with by:

- *The Injured Coastline* (The House of Representatives Standing Committee on Environment, Recreation and the Arts, 1991);
- The National Strategy for Ecologically Sustainable Development (Commonwealth of Australia, 1992);
- The Final Report of the Resources Assessment Commission: *Coastal Zone Enquiry* (RAC, 1993), and
- The Commonwealth Coastal Policy (Commonwealth of Australia, 1995) – contained a number of initiatives to assist integrated decision-making and the development of long-term strategic responses to coastal problems. A core initiative was the development of the CoastCare programme based on partnership between the three levels of government, industry and the community. Coastcare funding supports a wide range of community projects and has expanded its scope to include protection and preservation.

The National Oceans Policy (EA, 1998) – sets in place the framework for integrated and ecosystem based planning for all Australia's marine jurisdictions. This includes pursuing improved coordination between the States and the Commonwealth to ensure that jurisdictional boundaries do not hinder effective planning and management. The government policy also recognises the need to provide for increased capacity to understand the marine environment through increased scientific effort. That understanding is fundamental to the effective management of ecosystems. Australia's ocean policy considers the importance of socio-economics by aiming to encourage internationally competitive marine industries, while ensuring the protection of marine biological diversity.

The government has committed \$50 million over three years for implementation of the National Oceans Policy. At the core of the implementation is the development of Regional Marine plans, based on large marine ecosystems, which will be binding on all Commonwealth agencies. A new organisational framework for management was established under Australia's Ocean Policy, including:

- A National Oceans Ministerial Board of key Commonwealth ministers as the decision making body regarding regional marine plans;
- A National Oceans Advisory Group of industry, community and government stakeholders;
- Regional Marine Plan Steering Committees, which will include regional stakeholders; and
- A National Oceans Office, providing secretariat and technical support for programme delivery.

The Oceans Policy aims to move away from actions within separate sectors, such as fisheries, petroleum and protected areas where commitments were made under the auspices of the National Strategy for Ecologically Sustainable Development, by collectively managing activities to be compatible with each other and with the health of the oceans. The NOP places Australia high on the international scales in terms of progress in integrated ocean policy commitments.

The Great Barrier Reef World Heritage Area is one of the best and most well known examples of the successful implementation of ICZM anywhere in the world. Management of the Great Barrier Reef (GBR) was initiated following objections to proposals in the early 1970s to mine coral on the GBR for lime and to drill for oil. The Great Barrier Reef Marine Park Act was passed in 1975 in response to the need to protect the GBR. The creation and management of the Marine Park can be viewed according to two main phases:

Generation 1 – This phase commenced with the passing of the GBR Marine Park Act in 1975. It was marked by the development of a zonation plan for the Marine Park Area, which aimed to regulate activities in the Park, including the preservation of certain areas in their natural state.

Generation 2 - This phase commenced with the designation of the Marine Park as a World Heritage Area in 1981. It has been marked by an ecosystem based approach to management in addition to a long term vision with short (5 year) and long term (25 year) integrated objectives in the areas of planning, conservation, resource use, communication, research, monitoring, management structures and legislation.

Public participation has been, and still is, an important mechanism in the adoption of ICZM in the GBR Marine Park (over 60 stakeholder groups were consulted in the development of the GBR World Heritage Strategic Plan). Community education programmes also play a major role in the creation of awareness and acceptance of the principles of the management plan.

An integrated approach to scientific evaluation and monitoring of problems also play a role in the successful management of the GBR. A strong issue driven approach to research has helped to analyse and solve problems relating to issues such as nutrient loading, habitat loss and infestations of crown-of-thorns starfish. Scientists and managers work together to deal with management related questions. Stakeholders are also involved in research, which ensures agreement on the interpretation of research results and management recommendations.

Another important factor in the success of the GBR Marine Park is the existence of a single coordinating agency (the Authority), which has explicit functions focused on the achievement of ICZM. An example of the functioning of the authority was its insistence of the involvement of the fishing industry in a research programme to examine the ecological effects of bottom trawling. The insistence of the authority on this involvement delayed the commencement of the research project by a number of years. The logic behind ensuring the involvement of the fishing industry was to ensure acceptance of research results, even if ultimately contrary to the interest of the industry. Such involvement facilitates a consensus-based approach to coastal management by strengthening trust between decision makers and critical stakeholders.

In summary, the management of the GBR serves as an example of how to approach integrated management of the coast. It is completely inclusive of the critical people and organisations that need to be brought together in the process of defining problems, deriving solutions and implementing them cooperatively. The approach involves all levels of governance, a coordinating agency, zonation techniques for useage and control of activities, public participation, interdisciplinary research, integration of science and management, education and awareness; all within the framework of agreed objectives contained within a long-term policy.

Regional Marine Plans

The primary mechanism for implementing the commitment to an ecosystem-based approach in Australia's Ocean Policy is through the development of Regional Marine Plans, for areas based on large marine ecosystems. Regional Marine Plans will integrate planning and management across State and Commonwealth waters.

Ten Marine Protected Areas have been declared since 1996, by State, Territory and Commonwealth governments. A Marine Protected Area is an area designated for the protection and maintenance of biodiversity, and of natural and associated cultural resources, and managed through legal or other instruments. Marine Protected Areas can be declared under and managed through Commonwealth legislation in Commonwealth waters (in general three nautical miles to the edge of the Exclusive Economic Zone), or through State or Northern Territory legislation in state and territory waters (in general, from the shore out to three nautical miles). Marine Protected Areas are managed to enhance biodiversity, to protect endangered or vulnerable species, to conserve heritage and to enhance fisheries. Management activities include the restriction of certain activities (e.g. fishing); in some extreme cases, virtually all human activity is excluded.

State Level

At state level, the Coastal and Marine Planning Programme (CMPP), organised through the National Oceans Office, established by the National Oceans Policy, provides targeted opportunities for local and state governments to improve the quality of their marine and coastal plans. The CMPP funds the development of management strategies such as the Bega Valley Shire Coastal Planning and Management Strategy, the Byron Coastline Management Plan – Sustainable Use and Repair, and the Framework for Integrated Planning for Botany Bay Catchment in New South Wales; the Darwin Harbour Strategic Plan for Beneficial Uses in the Northern Territory; Hervey Bay Coastal Management Plan in Queensland. (http://www.oceans.gov.au/coastal_marine_planning_program_overview.jsp)

Despite the significant achievements in the implementation of the NOP, and the funding provided centrally through CMPP, two major problems have been identified which continue to inhibit the sustainable use of Australia's coastal region:

- Fragmented management arrangements based on single issues or sectors, and
- The "*tyranny of small decisions*", whereby over time a number of decisions, that in themselves are not significant, accumulate and interact to result in a significant impact on the coastal zone.

(Australia State of the Environment Committee, 2001).

There are large numbers of agencies involved in coastal management at state level (e.g. 21 councils and 31 state agencies with responsibilities under the New South Wales Coastal Policy) resulting in the need for greater efforts in co-ordination. Co-ordinating bodies such as Coastal Councils are beginning to integrate efforts of the various agencies and communities involved in coastal management.

The level of adoption and implementation of ICZM differs from state to state. (Wescott, 2001). Judging progress according to the existence of a lead agency, the existence of dedicated coastal legislation and the existence of a statutory strategic policy or plan, it can be concluded that New South Wales and Victoria are ahead of other states in realising all three components (Wescott, 2001).

Local Level

Local government has been described as the “beachhead of coastal management” (Short, 2002). There are hundreds of Local Government Areas (LGAs) around the coastline of Australia, which vary physically according to geographical location, and culturally according to differing socio-economic climates. In New South Wales, every LGA must organise Coastal Management Committees, Estuary Management Committees and Catchment Management Committees. Committee membership originates from local stakeholders and agency representatives. Coastal plans are developed by the Coastal Management Committees. These plans receive 50% of funds from the State (e.g. through CMPP).

4.8 Conclusions on ICZM in Australia:

- Many important initiatives have got underway in Australia in the last decade to address integrated management of marine and coastal resources and to ensure the protection and sustainability of the environment.
- The establishment of Marine Protected Areas to conserve marine biodiversity has been an important measure towards sustainable management.
- Australians have been proactive in the adoption of an ecosystem approach to management, including consideration of a broad range of economic, social and cultural aspirations.
- The development of Australia’s National Oceans Policy has been a major response to the fragmentation of marine management responsibilities, however it does not go far enough to cater fully for the problems that exist in the management of coastal areas.
- Implementation of the National Oceans Policy represents a major financial commitment on behalf of the federal government (\$50 Aus. million over three years).
- Coastal management is well catered for at state and at local level. New South Wales provides a particularly good example of the implementation of ICZM via coastal management committees.

4.9 Integrated Coastal Management in New Zealand

The Resource Management Act, 1991

In New Zealand the coastal marine area is defined as having a landward boundary to Mean High Water Spring and a seaward boundary to the outer limits of the territorial sea. Management of this area is guided by the regulations laid down in the Resource Management Act (RMA), 1991. The Act promotes the sustainable management of natural and physical resources and replaces a variety of previous acts and regulations. It provides a clear and specific framework for the use, development and protection of natural and physical resources. The RMA also allows for devolution of decision making to the community level. The Act specifically requires local governments to develop integrated approaches to management of coastal areas, and to consult widely with constituents (Connolly & Hegarty, 1999).

The Resource Management Act, 1991, outlines the essentials for the management and preservation of New Zealand's coastal resources. These imperatives include:

- safeguarding the life supporting capacity of ecosystems;
- preserving the natural character of the coastal environment.

To achieve this, the coastal area has been classified into regions and districts on the basis of a three-tier approach using:

- marine topography and geomorphology;
- hydrology;
- biology.

As a result of this classification, districts that approximate to **ecological units** are delineated, in keeping with an ecosystem approach to coastal management. These units can be refined further to reveal in greater detail the biological communities and the processes and functions that maintain them. This then provides a basis for an alternative method of management, one that recognises the physical processes that underpin the biological processes of the coastal environment (Thomson, 1998).

The RMA established a new coastal management regime by requiring a **New Zealand Coastal Policy Statement (NZCPS)** to be produced. The current policy was gazetted in 1994 after consultation with interested parties, and was to be reviewed by the end of 2003. There have been a number of developments since the first review was prepared, which will have an impact on the shape of the forthcoming statement (e.g. growth in aquaculture, conflict over public access and the impact of the Treaty of Waitangi). The NZCPS currently contains 14 general principals to which 'regard' must be given.

In New Zealand, ICZM processes are influenced by relationships with the Maori people, as governed by interpretation of **The Treaty of Waitangi**. Recognition of the Maori relationships with their:

ancestral lands, water, sites, waahi tapu and other taonga

is provided in the Resource Management Act, Section 8 (Daborn & Dickie, 1997; Department of Conservation, 1994).

Regional Coastal Plans

In terms of the Resource Management Act all regional councils are required to prepare a coastal plan. The NZCPS acts as a guide to local authorities in their day-to-day management of the coastal environment in preparing plans and considering resource assent applications. Plans include objectives and policies to deal with any actual or potential effects from the use, development or protection of the coastal marine area.

Restricted coastal activities can be described in a plan. These are activities that have a considerable or irreversible adverse effect on the coastal marine environment (reclamation, dumping, dredging). Restricted coastal activities outlined in the NZCPS must be included in the regional coastal plans. Applications can be made to carry out restricted coastal activities. A vetting procedure involves a hearing by a regional council, with a final veto resting with the Minister of Conservation, who has to make a decision within 20 working days of receipt of the council's recommendation. The first generation of regional coastal plans are under development. A number of proposed plans are finishing the hearing stage at present. Local authorities have found it unexpectedly difficult to prepare coastal management plans because of the need to take into account the broad cross section of interests involved. (<http://www.scoop.co.nz/stories/PA0006/S00398.htm>).

Local Fora

ICZM in New Zealand has adopted a policy cascade approach, where local resource user groups establish their needs and management strategies with respect to other local user groups within a local forum. The functions of the local forum include establishing strategies for sustainability, conflict resolution and a degree of resource allocation or zoning. A second tier of management has responsibility for regional strategies, overseeing local initiatives and mediating in unresolved conflicts. The regional bodies then work within the framework of a national strategy administered by a national ICZM authority (Connolly & Hegarty, 1999).

New Zealand's Ocean Policy

New Zealanders are following the precedence of their Australian neighbours by working to develop an Oceans Policy. A discussion paper for public consultation is expected to be released in July 2003. New Zealand's Oceans Policy will address the interaction between land management and the status and quality of the marine environment and the inter-tidal zone, in addition to examining the sovereign waters of the internal coastal and the territorial sea; the resources and ecosystem of the waters and seabed of the EEZ; and the resources of the seabed of the continental shelf beyond the EEZ.

4.10 Conclusions on ICZM in New Zealand:

- The Resource Management Act, 1991 provides for both legislation and policy pertaining to coastal management in New Zealand through the New Zealand Coastal Policy Statement (NZCPS).
- In New Zealand the RMA provides a clearly delimited management area: a landward boundary to Mean High Water Spring and a seaward boundary to the outer limits of the territorial sea.
- The Resource Management Act promotes an ecosystem approach to coastal management.

- Coastal management is directed at regional level in New Zealand. The NZCPS provides national guidance on the implementation of regional coastal plans, which are developed through a process of stakeholder consultation by relevant Local Authorities.
- Guidelines to Local Authorities on local level implementation of ICZM are provided for in the NZCPS. Furthermore, the importance of stakeholder involvement in the decision making process is specified in the RMA, which allows for the devolution of decision making to the community level.
- Even though the NZCPS is over eight years old, the rate of progress in development of regional coastal management plans has been unexpectedly slow, due to the complexity of the sectoral interests that must be taken into consideration.
- New Zealand is developing an integrated Oceans Policy, which will be complementary to the objectives of the NZCPS.

4.11 Analysis of the Case Studies

It is possible to draw worthwhile conclusions on the state of progress in ICZM between the national case studies examined in this review by assessing national approaches according to a typical policy or project development cycle, which can be broken down into these five steps (Olsen *et al.*, 1998):

- Identification of issues
- Plan preparation
- Formal adoption and funding
- Implementation
- Monitoring and evaluation.

Considering the coastal cycle in the context of our case studies, it can be concluded that Australia and New Zealand have made more progress in working through the coastal cycle than their European counterparts in Ireland, the UK and Norway.

Both Australia and New Zealand have instigated policies and legislation to deal with ICZM, as well as adopting formal management structures to facilitate implementation. New Zealand is close to completing its first coastal programme cycle; scheduled to undertake an evaluation of the first NZCPS in 2003/04. The outcome of that evaluation will lead to refinement of the existing policy, which will instigate the second generation coastal policy programme for that country.

In contrast, Ireland has yet to take the initial step in the coastal programme cycle (identification of issues) at a national level. Development of a national ICZM policy or supporting legislation does not appear to be a priority. Instead, Ireland prefers to wait for directions from Europe, which hold the weight of legal force (e.g. Birds Directive, Habitats Directive, Water Framework Directive). This reflects a short-sighted view for a country with such valuable coastal and marine resources.

The UK coastline benefits from the implementation of ICZM on a voluntary, local programme basis. The UK has also made it clear that, instead of committing to reshaping existing structure or implementing specific legislation for ICZM, it will develop its vision in line with key recommendations from Europe, which is a strategy in its own right. ICZM in Norway exists primarily in the context of municipal planning. Progress has been made in the development and implementation of coastal management plans in the municipalities, but the voluntary nature of the implementation has produced mixed results.

4.11.1 Factors for Success

The most effective examples of ICZM implementation exist where there is a concrete commitment to ICZM, either in the form of **national policy or legislation** (e.g. Australia and New Zealand). The framework for ICZM must be flexible enough to deal with the implementation of ICZM on a number of levels, from the national level to the local level. In Australia for example, ICZM is implemented at Federal, State, regional and local levels. This involves balancing '**top down**' approaches with '**bottom up**' approaches. In other words, the most effective cases of ICZM (e.g. GBR Marine Park) are where national support and guidance for ICZM is executed by a management body, but influenced greatly by the needs of stakeholders, and the cooperation of decision makers and scientists at the local planning level.

There is no single mechanism for the achievement of this **vertical integration**, however, it is clear that one of the most important elements of successful ICZM is the establishment of structures for communicating and agreeing shared objectives for coastal management. The role of **public participation** emerges from the case studies as an important dimension of coastal

management. There appears to be a general trend for public participation/stakeholder involvement to exist primarily within the framework of county or municipal planning. This makes sense in dealing with local issues, however it highlights the importance of local authorities as conduits in facilitating the ICZM process. It can be concluded from the case studies that **incorporation of ICZM at the local planning level** is a major contributory factor for its success. For this reason, the development of **guidelines** for Local Authorities as in Norway and New Zealand are important factors for success.

Coastal partnerships, which are widespread in the UK and common in New Zealand and Australia, can provide effective mechanisms for the implementation of ICZM at the local level. Partnerships have worked well in Ireland over the last decade in delivering on social problems e.g. partnerships for social exclusion including local authorities, government agencies, industry and local stakeholders. There may be scope for the development of local coastal partnerships in Ireland, learning from the experience in the UK.

Integration between sectors (i.e. **horizontal integration**) can be aided by good cooperation among scientists, managers and the local community when dealing with specific questions or problems. Problem solving should be interdisciplinary in its nature, seeking to understand the functioning of the ecosystem in parallel with comprehending the social behaviour and organisational structures that cause ecological damage (i.e. **ecosystem approach**). Australia, New Zealand and the UK have officially recognised the need to adopt a holistic approach to ICZM by following an **eco-system based approach**. This is particularly strong in New Zealand where the coast is managed according to ecological units.

The **zonation** of designated areas for particular activities is used as a coastal management tool in several of the case studies. For example, Norway enforces restrictions on development within a 100m buffer of the shoreline. In New Zealand, regional coastal plans describe zones of restricted coastal activity. Zonation can be an effective mechanism for managing the coast, however it requires close monitoring for successful implementation.

The national case studies show that **financial support** is a prerequisite for the successful implementation of the ICZM process. The two most successful examples of ICZM in practice, Australia and New Zealand, demonstrated substantial investment in support of policy implementation.

4.11.2 Factors for Failure

Lack of national policy has created a weakened and sporadic commitment to ICZM in both the UK and Norway, where coastal management is dependent upon the motivation and commitment of various local voluntary or statutory coastal groups. Voluntary approaches to ICZM, as in the UK, are limited in their success, as successful ICZM will ultimately require a commitment in funds and in decision-making, which can only be achieved through the cooperation of the responsible authorities. Isolation of ICZM at a particular level in government or within a particular process, such as in the planning process, is not an effective approach to ICZM, as demonstrated by the decentralised approach to ICZM in Norway. Lessons can also be learned about the type of strategy to adopt for coasts. Questions need to be asked about the development of coastal plans that are separate from ocean and catchment management strategies, when it can be argued that one has an influence over the other. Oceans policy and catchment policy should be complimentary to the objectives of ICZM and vice versa.

SECTION 5 - IMPLEMENTING BEST PRACTICE IN ICZM IN IRELAND

5.1 Towards a National Irish Programme for ICZM

Policy Formulation

As pressure on our coastal environment increases, the need to take lessons on board for the effective implementation of ICZM is greater than ever before. It is also timely to work towards a national programme for ICZM in light of the current requirements for implementing the EU Recommendations. Coastal problems are complex. Given this complexity, there are no simple legislative or policy solutions for achieving effective coastal management. Therefore, in order to advance the implementation of ICZM in Ireland, it will be necessary to pick and choose from what appears to have worked best elsewhere, bearing in mind that the transferability of approaches may be constrained by localised phenomena.

Moves towards a national Irish programme for ICZM will require political support to ensure that the most coordinated, effective coastal management approaches, embracing the long term view can be developed. To convince policy makers of the need for ICZM, we need to quantify the potential benefits of ICZM for the country. Key areas of research to be pursued involve the application of the 'systems approach' taking physical, social and economic factors into consideration in the development of alternative scenarios for coastal management.

This type of modeling is dependent on the availability of data and information, the identification of which can be achieved through the Stocktake process. Currently, baseline data are unavailable for many aspects of our physical coastal environment and resources (e.g. cetacean distribution and abundance). Gaps in existing knowledge need to be identified and filled. The impact of coastal development cannot be assessed without this knowledge. Co-ordination of information collection and collation, particularly across the land/sea divide is needed to prevent duplication of existing data collection efforts.

The Stocktake provides a unique opportunity for gauging weaknesses in the contemporary approach to coastal management with a view to ultimately streamlining the management process via the implementation of ICZM. The Stocktake also provides an opportunity to establish a framework for the involvement of stakeholders, including relevant local government bodies, an essential prerequisite in the policy formulation process. Failure to undertake a rigorous Stocktake will result in a poor basis for future decision-making and policy development.

Furthermore, lessons from other countries highlight the imperative need for adequate fiscal support for new ICZM initiatives. There is a growing recognition that sustainable ICZM can only be achieved where the organisations with the remit for this are also organisationally and financially sustainable. There is a need to take a long-term view with regards to expenditure. The present framework for the distribution of funds for coastal management initiatives is delivered on an *ad hoc* basis through a number of public sector departments and bodies. Large levels of expenditure are made on an annual basis on capital development and on-going maintenance. New and innovative ways of fund raising should be considered in tandem with ICZM policy formulation. If necessary, adopt a step-wise approach to funding ICZM initiatives, dealing with priority areas first, such as biodiversity hotspots, urban coasts or areas of intense use conflict.

Policy Implementation

The next step, the effective implementation of policy must take into consideration the principals for best practice to emerge from the EU DP on ICZM:

- Adopt a broad holistic perspective - Coastal processes do not follow administrative boundaries. For this reason, integration should be sought with the administrations responsible for coastal management in Northern Ireland to encourage an ecosystem approach embedded in an all-island framework for ICZM.
- Local specificity - Building on the understanding of a specific area of interest involves the need for close cooperation between scientists and managers to ensure the translation of data into information to aid the decision making process. There is considerable scope to strengthen links between academic institutions, decision-making agencies, government departments and local authorities in Ireland.
- Use adaptive management - ICZM policies should be developed with a degree of flexibility. Coastal environmental change can be quick or gradual. Coastal policies, the basis for decision-making, must be adaptable as a result.
- Work with natural processes - Global warming and climate change are likely to have increasingly significant influences on the Irish coast. A study by the National Coastal Erosion Committee, (1992) estimated that out of the c. 5,800km of the Irish coastline (Republic), about 1,500km are at risk from coastal erosion and 490km require immediate protection. The development of policy for ICZM should incorporate the long-term view expressed in the National Climate Change Strategy (DELG, 2000).
- Take a long-term view - Organisational and financial stability are important factors for ensuring that ICZM initiatives are sustainable in the long term. A short-term view can be wasteful in terms of money and effort. The Bantry Bay case study provides an important lesson here.
- Use participatory planning - Participatory planning is not easy to achieve as it requires a major investment of human resources. Implementing a participatory planning process requires detailed planning. Lessons learned from Bantry Bay should be taken on board in relation to this.
- Ensure the support and involvement of all relevant bodies - Official mechanisms and structures for governance must be put in place to facilitate this approach. This should be done within the framework of an overall policy with clear objectives for ICZM
- Use a combination of instruments - Existing Irish laws define the powers and duties of many bodies and individuals involved in the management and exploitation of the coast and the framework in which they operate. Most pieces of legislation, which predate the concept of ICZM, were created for different purposes. There are difficulties with superimposing a uniform legal model for ICZM. A more realistic approach for Ireland would be to build on available legislative systems.

These principals apply to the implementation of ICZM initiatives from national through to local planning levels. Incorporation of ICZM at the local planning level is a major contributor to successful ICZM. Consideration needs to be given to how best to organise local cells to feed into the ICZM process, for example by broadening the remit of Local Authorities and through the creation of local coastal partnerships. Consideration should be given to facilitating integrated planning on both sides of the shoreline to overcome the land/sea divide.

Coastal management in Ireland needs to be supported by the establishment of a national coastal network/forum to provide opportunities for networking and to keep up to date with coastal issues and progress in ICZM. Lessons learned from the UK show that it is important to be focused on the aims of the network and to obtain government support for the initiative.

The EU Thematic Studies in ICZM showed that technologies can contribute to effective implementation of ICZM. Therefore, the potential of available technologies must be taken into account to achieve best practice. Ireland is well placed to take advantage of a range of existing skills and capabilities in terms of the application of specific software solutions, such as GIS, to coastal management.

5.2 The Way Forward

In summary, the most important step to be taken towards integrated management for the coastline of Ireland is the development of a national policy based on best practice, involving public participation and facilitating integration, which:

- Sets out a vision for the sustainable development of Ireland's coastal resources into the future.
- Establishes specific goals to be achieved within the ICZM process.
- Defines where, when and how ICZM should be implemented.
- Provides the general framework to integrate and streamline financial and human resources in government departments and state agencies concerned with coastal management.
- Lays the foundations for local authority and stakeholder involvement in ICZM at the local level, recognising the importance of managing coasts at the local level and for the need for public participation.
- Provides guidelines and support for the implementation of ICZM at the local level.
- Identifies areas where management considerations should be prioritised around the coast.
- Provides a focal point for information, research, training and education.
- Outlines funding mechanisms to ensure sustainable ICZM.
- Builds on the concepts of sustainable development and ecosystem approach.
- Outlines opportunities for a coastal network/forum for Ireland.

5.3 Short-Term Objectives for the Heritage Council to Pave the Way for Progress - 2004:

- Increase support for a national ICZM policy by raising political and public awareness of coastal issues and the benefits of an ICZM approach.
- Lobby for the comprehensive implementing the EU recommendations on ICZM including a Stocktake based on widespread public consultation.
- Facilitate the implementation of a pilot project at the local level for the development and implementation of a local ICZM strategy, led by a Local Authority and with full stakeholder involvement.
- Support the establishment of a national coastal network to enable the transfer of experiences of good practice in coastal management.

SUMMARY OF GENERAL PRINCIPALS FOR BEST PRACTICE

- **General factors for the success of the ICZM programmes are: (not in order of priority)**
 - Development of a **strategy** with **clear, tangible objectives**
 - Adoption of a **wide-ranging perspective**
 - Building on the understanding of **specific conditions** in the area of interest
 - Working with **natural processes**
 - Ensuring that decisions taken today do not foreclose **options for the future**
 - Use of **participatory planning** to develop **consensus**
 - Ensuring the support and involvement of **all relevant bodies**
 - Using a combination of **instruments**
 - Establishing **baseline** data for effective decision making
 - Providing **fiscal** support for **sustainability** in ICZM
 - Developing **indicators** for ICZM
 - Implementing the **precautionary principal**
 - Providing a **focal point**
 - Establishing **national coastal forum** for ICZM
 - Organising activities at the **local level**
 - Utilising available **technologies**
 - **Integrating planning** for the coast
 - Recognition of the potential **role of local authorities** to manage ICZM at the local level
 - Recognising the **importance of stakeholder input, even in a 'top down' approach**
 - Working within an **ecosystem approach**
 - Using **zonation** as an effective management technique to manage coastal activities.
 - Employing a **project officer** to direct project implementation
 - Development of **action plans** to help to realise specific goals
 - Applying **multi criteria analysis** to rank solutions to address conflicts of interest.
 - Using **facilitators** to aid inexperienced stakeholders in **conflict resolution** scenarios
 - **Listening carefully** to the point of view of all stakeholders
 - Involving all stakeholders from the very **beginning** of the process
- **General factors for the failure of the ICZM programmes are: (not in order of priority)**
 - **Lack of national policy and/or appropriate legislation** are almost universal obstacles to advances in ICZM
 - Sole **reliance on planning policy** is insufficient when dealing with the complexities of the coast
 - Failure to secure **funding** will result in management group meetings dominated by funding issues and lack of progress in implementing ICZM
 - The **voluntary approach** will not work in isolation. Momentum is lost when a lack of support from statutory bodies and problems with funding exist.

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