

3. Environmental policy analysis for sectoral issues

The diversity of environmental policies and their tools (including the management of knowledge systems) across various sectors and locations is outstanding, although the general principles and mechanisms are basically the same. This section of the textbook gives examples of policy analysis from *adaptive management of coastal zones* (3.1), *biodiversity conservation in mountainous ecosystems* (3.2), *physical planning in urban context* (3.3) and dilemmas between *biodiversity management and interests of indigenous communities* (3.4), stretching geographically across the whole Eurasia, from Ireland (3.1) to Tadjikistan (3.2) and Southern Siberia (3.3), and to South Africa (3.4).

3.1. Coastal Environments — Challenges for Integrated Management in Multi-use Settings

Cathal O'Mahony, Anne Marie O'Hagan, Jeremy Gault, Maria Falaleeva

This chapter examines a range of contemporary issues relating to coastal management, and the challenge of delivering sustainable development of coastal and marine resources. While the geographic focus is European, literature from other regions of the globe is incorporated within the chapter sections. Indeed, many of the coastal issues addressed in this chapter are not specific to Europe's coastal domain; therefore, the content is applicable to many coastal locations outside of Europe. Within this chapter, coastal environments (including the marine component) are presented in terms of their socio-environmental character, how they are managed, salient issues and challenges, and associated management responses, and finally an examination of the outlook for the management of coastal environments is provided. Case study material is used to communicate contemporary approaches to integrated management of coastal environments.

3.1.1. Character of Coasts

Coasts reflect the transition between terrestrial and marine ecosystems (Burke et al., 2001; Carter, 2002; He, 2010), typically represent areas where change can be sometimes sudden and dramatic, but is virtually always constant (Carter, 2002), for example — changes to coastlines due to physical processes such as erosion, movement of goods and people through ports, (re)development of coastal land for settlement, sites of inward and outward migration for many forms of animal and sea-life, hubs for traditional (fishing) and emerging enterprises (offshore energy). Coastal areas support a significant portion of the world's population (Martinez et al., 2007; Horstman et al., 2009), through the provision of ecosystem goods and services, and as a location for livelihoods (Weinstein et al., 2007). Coastal regions can represent high concentrations of human activity (e. g. recreation and tourism, energy, commerce and trade, fisheries, energy — hydrocarbons and offshore renewables, and aquaculture (Miller & Hadley, 2005; Martinez et al., 2007; Weinstein et al., 2007) and settlement, resulting in a range of development pressures and associated impacts, often to the detriment of the ecological integrity of coastal and marine environments (see 3.1.3 — *Issues and Challenges Relating to Coastal Management*).

The value of coastal areas is evidenced by the levels of use they support, goods and services they provide, and by the range of policy, legislative and management instruments designed with coastal environments in mind. However, providing a comprehensive economic valuation of our coastal ecosystems is a difficult task due to data limitations (Turner, 2000), and ability to capture non-market evaluation of coastal resources (Morrissey et al., 2011); with estimates ranging from over US\$12 trillion annually to US\$25 billion (Martinez et al., 2007). Needless to say, coastal ecosystems and all that they support are valuable to the continued welfare of human populations, and efforts should be employed to ensure this value is safeguarded in the long-term.

3.1.2. Background to Management of Coasts

While the challenges facing coastal ecosystems are apparent, the management response is complicated by the complex nature of coasts and by a series of shortcomings in the design and application of management approaches (Shipman & Stojanovic, 2007), which have not always yielded the outcomes and improvements necessary to simultaneously sustain human use and ecological quality. Understanding and communicating what is meant by “the coast” presents a management challenge in its own right (see 3.1.3. — *Issues and Challenges Relating to Coastal Management*). The multi-use nature of coastal environments has led to management structures that are intricate and multi-layered; which in many cases are sector-specific, reflect a strong terrestrial — marine divide, reactive, or introduce potential disagreement between stakeholders, despite common management objectives existing across sectors and spatial units (e.g. sustainable development and growth). The aforementioned criteria are key drivers for policy-makers advocating a more integrated or holistic approach to coastal management — defined as Integrated Coastal Zone Management (ICZM) or derivatives of, for example Integrated Coastal Management (ICM), Integrated Coastal Area Management (ICAM); Integrated Marine and Coastal Area Management (IM-CAM). For the purposes of this chapter, the term Integrated Zone Coastal Management (ICZM) is used throughout, as much of the literature, legislation and policy cited, particularly in a European context, contain references to ICZM. ICZM as a management process is covered in further detail within the section entitled 3.1.4 — *Coastal Management and Planning Responses and Processes*.

One of the earliest moves towards management specific to the coasts emerged in the United States of America during the 1970s with the introduction of the Coastal Act, since then other members of the global community have initiated and advanced management relating to the coast. For example, in 2006 a national implementation plan for ICZM was introduced in Australia to support an integrated and strategic approach to coastal planning and environmental management (Lazarow et al., 2006) for its coastline spanning over 35,000 km in length. Canada — which has the longest coastline of any coun-

try in the world — embarked from the late 1990s onwards on a path to incorporate integrated coastal management efforts within a strategic approach to ocean and coastal planning (Ricketts & Harrison, 2007). Similarly, integrated approaches to coastal management have become more mainstream in countries such as New Zealand (Kay & Alder, 1999), Norway (Tiller et al., 2012) and across regions (e. g. Mediterranean Basin; House, 2010), see Nobre (2011) for an overview of major ICZM initiatives worldwide.

In Europe, coastal management came to the fore from the 1980s onwards; a European Coastal Charter was adopted by the Conference of Peripheral Maritime Regions of the European Community in 1981, whilst in 1986 the European Commission prepared a Communication to the Council of Ministers on integrated planning of coastal areas. A European Coastal Strategy proposed in 1991 which was followed by a series of policy and legislative tools focused on improved coastal and marine management, as well as a Demonstration Programme, which ran from 1996–1999, *"to show the practical conditions that must be met if sustainable development is to be achieved in the European coastal zones in all their diversity."* The Demonstration Programme consisted of 35 projects across Europe and six thematic studies, and was intended to lead to a consensus regarding the measures necessary in order to stimulate ICZM in Europe. The experiences of the Demonstration Programme (Capobianco 2003; Doody, 2003; Humphrey & Burbridge, 2003; King, 2003;) contributed to the shaping of EU ICZM policy and following the publication of the outcomes of the Demonstration Programme, the European Commission subsequently adopted two key documents advocating and supporting a more integrated approach to coastal planning and management:

1. A Communication from the Commission to the Council and the European Parliament on "Integrated Coastal Zone Management: A Strategy for Europe" (COM/00/547 of 17th September 2000).
2. A proposal for a European Parliament and Council Recommendation concerning the implementation of Integrated Coastal Zone Management in Europe (COM/00/545 of 8th September 2000). This Recommendation was adopted by Council and Parliament on 30th May 2002.

The latter explained how the Commission intended to promote ICZM through the use of Community instruments and programmes. The Recommendation outlined steps, which the Member States should take to develop national strategies for ICZM, which the majority of Member States went on to complete and submit. It should be noted that, in general, competency for coastal areas remains with the Member State and not with the EU. This is one of the reasons, along with the variety of legal systems in operation, why the Commission has not considered the formulation of a Directive specific to ICZM to date. During 2006 and the beginning of 2007 the Commission reviewed the experience with the implementation of the EC ICZM Recommendation. The Commission Communication of 7th June 2007, COM(2007)308 final presented the conclusions of this evaluation exercise and set out the main policy directions for further promotion of ICZM implementation in Europe. A range of more recent policy and legislative instruments from Europe have re-iterated the need for a more integrated approach to coastal planning and management culminating in the recent EU Integrated Maritime Policy (COM(2007) 575 final), and Marine Strategy Framework Directive (2008/56/EC). At the regional level, the Protocol on ICZM to the Barcelona Convention heralds a significant step in advancing ICZM on a legislative footing at the international level, as the protocol ensures that ICZM is compulsory for all coastal Member States in Mediterranean who are signatories to the Barcelona Convention.

3.1.3. Issues and Challenges Relating to Coastal Management

Due to fact that coastal environments are the location for such a range of human activities (Weinstein et al., 2007), it is unsurprising that a number of issues have emerged as challenges to those tasked with managing the coast in a sustainable manner (Olsen et al., 1997; Barker, 2005), and whose livelihoods are associated with the coast. Evidence of pressures and impacts exerted on the natural environment as a consequence of human activities is reflected by degraded ecological states (e. g. Sherman & Duda, 1999), loss of productivity (e.g. Waycott et al., 2009), introduction of invasive species (e. g. Williams & Grosholz, 2008), and reduced water quality (Beatley et al., 2002; Suarez de Vivero & Rodriguez Mateos, 2005). Coastal and

marine areas are particularly vulnerable to effects associated with climate change which drive changes in environmental and social systems (Gibbs, 2009; Falaleeva et al., 2011), for example, sea level rise, changing weather patterns, increasing intensity of storms and precipitation, and the occurrence of coastal squeeze (Doody, 2004; Fletcher & Pike, 2007).

In addition, the value of coastal environments can result in competition for space, and access to use common resources by multi-stakeholders can often result in negative interactions (Rockloff & Lockie, 2004), particularly where participatory structures are weak or absent, or where inappropriate management intervention has taken place (Barker, 2005). A key differentiation to make at this point is those impacts that are considered harmful or undesirable but are natural processes (e.g. erosion) to those which are human induced (e. g. pollution by heavy metals) — in other words, people are often the key catalyst in the changing state of coastal environments — it is people who will drive an issue and who will insist on a response, and it is management of people (including education, training, communication and capacity building activities) within the environment, rather than just environmental management that is essential to the sustainable development of coastal resources.

Defining the spatial extent, or delineating what is categorised as the coast, as a start point for intervention can itself present an issue to coastal management and planning practitioners (Nichols, 1999). The terms ‘coast’ and ‘coastal zone’ have many different definitions. For the purposes of the Demonstration Programme on ICZM (1996–1999), for example, the coastal zone was defined as “*a strip of land and sea of varying width depending on the nature of the environment and management needs. It seldom corresponds to existing administrative or planning units. The natural coastal systems and the areas in which human activities involve the use of coastal resources may therefore extend well beyond the limit of territorial waters, and many kilometres inland*”. The US Coastal Zone Management Act 1972 defines the coastal zone as “*the coastal waters (including the land therein and there under) and the adjacent shorelands (including the waters therein and there under), strongly influenced by each and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches.*” Depending on how the

coastal zone is defined for any particular location or purpose, coastal managers may encounter situations where their management effort can be undermined by influences that lie outside their geographical boundary and/or jurisdictional remit, and due consideration has to be given to this issue in the context of ensuring effective integrated management. For additional information on defining the spatial extent of the coastal zone, see for example, Beatley et al. (2002) and Sas et al. (2010) for further discussion.

It can be said that the coast is delineated by various actors in accordance with their use of the coast and the legal framework that applies to particular use(s). For example, at a pan-European scale, delineation of coastal areas in the context of conservation of areas and species of ecological importance is set out under the Habitats and Birds Directives. At Member State level, the Water Framework Directive requires River Basin Districts to be delineated according to hydrographic units. At a national level, areas will be delineated for the licensing of activities such as aquaculture and other commercial uses; while at local levels, bye-laws and similar instruments can be applied to routine or seasonal uses (e. g. recreation activities) of the coast (e. g. O'Mahony et al., 2012). As a result while the term coast may have a common understanding within specific sectors, this may not be true across different sectors leading to a lack of cohesion between various actors in the same geographic area.

Similarly, at sector level, different delineations and methodologies for these are used. In relation to shipping for example, shipping lanes historically derived from an analysis of the prevailing winds — trade winds allowed ships to sail towards the west quickly while westerlies allowed ships to travel to the east quickly. Now ship routing is the responsibility of the International Maritime Organisation which is enshrined in the Law of the Sea Convention and Chapter V of the Safety of Life at Sea (SOLAS) Convention, which recognises the IMO as the only international body for establishing such systems. In contrast, fishing areas of the coast are delineated by the EU if outside the territorial seas or national Government if fisheries are within the 12M zone (O'Hagan & O'Mahony, *unpublished*).

Attempts to harmonise the differing approaches for delineation of the coast are ongoing, and at a European level it is recognised that overlap between key policies, and the resultant effect this has on

management and use of the coast, requires consideration. For example, the Water Framework Directive covers freshwater bodies and coastal waters (1 nm), (exceptions exist, e.g. for chemical status) whereas the Marine Strategy Framework Directive includes the *”seaward side of the baseline from which the extent of territorial waters is measured extending to the outmost reach of the area where a Member State has and/or exercises jurisdictional rights.”*

Another issue facing coastal managers is that of climate change and how to deal with the associated impacts on coastal locations (e. g. Nicholls, 1995; Nicholls & Klien, 2005; Schlacher et al., 2008; Jones & Phillips 2011). Coastal and marine areas are particularly vulnerable to effects associated with climate change which drive socio-environmental changes (Gibbs, 2009; Falaleeva et al., 2011), for example, sea level rise (Bosello et al., 2007; Nicholls & Cazenave, 2010), flooding (Nicholls, 2004; Diez et al., 2011), changing weather patterns, increasing intensity of storms and precipitation, coastal squeeze (Doody, 2004; Fletcher & Pike, 2007). Each of the impacts will vary in magnitude for different locations and sectors of the coastal economy. However, vulnerability to climate change is increasingly associated with the preparedness of society to adapt (e.g. by means of planning and management, policy and behaviour), rather than mere exposure to its effects (Green & McFadden, 2007; Moser, 2008). Coastal locations are no different in this regard and increasingly climate change adaptation is becoming a factor within coastal management processes, as those seeking to formulate planning and management responses to the impacts of climate change look to lessons and capacity to emerge from the implementation of ICZM (Tobey et al., 2010; Falaleeva et al., 2011). ICZM and climate adaptation have common elements, both stipulate the integration of sectoral, administrative and geographical governance (Few et al., 2004), advocate subsidiarity and participatory decision making, while also positing an adaptive governance approach and ecosystems-based problem framing as essential ingredients for long-term sustainability. Both processes also necessitate engagement by common constituents, particularly local government organisation, community-based groups and civil-society bodies.

Participation is a critical element of integrated coastal zone management, as reflected in the literature (Agrawal & Gibson, 1999;

Davos et al., 2002; King, 2003; Ernoul et al., 2009; Cliquet et al. 2010). However, ensuring participation is incorporated into the ICZM process in an appropriate manner, and choosing the optimal participatory process can present issues for practitioners; for example, effectiveness (McKenna et al., 2008), input to planning (Milligan et al., 2009; Green, 2010), balancing multiple viewpoints (Treby & Clarke, 2004; Imeson & Van den Bergh, 2006), legitimacy (Cliquet et al., 2010), and maintaining credibility and representation (Fletcher, 2003, 2007) are all factors that require consideration within the ICZM process. The incorporation of stakeholder input into the ICZM process is critical but it should not be the sole metric for measuring progress; similarly win-win solutions and a consensus based approach are desirable but are often extremely difficult to achieve (e.g. McShane et al., 2011) and in certain circumstances may not be attainable, and ultimately should not hinder the aims of a process designed to assist informed decision-making and promote sustainability (McFadden, 2007).

Other salient issues relevant to coastal management include: bridging the science and policy interface (Cooper & Cummins, 2009; O'Connor et al., 2009; Stojanovic et al., 2009; Diedrich et al., 2010); an over-reliance on a project-based model of implementation (McKenna & Cooper, 2006), and a non-statutory basis for the implementation ICZM (McGlashan, 2003; O'Hagan & Ballinger, 2010; O'Connor et al., 2010; Falaleeva et al., 2011).

3.1.4. Coastal Management and Planning Responses and Processes

Bearing in mind the issues and challenges identified, the following section presents a case study involving numerous sites within five European countries that successfully overcame many of the aforementioned issues (e. g. partnership working, bridging science and policy, working in a policy vacuum); this is preceded by a short introductory section on what is considered to constitute effective ICZM and represents good practice.

Following the completion of the Demonstration Programme on ICZM, a set of principles was developed to communicate key el-

ements of good practice in delivering effective coastal management (European Parliament and Council, 2002):

- Principle 1 — A broad overall perspective (thematic and geographic) which will take into account the interdependence and disparity of natural systems and human activities with an impact on coastal areas.
- Principle 2 — A long-term perspective which will take into account the precautionary principle and the needs of present and future generations.
- Principle 3 — Adaptive management during a gradual process which will facilitate adjustment as problems and knowledge develop. This implies the need for a sound scientific basis concerning the evolution of the coastal zone.
- Principle 4 — Local specificity and the great diversity of European coastal zones, which will make it possible to respond to their practical needs with specific solutions and flexible measures.
- Principle 5 — Working with natural processes and respecting the carrying capacity of ecosystems, which will make human activities more environmentally friendly, socially responsible and economically sound.
- Principle 6 — Involving all the parties concerned (economic and social partners, the organisations representing coastal zone residents, non-governmental organisations and the business sector) in the management process, for example by means of agreements and based on shared responsibility.
- Principle 7 — Support and involvement of relevant administrative bodies at national, regional and local level between which appropriate links should be established or maintained with the aim of improved coordination of the various existing policies. Partnership with and between regional and local authorities should apply when appropriate.
- Principle 8 — Use of a combination of instruments designed to facilitate coherence between sectoral policy objectives and coherence between planning and management.

The principles are to be implemented within an ICZM process (Ballinger et al., 2010) that typically follows a number of iterative stag-

es, which form part of a policy or strategy development cycle: 1. Issue identification; 2. Plan preparation; 3. Formal adoption and funding; 4. Implementation; and, 5. Monitoring and evaluation (see Olsen et al., 1997). Mature ICZM programmes are those that have completed a sequence of management cycles to achieve improvements in coast management and ultimately in integrating coastal management across key sectors and administrative levels (Cummins et al., 2004). The concept of ICZM as a process has since been further elaborated (e. g. Varghese et al., 2008) and proposals introduced means of evaluating the ICZM process for the purposes of improved outcomes (Baarse et al., 2001; Olsen, 2003; Pickaver et al., 2004; Stojanovic et al., 2004; Billé, 2008; Jones et al., 2008; Pickaver, 2009).

The principles as stated above provide coastal planners and managers a series of objectives against which to develop their ICZM response, but in essence they reflect what can be broadly considered as elements of good governance in natural resource management (e. g. working with stakeholders (Walker et al., 2002; Lebel et al., 2006), taking an ecosystem-based approach (Folke et al., 2005; Douvère, 2008), thinking strategically). The principles have attracted a degree of criticism owing to the fact that they offer a mix of strategic and local focused principles, without prioritisation within or between these groupings (McKenna et al., 2008). A further consideration when evaluating ICZM progress is the role of external factors (e. g. policy vacuum), often leading to a lack of adequate resource (financial and human) and political support which can undermine success even in situations where the principles have been almost fully applied (Falaleeva et al., 2011). Early successes in the implementation of ICZM across Europe yielded examples of good practice and valuable experience, but which subsequently failed due to external factors (e. g. Bantry Bay Charter, Ireland). The emphasis on a project-based approach to deliver ICZM is only likely to work if the project fits within an institutional structure or governance model geared towards long-term sustainable development and management of coastal resources. Otherwise, the risk is one of promoting sustainability through an unsustainable approach. This challenge facing coastal practitioners perhaps forced a rethink in terms of how ICZM should work, and how best to communicate the added value of the concept, and how to better embed ICZM within the coastal planning

and management structures of Member States. The following section illustrates one such example of a model of partnership designed to deliver effective ICZM at a number of sites across Europe.

3.1.5. The Expert Couplet Node Approach to Coastal Management

While partnership working is a key feature of ICZM (Hildebrand et al., 2002; Stojanovic et al., 2004; Stojanovic & Barker, 2008;), and coastal partnerships and fora have been used as a means of progressing ICZM with good effect, particularly in the United Kingdom (Hewett & Fletcher, 2009; Stojanovic & Ballinger, 2009), the Expert Couplet Node (ECN) represents an approach that has demonstrated progress in a range of geographical and institutional settings. The ECN model of partnership typically entails the research centres and local authorities working in close collaboration throughout a process devised to respond to a particular issue(s), and marks a departure from the traditional client / provider relationship that tended to exist between research community and administrative bodies (Cooper & Cummins, 2009; O'Mahony et al., 2009; Gault et al., 2011). It could also be argued that the ECN model brings together two of the most active and essential groupings in relation to coastal management: 1) the research and academic community who have actively contributed to the theory and concepts behind ICZM in Europe; and, 2) local government who are often the primary body tasked with operationalising and implementing ICZM plans and strategies; thus, a working relationship that facilitates joint-working between these two groups has potential for advancing coastal management and sustainability.

The ECN collaborative approach, was piloted at a nine locations in five European countries (Ireland, UK, France, Belgium and the Netherlands; Fig. 3.1, Table 3.1) as part of the Coastal Research and Policy Integration (COREPOINT) project (Cooper & Cummins, 2009; <http://corepoint.ucc.ie>); with the couplets continuing to operate under the Innovative Management for Europe's Changing Coastal Resource (IMCORE) project (Gault et al., 2011; <http://www.imcore.eu>; <http://coastaladaptation.eu>). Whilst some of the ECN participants at certain sites had an existing relationship prior to piloting of the approach, the COREPOINT and IMCORE projects provided a platform that enabled them to cement their working relationship, while for others the pro-

jects were the catalyst for initiating an ECN; however, in all cases the IMCORE project afforded the opportunity for ECN partners to effectively employ their combined knowledge and skill-sets in the face of challenging coastal management issues (Gault et al., 2011).

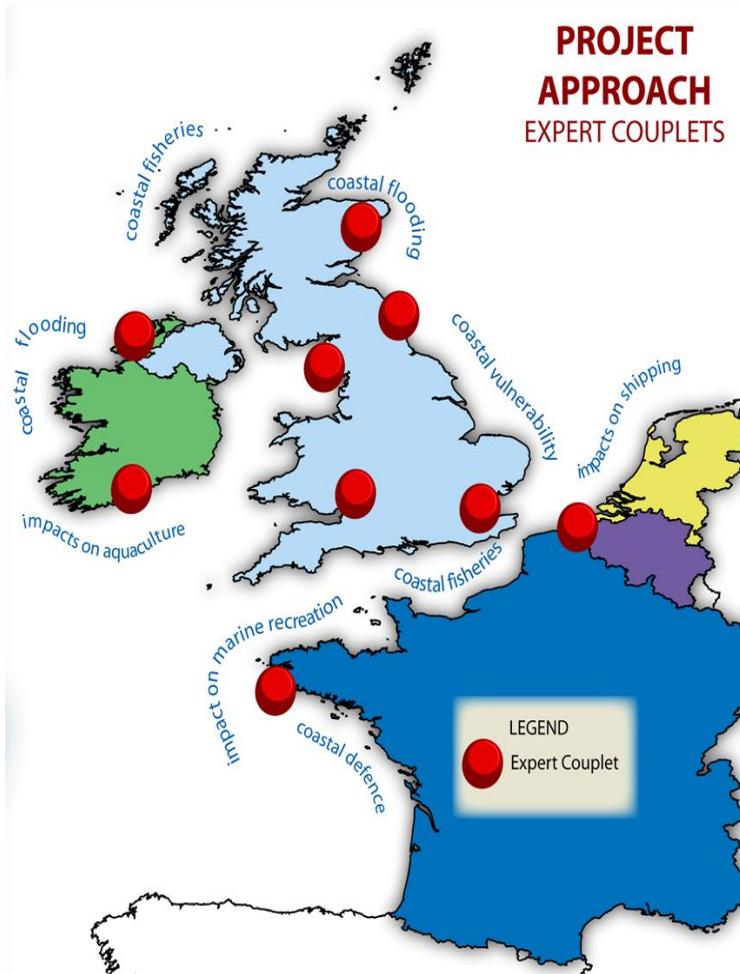


Fig. 3.1. Location of the nine Expert Couplet Nodes established in NW Europe and selection of coastal management issues addressed by the partnership approach

Table 3.1

Key coastal issues and impacts identified at each ECN study location during the COREPOINT and IMCORE projects (modified from Gault et al., 2011).

ECN Location	Country	Key Coastal Issues and Impacts Identified
Severn Estuary	UK	<ul style="list-style-type: none"> – Impact on communities, – Strain on emergency services – Development at risk
NW England — Sefton Coast	UK	<ul style="list-style-type: none"> – Loss of habitats/designations – Change in groundwater affecting habitats
NE England — Durham Coast	UK	<ul style="list-style-type: none"> – Port and harbour functioning – Threat to industrial infrastructure and urban areas – Threat to coastal paths — Marine and Coastal Access Bill – Coastal squeeze and impact on designations – Salination of agricultural land
E England	UK	<ul style="list-style-type: none"> – Erosion and pressure on flood defences – Loss of protected intertidal habitat – Higher defence costs
Aberdeen	UK	<ul style="list-style-type: none"> – Flooding of low lying towns and drainage concerns – Loss of habitats – Damage to harbour and shipping infrastructure – Decreased tourism due to increased precipitation

ECN Location	Country	Key Coastal Issues and Impacts Identified
Lough Swilly	IRELAND	<ul style="list-style-type: none"> – Flooding of low lying towns – Erosion of infrastructure and property – Changes/loss of biodiversity – Damage to aquaculture sites – Safety for water activities – Reduction of access to piers and harbours
Cork Harbour	IRELAND	<ul style="list-style-type: none"> – Threat to tourist attractions/infrastructure – Access for coastal recreation – Re-use of brownfield sites – Access to port and impact on shipping – Potential loss of tourist liner trade/livelihoods – Loss of housing/commercial property – Loss of habitats and / or coastal heritage – Impact on future land-use patterns
Belgium Coast	BELGIUM	<ul style="list-style-type: none"> – Loss of beach/dunes and protected areas – Loss of employment in flooded area – Safety/protection of harbours – Loss of property/infrastructure – Loss of human lives – Damage to ports
Gulf of Morbihan	FRANCE	<ul style="list-style-type: none"> – Sea level rise – Loss of islands – Coastal erosion – Threats to housing and tourism infrastructure

Case Study 1: Development of Integrated Coastal Management Strategy in Cork Harbour, Ireland

Site Description: Cork Harbour is one of the largest coastal water bodies in Ireland, the large estuary comprises a mixture of land uses, e. g. agriculture, industrialised areas (primarily pharmaceutical), and rural and urban settlement patterns, e. g. ranging from ~200,000 in the metropolitan area of Cork city to smaller towns and villages with populations between 1,500 and 6,500 (O'Mahony et al., 2009). Cork Harbour is analogous with many other coastal locations in that it is a multi-resource and multi-use environment. The level and diversity of activities operating within the confines of the Harbour are exemplified by the presence of numerous sectors (of regional and national importance) and their associated infrastructure, and by the fact that areas within the Harbour are recognised as being of international ecological importance, as evidenced through the presence of Natura 2000 and Ramsar designated sites. (O'Mahony et al., 2009).

Policy Context: Despite references to the value of integrated coastal management in numerous policy documents (e. g. Marine Institute, 1996; Brady Shipman Martin, 1997; Department of Agriculture and Food, 1999; Department of the Environment and Local Government, 2002; Department of Communications, Marine and Natural Resources, 2005; Heritage Council, 2006; Cawley et al., 2006) no national strategy or plan exists for ICZM in Ireland. Approaches to coastal management in Ireland remain sectoral, with numerous statutory bodies having a management and/or planning remit in the Irish coastal environment (MacLeod et al., 2000; O'Mahony et al., 2009).

Despite the plethora of organisations with a coastal management and/or planning remit, it is the local authorities, as the principal planning consent body, which have a significant influence on coastal management and planning (O'Mahony et al., 2012). Therefore, engagement with coastal local authorities is critical to efforts to advance coastal management. Until recently management of Ireland's coastal environment was characterised by a strong marine — terrestrial divide (O'Mahony et al., 2009). Two separate planning regimes, which set out differing systems for planning applications, decisions and appeals, existed for the foreshore and terrestrial environments.

In 2010, the Department of the Environment, Heritage and Local Government assumed the majority of foreshore responsibilities; with the result that, for the first time in the history of the State, responsibility for terrestrial planning (including Environmental Impact Assessment), coastal management, conservation management and designations, heritage, Water Framework Directive implementation and foreshore licensing all come within the same Government department (Note: the department is currently titled the Department of the Environment, Community and Local Government).

Case Study 2: Development of Integrated Coastal Management Strategy in Cork Harbour, Ireland

Approach and Process: The process that underpinned the development of the Strategy was undertaken as part of the CORE-POINT project (2004–2008) — Cork Harbour was one of the initial ECN study sites — and subsequently implemented under the IMCORE project. The approach involved a leadership and facilitation role by the local COREPOINT project partners (Coastal and Marine Research Centre and Planning Policy Unit of Cork County Council). A process of stakeholder identification and engagement was initiated by the project partners to ascertain the need and desire for an integrated approach to management in the Harbour area. This led to the establishment of the Cork Harbour Forum (comprising local stakeholders) and a Strategic Advisory Group (representatives of organisations with key management / regulatory roles in the Harbour). Consultation with all stakeholders over the course of a series of workshops and meetings formed the basis for the development and content of the Strategy.

The aim of the Strategy is to bring together all those involved in the development, management and use of Cork Harbour in a framework, which encourages the integration of their interests and responsibilities to achieve common objectives in a sustainable manner. Following completion of the Strategy development phase of the process, the Strategic Advisory Group was expanded to form the Harbour Management Focus Group; the body tasked with implementation of the Strategy.

Key Outcomes: An integrated management strategy (Cork Harbour Integrated Management Strategy) was developed for the

Harbour, and is currently being implemented on a voluntary basis (at present no statutory basis exists for ICZM in Ireland). The development and subsequent implementation of the Harbour Strategy represents the fruition of the local scale activities of the COREPOINT and IMCORE projects, and involved extensive stakeholder consultation, fostering of partnership working between various sectors and administrative / regulatory bodies, and effective use of science to underpin coastal planning and management.

The Cork Harbour strategy process represents the only example of contemporary ICZM at work in Ireland on this scale, and has yielded significant outputs in the context of good practice examples (e. g. Expert Couplet Node model of partnership) and capacity building relevant to national and international arenas. Similarly, the value and strength of the partnership approach and capacity building associated with the strategy process is perhaps best evidenced by the fact that the stakeholder group continues to meet and collaborate for 1) sharing of information and optimising resources for coastal management; and, 2) purposes of tackling emerging management challenges facing Cork Harbour, e. g. climate change and adaptation planning.

3.1.6. Outlook and Recommendations

How we manage our coastal environments and ensure sustainable use of coastal resources will continue to be a challenging undertaking for coastal management practitioners and policy-makers. The natural complexity of coasts coupled with the multiplicity of management and institutional structures suggests that achieving sustainable development of coasts will necessitate the involvement of many stakeholders; thus, pointing to the value of a joined-up approach, the ICZM process and the adoption of transdisciplinary methods and approaches (see Torkar & McGregor (2012) for application of transdisciplinarity in the case of nature conservation). Although coastal regions are diverse in terms of their physical characteristics, quite often the management issues that arise are similar (e.g. working with multi-users and an array of interest groups, having sufficient data on hand to support decision-making, having adequate legal and policy supports in place) and there is significant potential for

knowledge exchange and continued co-learning between coastal managers from different regions.

In Europe, the findings of the Demonstration Programme of 1996–1999 provided a set of management principles, which identified the key elements required within the ICZM process, and subsequently led to advances in participatory approaches, co-management models and collation of extensive information on Europe's coastal zones at national and regional scales. Despite these advances, the regulatory and legislative basis for ICZM has remained largely unchanged (with the exception of the 2011 Protocol on ICZM to the Barcelona Convention which makes ICZM compulsory for Mediterranean coastal Member States), and examples of management issues (e.g. poor coastal planning, habitat degradation, loss of species and economic pressures on coastal communities) remain evident.

In light of the continued importance of coasts to the socio-economic well-being of large populations, and the sustainability challenge associated with this relationship, there is a need to continue broadening the good practice base from which coastal managers can extract key lessons, share experiences (e.g. Steijn et al., 2012; OURCOAST: <http://ec.europa.eu/environment/iczm/ourcoast.htm>) and assist with institutional capacity building and learning. The activities of the COREPOINT and IMCORE projects provide examples of where innovative partnership arrangements can be applied to address a range of coastal issues (Table 3.1) in different physical environments, policy settings, and institutional arrangements. Consolidating the key outcomes and lessons from investment in ICZM is essential to ensure optimum use is made of our learning to date; this will ensure coastal management practitioners have at their disposal a wealth of experience to draw upon, which in turn will yield cost savings in terms of lessons learned, avoidance of overlaps and repetition of failed interventions. Exchange of experiences and good practices in coastal management is all the more relevant when one considers the pivotal role of ICZM in the delivery of objectives for related policy areas of EU importance, primarily maritime spatial planning (MSP), marine environmental protection (i.e. Marine Strategy Framework Directive), conservation of biodiversity, green infrastructure, and climate adaptation.

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