

Research Paper no. 5

**Implications of the Water Framework Directive
for coastal risk management**

*A Research Paper for the Local Government Association's Special
Interest Group on Coastal Issues
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Abbreviations

CFMP	Catchment Flood Management Plans
CHaMP	Coastal Habitat Management Plan
CIS	Common Implementation Strategy
CPD	Continuing Professional Development
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
HMWB	Heavily and Artificially Modified Water Bodies
ICZM	Integrated Coastal Zone Management
LGA	Local Government Association
RBD	River Basin District
RBMP	River Basin Management Plan
SMP	Shoreline Management Plan
TCP	Town and Country Planning
WFD	Water Framework Directive

Executive Summary

The publication of the EC Water Framework Directive (WFD) has raised the profile of river basin planning and floodplain management issues. The Directive will influence flooding and land-use planning, as it aims to help stabilise the quantity of water contained within catchments which will, in turn, limit flood potential and protected habitats.

Although the WFD is still in its infancy, there are several potential key areas of interaction with coastal risk management; not the least of these relates to flood risk. Furthermore, clear and substantive interaction between the Directive and coastal risk management needs to be developed as soon as possible and to be backed up by a pragmatic, flexible and iterative process of research, monitoring and review.

Introduction

Aims of the paper

This paper discusses the implications arising from the WFD with respect to managing coastal risk. The paper is structured into three main chapters:

1: Background information

- The WFD – key elements
- Relevance and synergies with coastal risk management

2: Current understanding and stakeholder interaction

- Knowledge and involvement of the process to date
- Key areas of interaction
- Perception of future interaction

3: Moving forward: future issues to address

- Challenges and opportunities to address
- Proposed requirements and recommendations for providing an effective link between the WFD and coastal risk management

1. The Water Framework Directive

1.1 Background information

Introduction

The Water Framework Directive 2000/60/EC (WFD) is widely recognised as the most significant piece of European water legislation published to date (Environment Agency (EA) and Defra website). The WFD is an over-arching piece of legislation that will update existing EC water legislation¹ through the introduction of a statutory system of analysis and planning based upon river basins (EA website).

Potentially the WFD provides a comprehensive legal and management framework for an integrated and co-ordinated approach to sustainable water management across Europe and the UK. It is likely to prove the most significant piece of legislation governing environmental management for many years to come.

Aims and objectives

Its core aims are to:

- Harmonize existing European water policy; and
- Improve water quality in all of Europe's aquatic environments (Page and Kaika, 2003)

Its further aims are to:

- Prevent further deterioration and protect and enhance the status of aquatic ecosystems
- Promote the sustainable consumption of water
- Reduce pollution of waters from priority substances
- Contribute to mitigating the effects of floods and drought

Spatial coverage

The WFD applies to all aquatic environments, including:

- Surface freshwater bodies (including lakes, wetlands, rivers and streams)
- Groundwaters
- Transitional waterbodies (estuaries)
- Coastal waters (out to one mile from low water) (Moss, 2004)

As such, for the first time, a piece of water legislation deals with the whole spectrum of inland and coastal waters, managed on a river basin level. The linkages between surface waters and groundwater as well as water quality and quantity must be clearly accounted for in meeting the Directive's objectives (EA website).

River Basin Management Plans

The main mechanism by which the WFD will attempt to achieve its goals is by compelling each Member State to identify River Basin Districts (RBDs) (Holzworth, 2002; White and Howe, 2003). RBDs are areas of land and sea, composed of one or more river basins together with their constituent groundwaters

¹ See http://www.environment-agency.gov.uk/business/444217/444663/517208/525194/572366/?lang=_e for the list of the repealed Directives.

and coastal waters. The management of each RBD is established through a River Basin Management Plan (RBMP). Nine RBDs have been identified in England and Wales² and there are an additional two cross-border RBDs with Scotland³

Implementation – the ‘Transposition’ Process

The Directive entered into force on 22 December 2000 and had to be turned into national legislation (the ‘Transposition’ process) by each Member State by 22 December 2003. Subsequently, the Directive has a series of implementation deadlines up to 2015 – the date by which environmental objectives must be met.

The UK Transposition timetable

The UK Government has published three consultation documents which set out what the Directive is and how the Government intends to meet the requirements:

- March 2001 – an introduction to the Directive (aims, costs and administrative framework)
- October 2002 – how the Directive will be turned into national legislation
- August 2003 – draft Transposition requirements

A key stage in the UK’s implementation was reached on 11 December 2002 when the requirements, which transpose the Directive, were laid before Parliament. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 were then published. Additionally, on 20 January 2004, a further set of Regulations were laid before Parliament. These entered into force on 10 February 2004 and transpose the Directive in relation to the Solway Tweed RBD⁴.

Who does what in England and Wales?

Transposition and implementation of the Directive in the UK is a devolved matter. Defra and the Welsh Assembly are working jointly on transposition in England and Wales⁵ with the Secretary of State for Environment, Food and Rural Affairs having ultimate responsibility for implementation. The Government (via the second consultation paper) has now confirmed the EA as the Competent Authority for the Directive in England and Wales. In this role, the Agency tasks will centre on the:

- Production of RBMPs
- Co-ordination of the progression of measures necessary to meet the Directive’s objectives

1.2 Specific implications for coastal risk management

Of the Directive’s five main objectives, Article 1 (e) is the most relevant to coastal risk management. This states that the Directive must ‘contribute to mitigating the effects of floods and droughts’. Apart from this there is little direct reference to coastal risk management issues throughout the rest of the Directive’s aims and objectives. This has led to a degree of misunderstanding as to the scope of the Directive and its relevance to coastal risk management (Empson, 2003). However, the Directive’s Common

² See <http://www.environment-agency.gov.uk/business/444217/444663/517208/517223/634198/?version=1&lang=e> for a listing of the nine RBDs in England and Wales.

³ The Northumbria RBD and the Solway Tweed RBD.

⁴ See <http://www.environment-agency.gov.uk/business/444217/444663/517208/517223/537652/?lang=e> for a listing of the Transposition process targets.

⁵ The Scottish Executive has transposed the Directive separately via the Water Environment and Water Services (Scotland) Act 2003 with the Scottish Environmental Protection Agency (SEPA) as the competent authority. The Department of Environment in Northern Ireland is also transposing separately and is proposing the Environment and Heritage Service as the competent authority.

Implementation Strategy (CIS) document (2001) does offer a greater degree of clarification. The focus of the CIS is to 'integrate all water-related issues within the RBD,' stating that integration includes 'all significant management and ecological aspects relevant to sustainable river basin planning including those which are beyond the scope of the WFD such as flood protection and prevention' (CIS, 2001).

This implies that, although flood defence and coastal risk management are outside the main remit of the Directive, both these processes must be considering to develop an holistic approach to managing the 'whole water environment'.

Key areas of interaction

River Basin Management Plans (RBMPs)

Coastal risk management and flood defence should make a significant contribution to river basin management planning. Catchment Flood Management Plans (CFMPs) being developed by the Agency for the whole of England and Wales should form an integral part of the wider RBMPs. Their emphasis on hydrological, hydraulic and geomorphological processes within catchments should help progress towards a longer-term, sustainable water management programme.

Heavily Modified Water Bodies

Much of the coastal and estuarine areas of England and Wales has been modified to minimise risk to people, property, agriculture and industry. Such modification means that achieving 'good ecological status', as required by the Directive, is difficult. The Directive recognises this issue as well as the benefits that may often arise from flood and coastal defence works. Such areas are to be designated as Heavily and Artificially Modified Water Bodies (HMWBs). Subsequently, the Directive requires, by end of 2004, a provisional list of HMWBs – which will mean a key interaction with the coastal risk management process.

Wetlands

Although, in theory, the WFD should provide an integrated framework for the protection of wetlands, reference to these ecosystems is limited to a few parts within the Directive. As such, the role played by wetlands both in relation to flood and coastal defence and wider coastal risk management is open to interpretation. To address this, Defra and the Agency are producing a joint statement 'on the role of wetlands, land use changes and flood management (Empson, 2003). Particular emphasis is being placed on reviewing the opportunities and benefits for the increased use of wetlands and washlands in managing coastal risk.

Floods and droughts

The Directive acknowledges (Article 4 [6]) that extreme flood and drought events can adversely affect the status (both quality and quantity) of water bodies. In order to minimise these risks and help water bodies achieve the requirements of the Directive, certain conditions need to be met including taking all practical steps to alleviate flooding and prevent further deterioration in status. Both flood defence and wider coastal risk management should, therefore, play a part in meeting these conditions.

Summary of interactions

Overall, these issues indicate that, although the WFD is still in its infancy, there are several potential key areas of interaction with coastal risk management; not the least of these relates to flood risk. Furthermore, clear and substantive interaction between the Directive and coastal risk management needs to be developed as soon as possible and to be backed up by a pragmatic, flexible and iterative process of research, monitoring and review.

1.3 Wider synergies with coastal risk management and coastal zone management

There are additional synergies in the approaches adopted by these two processes. These include:

- ***A shared focus on natural processes and the ecosystem approach*** – Subsections 11 and 12 of the Directive clearly reflect the principles of sustainable development and parallel the core Integrated Coastal Zone Management (ICZM) principle of working with natural processes. Both of these are central to effective coastal risk management
- ***Inclusive and participatory management*** – the wording of the Directive states the need for an inclusive approach, specifically co-operation and coherent interaction at regional and local levels
- ***Developing solutions specific to regional and local situations*** – Implicit in Subsection 13 of the Directive is the need for ‘local specificity’ (both in relation to regional and local issues); this reflects the need to manage coastal risk on an integrated regional approach
- ***Advocating a broad scope and width*** – both processes have embraced and integrated a wide range of issues and objectives in order to work towards holistic and sustainable management practices
- ***Extension of core issues to wider policy areas*** – both the Directive (in terms of water management issues) and coastal risk management (in terms of shoreline management) have facilitated integration of their core issues into wider policy areas, including recreation, agriculture, land use, tourism, fisheries and energy
- ***Emphasis on cross-boundary / issue management*** – both processes advocate management across sectoral issues and administrative boundaries in order to develop an approach that is more reflective of natural systems and joined-up approaches

2. Current understanding and stakeholder interaction

2.1 Stakeholder experiences and interactions to date

In order to gain further insight into the interaction between the WFD and coastal risk management, semi-structured interviews were conducted with a number of individuals representing the key organisations involved in this area⁶. The following sections report the main responses of the interviewees. The experiences and perceptions of the interviewees were sought on six areas of the WFD / coastal risk management interface:

- Awareness, experience and involvement to date with the WFD
- WFD and its implications for coastal risk management / shoreline management
- Boundary issues
- Community involvement, including consultation
- Resource and information implications
- Future interface between coastal risk management and the WFD

2.2 Experience and involvement to date with the WFD

Awareness of the WFD

Overall, all interviewees were well aware of the WFD as a new and important piece of legislation relating to the whole water management process. However, with the exception of Agency interviewees, there was a lack of clarity as to its exact role, components and implementation timeframe and targets.

Involvement and experiences to date

EA interviewees, as would be expected, were more involved with the WFD, often at either strategic level as well as on a day to day implementation level. The majority of other interviewees had experienced far less interaction, with involvement often limited to information gathered at conferences and seminars, informal discussions with colleagues, via consultancy reports or through work on wider coastal and environmental projects. Most interviewees understand the need and were keen to be more involved, but felt there was a general lack of clarity on how / when to become involved. This was coupled with a correspondingly low level of information sharing and communication from stakeholders already more involved with the WFD.

WFD and its implications for coastal risk management / shoreline management

Interview question:

What are the main implications arising from the WFD for coastal risk management?

Overall, interviewees felt that, for the immediate future, there would be no major institutional or organisational implications. The majority highlighted, however, that improved integration of issues, stakeholders and resources would be the main issue to arise in the mid to longer-term. This was especially so for improvements to: information management (collection, storage and dissemination); the general understanding of the water environment (notably coastal processes); and management approaches for the land-sea interface.

⁶ Appendix One lists the interviewees.

The main objectives of the WFD in relation to coastal risk management

Interview question:

Are the main objectives of the WFD welcomed in relation to coastal risk management?

There was a general consensus that the objectives of the WFD were a positive step forward for developing an holistic, longer-term approach to environmental management as a whole. Some respondents also felt that they already represented a positive mechanism for improving the coastal risk management process. In the main, however, interviewees felt again that there were, as yet, no clear and substantive benefits stemming from the WFD for coastal risk management. Most stated that the relatively recent introduction of the WFD meant that a lack of clarity, practical experience and expertise was presently limiting the potential benefits for coastal risk management.

Contribution of coastal risk management to the WFD

Interview question:

How should coastal risk management contribute to the WFD?

Again, there was a general consensus with interviewees stating that the coastal risk management process should seek to integrate closely with the WFD, especially at the RBD / RBMP level. In particular, it was felt that the significant experience, information resources and networks generated by the stakeholders involved with coastal risk management should feed directly into RBMP at an early stage. This should be combined with a clear and iterative programme of joint research, monitoring and review to provide mutual benefits for both processes. In essence, the experience of coastal risk management should be a core 'building block' of an informed, dynamic and holistic WFD process. However, it was clearly stated that greater interaction and clarity of objectives needed to be developed quickly in order for this to occur successfully.

Institutional arrangements and the WFD

Interview question:

What institutional or administrative changes are foreseen?

All interviewees felt that any future possible changes were difficult to predict at this early stage of the WFD implementation. Currently, it is felt that the WFD institutional framework will operate as a distinct and parallel process, acknowledged by wider coastal zone management processes, including risk management. Several interviewees felt there may be changes to the administration of flood and coastal defence in the longer-term, if the WFD and its implementation by the Agency is deemed successful. In particular, it was suggested that the WFD may provide an over-arching mechanism for the Agency to be given responsibility for both flood defence and coast protection. However, this was again difficult to envisage for the immediate future.

Interaction between the second generation of Shoreline Management Plans (SMPs) and RBMPs

All interviewees recognised the need for a close relationship between SMPs and RBMPs, especially if related Coastal Habitat Management Plans (CHaMPs) and CFMPs are also to be accounted for effectively. However, it was suggested that there was no need for SMPs and RBMPs to be developed in synchronicity, as both had specific aims and timetables. Shared benefits would be realised by the development of a more joined-up approach involving the sharing of information, staff and other resources, all of which would improve institutional/process integration between the WFD and coastal risk management.

Boundary Issues

This section was largely concerned with assessing stakeholder views of how coastal risk management may be affected by the WFD boundaries, notably the RBD concept and its one mile offshore boundary.

Interview question:

How well will these boundaries integrate with existing SMP boundaries?

Most interviewees felt that this was, as yet, an unclear area, especially in relation to the offshore boundary. It was felt that the one mile offshore boundary was arbitrary and somewhat meaningless, as well as adding an additional boundary to the management process. Furthermore, it would also be problematic for dealing with risk issues in estuaries due to its inability to reflect the dynamic nature of such areas. All the interviewees also commented that there would be no real problems arising from the 'mis-matched boundaries' as long as each process and stakeholder group were aware of the differences. It was felt that given time and the development of a more joined-up approach this issue would be resolved.

Conversely, the RBD concept and its use of discrete management units encompassing riverine, terrestrial and coastal ecosystems was seen as a positive step forward. It was felt that this approach would facilitate a more joined-up process for managing mutual resources, information and expertise.

Community Involvement

Given the importance that the WFD places on community involvement, this section was concerned with the implications for coastal risk management arising from this potentially heightened issue.

Interview question:

What are the implications for coastal risk management and community participation arising from the WFD?

All interviewees expressed a significant degree of concern with regards to this question. In particular, it was felt that a further round of consultation would 'overload' or unduly complicate the system. The consensus was that, although consultation and participation was already well developed in shoreline management and wider coastal risk management, the actual level and type of involvement, as well as resources allocated to it, was finely balanced. An additional round, especially if focused on a new range of issues would potentially produce 'consultation fatigue' and apathy. This was seen as a problem especially amongst user groups and the public, both of which are critical to coastal risk management.

It was also noted that another round of consultation may overly raise the public's expectations as many of the management decisions depend on political and economic issues rather than on implementation by the public. Therefore, it was suggested that consultation and participation will need to be carefully co-ordinated and monitored within a strategic framework to avoid duplication, confusion and overload for stakeholders and the public alike. A similar framework has been proposed for the second round of SMPs.

Interview question:

Who should be responsible for consultation?

Interviewees stated unanimously that the Agency, as the designated Competent Authority, should be responsible for consultation. This was qualified, however, by respondents highlighting the need for the Agency to develop the process in a transparent, integrated and inclusive manner across all relevant issues and stakeholders. 'Participation' as opposed to 'consultation' was seen as the most appropriate way forward, with all parties encouraged to take an active and on-going part. Furthermore, a number of interviewees commented that the Agency should attempt to co-ordinate the shoreline management and WFD participation process as closely as possible to avoid the potential problems of overload and duplication.

Interview question:

At what level should consultation take place?

Again, there was general agreement to this question, with interviewees suggesting the regional level as the most appropriate. It was felt that it was not necessary to take consultation to a lower level in view of the RBD approach of the WFD. Additionally, it was noted that the shoreline management process has

achieved success in local level participation and as such this should be integrated into the WFD process as well as helping to minimise confusion and duplication.

Resource and information implications

Interview question:

What will be the main resource implications arising from the WFD?

The interviewees identified two key issues.

First, it was felt that this area was difficult to address and forecast at the present time due to the relatively early stage of the Directive's implementation. This was especially so due to the current lack of structure and clarity concerning organisational roles and interactions. It was noted, however, that there had been some resource implications already, notably in relation to information dissemination and some, albeit limited, training and education input to secure stakeholder 'buy in' and understanding.

Second, the non-Agency interviewees stated that they did not foresee any major, long-term resource implications for their organisations as they expected most costs or outputs to be covered by the Agency as the competent authority.

Interview question:

What are the main information management implications?

Again interviewees were in agreement, highlighting that the importance, breadth and approach of the WFD should benefit information resources. This was particularly in relation to the quantity of information needed to meet the WFD requirements and its emphasis on research, monitoring and review. Interviewees suggested, however, that such benefits would only be accrued if there were co-ordination, co-operation and collaboration between the WFD, coastal risk management and wider coastal management processes in relation to information management. Without a standardised and mutually accessible process, there may be problems of duplication and a multitude of information technologies employed, all of which could lead to confusion and a fragmented approach.

Overall implications: Future interface between coastal risk management and the WFD

This final section sought to establish the interviewees' overall perceptions of how the WFD and coastal risk management would interact and develop.

Interview question:

What will be the most important implications for the WFD – coastal risk management interface?

Interviewees' opinions were clearly divided in response to this question. Several stated that the main issue would be how to develop a mutually beneficial interaction between both processes. In particular, these interviewees questioned how realistic it would be to join up the two processes in order to restrict overlap, confusion, consultation overload and 'paralysis by analysis'. They also questioned whether an adequate level of co-ordination could be achieved that would allow the identification of a coherent and understandable message which had been subject to public participation and to which there would be public commitment. These interviewees highlighted the lack of: stakeholder understanding; clarity of WFD objectives in relation to coastal risk management; and the additional complexity of interaction with wider integrated coastal zone management, as the key obstacles to realising any tangible benefits from the Directive.

Conversely, the remainder of interviewees suggested that the implementation of the WFD could only be of benefit to coastal risk management and other wider coastal initiatives. This was especially so in relation to the potential improvements to information and resources, the regionalization of management, a heightened awareness and inclusion of environmental objectives and the statutory basis of the WFD. Harnessing at least some of these would help develop a more informed, integrated and strategic approach

to management of the wider water environment, of which coastal risk management is an important component.

3. Key issues to consider in developing the WFD – coastal risk management interface

In itself, the development and successful implementation of the WFD will be a testing, on-going and long-term process. The additional issue of establishing a clear, substantive and effective link with coastal risk management will inevitably mean a number of challenges, but, more importantly, opportunities will arise. Despite the early stage of the Directive's implementation, a number can be identified and are discussed below.

3.1 Challenges to address

The key challenges, at this stage, centre on how to minimise the additional resource output (time, staff, training and financial issues) that may arise in meeting the Directive's requirements as well as not burdening an already complex system of plans and programmes at the coast. In addition, there is the core issue of how best to 'use' and integrate the Directive's requirements in the coastal risk management process.

Minimising resource output and organisational complexity – there is already concern that there are too many tiers, plans and strategies relating to coastal risk management and wider ICZM in the UK. The Directive will inevitably add to this complexity which may further the perception (and in many cases, reality, of) 'plan overload' or 'paralysis by analysis'. In addition, there may well be resource implications in undertaking the Directive's requirements which may put further strain on already stretched organisations and individuals. This issue may manifest itself in terms of additional staff time and training requirements as well as unforeseen budgetary pressures.

Viewing the Directive as a panacea – it is important that the WFD is not seen as a 'catch all' or panacea for resolving the current complexity of plans and strategies at the coast, many of which impact of coastal risk management. Many of these current coastal plans do not directly address issues relating to environmental quality and, therefore, fall outside the remit of the Directive and its constitute RBMPs. As such, the Directive cannot be used as an over-arching coastal or coastal risk management plan. Instead, it is suggested that the Directive's principles should be clearly and substantively integrated into each plan with a coastal focus, including SMPs. Additionally, as the Directive is still in its infancy, the process of integrating with coastal risk management strategies needs to be regularly reviewed in order that the lessons learned through its development can be accounted for and opportunities exploited.

Not excluding existing mechanism and strategies – it is important that existing mechanisms and initiatives, most notably Coastal Groups and SMPs, but also wider coastal strategies, are clearly acknowledged and utilised by the WFD process. In particular, emphasis needs to be placed on not 're-inventing the wheel' and duplicating the work already carried out. Coastal Groups and SMPs need to be utilised for their networks of expertise, experience, data and information resources and the consensus-based approaches they have developed. As such, those responsible for implementing the Directive need to ensure they are aware of, and subsequently work in a joined-up manner with, the already established structure of coastal risk management.

3.2 Opportunities

The key opportunities to be exploited by the coastal risk management process at this stage of the WFD implementation include:

The WFD will fill an important legislative gap – The Directive should facilitate more integrated management, especially at the land–sea (fresh and marine water) interface. It will provide an additional tool to address many of the marine aquatic issues that are currently difficult to cover effectively within the existing coastal management process.

Strengthen cross-boundary management – In advocating a trans-boundary approach to management the Directive will help to develop greater expertise and experience in this area, especially in relation to management across administrative and sectoral boundaries, both of which are of central importance to effective coastal risk management.

Enhanced information resources – The Directive should generate a significant rise in new information from a basin-wide perspective. Of particular importance to coastal risk management should be increased levels of data relating to surface runoff, groundwater levels, diffuse pollution and the environmental impacts of different types of land use in each river basin. Knowledge of, and access to, this new information should help improve the information inventories held by Coastal Groups and integrated into SMPs.

Improved and joined-up consultation – The importance attached by the Directive to improved consultation and public participation should be viewed as an opportunity for coastal risk management to develop. A joined-up and more informed approach to participation should help overcome duplication of effort and help pool expertise as well as re-inforce the need for wide and transparent participation, especially with the public.

A re-inforced regional approach to management – The formation of RBMPs may help to re-inforce a more joined-up, cross-boundary, regional approach to management generally. This should complement the spatial level of management developed by Coastal Groups and SMPs, which advocates an over-arching regional approach to management based on specified lengths of coastline crossing local administrative boundaries and which is reflective of natural processes.

Heightened environmental agenda – a criticism of the first generation of SMPs was their inadequate consideration of wider environmental issues⁷. Compliance with the Directive should provide a strong platform for promoting the importance of integrating environmental objectives in both ICZM and coastal risk management. In particular, the Directive should strengthen the role of the EA in heightening the profile of environmental issues in SMPs.

Improved interaction between the Agency and the Town and Country Planning (TCP) system – The designation of the EA as the competent authority for implementing the Directive, combined with the significant focus on environmental issues, could provide improvements to Agency-TCP joint working practices. This may be especially so in the collection and sharing of the additional information requirements, the revision process for local plans, local development documents and regional planning bodies preparing the new Regional Spatial Strategies.

3.3 Recommendations and requirements

⁷ This is acknowledged by DEFRA and work is being carried out to ensure this issue is addressed by the second generation of SMPs.

This section draws on the key issues discussed in the preceding sections of this research paper and outlines a number of recommendations for the future integration of the WFD with coastal risk management. It must be noted that these recommendations are general and based on experience to date which, due to the early stage of the WFD implementation, is, at best, limited.

These recommendations aim to help improve understanding of the relevance of the WFD to coastal risk management and thereby seek to develop a more informed and consistent approach to the overall management process for the water (both land and marine) environment.

Examine more fully the linkages between the Directive and coastal risk management – notably to develop and enhance areas of mutuality, such as: objectives and targets; information management (collection, storage and dissemination); potential joint work programmes; and participatory mechanisms.

Coastal risk management to widen its understanding of the water environment – in particular, improved understanding of surface runoff issues, water policy decisions, sources of information, training and education, the range of approaches to managing terrestrial flood risks and how individuals and communities interact with the WFD.

Coastal risk management to adopt a flexible approach to the WFD – this approach should be open, transparent and easily modified in the light of developments and reviews that will be inherent in the newly implemented WFD. This process should be two-way and responsive enough to react effectively to both benefits and shortcomings of either management process.

Systematic identification of WFD issues relevant to both ICZM and wider coastal risk management – this should involve not just a robust and accessible inventory of linked issues but, importantly, should develop mechanisms for stakeholders to address or should integrate these into management programmes.

Broaden the scope and width of coastal risk management – to include explicit reference and integration of WFD terminology, targets and wider issues. This should benefit cross-issue consistency as well as developing a more anticipatory and sustainable approach.

The WFD to utilise existing information, strategies and groups – this should minimise duplication of effort, enable the WFD to build upon existing knowledge and promote ‘joined-up’ working practices.

Joined-up working practices – to promote integration and the identification of future synergies, closer working relationships between those involved in the WFD and coastal risk management should be emphasised. This could include joint Continuing Professional Development (CPD), education, training and interpretation programmes and linked research and monitoring exercises.

Ensuring that the WFD is not viewed as a panacea for institutional complexity – this requires an acknowledgement that the WFD is only one, albeit an important one, component of coastal risk management. Its aims, resources and strategies (such as RBMPs) should be integrated into future revisions of SMPs in order to highlight combined actions and potential longer-term synergies.

Key web sites

Defra WFD site:

<http://www.defra.gov.uk/environment/water/wfd/>

EA's WFD site:

<http://www.environment-agency.gov.uk/business/444217/444663/517208/517212/?lang=e>

UKTAG is the United Kingdom Technical Advisory Group on the European WFD (Directive 2000/60/EC). It is a partnership of the UK environment and conservation agencies. It also includes partners from the Republic of Ireland. UKTAG was established in 2001 to provide coordinated advice on technical aspects of the implementation of the WFD.

<http://www.wfduk.org/>

Regulations for England and Wales:

Statutory Instrument 2003, No. 3242, The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003; website:

<http://www.legislation.hmso.gov.uk/si/si2003/20033242.htm>

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Appendix 1

List of interviewees

Dr Chris Pater, Shoreline Management Officer, English Nature – 01.04.04

Robin McInnes, Chair of the Coastal Group Chairmen and Isle of Wight Coastal Centre, 01.04.04

Jane Rawson, Acting Team Leader, Shoreline Management Team, EA – 02.04.04

Richard Young, Team Leader, Humber Estuary Project, EA – 02.04.04

Philip Winn, Project Team Manager, Humber Estuary Project, EA – 30.04.04

Jim Hutchison, Defra – 28.04.04

Dr Roger Proudfoot, Marine Policy Advisor – Water Framework Directive, EA – 30.04.04