

Coastal Futures 2010 Review and Future Trends

***January 20-21st
SOAS, University of London***

Climate change - Adaptation — Flood risk management – Coastal policy and planning – Working with Coastal processes - Assessing Social Values - IPC – Infrastructure Planning - Mitigation – Carbon capture and storage - Offshore Wind and Wet Renewables - Severn Barrage assessment and erosion issues – Marine Strategy Framework Directive – Ocean acidification – Ocean geo-engineering- Visioning the seabed

Marine Act implementation – Marine works and consenting – Access to justice – MMO - roles and function – Future Direction of marine Conservation - Marine Protected Areas - Reform of the Common Fisheries Policy – Scallop fisheries – Sensitivity Mapping - Marine Spatial Planning – Marine Policy Statement

Sponsors:

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Organised by *CMS – Communications and Management for Sustainability*

Coastal Futures 2010 - Review and Future Trends

Welcome to the conference

This information gives the answers to some of the most frequently raised questions that arise at the conferences we organise.

Conference Outputs

- **The Power Point presentations** and delegate notes will be available shortly after the event on the CMS www.coastms.co.uk website. We will notify you by email when these have been placed on the sites.

Questions – Bookings – Receipts – In house information If you have any questions during the event about bookings, finances, or logistics please see **Christina Beech** at the registration desk; she will be pleased to help.

Timing We will try to ensure that the conference runs on time to allow the allocated time for speakers and as importantly for discussion. A bell will be rung 5 minutes before the start of sessions.

Refreshment Breaks In running events in London over the last 15 years we have used two main refreshment breaks during the day that enable us to split the sessions and breaks more evenly. A sandwich buffet is available in the first break and sweet course during the second.

Food There is always ample food at the events and you can come back for more. Once you have collected your food **could you move away** from the serving table. Catering staff are on hand if you need anything, including extra drinks.

Delegate list A list of the delegates to 11 January is at the end of the delegate notes.

Evaluation form There is a questionnaire and evaluation form at the end of delegate notes; your views will help us improve future events. Please leave these at the registration desk along with your badge when you leave.

NB Valuables **If you have anything you value keep it with you i.e. do not leave laptops unattended.**

Before you leave Check you haven't left anything in the conference hall.

Please also take any **leaflets or reports**.

Wednesday January 20th

9.00 Registration and refreshments

Session 1: **Chairman: Jon McCue** Atkins

- 9.40 **Welcome to the conference** **Bob Earll** CMS
- 9.45 **Opening Address** **Huw Irranca-Davies MP Minister for Marine & Natural Environment**
- 10.15 **Climate change, projections and the Environment Agency's Coastal Overview**
– recent development **Nick Hardiman** Environment Agency
- 10.35 **New planning policy and guidance on coastal change** **Peter Bide** CLG
- 10.55 **Planning at the coast – a landowners response to the developing policy agenda**
Phil Dyke The National Trust
- 11.15 **What social values are held for our seas and how can they be taken into account in management decisions?** **Peter Jones** University College London
- 11.35 **The Coastal Partnership Working Group** **Bill Parker Vice Chairman** Coastal Partnerships Working Group / Suffolk Coast ICZM Initiative Officer
- 5 mins short presentation
- 11.40 First Break

Session 2: **Chairman: John Hartley** Hartley Anderson

- 12.25 **National planning for major infrastructure – IPC – National Policy statements – and their implications for the coastal and marine management**
Jim Claydon Jim Claydon Limited
- 12.45 **Carbon Capture and Storage – implications for the marine environment**
Professor Mike Cowling The Crown Estate
- 13.05 **Development in tidal stream and wave energy generation**
Danielle Lane The Crown Estate
- 13.25 **Severn tidal power – the ongoing environmental challenges**
Lara Ball and Tom Matthewson
Black and Veatch
- 13.45 **Barrages and their effects on sediment regimes – lessons for the Severn Barrage**
Roger Morris Bright Angel Coastal Consultants
- 14.05 **A critical view of environmental assessment and offshore wind development**
Keith Henson DONG Energy
- 14.25 **Marine Sectoral Input to the First UK Climate Change Risk Assessment**
Kathy Kennedy Cefas
- 14.35 Break & refreshments
- 15.20 Session 3: **Chairman: Joan Edwards** The Wildlife Trusts
- 15.20 **Water Framework Directive – Lessons from first round plans**
Roger Proudfoot Environment Agency
- 15.40 **The Marine Strategy Framework Directive** **Stuart Rogers** Cefas
- 16.00 **Ocean acidification an update** **Stephen Widdicombe** Plymouth Marine Laboratory
- 16.20 **Ocean geo-engineering – The Royal Society Review**
Professor John Shepherd FRS National Oceanography Centre
- 16.50 **Visioning the seabed - outcomes of the recent surveys of Northern Ireland seabed features**
Joe Breen Environment and Heritage Service Northern Ireland
- 17.20 Wine reception

Thursday 21st January

9.00 **Registration and refreshments**

Session 4: **Chairman Sian John** Royal Haskoning

- 9.30 **Has the Marine Act delivered for marine works and consenting?**
Peter Barham Consultant / Seabed User Developer Group
- 9.50 **Access to justice – Contrasts in the current jurisdictions FEPA, Appropriate Assessment and SEA**
Simon Brockington Marine Conservation Society
- 10.10 **MMO – Introduction to roles and functions**
Chris Parry Chair Designate
Marine Management Organisation
- 10.30 **Reporting the State of the Sea – time for rationalising our approach?**
Stephen Malcolm Cefas
- 10.50 **Future directions for Marine Conservation**
Lisa Chilton The Wildlife Trusts
- 11.10 Break and refreshments

Session 5: **Chairman: Steve Hull** ABPmer

- 12.05 **A view of the future for the fishing industry – Common Fisheries Policy Reform**
Jim Portus SWFPO Ltd
- 12.30 **An NGO view of the CFP Report**
David Ritter Greenpeace
- 12.55 **The developing programme for MPAs**
James Marsden Director Marine, Natural England
- 13.20 **The future of Scallop fishing**
Tom Pickerell Director, Shellfish Association of Great Britain
- 13.40 **Mapping seabed sensitivity to fishing activity in Welsh waters**
Clare Eno CCW
- 14.00 Break and refreshments

Session 6: **Chairman: Kathy Kennedy** Cefas

- 14.40 **Life after the Marine and Coastal Access Act: developing the new marine planning System**
Alison Reeves Defra
- 15.40 **Discussion**
- 16.00 **End and refreshments**

Climate Change Projections and the Environment Agency's Coastal Overview

Nick Hardiman

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2009 saw a fresh set of climate change projections that sharpen our understanding of the likely impacts of sea level rise on our coast into the future. The Environment Agency has the Strategic Overview for all flood and erosion risk management at the coast – so what is our response and what does this mean in terms of policy and practice?

This presentation will highlight the key implications of climate change for the coast, and will take a snapshot of what we have done since we took on the 'Coastal Overview', where are now and what we have to look forward to in 2010. This includes a review of progress with coastal monitoring, the second generation of Shoreline Management Plans, and new web-based information showing coastal erosion risk. These initiatives affect how we work with a range of people and organisations at the coast, so also covered are our activities to make developments in coastal management more visible and accessible to the public.

Against a backdrop of new legislation, this year should see real progress in deciding and communicating how we will collectively tackle climate change at the coast in a fair and cost-effective way. We look forward to working together with you to meet the challenge.

For more information please see our coastal web pages at <http://www.environment-agency.gov.uk/homeandleisure/107495.aspx>

New planning policy and guidance on coastal change

Peter Bide

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In July 2009 CLG launched a consultation on new planning policy to help communities manage and adapt to coastal change. Positive planning has an important role in helping communities to manage risk and adapt to an ever changing coastline. The new planning policy sets out a framework for the continuing economic and social viability of coastal communities to ensure that the impacts of coastal erosion and permanent inundation are taken into account at all stages of the planning process. It complements PPS25 on flooding, and the intention is to publish it as a supplement to PPS25.

It aims to strike the right balance between economic prosperity and reducing the consequences of coastal change on communities. It provides a strategic planning response to enable communities to plan their long-term adaptation, whilst helping them remain viable by allowing time-limited development (such as beach huts, car-parks and cafes in areas of short-term change, and hotels, shops, and leisure activities where the risk is medium term) to be built in coastal areas if there's an economic benefit and the impacts of coastal change can be properly managed.

The consultation, which closed in October 2009, also sought views on extending the Environment Agency's consultee role, call in powers for planning applications in at-risk areas, and selective removal of permitted development rights in areas at short-term risk.

Planning at the Coast – a landowners response to the developing policy agenda

Phil Dyke

Coast and Marine Adviser - The National Trust

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Find out more: www.nationaltrust.org.uk/main/w-chl/w-countryside_environment/w-coastline.htm

The National Trust, as owners of over 700 miles of coast around England, Wales and Northern Ireland welcomes the Marine and Coastal Access Act 2009 and the arrival of marine planning. Two percent of the Trust's 250,000 hectare estate is marine and includes such iconic places as Lundy, The Farne Islands, Rhossili/Worms Head and Strangford Lough. The National Trust is supported by 3.75 million members.

Under the Marine Act government is required to designate a network of protected areas to conserve or improve the marine environment, set up a new Marine Management Organisation (MMO) to manage and champion the UK's seas and to set up a new marine planning system that will ensure activities at sea are planned strategically.

This presentation focuses on what success might look like in relation to marine planning and suggests 3 key ingredients necessary to shape success:

- Effective community and stakeholder involvement in the plan making process
- An MMO that nurtures marine planning through it's ways of working and provides a clear vision and leadership
- Integration and coherence between land-use and marine planning

Effective community and stakeholder involvement in the plan making process

We know from the National Trust survey of coastal values (2005) that two thirds of people feel that visiting the seaside is important to their quality of life and that one third of us day dream about being by the sea as we go about our everyday lives. So clearly we care - but marine planning? Can we really get involved as ordinary citizens?

The fact that we may live miles from the sea might suggest to many of us that marine planning is not relevant to our lives. The experience of our 3.75 million supporters suggests this is not the case and that we all have our special and cherished places by the seaside. Places that we have been visiting as families, often from one generation to the next. Seaside places that we hold close to heart – we are all sea users. And we can all be legitimate commentators and participants in marine planning.

As part of the development of the system of marine planning, the UK Government and Devolved Governments have produced a Statement of Public Participation This Statement of Public Participation sets out how we can all be involved in the development of marine planning and provides the timetable for its development.

In an English context the MMO is charged with making this happen and much will depend on the organisational culture that is established in the coming months – openness and inclusivity must be touchstones.

An MMO that nurtures marine planning through its ways of working, provides a clear vision and leadership and delivers integration and coherence between land-use and marine planning

In 2009 Environment Agency, Natural England, Countryside Council for Wales and National Trust collaborated to commission a piece of work on marine planning at the coast and its interaction with land use planning in England and Wales

The purpose of the work undertaken by Entec was to:

Assess how the proposed marine planning system should integrate with land-use planning at the coast to deliver the remits of the project partners

- To assess opportunities and threats posed between two planning systems for and against specific interests of the partners
- To provide recommendations and supporting material to inform guidance in relation to both marine and land-use planning (including policy to guide the IPC)
- To highlight options and make recommendations on the way partners will need to adapt the way they operate to accommodate the new system

The project used a number of case studies - to identify i) planning issues at the coast under the existing system ii) examples of good and bad practice iii) how introduction of marine planning would affect practice and iv) lessons for project partners

Peer review workshops were used to develop and test preliminary recommendations. The full report and an Executive summary are available as pdf files on the CMS web site.

A summary of the final recommendations from Entec are as follows:

1. Cohesion - Land plans must be compatible with marine plans and vice versa a key driver will be EU Marine Strategy Framework Directive but common sense dictates we must all remember to play our part in making this happen

2. Plan Policy - MPS needs to be amphibious - PPSs need marinising - both need to take account of emerging NPSs (IPC)

3. Guidance - more detail on preparing Marine Plans is needed - clarifying process, boundaries, scale of plans, compatibility between plans etc etc

4. Specific Guidance needs to be developed - on what seascape means and the relationship of Marine Planning with coastal AONBs and National Parks - Linking land and sea in protected area management.

Conclusion – What success looks like in Marine Planning

Pursuing work that addresses these 4 recommendations in the coming years should result in an MMO that nurtures marine planning through its ways of working, provides a clear vision and leadership and plays a part in delivering integration and coherence between land-use and marine planning

What social values are held for our seas and how can they be taken into account in management decisions?

Dr Peter J.S. Jones

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The Marine & Coastal Access Act (2009) aims to develop an ecosystem approach to 'safeguarding our seas'. The ecosystem approach is as much about social science, i.e. providing for the participation of people in decision-making processes, as it is about ecological science, i.e. understanding the structures and functions of marine ecosystems and maintaining them. Providing for the participation of people is easy to state as a policy aim but very difficult to do, as it raises a number of critical questions:-

How can the different values that people hold for our seas be 'captured' and included in decision-making processes?

How can different values amongst different categories of people be reconciled and conflicts addressed?

In what ways are the societal values held for our seas changing and what are the implications of these changes?

This presentation will consider these questions and the challenges they are likely to raise for the implementation of the ecosystem approach to 'safeguarding our seas'.

Facing the Brave New World

Bill Parker

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www.coastalpartnerships.org.uk

Coastal Partnerships Working Group was set up in 2007 to encourage the exchange of information between Coastal Partnership officers and to increase the opportunities of learning and influencing.

Coastal Partnerships come in many forms and with many different origins but all have been established to provide an independent forum to bring people and organisations together to improve dialogue. In some partnerships have evolved to; provide a co-ordinating role for management plans, central locations for holding information, integrated into protected landscape (AONB) management plans, etc, and for anyone who lives / works near the coast there is a partnership near you.

What they all do is provide the link between those organisations who have powers and duties and the local communities. They provide both the connectivity and the glue that means that local people have a say in the future of their coastal area. In an era of widespread consultation this role is vital.

The challenge to-date has been tough but to misquote Huxley, we have our own Brave New World of IFCAs, MMO, MCZs... The role of partnerships in bringing diverse groups together an expanding and diverse range of stakeholders is becoming increasingly important to take on a role of supporting an integrated approach to coastal zone management. We now have to link the terrestrial, inter-tidal and marine issues, whether it is local development frameworks, renewable energy issues, recreation management the list is endless. What is fundamental to all is that we are all learning.....all the time.

So the Coastal Partnerships Working Group wants to make you an offer!

Join us for our 2 day annual meeting 17th, 18th March – venue to be finally confirmed but it is anticipated to be in Newcastle (the new home of the MMO) and Berwick Upon Tweed. The meeting is sponsored by Defra and the agenda will be available very soon.

Action: Register your interest now – email aisling.lannin@naturalengland.org.uk

Partnership Officers and their Chairs attend but in the spirit of our Brave New World everybody is welcome.

National Infrastructure Planning – NPS/IPC Implications for Marine and Coastal Planning

Jim Claydon

Jim Claydon Limited – independent planning consultant

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The 2008 Planning Act introduced a new system of planning for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales. It replaces the Town and Country Planning Act and other consent regimes for energy, transport, water and waste projects over defined threshold sizes. Unlike previous planning systems it does not stop at the coast as it also applies to some marine as well as terrestrial projects.

The Act was the Government's response to criticism in the Eddington and Barker Reports that the UK's approach to consenting of NSIPs took too long, was too complicated and required the issue of national need to be established in each case. Government policy is now to be set out in National Policy Statements (NPSs) which will establish the need for additional infrastructure provision and identify criteria for decision makers to take into account when determining an application. These documents which set out Government policy will also be material considerations in determining applications for below threshold proposals by Local Planning Authorities and the Marine Management Organisation (MMO).

So far seven draft NPSs have been published for consultation, six on energy production and transmission and one on ports. All have significance for marine and coastal planning.

Consultation ends in mid February 2010. Following consultation and Parliamentary scrutiny the NPSs will be designated (i.e. adopted).

Applications for NSIPs will be submitted to a new independent decision making body, the Infrastructure Planning Commission (IPC) which will determine applications primarily in accordance with the NPS, but weighing the benefits against adverse impacts. A feature of the new system is that the developer will be required to conduct extensive public and stakeholder consultation and undertake an EIA (in relevant cases) prior to submission of the application. Where an NPS is not designated the IPC will submit its recommendation to the relevant Secretary of State.

In addition to the direct implications for marine and coastal infrastructure such as off-shore wind, coastally located power stations, grid and pipeline connections and of course ports, the new system also raises other questions. For example, how useful will the IPC find the Ports NPS which is spatially, quantitatively and temporally non-specific; is there a case for special coastal plans given that so much of our infrastructure requirements are to be located in that vulnerable zone; how will the relationship between the NPSs and the MPS/marine plans be managed; and should we not be moving to a more joined up approach to national infrastructure planning in England as is the case in Scotland and Wales?

2007 White Paper – Planning for a Sustainable Future (CLG)

<http://www.communities.gov.uk/publications/planningandbuilding/planningsustainablefuture2008> - Planning Act (CLG)

<http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/reformplanningsystem/planningbill/>

2009 Consultation on Energy NPSs (DECC) - <https://www.energynpsconsultation.decc.gov.uk/>

2009 Consultation on Draft Ports NPS - <http://www.dft.gov.uk/consultations/open/portsnps/>

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2009 Infrastructure Planning Commission - <http://infrastructure.independent.gov.uk/>

Carbon Capture and Storage (CCS) – implications for the marine environment

Prof Mike Cowling

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The presentation will commence with a review of The Crown Estate's role in the deployment of CCS within UK waters. It will then briefly consider the development of the need for CCS with the transition from a carbon to a solar economy, the growth in population and the requirement to decarbonise the UK economy. This will be followed by an overview of the principles of geological storage of CO₂, the availability of suitable technologies and of appropriate storage sites around the UK. The risks to the marine environment will be considered, as will relative costs and capacity within UK waters. Conclusions will be drawn as to the balance of benefits vs. disadvantages of the use of CCS in substantially reducing CO₂ emissions to atmosphere. Sources of further information will be included throughout the presentation.

Wave and Tidal developments: a Crown Estate perspective

Danielle Lane

Development Manager, The Crown Estate

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There has been an increasing interest in wave and tidal technologies and deployment over the last ten years. At the start of a new decade this is an ideal time to look back and review where the industry has come from and what lessons can be learnt from the valuable experience gained so far. But more importantly it is a chance to consider what lies ahead and what is necessary to bring the industry forward to meet its full potential. This presentation represents a view from The Crown Estate considering successes so far, current activities and a glimpse of future opportunities.

Website: www.thecrownestate.co.uk

Severn Tidal Power: The ongoing environmental challenges

Lara Ball

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The Severn Estuary has one of the highest tidal ranges in the world and the most significant tidal range resource in the UK. A cross-government group led by the Department of Energy and Climate Change is undertaking a Feasibility Study to consider whether the Government could support a project which exploits the major energy generation potential of this tidal range, and if so, on what terms.

Converting the power of the Severn Estuary's tides would, in most cases, reduce the tidal range within the estuary which could result in substantial loss of inter-tidal estuary habitats. Tidal power options could also adversely affect the passage and survival within the Severn Estuary of a range of protected migratory fish species. There is also potential for other effects such as upon water quality, flood risk and land drainage, navigation, the local and regional community, landscape and seascape and the historic environment.

This presentation provides an update on the activities which have been undertaken during 2009 to assist with the production of the Strategic Environmental Assessment. Black & Veatch and Parsons Brinckerhoff are preparing the SEA for the Feasibility Study. The presentation only describes information in the public domain and represents the personal views of the presenter.

Website for further information:

DECC website – Severn Tidal Power

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/severn_tidal_power/severn_tidal_power.aspx

Black & Veatch: <http://www.bvl.bv.com/>

Parsons Brinckerhoff: <http://www.pbworld.co.uk/>

Barrages and their effects on sediment regimes – lessons for the Severn Barrage

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Introduction

The British coastline is one of the most varied in Europe, reflecting both its amazing geological diversity and the influences of the sea. There is direct correlation between the shape of the coast and the level of wave activity, coupled with the resilience of underlying geology. Steep immobile cliffs counter the Atlantic waves and very little fine sediment is trapped; it has long since been swept offshore and lost in deeper water. Shallow muddy foreshores abound where the geology is less resilient and shallower slopes can be created to absorb wave energy. In effect, the coast is a giant energy management system that has evolved over the past 18,000 years. It reflects the optimum form for absorbing wave energy. Or at least it did for the first 17,500 years. Modern society has changed the relationship and is starting to find out that you cannot counter the basic laws of physics. We therefore have one more trick up our sleeves – remove the energy and turn it into electricity.

Barrages and sediment mobilisation

The main component of the process is to build a reservoir that fills up or drains in response to the tides, but does so out of synchrony with the tide. So an ebb-generating system allows the tide to fill the reservoir, holds the water until the tide has dropped sufficiently and then releases the water through turbines. Conversely, a flood generation system relies on holding back the tide until sufficient height has been attained for power generation to commence. Tidal lagoons operate in much the same way.

In estuaries, creating a constriction of any magnitude can be expected to reduce tidal range because the constriction itself counters tidal energy, creating friction and absorbing energy. In the case of barrages this impact can be quite considerable; upwards of 1.5 metres (at Sharpness) in the case of the highest profile Severn tidal barrage (on ebb generation). This reduced energy environment has a considerable influence on levels of mobilised sediment. The Severn is actually an amazingly good example of how the tides are responsible for sediment mobilisation – during neap tides it forms a fluid mud layer in the main channels, whereas on spring tides it is mobilised throughout the water column. Something similar must occur in other estuaries, but just not as pronounced.

Sediment mobilised on the spring tides is actually the key building block of inter-tidal in the Severn. Very little new material is imported via the main tributaries and there is little new material from marine sources such as coastal erosion or far-field sediment transport processed. In effect it is a closed system. So, if energy required to mobilise and place sediment is removed, less

sediment will be mobilised. That sediment will remain in sub-tidal environments and will effectively be lost to ongoing interactions between the water body and the foreshore.

The basic laws of physics

At some point a new equilibrium will be reached in which some sediment is mobilised, but the majority is immobile. This new environment remains fundamentally a sub-tidal depositional system until the form of the subtidal has adjusted to the new energy regime. This is the basis of Regime Theory (Pethick & Lowe, 2000), which is based on the way estuaries have responded to sea level rise. Several authors have explored this relationship, but at its simplest the shape of an estuary reflects the cross-sectional area of the mouth (any chosen point) (O'Brien, 1969) and the volume of water that enters and departs on each tide (the tidal prism). This relationship can be turned into a predictive model that defines the shape that the estuary would assume, **provided there is sufficient sediment**. If there is insufficient sediment the material available will be deposited in the lowest energy environment and that will be sub-tidal because inter-tidal experiences periodic high-energy events (storms).

Mudflats and sandflats are not static bodies – they are constantly changing – eroding during storms and accreting during periods of quiescence. However, accretion can only happen if there is sediment there to be deposited and the shape of the foreshore is fitted to providing low energy environments for deposition. On the Severn we already know that the sediment load is finite and heavily driven by existing inter-tidal erosion. We also know that the estuary has been highly constrained by flood defences. It undergoes a mixture of erosion and deposition that gives it the saltmarsh terraces that make it almost unique (terracing does occur on the Solway).

A barrage will of course remove some long-period waves, generated far out in the Atlantic, so in theory wave energy ought to be reduced too. But, barrages are nothing more than big reservoirs that are filled and drained over much shorter timescales. They do, however, hold water at a particular point for several hours and this is critical. The constant state at the top of the tide, and much slower rate of change over the tidal cycle means that there is more scope for wave attack during storm events. The waves may be smaller, but they are equally destructive over time (Morris, 2009).

Sediment mobilised during high energy events does not stay near to the shore. It is drawn offshore by the dropping tide and ends up in the low-energy sediment hungry sub-tidal environment where it stays. It cannot be re-mobilised because the barrage has created a hunger for sediment. A neat description of this is provided by the Dutch whose storm surge barrage on the Eastern Schelde is a marvellous experimental platform for the concept. Here “zandhonger” (Van Zanten & Adriaanse, 2008) is used to explain erosional processes affecting the foreshore.

Implications for wildlife and people

It has been suggested by barrage proponents that this new low-sediment regime will be highly beneficial both to wildlife and to flood defences. What is curious is that the arguments seem to suggest that if sediment loads are decreased and sub-tidal depositional environments are increased then mudflats will also accrete. We know that the available sediment is constrained by limited new input. We also know that if sediment is deposited sub-tidally it will not be available for inter-tidal deposition, so there seems to be a mathematical discrepancy. That discrepancy is the third dimension: time. In time, and provided there are no efforts made to

maintain the volume of the reservoir new mudflats and saltmarshes will emerge. It is a big estuary so the volumes needed are huge. Meanwhile, "sandhonger" equals starvation and we know what happens to a living organism when it starves – it utilises its surpluses and then calls upon its flesh. That is what an estuary will do – erosion is the end result.

Erosion has several consequences. From a wildlife perspective it means that the sediment regime will shift so that the finest sediment is lost first, followed by heavier material. Over time harder consolidated layers will be exposed. The rate of erosion will therefore slow, but it will not stop until the inter-tidal energy regime has adjusted sufficiently to absorb high-energy waves. In the Eastern Schelde the estimate is for 90% foreshore loss in about 85 years. It is two orders of magnitude smaller than the Severn and does have an external supply of sediment. At Annapolis Royal (which is several orders of magnitude smaller) two episodes of erosion have been triggered (initial reservoir construction and re-introduction of limited tidal processes) (Morris, in prep.). That erosion has not fully abated over 40 years.

Thus, birds that feed on animals that like sloppy mud will find less food over time (Pethick *et al.* 2009). No amount of increased primary productivity will increase inter-tidal biomass apart from algal blooms such as the *Enteromorpha* sheets that now affect many low turbidity British estuaries. So there will be a double whammy. Direct loss of inter-tidal together with declining food availability over remaining mudflats.

As for people, there can only be one conclusion. Eroding foreshores must mean an increasing need to upgrade defences to prevent under-cutting. This will be an ongoing pressure as beach levels drop. Defence upgrades must mean increasing demand on the flood defence budget at a time when the rest of the country is also facing increased demand through sea level rise.

References

- Morris, R.K.A. 2009. The impact of tidal energy barrages on estuarine geomorphology. *In: Aranoff, J.B. Handbook of Nature Conservation: Global, Environmental and Economic Issues*. Nova Science Publishers.
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A critical view of environmental assessment and offshore wind development

Keith Henson

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Over the last 10 years of wind power generation moving into offshore waters, it would have been assumed that errors encountered and knowledge gathered so far, would be put into best practice. So that future offshore site environmental assessment could be reduced, both in cost and time expended.

Such as it seems that we have learned very little from the accomplished environmental assessments so far. The knowledge that has been gathered and the experience gained do not seem to have been assimilated, and the processes that lead to environmental monitoring are obsolete. Thus pre/during and post construction monitoring is not being focused on what matters and has expanded to outrageous volumes of workload. This especially comes in to focus with up and coming round 3 areas.

Old methods of surveying are being superseded by better, more accurate scientific technologies, providing more “bang for your buck” but if the initial assessment or monitoring does not have an end point to reach, then what is the point of beginning the process in the first place?

Practical Recommendations:

1. Reinstate the intelligent scoping process of Environmental Impact Assessment
2. Support feed-back monitoring when monitoring aims at control of compliance with limit values
3. Support hypothesis-based monitoring when the result of the assessment gives rise to concern
4. Establish two groups that based on analyses of results of accomplished Environmental Impact Assessments and Monitoring, respectively, suggest more rational methodologies.

The First UK Climate Change Risk Assessment (CCRA)

Katherine Kennedy

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Work has begun on the 1st UK CCRA as required under the Climate Act 2008. The consortium charged with delivery of the CCRA is led by HR Wallingford and includes a wide range of contractors exhibiting a wide suite of specialisms including; risk management, economics and stakeholder engagement. The 'client' for the programme is Defra Adapting to Climate Change division. The CCRA is scheduled for delivery in November 2011 and will be laid before Parliament the following January. A number of dedicated individuals/organisations have been appointed to a 'Sector Champions' to the CCRA process. Cefas has been appointed as Marine Sectoral Champions. The role of Sector Champions in the process is as follows;

- a) To work with those involved in the stakeholder engagement activities to build good working relationships (taking advantage of and building upon existing networks) with relevant stakeholders in each sector;
- b) To present the current "state-of-play" within each sector regarding climate change issues;
- c) To provide feedback to the core team regarding the proposed risk methodology and framework;
- d) To review the application of the risk methodology and framework to each sector, ensuring relevance and effectiveness.

Cefas first requirement as marine sector champions was to prepare an 'Early Issues Report' on the marine/fisheries sector. This high level report is wide ranging and covers;

- Ocean climate - temperature, salinity, pH and oceanographic variability. The role and physical complexity of the seas in regulating climate and large-scale risks associated with climate change driven systems imbalance.
- Marine ecosystems - structure, function and diversity of marine ecosystems, the significance to the UK of marine ecosystem goods and services and associated strategic climate change risks
- Clean and safe seas - eutrophication, HABs, pollution, human and animal health / disease. Balance of interactions between environment, host and pathogen disease. Alterations in endemic disease dynamics. Exotic disease.
- Productive seas - aggregates, oil and gas, fisheries, offshore power transmission (incl. telecoms), energy generation, and aquaculture, fisheries, tourism, ports and shipping. Metrics provided wherever possible.

This is the UK's 1st CCRA, it is important to remain pragmatic, understanding that preparation of the CCRA is a both challenging and important exercise for the UK as a whole that must by statute be repeated every five years; there are many different sectors involved and getting the balance of priorities right is a difficult process.

A great deal of emphasis is being placed upon identifying and working with stakeholders across the CCRA. In this brief talk I will make sure that you are provided with an overview of the CCRA and also an indication of where you can go to become further involved in the programme as it

moves forward.

Water Framework Directive: Water for Life and Livelihoods

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On the 22nd of December 2009 the first River Basin Management Plans for the Water Framework Directive (WFD) were published. The plans represent the culmination of six years work to implement the directive in the UK and the start of an iterative process to protect and improve the ecological status of lakes, rivers, estuaries and coastal waters through successive six yearly planning cycles until 2027.

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

The plans have been developed in consultation with organisations and individuals. They contain the main issues for the water environment and the actions we need to take to deal with them. The plans have been approved by the Secretary of State for DEFRA and the Welsh Minister.

<http://www.environment-agency.gov.uk/research/planning/33106.aspx>

<http://www.ni-environment.gov.uk/water-home/wfd.htm>

http://www.sepa.org.uk/water/river_basin_planning.aspx

Ministers have also issued Directions to the Environment Agency on the standards and other criteria to be used for classification in the first river basin cycle.

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

The Directions set out the principles of classification of surface and groundwater bodies including water bodies designated as Heavily Modified or Artificial. For estuarine and nearshore coastal waters the standards represent a major step change in marine environmental assessment and protection. The standards are the culmination of major technical development work by the WFD UK Technical Advisory Group and its associated subgroup the Marine Task Team.

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

The presentation will highlight the main issues fed back through the consultation process, illustrate progress to date for estuarine and coastal waters and highlight latest developments as examples of best practice for the second cycle of River Basin Management Plans.

The Marine Strategy Framework Directive

Stuart Rogers

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The Marine Strategy Framework Directive requires member states (MS) to put in place appropriate measures to achieve good environmental status, however it differs from many directives in that it requires MS to prepare a Marine Strategy that specifies management measures. The Directive recognises that managing human activities to reduce the impacts of human activities is fundamental to the successful implementation of Marine Strategies, so commits MS to an ecosystem-based approach to the management of human activities, so that they can 'enable the sustainable use of marine goods and services by present and future generations'.

This talk summarises the current activity in Europe to describe how Good Environmental Status could be determined, based on pre-determined descriptors of good status, and the attributes and thresholds that might be relevant in order to achieve it.

It also highlights some of the difficult decisions that remain for MS, particularly in the selection of targets and reference points for the selected indicators, and the availability of data and evidence to assess progress towards them.

A key feature of the Directive is its' application to broad scale Regions or Sub-Regions. While developing their individual Strategies, Member States are expected to collaborate, using existing mechanisms such as the Regional Seas Conventions, to ensure a consistent approach so that the determination of Good Environmental Status is equivalent across the region. Some of those links are already well embedded but many others are still to be made.

Ocean acidification an update

Dr Steve Widdicombe

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Approximately 7gT of carbon, consisting mainly of carbon dioxide (CO₂), is released into the atmosphere every year due to activities such as fossil fuel burning, land-use change and cement production. Whilst, much of this CO₂ remains in the atmosphere and is a primary cause of global temperature rise, approximately 25% of it dissolves into the world's oceans. This causes an increase in hydrogen ions (H⁺) and a reduction in pH; a phenomenon known as Ocean Acidification or "the other CO₂ problem". It is estimated that, due to the ocean's natural carbonate buffering system, seawater pH has remained relatively stable for the past 25 million years. Consequently, the changes in seawater chemistry predicted to occur over the next few hundred years represent a severe and rapid challenge to marine organisms. Recent studies have shown that decreased seawater pH and elevated temperature can affect the physiological processes of many marine species. Such affects can impact on an organism's performance, health, behaviour and ultimately the long-term viability of populations. Variability between different species in their relative vulnerabilities to acidification will alter the biodiversity and functioning of marine ecosystems. This talk will outline the cause of Ocean Acidification and describe the physiological and ecological mechanisms by which organisms and communities could be impacted.

Relevant Websites and or references

Introductory guide to Ocean Acidification
<http://www.epoca-project.eu/index.php/Outreach/RUG/>

European Project on Ocean Acidification (EPOCA)
<http://www.epoca-project.eu/>

German Ocean Acidification national programme (Bioacid)
<http://bioacid.ifm-geomar.de/>

SCOR / UNESCO / IAEA / IGBP sponsored website
<http://www.ocean-acidification.net/>

NERC information on Ocean Acidification
<http://www.nerc.ac.uk/research/issues/climatechange/acidification.asp>

Related information on BBC website
<http://news.bbc.co.uk/1/hi/sci/tech/7933737.stm>

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Geoengineering the Climate: Science, Governance & Uncertainty: the Royal Society study and oceanic options

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The climate change we are experiencing now is caused by an increase in greenhouse gases due to human activities, including burning fossil fuels, agriculture and deforestation. There is now widespread belief that a global warming of greater than 2°C above pre-industrial levels would be dangerous and should therefore be avoided. However, despite growing concerns over climate change, global CO₂ emissions have continued to climb. This has led some to suggest more radical “Geoengineering” alternatives to conventional mitigation via reductions in CO₂ emissions.

Geoengineering is deliberate intervention in the climate system to counteract man-made global warming. There are two main classes of Geoengineering; direct carbon dioxide removal, and solar radiation management, which aims to cool the planet by reflecting more sunlight out to space. This talk will summarise the findings of a recent review of Geoengineering carried-out by the UK Royal Society (see <http://royalsociety.org/document.asp?tip=1&id=8770>), discussing the climate effects, costs, risks, and research and governance needs for each approach, and emphasizing some of the methods involving ocean systems.

Key findings include

- Geoengineering is not a magic bullet and not an alternative to emissions reductions.
- Cutting global greenhouse gas emissions must remain our highest priority –
 - But this is proving to be difficult, and Geoengineering may be useful to support it
- Geoengineering is very likely to be technically possible
 - However, there are major uncertainties and potential risks concerning effectiveness, costs and social & environmental impacts
- Oceanic options exist, but their environmental impacts may be unacceptable
- Much more research is needed, as well public engagement and a system of regulation (for both deployment and for possible large-scale field tests)

Visioning the seabed - outcomes of the recent surveys of Northern Ireland seabed features

Joe Breen

Northern Ireland Environment Agency

The Joint Irish Bathymetric Survey (JIBS) was a major project completed 2008. International collaboration with Marine Institute, Geological Survey of Ireland, Maritime Coastguard Agency and Northern Ireland Environment Agency, and Interreg IIIA funding and utilization of Hi-resolution Multibeam technology produced a stunning visualization of Northern Irelands coastal waters

- This talk will highlight the values of using state of the art technology to deliver fundamental baseline data to support habitat mapping, resource identification, enhanced maritime safety and effective Marine Spatial Planning
- Strategic approach to this – value to all departments, agencies and private sector.
- How this technology can help with identifying features previously unsuspected – more comprehensive vision etc. This is especially relevant when trying to answer such fundamental questions as the extent of priority habitats such as reef or sandbank within a regional waterbody.
- Issues of data sharing- even though this project was delivered by a variety of international agencies, from the outset it was agreed that the data would be made freely available to everybody
- The talk will also show examples of how presentation of the data and use of off-the shelf software can enable free and easy use of the datasets by customers well beyond the lifespan of the project.

Has the Marine Act delivered for marine works and consenting?

Peter Barham

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The SUDG worked closely with regulators and conservation organisations throughout the development of the Marine Bill and, like many others, welcomed its passage through Parliament to receive Royal Assent. SUDG members represent key marine industries, all of whom are committed to sustainable development and the importance of these industries in economic terms represents 4% of GDP with many thousands of jobs. Much of the success of the close working together through the progress of the Bill arose not only from industries acknowledging the needs of the environment, but also from others recognising that sustainable marine industries are an essential aspect of success marine management.

The success of this close working together was epitomised by the joint statement prepared by Wildlife and Countryside Link and SUDG which set out common objectives for the Bill and which gave a clear steer to Government how a Marine Bill could deliver real environmental and economic improvement to the marine environment. Throughout the drafting of the Bill the need to ensure the correct balance between environment and economic needs was a consistent feature and SUDG monitored this closely as did conservation bodies. The continued emphasis on balance also greatly assisted the final passage of the Bill through Parliament where debate was very limited as a result of a minimal number of amendments. SUDG further assisted this process by reassuring Ministers and MPs that the while the correct balance of the Bill was maintained, SUDG would continue to support the Bill as it stood.

Throughout the progress of the Bill marine industries have shown that they can operate in environmentally sensitive ways. They have shown that they can work with environmental bodies to improve the environment and they have shown that they can also develop new facilities in ways which protect and enhance the environment. This commitment is reflected in the consistent reference in the Act to ensure that socio-economic consideration is an integral aspect of the decision making process and that socio-economic consideration is also implicit in the determination and application of new regulation. The challenge for the Act and for the MMO, therefore, is to build on the co-operation of marine industry and the sustainability they deliver to ensure economic growth can happen and that it happens in a timely and cost-effective manner. To achieve this, regulation must be developed in ways which deliver that commitment and that the close co-operation of industry must be encouraged even more than it was during the development of the Bill.

The Bill made clear commitment to the delivery of sustainability, implementation of the Act will need to make sure that this is delivered.

The regulatory system and licensing of fisheries in marine Special Areas of Conservation

Simon Brockington

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Marine protected areas in UK waters can be ineffective in giving protection from fisheries where they have the potential to harm the site's features. Recent discussions indicate that the system of fisheries licensing may require modification to address this issue. Protected areas make a valuable contribution both to the conservation and recovery of marine biodiversity. A network of marine protected areas called Special Areas of Conservation (SAC) has been, and is continuing to be, designed in UK waters under the European Union's Habitats Directive. Under the Habitats Directive member states are required to prevent the deterioration of SACs and to appropriately assess the consequences of any plan or project that may take place in an SAC. The United Kingdom transposition of the Habitats Directive ties the requirement to undertake appropriate assessment (a form of environmental impact assessment on the sites features) to the system of licensing. Thus the licensing system is the trigger for the system of appropriate assessment, and the associated measures of mitigation and compensation that are essential in protecting marine biodiversity. For many industry sectors this system is effective.

Recently the Marine Conservation Society has received questions from its supporters on the management of commercial fishing within SACs within the 12 nautical mile zone. The UK Government position is that the current system of licences given to allow commercial fishing from a boat does not provide an appropriate vehicle to assess the localised effects of fishing in marine SACs.

The apparent absence of correct form of licensing for fisheries would appear to be the underlying reason why appropriate assessments are not carried out for all fisheries in marine SACs. The granting of a licence can also play a role in triggering other important environmental safeguards such as environmental impact assessment and strategic environmental assessment.

Some useful quotes:

A sea change Govt white paper 2007 for marine bill: *'Activities at sea are regulated so as to protect the environment and the interests of other users of the sea'*

MFA to MCS: *'We do not believe the licences given to allow commercial fishing from a boat provide an appropriate vehicle to assess the localised effects of fishing activities in EMS'*

MCS legal briefing: Commercial fishing can be considered a plan or project. So it should be appropriately assessed before allowing fishing activities

Definition: To licence means to give permission.

THE MMO – the future of integrated marine management

Chris Parry

Marine Management Organisation

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Chris will articulate the government's vision for the Marine Management Organisation (MMO) in the wake of the Marine and Coastal Access Act and describe progress with the delivery body's implementation and the establishment of the MMO headquarters in Newcastle. He will also explain how the MMO will combine both national and local elements of its role and give an insight into how it will function and operate in a complex marine environment. In particular, he will focus on the opportunities for stakeholder engagement, at all levels, and the contribution that can be made by coastal communities and the public. In addition, he will speak about the prospects for integrated marine management and discuss marine planning functions, the associated licensing regime and the work under way with important delivery partners to promote sustainable development.

Reporting the State of the Sea - time for rationalising our approach?

Stephen Malcolm

Cefas

There is increasing interest in the state of our seas both in the general sense and in relation to legislative and regulatory needs. The UK marine monitoring and assessment community is busy preparing a report on the status of UK seas and whether we have made any progress in the last 5 years. This report is Charting Progress 2 which relies on the compilation of a very significant evidence base that has been captured in a series of themed Feeder Reports. Charting Progress 2 and the Feeder Reports will be published in July 2010. It is also apparent that in this important year for biodiversity that many organisations at national, UK, regional, European and global level will be publishing assessments. Some of these are listed/displayed on the presentation which is also available on this website. All of these assessments are built on the same, or a subset, of the same evidence base that has been brought together by the UKMMAS over the last few years. Some rationalisation has therefore already occurred. However, it is also clear that more can be done to make the process simpler by ensuring that the underpinning data is available, that we have a flexible approach to making use of the data and evidence to shape the different products that are required and that as far as possible we make the best use of information technology to support the expert assessment tasks that are required. Ensuring that the links between the different assessments are understood and where there is redundancy it is removed would also contribute greatly to efficiency.

The future of marine conservation

Lisa Chilton

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As we enter a new decade – and a new era in marine conservation following the passage of the Marine and Coastal Access Act – this is an opportune moment to take stock. My presentation looks back over the past decade and forward into the coming decade, giving a personal view of key themes, challenges and opportunities in marine conservation in the UK. The presentation will also draw upon responses to a questionnaire circulated prior to and during the conference.

Marine conservation highlights of the 'noughties' included the establishment of highly protected areas off Lundy and Arran, the protection of the Lyme Bay Reefs from damaging fishing activity and, of course, the new Act. But these successes were hard-won, and were often overshadowed by ongoing and emerging problems: shocking levels of bycatch of common dolphins, the extinction of angel sharks in the North Sea, and fears about the 'rise of slime', climate change and ocean acidification, to name but a few. Overall, the mood of the decade was a growing and increasingly concerted desire for change. A 2003 UK conference on marine biodiversity conservation highlighted a widely felt "sense of impatience". Delegates perceived that they were "drowning in a sea of initiatives" with "few tangible signs that all the plans, criteria and listings are actually halting the loss of marine biodiversity." The conference report posed the question: "Will we be any happier by 2010?"

Just as the passage of the Marine and Coastal Access Act was rightly a cause for great celebration, the tremendous challenges of implementing the new regime are rather sobering. Adding into the mix those marine issues that are not within the scope of the Act (e.g. European fisheries, or pollution), together with the bigger picture of economic recession, global food shortages, climate change, political upheavals and more besides, it's clear that there will be plenty to feed our anxiety through the coming decade.

On the bright side, armed with an abundance of new tools, there is almost unlimited scope for 'learning by doing'. Themes likely to recur in various guises throughout the decade include integration of conservation with other marine management objectives (for example, harmonisation of European fisheries policy with the Habitats Directive), the relationship between biodiversity, ecosystem resilience and ecosystem goods/services, the nature of ecological coherence and the measurement of recovery.

The Wildlife Trusts have high hopes for the new decade and have launched Living Seas, our vision for the future of the UK's seas. Within Living Seas, marine wildlife thrives, from the depths of the ocean to the coastal shallows. We believe it is possible to achieve Living Seas around the UK within 20 years – a single generation – but only if we make the very best of the opportunities and challenges of the coming decade.

Living Seas – The Wildlife Trusts' vision www.wildlifetrusts.org
2003 Marine Biodiversity Conservation Conference Report
<http://www.coastms.co.uk/conferences/424> (in Outputs and Reports)

A view of the future for the UK fishing industry – Common Fisheries Policy Reform 2012

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Jim Portus is Chief Executive of SWFPO Ltd. Formerly a Captain in the Merchant Navy, Jim then served over 2 years with MAFF as a Fisheries Inspector in Brixham before assuming his present role in 1989.

The SWFPO Ltd was established in 1974 in the UK as a Fish Producer Organisation under the terms of the EU Common Organisation of the Market in Fisheries Products. The Organisation serves the needs mainly of the inshore fishing communities of Devon & Cornwall. SWFPO also has members based from as far away to the east in the North Sea Thames Estuary and northwards to west Scotland. The fisheries of SWFPO members are highly varied, extending from the very close inshore and artisanal to those such as beam trawlers and scallop dredgers working sometimes at a considerable distance from their homeports. Members together grossed in excess of £20 millions in 2009, of which about 60% was derived from non-quota fisheries.

Impacts of the CFP

Under the post-1983 regime of fisheries management devolved to Member States, SWFPO Ltd, along with other UK POs, has become a sub-contractor to Defra to help deliver the UK's chosen system of quota control. A fair proportion of the UK national quota is distributed to each PO and sectoral group according to the historic performance of their members, in much the same way as the national quotas are derived from the TACs under the Relative Stability of the 1983 Agreement. SWFPO members have seen and experienced at first hand the effects of so-called "CFP" decision-making and the speaker is well-placed to comment on the impacts of the "instruments of the CFP (post 1983)" on fleets and communities.

That phrase is used because the "real-CFP", Equal Access to the Common Resource, is not the 1983 Agreement. The 1983 Agreement is derogation from the general rule of "equal conditions of access to fishery resources and the principle of non discrimination" laid down in Article 40 of the Treaty of Rome that is granted by default in the Accession Treaty of each Member State of the EU. For the purposes of this conference and unless otherwise stated, "CFP" should be taken to mean "instruments of the CFP (post 1983)".

Need for Reform: Is the CFP the real problem? Will proposed CFP reforms achieve solution? What is the speaker's vision of a route to a bright future for the UK industry?

I expected this presentation to come easily to me. After all, I have been involved intimately with the CFP for two decades, or have I? The fact is that, since 1972, the Commission and Member State Governments have been locked inextricably in the "real-CFP" processes underpinned by the equal access, non-discrimination Treaty of Rome principles, while at the same time leading us all to have blind faith in the ethereal and temporary derogations from equal access, i.e., the quotas, the coastal limits the historic access provisions and the delivery and control measures that we all call the "CFP".

However and crucially, the “real-CFP” also demands protection to be provided to vulnerable fishing dependent communities. This latter obligation has been interpreted variously by different Member States. In the UK it has manifested itself in many ways including use of the structural funds for many ill-conceived schemes, sometimes involving decommissioning, but always allied to a punishingly complex and restrictive license regime. So, is the CFP the problem for which we are seeking solution or is it the implementation of CFP instruments at Member State level?

Institutional governance of the CFP involves the Commissions DG Mare and DG Env, the Council, the European Parliament, various bodies such as STECF (Scientific, Technical and Economic Committee for Fisheries), ACF (Advisory Committee for Fisheries and Aquaculture), SSDC (Sectoral Social Dialogue Committee for Sea Fisheries) and the RACs (Regional Advisory Councils). The CoR (Committee of the Regions) and the ECOSOC (Economic and Social Committee) have a valuable supporting role providing opinions about proposed fisheries legislation. The governance of the CFP also involves national and regional administrations within Member States. Scientific advice about the state of fish stocks is delivered by ICES (International Council for the Exploration of the Seas).

Policy and Laws are influenced by lobby groups for industrial stakeholders, such as COGECA, Europeche and EAPO. Environmental NGOs have their say, particularly now there is an embodied emphasis on achieving an integrated maritime policy in the marine framework and under Natura 2000. There are possibilities for deep conflicts to arise during the search for balance between and amongst various users of the seas and under the watchful eyes of the NGOs, whose brief seldom includes allowance for social and economic considerations.

There is a maelstrom of bodies and influences, each contributing to the utter chaos of governance! My talk will expand on the damage that CFP governance has done to EU fishing communities and I will attempt to unravel some of the complex issues that must be clarified and congealed if regionalisation is to become the salvation that so many commentators prophesise. I do believe the Regional Advisory Councils are pivotal to success, but I also believe that the market in fish and fisheries products has a crucial part to play. I will endeavour to leave the audience with a rough guide to the route I would follow to deliver a viable and profitable UK fishing industry, wasting less and sustainably producing more.

Yes EU Can: Reforming the CFP

David Ritter

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Europe is faced with an untenable situation in which once rich and diverse fish populations have been decimated to a fraction of their original size and diversity. The consequence is an ecological catastrophe and a social and economic debacle. According to a report commissioned by the General Directorate for Fisheries and Maritime Affairs of the European Commission, published in 2007 'in summary, the overall performance of the CFP has been poor' and 'EU institutions have presided over an unparalleled period of decline for Europe's fishing industries.' The EU Commission admits that almost ninety per cent of European fish stocks are over-fished.

There is no doubt that the administration of the common fisheries policy is broken and that the need for transformation is overwhelming. The EU should set as its ultimate objective the achievement of healthy and resilient marine ecosystems and fish stocks. This should be considered the premise for any future EU fisheries. In European waters, the reformed CFP must be aimed at achieving stock recovery. This presentation will outline the case for reform and make recommendations about some of the changes that should be made.

Website: <http://www.greenpeace.org.uk/oceans>

The developing programme for MPAs

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This presentation will give an overview of what has been achieved over the past year, our aims for 2010/11 and look ahead to challenges and commitments to 2012 and beyond.

Key messages

- The Marine & Coastal Access Act provides a once in a lifetime opportunity to implement more sustainable management of England's seas and thereby achieve better biodiversity protection and recovery;
- Natural England are determined and expect that, working with Government, JNCC and stakeholders, we will establish an ecologically coherent and well-managed network of MPAs by 2012 (only 35 months away!);
- The MPA network in English waters will be based on best available evidence - accepting we do not have perfect knowledge and this is not a reason for inaction or delay;
- Availability of better evidence will improve decision-making by the regional MCZ projects. Stakeholders need to engage and provide their evidence by October 2010;
- Designation of an MPA network with appropriate levels of protection to achieve conservation objectives and provide resilience in response to increased pressures (e.g. climate change) will require political will by UK and EU Governments;
- MPAs are not a panacea (but they are an essential component) to deliver better protection for the marine environment - there must also be radical reform of the CFP in 2012, better integration with current EU Directives, and full implementation of the Marine Strategy Framework Directive.

The developing programme for MPAs

James Marsden

Director Marine, Natural England

2010 is the International Year of Biodiversity, and nowhere is an international focus on the natural world needed more than in our oceans.

The Marine and Coastal Access Act provides a once in a lifetime opportunity to find sustainable ways to manage England's seas.

The new Act is long overdue and will bring about much needed, if sometimes difficult change. It introduces a legal framework for marine spatial planning, the Marine Management Organisation (MMO) and Inshore Fisheries and Conservation Authorities (IFCAs), and places a duty on Ministers to designate Marine Conservation Zones (MCZs).

MCZs are a new approach to marine protection and will contribute towards establishing a representative network of ecologically coherent and well-managed Marine Protected Areas (MPAs) by 2012.

The MPA network will comprise existing and proposed Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under the Habitats and Birds Directives (Natura 2000), Ramsar sites and SSSIs in estuarine and coastal waters, and MCZs – one network, five designations.

Creation of the MPA network will contribute to achieving Good Environmental Status (GES) required by the Marine Strategy Framework Directive (MSFD), and the UK Government's commitments under the OSPAR Convention on the protection of the marine environment in the North East Atlantic, the World Summit on Sustainable Development (WSSD) and the Convention on Biological Diversity (CBD).

On 12 January 2010, Lundy Island became England's first MCZ because the Marine and Coastal Access Act repealed the clauses in the Wildlife and Countryside Act 1981 which gave Lundy Marine Nature Reserve (MNR) status, and provides for any area designated as a MNR immediately before the commencement date (12 January 2010) to be treated as an MCZ on and after that date.

Whilst this is a cause for celebration, it's also a reminder that good legislation is worth little without political will to implement it – the Wildlife and Countryside Act delivered only one English MNR in thirty years. Existing MPAs cover less than 10% of English waters, and most of this area lacks effective management measures.

We need to learn from this experience, and international good practice, which suggests that MPAs work best when developed in partnership with sea users and everyone else with an interest in the sea.

Stakeholder engagement

At both national and regional levels Natural England has been working hard to get this right. For example, our East of England marine advisors have now met and talked to 50% of the commercial fishers in their region.

I've been meeting fishers, processors and others around the country whose livelihoods depend on the sea, and listening to their needs, concerns and aspirations. Since May last year, this odyssey has taken me from Newlyn to North Shields, Barrow, Whitehaven, Bridlington and Whitby.

Our discussions have been open, honest, and sometimes heated, but we have begun to surface the fishing industry's big issues. To summarise:

- They are **confused** about different types of MPA, related processes and timelines;
- They think that MPA means No Take Zone (NTZ), and they do not **understand** why all this is happening now;
- They **distrust the MPA consultation processes** and think their views will not be represented;
- They are **worried for their livelihoods** and **under pressure** from offshore renewables and marine aggregates, as well as MPAs, which they believe will close more fishing grounds and lead to displacement elsewhere;

- They are **fearful** that Defra's Sustainable Access to Inshore Fisheries (SAIF) project and Common Fisheries Policy (CFP) reform will create more change and uncertainty for their industry;

- They perceive Natural England as an **anti-fishing, bureaucratic** organisation ("Nasty Nature"), but they appreciate that we're out there listening, learning, sharing, clarifying and trying not to do too much telling.

These are tough messages and mean we must do more to engage fishers in both designation of new MPAs and the development of management measures to protect their conservation features.

We've also been meeting the offshore renewables and marine aggregates industries, recreational sea anglers and other sea users to explain what we're doing, why now and how they can get involved with the selection of MPAs.

Natura 2000

Since 2008, Natural England has been undertaking a strategic risk assessment of all activities within existing marine Natura 2000 sites to identify management required to ensure that site features are maintained or restored to favourable condition. Defra has established a project to respond to our risk assessment and this will result in implementation plans for management measures later this year.

Last November, Natural England, the Joint Nature Conservation Committee (JNCC) and the Countryside Council for Wales (CCW) launched a formal consultation on 10 possible marine SACs and 2 potential SPAs in English, Welsh and offshore waters around the UK – you'll find details of the sites on the websites:

Natural England (for inshore and joint sites):

<http://www.naturalengland.org.uk/ourwork/marine/sacconsultation/default.aspx>; or

JNCC for offshore sites: <http://www.jncc.gov.uk/marineconsult>.

The purpose of this consultation, which ends on 26 February, is to seek the view of all interested parties on:

- The scientific case for the designation of the new SACs and SPAs; and
- The assessment of the likely economic and social impact of the designation of each site.

The Habitats and Birds Directives do not permit social or economic considerations to influence the choice of sites or their boundaries. The UK Government must identify the sites and boundaries based only on the presence of qualifying habitats and bird populations specified in the Directives. The information in the impact assessments will be used to inform the design of any management measures.

Designation of these new marine Natura 2000 sites will extend protection to 24% of England's inshore waters.

MCZs

Unlike Natura 2000 sites, the location and boundaries of MCZs will be designed in collaboration with stakeholders through four regional projects:

- Balanced Seas (south-east)

- Finding Sanctuary (south-west)
- Net Gain (North Sea)
- Irish Sea Conservation Zones (Irish Sea)

Each project has a stakeholder group made up of representatives of sea users and interested parties, which will recommend MCZs in their area.

We also want to capture input, advice and experience at a national level, bearing in mind that some stakeholders will have difficulty engaging with the four regional projects, and that devolved administrations have different approaches to developing a UK-wide MPA network. So a national stakeholder forum is being set up by the JNCC to address these issues. It will not be an alternative forum for network design – that remains the function of the regional projects.

Despite this stakeholder-led process, it's been reported that Natural England and JNCC already have a secret map with MCZs plotted on it. **We do not.**

We are actively encouraging stakeholders to influence where MCZs will be located. But the time to act and bring your data and information to the table is now - the data collation stage of the project will close in October this year.

Boycotting meetings, like the fishermen of Boston and King's Lynn, and withholding information are not the way forward.

Communication is key – we firmly believe that dialogue and effective stakeholder engagement will resolve many issues well before sites are recommended for designation.

Science Advisory Panel and the Ecological Network Guidance

Last December, Ministers appointed a Science Advisory Panel (SAP), which held its first meeting on 19 January. Its members include acknowledged experts in MPA design and management, estuarine, coastal and fisheries science, benthos, marine algae, plankton and life cycle development in the water column. Their role is to help the regional stakeholder groups develop their MCZ network recommendations, and ensure that the Ecological Network Guidance (ENG) is interpreted appropriately.

The ENG is being written by Natural England and JNCC and will set out the network design principles and criteria for MCZ selection. A near final draft will be shared with stakeholders in April, before publication in June. This timeline will allow completion of research to inform what the guidance will say on adequacy and viability, inclusion of new material on resilience to climate change, external scientific peer review, and a clear policy framework from Government.

So what happens next?

By 12 March 2010, the Minister must make a statement about the principles and other matters that the Government intends to follow when contributing to a network of MPAs in English waters, and offshore waters adjacent to England and Wales. This statement fulfils the obligation set out in section 123 (6) of the Marine and Coastal Access Act. Natural England would like it to provide more clarity on the overall objectives of the MPA network and make specific reference to recovery.

The Ministerial Statement, related Defra guidance, the Marine Policy Statement and the transposing regulations for the MSFD will set the scene for progress in 2010/11 and beyond. It's going to be a busy year with three clear priorities:

1. Existing Natura 2000 sites – Natural England and Defra will begin to implement management measures with the relevant authorities¹.
2. New Natura 2000 sites – following consultation, Natural England and JNCC will make final site recommendations to Defra in June to enable UK Government to submit sites to the European Commission by the end of October. We will also extend the risk assessment

¹ The MMO, Environment Agency, Sea Fisheries Committees (SFCs) and, from April 2011, the new Inshore Fisheries and Conservation Authorities (IFCAs).

process to these new sites, begin to identify management measures, and initiate baseline monitoring.

3. MCZs – the four regional projects will complete their second MCZ network iterations by December 2010.

We won't know where MCZs may be designated and how their boundaries will relate to those of other MPAs until the regional projects have made final recommendations by June 2011 and Natural England and the JNCC have given advice to Ministers. Defra will then draft designation orders, carry out a formal public consultation in early 2012, consult across government, and Ministers will decide which sites to designate and complete MCZ designations by December 2012.

It's possible that MCZs may overlap with Natura 2000 sites to protect different habitats or species, and that management measures may be required to protect both Natura 2000 and MCZ features within the same area. Some uncertainty is therefore inevitable until all the site designations and definition of management measures required to meet the sites' conservation objectives are complete.

Levels of protection

Ministers have confirmed that the level of protection applied to MCZs will be determined by their individual conservation objectives. Levels of protection will therefore vary across the network and may do so within sites as well. There will be sites where the conservation objectives will require high levels of protection and exclusion of all damaging activities (i.e. marine reserves or NTZs). These sites may be selected as reference areas, contain rare, threatened and vulnerable habitats and species that are geographically restricted, or contribute to the recovery of biodiversity or ecological processes.

Scientific evidence from case studies around the world² shows that marine reserves usually boost the abundance, diversity and size of marine species living within their borders; and they may increase resilience against human pressures and climate change.

Evidence about the increases in size and number of lobsters in the Lundy NTZ³ is well known, but not unique. A study of 19 reserves in the European side of the Mediterranean found 15 times more large commercial fish species in reserves than outside⁴. Size and age matter - the larger the NTZ the higher the density of fish found inside than outside, and the older the reserve the higher the positive benefits for commercial fish species and species richness.

Closer to home, Norway has 4 experimental lobster reserves that were nominated by local fishers in 2006, and as at Lundy the size of lobsters has increased rapidly⁵.

Natural England will collate and communicate the evidence on the benefits of marine reserves in a European context, and publish a report later this year.

The concept of highly protected reserves is not new – we've had National Nature Reserves on land for 60 years.

² Partnership for Interdisciplinary Studies of Coastal Oceans. 2007. *The Science of Marine Reserves* (2nd Edition, International Version). www.piscoweb.org.

³ Miles Hoskin, Elizabeth von Carlshausen, Christopher Davis. In press. Rapid Population Level Responses to the Closure of a Lobster Fishery via a No-Take Zone. *Ecological Applications*.

⁴ Claudet J, Osenberg CW, Benedetti-Cecchi L, Domenici P, García-Charton J-A, Pérez-Ruzafa Á, Badalamenti F, Bayle-Sempere J, Brito A, Bulleri F, Culioli J-M, Dimech M, Falcón JM, Guala I, Milazzo M, Sánchez-Meca J, Somerfield PJ, Stobart B, Vandeperre F, Valle C, Planes S. 2008. Marine reserves: Size and age do matter. *Ecology Letters* 11: 481-489.

⁵ *Alf Ring Kleiven*, Even Moland, Jan Atle Knutsen, Esben M. Olsen, Halvor Knutsen (2009) Lobster protection in Marine Protected Areas. 2nd International Conference on Progress in Marine Conservation in Europe. 2-6 November 2009. BfN.

Management measures

Where there is clear evidence that fishing or other sea uses are threatening achievement of an MPA's conservation objectives, the relevant authorities will need to take action, and be equipped and willing to do so – a good start for the MMO and successful transition from Sea Fisheries Committees (SFCs) to IFCA will be crucial.

Fisheries management measures can be introduced through national regulations within 6 nm, and through CFP measures beyond 6 nm – there is no need to delay action until after reform of the CFP – but this will be difficult and take time.

For example, bottom trawling and dredging may be restricted, if not prohibited, within MPAs where there is a risk that they may be deployed on rare or fragile, biogenic habitat (wherever possible, this higher level of protection should be confined to the area of fragile habitat). Fixed or static gear, such as gill netting, potting and bottom set-netting, will need to be considered on a case-by-case basis to determine if these fishing methods are having an adverse effect on an MPA's conservation objectives.

We must guard against a process that requires inordinate evidence gathering (e.g. as for Lyme Bay) at disproportionate cost before agreeing management measures, or we will have MPAs on paper and in name only.

Looking ahead at our longer term challenges

While celebrating the landmark success of the Marine and Coastal Access Act, we know that our work has only just begun. Five priorities for action, identified by experts from around the world at last month's international MPA conference, bear repetition here today:

- **Act on best available evidence**, be bold in establishing MPA networks, and adapt them as we learn more. We will never have perfect science nor do we have the luxury of time and resources to fill in all the gaps – the marine environment needs better protection both to safeguard marine wildlife and provide a future for those whose livelihoods depend upon it.
- **Engage stakeholders in design of management measures**, as well as site selection. That's why Natural England will undertake a pilot project in one of the new SACs to define management measures in collaboration with regulators and fishermen.
- **Remember MPAs are not a panacea** – we must apply the right levels of protection and management measures to specific features within MPAs, and ensure that the wider marine environment is in good health;
- **Integrate policy and delivery**, using all available tools and measures within a clear legal framework from local to EU levels - like many others, Natural England supports radical reform of the CFP and better integration with EU environment policy (e.g. the Habitats and Birds Directives and MFSD); and we must avoid tradeoffs between offshore renewables and MPAs – experience shows we can have both if we locate them in the right places, and there may be biodiversity benefits of co-location⁶.
- **Look beyond protecting what we have, beware of shifting baselines⁷ and focus on recovery** – we're learning more about the degraded marine environment we've

⁶ Inger et al, 2009, Marine renewable energy: potential benefits to biodiversity? An urgent call for research, *Journal of Applied Ecology*

⁷ "When baselines shift, each generation subconsciously views as "natural" the environment they remember from their youth. They compare subsequent changes against this "baseline", masking the true

inherited and future generations won't thank us if we fail to **restore the habitats and species of our seas.**

extent of environmental degradation". Professor Callum Roberts. 2007. The Unnatural History of the Sea. Island Press.

The Future of Scallop Fishing

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Dredged scallops are viewed as the 'bête noire' of the UK seafood industry by many organisations and individuals. Is this a fair view?

Instead of demonising an entire sector with resulting negative socio-economic impacts, a pragmatic approach is needed that defines an 'acceptable footprint' for scallop dredging that minimises the adverse impact on the ecosystem but allows the harvesting to continue while improvements in gear technology and habitat mapping work progresses.

There is currently no low-impact alternative that can harvest scallops at the scale required by markets. Diver-caught scallops are often viewed as the sustainable answer, but neither the total volume harvested nor the 'green credentials' always add up.

There is a need to reassure consumers that they can confidently source UK scallops from fishermen that meet a 'standard' that addresses the environmental concerns. Such assurance is essential to incentivise the industry.

Accordingly a National Scallop Group has been established by Seafish, the Scallop Association and the Shellfish Association of Great Britain to secure a sustainable future for the scallop harvesting sector that balances the need for environmental protection and profitable fishing operations. How will this be achieved? This talk will explore some of the work being carried out.

Mapping seabed sensitivity to fishing activity in Welsh waters

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Sensitivity assessment is being developed to provide guidance on interactions of sea fisheries with the seabed and wildlife interests around Wales. Analysis of the literature on the impacts of various fishing activities on inter- and sub-tidal habitats, coupled with extensive engagement of experts allowed the development of seabed sensitivity matrices. While the matrices are based on expert judgement, and provide a practical level of coverage, they are comprehensive in their coverage of fisheries practised in Welsh waters, achieved through:

- fishing activities being grouped together into those having similar effect on the seabed,
- for each group four levels of fishing intensity defined;
- Marine 'biotopes' were grouped into 31 'seabed habitats' according to their similarity of response.

Existing maps and models (HABMAP) depicting 'marine biotopes' (there are over 200 in Welsh waters) were aligned accordingly. The resultant sensitivity maps generated by applying the matrices to the habitat maps can be used in management guidance tools. Examples are provided of how the maps are and can be applied, especially in relation to scalloping. Extensions of the work including mobile species sensitivity and consideration of the combined effects of different gears operating in the same place yet temporally separated are underway. References:

Anon (in press). Sea Fishing Atlas of Wales. Countryside Council for Wales.

Baines, M.E. & Evans, P.G.H. (2009). *Atlas of the Marine Mammals of Wales*. CCW Monitoring Report No. 68.

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HABMAP website <http://www.habmap.org/>

Tyler-Walters, H. and Arnold, C. (2008). Sensitivity of Intertidal Benthic Habitats to Impacts Caused by Access to Fishing Grounds. CCW (Policy Research) 08/13: 39pp.

Life after the Marine and Coastal Access Act: developing the new marine planning system

Alison Reeves

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A real milestone was achieved last November when the Marine and Coastal Access Act came into being. This was the culmination of significant hard work by a wide range of individuals and organisations that care passionately about what goes on in the marine environment. Across the UK, new systems of marine planning, aimed at more strategic and integrated management of our marine resources, are being introduced by the Marine and Coastal Access Act and Scottish and Northern Irish legislation. The Marine Policy Statement is the first stage in these new planning systems. It applies to the whole of the UK waters and the UK Government and Devolved Administrations are working together on the Marine Policy Statement and aim to adopt it jointly. A shared approach will ensure that the planning arrangements implemented throughout UK waters will be joined-up, but will be flexible enough to meet the needs of different Administrations. Act makes clear that the policies in the Marine Policy Statement should contribute to the achievement of sustainable development of the UK marine area. This session also explores the progress made on preparatory work for the development of English marine plans, including proposals for marine plan areas, and the criteria for deciding which area should be planned first and what the marine planning may look like in practice. Also covered will be how the MPS addresses the creation of a network of Marine Conservation Zones and the reformed marine licensing regime which is due to go live in spring 2010.

Sources of further information

Further information on the Marine Policy Statement and how stakeholders can engage can be found on Defra's website at:

<http://www.defra.gov.uk/environment/marine/documents/legislation/ukpolicy-publicpart.pdf>

The public consultation on proposed marine plan areas for England and the criteria for deciding the order of planning can be found at:

<http://www.defra.gov.uk/corporate/consult/marine-plan/index.htm>

Information on the new marine licensing system:

<http://www.defra.gov.uk/environment/marine/license.htm>

Information about Marine Conservation Zones:

<http://www.defra.gov.uk/environment/marine/protected/index.htm>