

Coastal Futures 2015 Review and Future Trends

January 21st & 22nd January
SOAS, University of London

Delegate Notes



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If you have any questions or would like to discuss further, please email or call Jayne or Bob:

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Best Wishes
Jayne & Bob

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 conference outputs will be available shortly after the event; we will email the link to access the delegate notes, speaker presentations and conference outputs.

Questions – Bookings – Receipts – In house information

If you have any questions during the event about bookings, finances, or logistics please visit the registration desk where someone will be available 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 21 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 notes The delegate notes cover all the speakers apart from Barry Gardiner; we hope to have a transcript of his speech after the event.

Delegate list

A list of the delegates to Thursday 8th 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**.

Coastal Futures Website A new website for Coastal Futures will be up and running shortly after the event. It will hold the archive of Coastal Futures conferences and provide a single point of contact for future CF events.

Watch out for – South West Marine Ecosystems – March 13th PML Plymouth – Over 20 presentations covering a wide range of oceanography, marine biodiversity and management practice

Day 1 - Wednesday January 21st

9.00 Registration and refreshments

Session 1: **Chairman: Sian John** Royal Haskoning DHV

9.25 **Session 1 Welcome to the conference**

The winter storms of 2013/14 the challenges and our responses

Four 15 minute presentations and a panel discussion

- 9.30 **The 2013 North Sea tidal surge - lessons and implications for future management of the natural environment** **Tim Collins** Natural England
- 9.45 **The winter storms of 2014: Oceanography and coastal impacts** **Professor Gerd Masselink,** Plymouth University
- 10.00 **The National Trust's Shifting Shores Programme: Practical Lessons from a Decade of Coastal Adaptation** **Phil Dyke** National Trust
- 10.15 **Partnership delivery for flood and erosion schemes – new approaches to deliver multiple objectives and better value for money** **Nick Lyness** Environment Agency
- 10.30 Panel discussion
- 11.00 **Where next for the environment?** **Barry Gardiner** MP Shadow Environment and Fisheries Minister

A 15 minute presentation and 15 mins for Q&A

11.30 First Break: Sandwiches and refreshments

12.15 **Session 2:** Chair: **Professor Mike Elliott** IECS, University of Hull

The presentations in this session are 20 mins – 15 mins for presentation and 5 mins for Q&A.

- 12.15 **On the Edge – An update on Coastal Management from a Local Authority perspective** **Bill Parker** Coastal Management Suffolk and Waveney District Councils
- 12.35 **Future prospects and challenges for the Wave and Tidal Stream Energy Sectors** **Stephanie Merry** Head of Marine, Renewable Energy Association
- 12.55 **Reducing the risk of consenting in the Offshore Wind Sector: The work of the Offshore Renewables Joint Industry Project (ORJIP)** **Emilie Reeve** ORJIP Programme Manager, Carbon Trust
- 13.15 **The Swansea Tidal Lagoon Project** **Mike Case** Tidal Lagoon Power plc
- 13.35 **A Strategic approach to Scoping Cumulative Impacts** **Rachel Barker** NIRAS
- 13.55 **'Smart' Regulation** **Peter Barham** Seabed Users Developers Group

14.15 Second break and refreshments

Session 3 Chair **Daniel Bastreri** Thomson Ecology

- 15.00 **WFD: Draff River Basin District Plans – Estuarine and coastal implications** **David Baxter** Deputy Director, WFD, Environment Agency
- 15.20 **Ecosystems Goods and Services in the Marine Environment: Indicators and Monitoring** **Mel Austen** Plymouth Marine Laboratory
- 15.40 **Data and information – how the future will evolve** **Mike Osborne and John Pepper** OceanWise Ltd
- 16.00 **Applying science to today's challenges in the marine and coastal environment – how do we respond?**

Two perspectives from leading scientists and advocates

Two 20 minute presentations and 20 minutes of Q&A.

- 16.00 **Reports from the front line of the 6th mass extinction: ocean acidification, fisheries and ecocide** **Jason Hall-Spencer** Plymouth University
- 16.20 **From Seahorses & Selfridges to Society – Making a real difference** **Heather Koldewey** Head of Global Conservation Programmes, Zoological Society of London
- 16.40 **Discussion**
- 17.00 **Wine reception**

Day 2 - Thursday January 22nd

9.00 **Registration and refreshments**

Session 4: **Chair: Steve Hull** ABPmer

9.30 **Marine Planning: delivery and future development from an England perspective** **Paul Gilliland** MMO

9.50 **Marine Planning – The European Dimension: The MSP Directive** **Rhona Fairgrieve** European Commission

10.10 Discussion

10.30 **Mobile marine species conservation: Current challenges** **Lissa Batey** The Wildlife Trusts

10.50 **Discards and Nephrops fisheries** **Clive Fox** SAMS Scottish marine Institute

11.10 **Why socio-economics matters in the marine and coastal environment**
Chris Williams NEF New Economics Foundation

11.30 First Break: Sandwiches and refreshments

12.15 **Session 2: Chair: Trevor Hutchins** Director of UK & European Advocacy, WWF-UK

12.15 **The Marine Strategy Framework Directive – Programme of Measures** **Dominic Pattinson**
MSFD Programme Leader, Defra

12.30 **The Marine Strategy Framework Directive – Priority measures for Good Environmental Status GES**
Melissa Moore Marine Conservation Society and Joint Links

12.45 **Change and the ecosystems of the Clyde** **Professor Michael Heath**
University of Strathclyde

13.00 **Clyde 2020: What do we want and how can we achieve this?** **David Mallon** Scottish Government
Isabel Glasgow Clyde Forum

13.15 Discussion

13.45 **CFP Reforms: The direction for Fisheries: It's not the fishermen's fault!** **Jim Portus** South West Fish
Producers Organisation

14.05 **LIFE – but not as we know it - Low impact fisheries** **Jerry Percy**
Executive Director for the Low Impact Fishers of Europe - LIFE

14.25 Second Break

Session 3 **Chair: Joan Edwards** The Wildlife Trusts

15.10 **MPA designation & management in England** **Paul McLeod and Kylie Bamford** Defra

15.25 **MPA designation and management in the Scottish Inshore and Offshore Zone** **David Mallon**
Scottish Government

15.40 **Inshore management in practice** **Tim Robbins** Devon & Severn Inshore
Fisheries and Conservation Authority

15.55 **Fishing in MPAs** **Mark Duffy** Natural England

16.10 **Panel Discussion**

16.40 Conference Closes

Coastal Futures 2015 – the main ideas behind CF2015

There is an election in 2015! Although environment seems unlikely to be a major issue, one of my first thoughts was to try and get the views of the two main parties and so the invitations were duly sent in July 2014. George Eustace, the Tory Minister, declined citing other diary commitments and **Barry Gardiner** Labour's shadow Environment and Fisheries Minister responded positively. As the last four years have shown politics clearly does have a very key part to play in the environmental agenda with important consequences for the coastal and marine environment. It will be interesting to hear how Labour view this.

How do we respond to climate change? The North Sea Coastal surge in late 2013 which added 3m to high water and the series of major storms in the early part of 2014 were not unexpected but they gave us a clear view of what extreme conditions look like. They were a major wake-up call for all those engaged with the practical realities of managing and planning coastal erosion and flood risk work and a host of issues linked to this. They tested our responses to the limit. **Gerd Masselink** (Plymouth University), **Tim Collins** (Natural England) will describe these events and put them in context.

Adaptation is one of the key response to climate change and the thinking is well developed in the UK among coastal practitioners. The National Trust have had their coastal adaptation programme in place for over 10 years and **Phil Dyke** will describe how their properties and strategy coped with the events of 2013/14. **Nick Lyness** (Environment Agency) has been heavily involved in partnership approaches to schemes for coastal flood and erosion risk management. These enable stakeholders to help develop schemes which realise multiple benefits and objectives in the context of meeting the challenges of adaptation and he describes the delivery of these in a very pragmatic and practical way. A report by Peter Bide – see the postscript below – highlights project partnership as a valuable way forward. In reality there are a host of initiatives underway at the coast including policy development, 'On the edge' - The LGA Coastal SIG's approach, the Coastal Concordat, Pathfinder review and partnership working; **Bill Parker** will reflect on a range of developments from a local authority perspective

The mitigation of climate change by the use of renewable energy in the marine environment is a major resource but also a massive challenge. The appeal of a continuous source of energy from the wave and tidal energy sector is huge, and machines are going into the water, but the technical and financial challenges are considerable. **Stephanie Merry** (Renewable Energy Association) will be reviewing the prospects and challenges. Offshore wind is an established technology which has faced major financial setbacks in 2014, however, environmental issues are still bedevilling development. **Emilie Reeve** (ORJIP Programme Manager – Carbon Trust) will describe a major collaborative industry programme to help resolve some of the remaining environmental issues. The idea of using tidal barriers to generate energy have been debated for 30 years and have come to nothing. The Swansea Tidal Lagoon project has made huge progress in a comparatively short time and is attracting significant funding. **Mike Case** of Tidal Lagoon Power plc will describe this project and it's potential.

One of the main themes running throughout the conference will be thinking on how we value the services that are being provided by the marine and coastal environment; **Mel Austen** (PML) will discuss how we should be viewing the way we assess the environment through this perspective and the lessons this provides. Economics and the way we make decisions about projects and policies will also be raised by **Chris Williams** (New Economics Foundation) in relation to the fisheries (CFP & MSY) and other programmes.

The way we manage the environment is another strong and recurrent theme since we now expect evidence based decision making and **Mike Osborne and John Pepper** (OceanWise Ltd) will be looking to the future in terms of the way we collect and manage our information and data. Cumulative effects has long been a major conceptual hurdle, in terms of time and costs to developers and **Rachel Barker** (NIRAS) will reflect on a recent Government funded project on this. 'Smart' regulation is a latest Government initiative and **Peter Barham** (SeaBed Users & Developers Group) and **Kate Jennings** (RSPB) will discuss the priorities industry have in this regard. **David Baxter** is leading the major programme of work on the Water Framework Directive for the Environment Agency and he will describe the draft plans with particular reference to the implications for the coastal and estuarine environment.

In the UK we are blessed with a strong world view and scientists and professionals whose work provides international leadership. The final two speakers on day one are remarkable in the breadth of their work, contribution and advocacy. **Jason Hall-Spencer** will describe his work on ocean acidification, food chains and fishing. **Heather Koldewey** in her work based at ZSL has lead major programmes of public awareness of the ocean environment to providing community support networks in storm relief in the tropics. Their perspectives show just what we can achieve.

Marine Spatial Planning (MSP) seeks to meet sustainable development goals by assessing and integrating the various conflicting uses of sea space. **Paul Gilliland** (MMO) and **Rhona Fairgrieve** (European Commission) will reflect on how we are making progress with Marine Spatial Planning. The MSP Directive was introduced in 2014 and it is already clear that there is a wide disparity of progress being made across member states. Of the northern member states UK has made good progress but is by no means the leader.

The Marine Strategy Framework Directive is another major programme also working in this direction. We are nearing the end of the first cycle in 2015 and the conference coincides with the broad timing of the Defra consultation on the MSFD programme of measures. **Dominic Pattinson** (Defra) will present on the Defra programme of measures; these are widely believed to reflect the current activities of marine programmes i.e. the *status quo*. **Melissa Moore** (MCS) on behalf of Joint Links will provide an NGO perspective on what they think the programme of measures should include. The aim is to achieve '**good environmental status**' but many questions arise. The first MSFD cycle has been a learning exercise with a fuller range of descriptors than have ever been assessed before. Questions of how these descriptors interact, issues of integration and process and whether the geographic scale being adopted really provides a meaningful way forward continue to arise.

Clive Fox from SAMs will present on the issue of discards from *Nephrops* fisheries and the research that is currently underway; how these fisheries can be reconciled with the CFP discards regulations remains to be seen. Shellfisheries for scallops and 'prawns' (*scampi*, *Nephrops norvegicus*) have become increasingly important to the UK Fleet and there are worrying signs that the bycatch from *Nephrops* fisheries are having a serious cumulative effect on white fish landings, as well as other measures such as benthic integrity and impacts on the biodiversity of larger species. Roberts and Thurstan showed this in the Clyde 5 or 6 years ago and Roberts and his team have completed a similar analysis in the Irish Sea demonstrating white fish landings 1/10th the level of 1990. **Jason Hall Spencer** has just completed an analysis from the English Channel demonstrating the same effects and will be describing this work.

The realities of **fishing down the food chain and large scale ecosystem change** is one that is confronting many of our marine areas. The Clyde is providing a real time test bed for these debates on what we want and in particular how important it is to take a more integrated approach to assessment as well as a broader and inclusive perspective of societal choice. **Professor Michael Heath** (Strathclyde University) will describe the outcome of recent work looking at the Clyde ecosystem and **David Mallon** (Scottish Government) & **Isabel Glasgow** (Clyde Forum) will describe the Clyde 2020 process which is seeking to get stakeholders views on what we should expect of the Clyde ecosystem.

Sustaining and managing modern fisheries is probably one of the most difficult challenges there is. The reform of the Common Fisheries Policy has set out a new direction and **Jim Portus** (SWFPO) will reflect upon these changes and their practical implications. There are many aspects to this not least of which is discard policy; **Clive Fox** (SAMS) will describe the unfolding picture of *Nephrops* (prawn) fishing and their impact on white fish fisheries. MSY and socio-economics is a growing reality for many major programmes and **Chris Williams** (NEF) will describe recent project on this. **Jerry Percy** will be describing a new initiative, LIFE - Low Impact Fisheries in Europe - which aims to both respect the environment as well as securing a stable socio-economic base for fishing communities.

The progress with the Marine Protected Area programmes will be described for England by **Kylie Bamford** and **Paul McLeod** (Defra) and for Scotland by **David Mallon** (Scottish Government). The need to include mobile species in this thinking will be highlighted by **Lissa Batey** (The Wildlife Trusts). The unfolding pattern of minimising fisheries impacts in MPAs in England will be described by **Mark Duffy** (Natural England) and the realities of inshore fisheries management practice and MPA management will be described by **Tim Robbins** (Devon & Severn IFCA).

Many generic themes will recur throughout the event – the importance of science and an evidence based approach, valuation and the need to understand socio-economics and the importance of effective stakeholder engagement.

Post-Script: Project Partnerships – linking Stakeholders, Funding and Multiple Objectives - Peter Bide

In effect this a model for helping deliver sustainability for a wide variety of project – integrated solutions, delivering multiple benefits with finances from a variety of sources.



This diagram prepared by **Peter Bide** has enormous range of applications to project funding meeting the aspirations of stakeholders. In effect it shows a familiar situation – the need to develop project funding for a project. Individual stakeholders may well have some money for this but not enough. Equally whilst there may be an overriding function there may well be a range of aspirations –multiple objectives –arising from the different stakeholders. Key to realisation of this approach is effective facilitation and participation. This model has been routinely used in flooding schemes, and with upland restoration but has much wider applications. A fuller description is given in Peter's guidance on water and planning.

See: <http://www.ciwem.org/policy-and-international/current-topics/water-management/planning-advice-for-integrated-water-management.aspx>

DAY 1 – Wednesday 21st January

The 2013 North Sea tidal surge - lessons and implications for future management of the natural environment

Tim Collins

Natural England

Principal Specialist – Coasts & Water

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Last winter's tidal surge, floods and storms had a substantive impact on the natural environment. The tidal surge led to the inundation of more than two thousand hectares of SSSI, through both the overtopping and breaching of seawalls. In most cases this was temporary however in at least one case the breach is now accepted as permanent. There was also substantive damage to nature reserve infrastructure with fences and birdwatching hides washed away, trackways torn up and visitor centres flooded.

The interesting question is whether the surge and subsequent storms have caused substantive damage to sites of ecological or geomorphological importance? Floodplains can be expected to flood, so while such events have become fewer since 1953 (following substantive and widespread seawall improvements following that surge event) they are still part of the ecology of coastal ecosystems. There will be some immediate impacts however over time sites will recover (even if their ecological or geomorphological interest evolves during the recovery phase). Long-term changes are only likely when flood event frequency starts to exceed recovery time. That said climate change predictions indicate that such events will become more frequent in the coming decades and there is a need to consider how we can make the natural environment (and its associated infrastructure) more resilient to future floods.

In recognition of the severity of last winter's events Natural England ran its own flood recovery grant scheme in the early part of 2014. This was focussed on providing support for site managers to reopen nature reserves and other sites in time for the 2014 Easter holidays. Natural England also provided financial support for farmers through the agri-environment programme to effect repairs to enable them to continue, for example, livestock grazing on saltmarshes. Where practical we have sought to fund adaptive approaches that will be more resilient to future flood events; however there is more to do in this area.

Natural England, with the support of a wide range of conservation bodies, is currently in the process of producing a report that records the impacts of last winter's tidal surge, storms and floods on the natural environment. It is hope to publish this in late spring 2015.

See:

The implications of a major coastal flood on nature conservation interests in England (ENRR695)
<http://publications.naturalengland.org.uk/publication/61019>

Flood defence standards for designated sites (ENRR629)
<http://publications.naturalengland.org.uk/publication/62024>

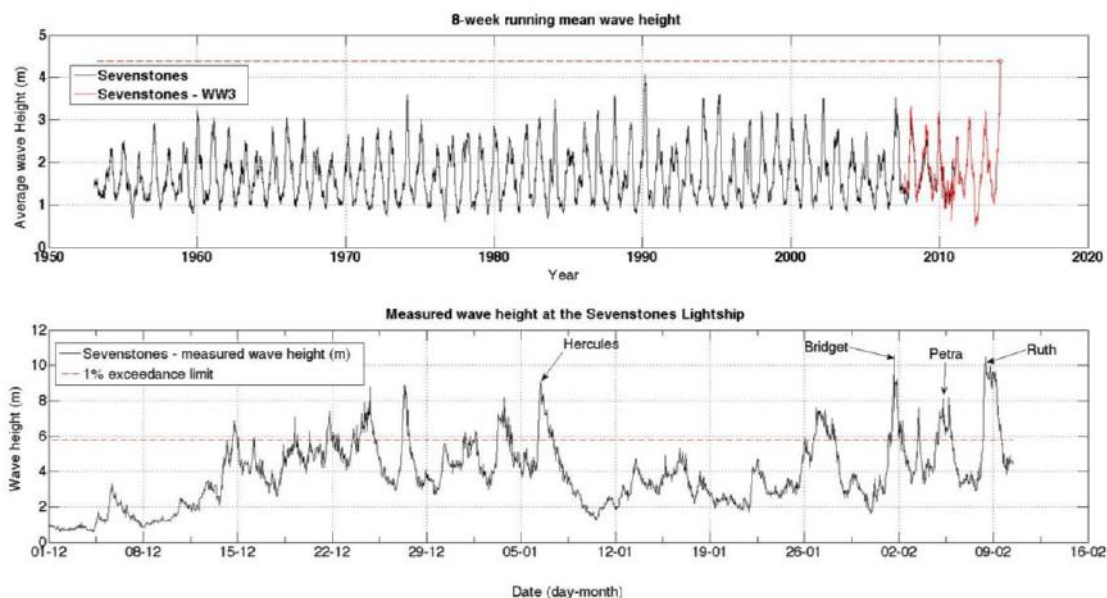
The winter storms of 2014: oceanography and coastal impacts

Gerd Masselink

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During the past winter, the southwest coast of England experienced an unprecedented sequence of exceptionally energetic wave conditions with maximum wave heights frequently exceeding 10 m. According to the Met Office, the storm *Hercules* on 6 January 2014 represented an event that can be expected once every 5–10 years, whereas the storm *Petra* on 5 February 2014 was the most damaging storm in terms of coastal impact on the south coast of Devon and Cornwall for the last 50 years. Furthermore, wave data analysis reveals that the period from mid-December 2013 to mid-February 2014 represents the most energetic period of waves to have hit the southwest coast of England since at least 1950 (see Figure). Not surprisingly, the impact of this stormy period on the coast has been very significant with extensive losses of sand from beaches exposing the underlying rocky platforms, overwashing of gravel barriers, coastal dune erosion, cliff collapse and destruction of rocky coast features.



The Coastal Processes Research Group (CPRG) at Plymouth University has been investigating the effect of the 2013/2014 winter wave conditions on a large number of coastal sites throughout the southwest of England. This research is funded by the Natural Environment Research Council in the form of an Urgency grant specifically designed to fund extreme event-driven research. It has been found that the coastal response of the various storm events has been highly variable, depending on the geographical location (north versus south Cornwall and Devon coast), as well as the coastal setting (sandy beach, coastal dune, gravel beach and rocky coast). To complement the pre- and post-storm coastal surveys, CPRG researchers have also been collecting data during extreme storms at several sites using their *Rapid Coastal Response Unit*. These measurements, made using a variety of state-of-the-art instruments, provide unprecedented insights into the actual coastal erosion processes, as well as highlighting the potential for rapid recovery for the more resilient coastal systems.

Related Information:

NERC Urgency Grant Impacts of sequence of extreme storms during 2013/2014 winter on southwest coast of England

<http://www1.plymouth.ac.uk/research/ccose/NERCUrgency/Pages/Project-1.aspx>

Shifting Shores - Practical Lessons from a Decade of Coastal Adaptation

Phil Dyke

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The first piece of land given to the Trust in 1895 was five acres of gorse-covered cliff top at Dinas Oleu overlooking Cardigan Bay in Wales.

Today the Trust cares for almost a tenth of the coastline in England, Wales and Northern Ireland (742 miles/1187 km) and includes every type of coast: dune, saltmarsh, soft cliff, hard cliff, as well as villages, infrastructure, harbours etc. We are very conscious that at many of these coastal special places we have some serious challenges to face up to associated with sea-level rise, in particular an increase in coastal erosion and flooding. This thinking sits under the Trust's banner of 'Shifting Shores' and is guided by our coastal management principles:

- **Taking the long view** – plan now but for the long-term, building in flexibility to enable us to find adaptive solutions that work for people and places.
- **Adapting to change** – coastal defences have their place but we need to think more about how we adapt at the coast to cope with rising sea levels
- **Working together** – partnership between coastal communities and organisations is vital if we are to find solutions that enable us to adapt to a changing coastline.
- **Working with nature** – work with the forces of nature rather than against, adapting to change wherever possible.
-

Future forecasts suggest with increasing confidence that climate change will lead to continued sea-level rise [1] and increased storminess, in turn accelerating the scale and pace of coastal change [2].

A decade ago to help plan for this uncertain future the Trust commissioned research looking at how our coastline is likely to change over the next 100 years through a process of Coastal Risk Assessment (CRA – Halcrow 2004). The results of CRA painted an interesting picture of the future, with in excess of 70 hotspot coastal change locations being identified across the Trust. These are places where increased flooding and coastal erosion driven by sea level rise will pose an increasing threat to infrastructure, habitats, historic structures, community and third party interests. Over time we are developing Coastal Adaptation Strategies, a framework to help us manage change, for all our hotspot locations [3].

Our Coastal Risk Assessment research led to the publication of the first Shifting Shores document (National Trust 2005) [3]. The big message in Shifting Shores was and remains that it is unrealistic – in a time of rising sea levels - to think that we can continue to rely solely on engineering our way out of trouble on the coast as we have for the past 150 years. Through Shifting Shores we are promoting a discussion at a national, regional and local level about the importance of working with natural coastal processes. It is through understanding these processes and making space for change at the coast that we can, wherever practicable, make the switch from a hard coastal defences (which are time limited in their effectiveness and increasingly prone to failure), to an adaptive natural process based approach and roll-back out of the coastal risk zone.

2015 marks the 50th anniversary of the launch of the Neptune Coastline Campaign. 2015 is also the 10th year since the launch of Shifting Shores, a good time to reflect on the practical lessons we are learning from a decade of coastal adaptation, through project work that includes; community engagement around coastal change[4], removal of failed sea defences, roll-back and deepening our ownership to create space for future coast.

A formal review of Shifting Shores is under way (reporting autumn of 2015) but a number of insights have become clear along the way. These immediate points of learning apply within and beyond the National Trust and can be garnered under 4 headings that form the acronym PACE:

Politics: transcend the short term political perspective and have the confidence and courage to make the difficult decisions now – we owe this to ourselves and even more to future generations.

Adaptation: Work, through tangible projects (break through projects) to tell stories and demonstrate the validity of adaptation as a plausible companion to engineered defences.

Community: Engage, engage and engage with communities and stakeholders on shoreline management exploring rising sea levels, extremes of weather and what it will mean for us.

Evidence: make timely decisions based on the best available evidence – if we wait for 'perfect data' it may be too late

Adopting a preference to work with natural processes and have adaptability as a guiding principle in the management of coastal change inevitably means that some of the decisions we face will be difficult and on occasion controversial. Our challenge within the Trust is to effectively communicate the long-term benefits of this approach, illustrating how we are putting this Shifting Shores thinking into practice through novel approaches to coastal conservation and in so doing create great opportunities for people and wildlife at the coast into the future.

Adaptive solutions [5] are not necessarily cheap to implement but they are future orientated and may be transformational. Re-establishing a naturally functioning shoreline, where ever practicable, does offer the chance for transformation, a chance to free ourselves from the 'sea defence cycle' – construct, fail and reconstruct.

A decade on from the publication of Shifting Shores, societal instinct to try and defend the land from the power of the sea at any cost remains strong, often overriding logic and an increasing body of evidence that suggests adaptation based approaches to managing coastal change have a part to play. On cost grounds alone adaptation must prove cheaper in the long-run, but there are multiple benefits: more desirable in terms of maintaining the natural beauty of our coast and a reduction in the risk of storing up the problems for future generations to deal with. If we begin this process now and start the conversation, we can find adaptive solutions to living with a changing coastline.

References

[1] Data for the sea-level rises in the twentieth and twenty-first centuries came from a report published by the IPCC in autumn 2013 - http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_Chapter13.pdf

[2] Marine Climate Change Impacts Partnership Annual Report Card 2007- 08
<http://www.mccip.org.uk/annual-report-card.aspx>

[3] Further information on coastal adaptation, Shifting Shores and video case studies can be found at <http://www.nationaltrust.org.uk/shiftingshores>

[4] Living with a Changing Coast (LiCCO), is European Interreg project on coastal change with a geographic focus on Devon, Dorset and Normandy but with a set of outputs and outcomes around good communication and engagement, that apply to managing coastal change where ever you are. <http://www.licco.eu/>

[5] Environment Agency (2010). Working with natural processes to manage flood and coastal erosion risk. Available at: <http://webarchive.nationalarchives.gov.uk/20140328084622/http://cdn.environment-agency.gov.uk/geho0310bsfi-e-e.pdf>

Eliciting Private Sector Contributions and Participation for Projects-

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For the Environment Agency there is something in the adage about “adversity is the motherhood of invention” as we faced an impossible task of reconciling the widening financial gap between the need to find funding for both sustaining existing coastal flood and erosion defences and the need to invest in new defences to meet increased sea level rise and climate change on the coast.

It was recognised that our existing grant system meant that a shrinking national pot could only be allocated to a few lucky applicants, leaving too many communities facing a funding drought for the foreseeable future. This also had the unintended consequence of impacting on planning options for many communities. In response we developed a “partnership grant system” that allowed authorities and third parties to either top up any grant or reduce the implementation costs which then gave access to vital national Flood & Coast Risk Management funds. What has proved to be a “win win” situation for many communities.

Whilst the need to account for flood and coast erosion in the planning process may be seen by some as a constraint we know from our studies that each pound spent on defences brings many more pounds to the local economy and inspires confidence to invest. In my talk I will give examples of locations, such as Poole, Weston Super mere, etc where we have successfully worked with planning authorities, third parties and communities to come up with solutions that protect existing properties at risk and allow sustainable growth to take place.

During my talk I will share my passion for the section of coast that I manage also the need to provide quality data to help society value their local environment that then helps make informed decision. Behind all of this is the need to form effective partnerships.

On the Edge – Coastal Management from a local authority perspective

Bill Parker

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The Local Government Association Coastal Special Interest Group (SIG) is a group of more than 60 English Coastal Local Authorities working together representing a population of over 13 million people. The SIG is dedicated to helping Local authorities to practically manage the demands made on them and maintain a seat at the top table when decisions are made.

For nearly 2 decades the SIG has pooled expertise and developed a common vision for the coast of England:

- A sustainable and thriving coast – within a healthy functioning natural environment where cultural heritage and economic activity is enhanced
- A vibrant coast – for viable and healthy communities, where social exclusion and poverty are tackled and citizens have freedom of choice in the way they live
- A dynamic coast – where human activity and development work in harmony with natural processes; risks are managed by planning
- A democratic and informed coast – where local people understand the issues and have a strong voice.

Local authorities are in a unique position as the principal organisation involved in coastal management with a true democratic mandate. Around our coast there are different structures of local authority. They are unitary i.e. one local authority (such as Cornwall) have all functions or 2 tier such as Norfolk where the County Council is the Lead Local Flood Authority and has responsibilities under the Water Management Act 2010, and in addition the Unitary, District or Borough Councils have responsibilities under the 1949 Coast Protection Act. In addition there are also 6 National Parks with a coastal edge. Add to this the fragmented nature of coastline responsibilities in particular Environment Agency and private ownership, it isn't difficult to be confused as to who has responsibility for what in Flood and Coast Erosion Risk Management (FCERM). Unitary Authorities / Districts and Boroughs have lead responsibility for disaster recovery many of the SIG members found particularly challenging last winter.

The perfect storm of reducing local authority budgets and resources including local expertise, impacts from climate change, existing defences built in the Victorian era or even after the 1953 surge reaching the end of their practical life, competitive and incomplete funding together with rapidly aging coastal population and rising public expectations are challenging the local authority coastal management teams around the country.

So how are local authorities tackling this?

- Raise the profile of coastal communities and the issues they face
- We have to simplify what we do and focus where we bring real value
- Build resilient teams, develop processes and policies
- Realise wider benefits not just coast defence – make the case
- Become experts in funding
- Intelligent client
- Work in Partnership and take an integrated approach
- Retain focus on delivery and contact with our communities and demonstrate value for money

In short local authorities have to be diplomats, leaders, supporters, approvers, fixers

The LGA Coastal SIG aims to:

- Support coastal councils in delivering sustainable development for England's coast
- Strengthen capacity of coastal councils to deliver coastal management
- Promote awareness of the role of local government on the coast

The SIG has updated its agenda for England's coast in the revised 'On the Edge - a coastal strategy' for local authorities

In addition the SIG has produced 13 position statements ranging from Marine Protected Areas, Minerals and Dredging and Coastal Adaptation highlighting area of specific concern / interest.

Local government is most efficient, transparent and trusted part of the public sector when it comes to decisions over local services, 79% of people trust local councils to make decisions about the future of local services. Public trust in central government to take decisions over local services is just 11% (IpsosMORI 2013)

The importance of this work is demonstrable with a few statistics:

- Total length of England's coastline is 10,077km (6,260 miles)
- 44% of England (and Wales) coast is defended
- Coastal erosion is an issue on 30% of coastline
- 75% (by value) of all imports and exports are handled by ports directly employing 700,000 people
- 3,000 registered fishing vessels
- Seaside tourism values at £17bn p.a.
- 31% all tourism is at the seaside inc 11% p.a. for overseas visitors
- Over 50% of grade 1 agricultural land is within the coastal plain
- 40% manufacturing industry is on near the coast
- 31% of coast is occupied by buildings / infrastructure
- >33% of England's coastline is designated for scenic or natural beauty
- Saltmarsh sequesters CO² valued at £11.93m/year
- All but one local authority with the largest % of over-65's is located on the coast

In conclusion:

When thinking about how we manage our highly valuable coast the 114 local authorities are clearly a central player with a democratic mandate. Whilst each authority may take a different local approach they do have statutory powers and responsibilities. They are however under severe financial pressure but are adapting to a new environment. This demands innovation and provides opportunities for other organisations who want to be part of the future of coastal management.

Want to know more, see:

On the Edge – the local authority agenda for England's Coast

<https://coastalsig.files.wordpress.com/2012/02/on-the-edge-2014-final.pdf>

<http://lgacoastalsig.com/position-statements/>

Future prospects and challenges for the Wave and Tidal Stream Energy Sectors

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Within the global arena, the UK remains at the forefront of tidal wave and tidal stream energy sectors. This stems from:

- A plentiful marine energy resource - 50% of the European tidal stream resource and 30% of the European wave resource lie within UK waters
- Unrivalled demonstration and test facilities
 - The European Marine Energy Centre (EMEC) in the Orkneys: <http://www.emec.org.uk/>
 - Wavehub off Hayle in Cornwall: <http://www.wavehub.co.uk/>
 - FaBTest in Falmouth Bay: <http://www.fabtest.com/>
 - National Renewable Energy Centre (NaREC) in Blyth: <https://ore.catapult.org.uk/marine-renewables-subsea-technology>
- Historically supportive government policies
- A skills base of creative engineering and transferable skills from the offshore oil and gas sector
- The world's first commercial leasing rounds for wave and tidal stream energy, in the Pentland Firth and Orkney Waters

But other countries are preparing to take over the leading role, particularly France and Canada.

Tidal stream energy is on the verge of commercialisation, with a number of 1 MW devices installed at EMEC: <http://www.emec.org.uk/about-us/our-tidal-clients/>, in addition to Seagen, the world's first accredited tidal energy power station, which has delivered more than 9GWh to the national grid. <http://www.marineturbines.com/Seagen-Technology>.

In 2014 the first 10MW tidal array project, known as MeyGen <http://www.meygen.com/>, obtained financial close and funds have been released to suppliers and contractors to enable construction to commence. MeyGen will consist of up to six tidal turbines deployed in the Inner Sound of the Pentland Firth. A second 10MW array project in the Sound of Islay has received consent: http://www.scottishpowerrenewables.com/pages/sound_of_islay.asp

However UK wave energy companies have made disappointing progress, illustrated by the recent demise of the leading technology developer Pelamis Wave Power: <http://www.pelamiswave.com/> and news that the other technology leader Aquamarine Power <http://www.aquamarinepower.com/> has reduced the workforce from 50 to a skeleton of less than 20. Nevertheless, foreign companies continue to develop wave energy devices and are happy to use the UK test facilities, see: <http://www.emec.org.uk/about-us/wave-clients/>. The berths at Wavehub are fully booked by non-UK wave technology developers and Norway-based Fred Olsen used FaBTest to prove the operational survivability of the BOLT device: <http://www.boltwavepower.com/>.

This presentation will consider the challenges faced by the wave and tidal energy sectors, not least those caused by the lack of a long term energy strategy from UK government, and the possible solutions for the UK to exploit this indigenous, carbon-free source of energy.

Reducing the risk of consenting for Offshore Wind energy

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Managed by the Carbon Trust, the Offshore Renewables Joint Industry Programme (ORJIP) is a joint industry programme between, the Department of Energy and Climate Change, Marine Scotland, The Crown Estate and 16 offshore wind developers with an interest in the UK offshore wind market (Centrica, DONG Energy, EDF, EDPR, Eneco, E.ON, Fluor, Mainstream Renewable Power, Repsol, RWE Innogy, ScottishPower Renewables, Siemens, SSE Renewables, Statkraft, Statoil and Vattenfall).

Born out of a requirement from UK ministers for the industry to address the consenting challenges facing the offshore wind industry, ORJIP is a collaborative R&D programme aimed at undertaking strategic research to reduce the consenting risk for offshore wind projects and help deliver the Government's commitment to the 2020 renewable energy targets.

Through consultation with the offshore wind industry, public bodies and Statutory Nature Conservation Bodies (SNCBs) a number of key research projects have been identified as critical to de-risking the consenting process. These projects focus on strategic data collection and technology research to develop solutions on behalf of offshore wind developers to address two key consenting risks:

1. Birds – uncertainty on bird fatalities due to collision, and potential population displacement
2. Marine Mammals - uncertainty on the potential injury from high levels of underwater noise due to construction, and potential population displacement

The four priority projects identified in 2012 by industry and regulators for scoping are:

- **Project 1:** Bird collision risk and avoidance rate monitoring
- **Project 2:** Evidence gathering for Population Consequences of Acoustic Disturbance (PCAD) model to predict impacts on marine mammals from underwater noise.
- **Project 3:** Underwater noise mitigation technologies for piled foundations in deeper water.
- **Project 4:** Use of deterrent devices and improvements to standard mitigation during piling

As the offshore wind industry and consenting process continues to evolve so too do the challenges faced by the offshore wind developers to ensure that their offshore wind site has mitigated as much as possible the environmental impact. The ORJIP consortium continues to review the current and future consenting challenges faced by the offshore wind industry and aims to conduct the necessary research and technology development to address these challenges and reduce the risk to consenting.

See:

www.carbontrust.com/ORJIP for more information on the ORJIP programme
www.carbontrust.com/media/394474/orjip-acoustic-deterrent-devices-phase-1-report-xodus.pdf
for the phase 1 market review report on Acoustic Deterrent Devices

The Swansea Bay Tidal Lagoon: a blueprint for a new kind of energy infrastructure

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Tidal Lagoon Power is preparing to start construction of the world's first tidal lagoon power plant in Swansea Bay in 2015. The 320MW installed capacity project will establish a blueprint for the rapid roll-out of a fleet of full-scale tidal lagoons that could between them provide 8% of the UK's electricity.

With a design life of 120 years, tidal lagoons introduce a new option for affordable renewable energy at a scale not seen before. Predominantly built and funded in the UK, the Swansea Bay Tidal Lagoon will kick-start a new UK industry and future export market, present a wide range of opportunities for social and environmental regeneration and position low carbon power generation at the heart of coastal communities.

This talk will examine the plans for the Swansea Bay Tidal Lagoon, the technology it will employ, the civil engineering challenges it will navigate, and the new energy market it will open up.

www.tidallagoonswanseabay.com

A Strategic Approach to Cumulative Effects

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Cumulative effects can be considered as the combined effects of past, present and reasonably foreseeable activities over time, on environmental, economic and social receptors. An individual effect alone may be considered insignificant, but multiple additive effects, from any number of sources, could result in a significant effect, either positive or negative.

Under the Marine Policy Statement (MPS) the Marine Management Organisation (MMO) has an obligation to ensure potential cumulative effects are taken into account in its decision making. In accordance with the principles of sustainable development, there is a need to consider the environmental, social and economic effects of marine activities at both the project and plan level. The identification and evaluation of potential environmental, social, and economic effects of marine activities allows for effective management measures to be put in place to minimise or remove negative effects. Currently, there is no guidance available or system in place to ensure consistency in this process, and so the MMO commissioned NIRAS Consulting Ltd to develop an initial high level consistent approach to scoping in cumulative effects, specific to the needs of MMO functions. The main aim was to provide MMO with an overarching methodology that could be used as part of its day to day operations. The approach needed to be applicable for all marine plan areas and all relevant MPS sectors.

The project provided a review of current evidence into cumulative effects assessment processes focusing on scoping; results of extensive consultation undertaken as part of the project; guidelines for the management of contribution to cumulative effects and mitigation; and a framework to identify and scope cumulative effects at a strategic level, that aims to be proportionate and achievable in practice. In addition to the report, an evidence database was produced collating current evidence relating to potential high level pressures on environmental receptors resulting from marine activities.

The report was published in December 2014 as part of the MMO evidence programme. The full report can be found here:

<https://www.gov.uk/government/publications/a-strategic-framework-for-scoping-cumulative-effects-mmo-1055>

"Smarter" Regulation - NGO and Industry Perspective

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The highly regulated industries that are represented in SUDG which develop the sea bed have extensive experience of working with others regulators and stakeholders, including the RSPB, to reduce and resolve environmental impacts and there are many successful examples of this. With the greater protection created for the marine environment through the development of new national legislation, industry knows that it is even more important to work in partnership with conservation organisations to find new and more effective ways of ensuring that we meet the needs of the environment along with economic growth.

However, the Government's drive for 'smarter regulation' – intended to remove barriers to growth and to improve implementation of environmental and other legislation - may have perverse effects on both business and the environment.

The ongoing review of legislation in the name of smarter regulation – based on the principle that 'better' = less'- is a cause for uncertainty for developers and nature conservationists alike. The review and revocation of guidance has the potential to create a vacuum, or worse, resulting in the publication of revised guidance, which far from streamlining or clarifying requirements, may muddy what had previously been relatively clear waters. The European Commission's 'Fitness Check' of the Birds and Habitats Directives exacerbates these uncertainties, raising the prospect of further shifting of well-established goal posts.

The statutory nature conservation agencies have haemorrhaged staff in recent years, which has placed increasing constraints on their ability to provide expert and impartial advice. Alongside the position where the growth of environmental legislation has led to increasing opportunities for inconsistency, responsible developers are finding it hard to sustain industry best practice in an environment which by definition is highly regulated and complex in implementation.

There is a strong coalition of responsible industries who recognise the value of biodiversity, and want to ensure that as developers they contribute to sustainability by doing the right thing for business, for people and for the environment.

In the absence of clear guidance on what the legislation requires, it is increasingly important that industry works to demonstrate to Government what successful approaches do look like. To do this industry needs to continue to work with stakeholders to focus on sustainable development, including the clear and consistent application of environmental regulation, and on learning from and developing best practice which should be good for the environment and good for industry. Such an approach would increasingly assure that emphasis is placed on environmental improvement and on proportionate and appropriate routes through environmental assessment.

There are many examples where good practices have been developed through co-operation, but it is also essential that the value of these experiences is disseminated and applied more widely if we are to achieve the common desire for proportionate assessment and environmental protection while enhancing the marine environment.

WFD: Draft River Basin Management Plans – estuarine and coastal implications

David Baxter

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Estuarine and Coastal waters constitute a significant part of England's water environment. They support numerous activities and present a range of environmental challenges and economic interests that straddle the land-sea interface. The Water Framework Directive (WFD) provides a mechanism for managing the water environment throughout Europe, including estuarine and coastal waters. At its core is an ecosystem approach that requires measures to be taken to encourage the sustainable use of water and to protect and improve inland surface waters, groundwater and estuarine and coastal waters with the aim of achieving good status.

In order to effectively identify and manage the issues affecting estuarine and coastal waters, it is important that we work together, with numerous sectors, across the land-sea interface to agree achievable objectives and sustainable ways of working. Taking a Catchment Based Approach (CaBA) will particularly help in identifying local benefits of catchment management. Central to this is engagement of local stakeholders to establish common ownership of problems and their solutions, building partnerships to implement actions at the local level. The CaBA aim is to balance environmental, economic and social demands and align funding and actions within catchments to bring about long term improvements. CaBA empowers local action to improve the water environment through community partnerships.

Under the WFD, a management plan must be developed for each river basin district which includes estuaries and coasts. These river basin management plans (RBMPs) and the objectives and measures contained within them, must be reviewed every six years. The next set of updated plans is due in December 2015 and we are currently consulting on these proposed updates. Estuarine and coastal waters are considered throughout the formal consultation on the draft update to the river basin management plans, and to help navigate through the detail of the plans, we have produced an estuarine and coastal national summary document.

David will offer an overview of the RBMP process, specifically focussing on the proposed updates within estuarine and coastal waters. He will provide a high level overview of the current state, the challenges and the choices within estuarine and coastal waters and highlight the wider context and links with other plans and legislation.

We welcome all comments on the consultation which ends on 10th April 2015, it can be found on GOV.UK website (by searching "RBMP" or) www.gov.uk/government/consultations/update-to-the-draft-river-basin-management-plans. For further information please visit the Environment Agency's stand.

The Environment Agency is also currently consulting on Flood Risk Management Planning – FRMP. These plans provide information on flood risk and show objectives and measures, including drawing from other plans and strategies. www.gov.uk/government/consultations/draft-flood-risk-management-plans. The consultation ends on 31 January 2015.

Ecosystems Goods and Services in the Marine Environment: Indicators and Monitoring

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Quantifying the provision of marine ecosystem services, how they have changed and how they might change in the future under different scenarios can help policy makers, regulators and other stakeholders to understand the societal importance of biodiversity and ecosystem functioning. However, doing so in practice has proved challenging because there has not been a coherent set of indicators to enable this. This talk will outline the need to distinguish between indicators of ecosystem services that are entirely ecological in nature (and largely reveal the potential of an ecosystem to provide ecosystem services), indicators for the ecological processes contributing to the delivery of these services, and indicators of benefits that reveal the realised human use or enjoyment of an ecosystem service and which can be valued in monetary or non-monetary terms. A suite of indicators for the full complement of marine ecosystem services in continental shelf waters has been compiled (Hattam et al 2014). The indicators are based on ecological properties and functions of marine ecosystems. Each indicator has been assessed against a set of agreed criteria to ensure its relevance and applicability to environmental management. The talk will highlight some of the difficulties faced in selecting meaningful indicators, such as problems of specificity, spatial disconnect and the considerable uncertainty about marine species, habitats and the processes, functions and services they contribute to.

Drawing on these indicators ecosystem services have been quantified in case study areas in their present and under possible future states and this talk will present the case study of the Dogger Bank. This work was a component part of VECTORS, a large multidisciplinary EU project that has examined changes in marine life across European Seas and their ecosystem, economic and social consequences. The ecosystem service assessment was facilitated in VECTORS: by development of contrasting future scenarios that incorporate analysis of future governance and its implications for different maritime sectors; by biodiversity and ecosystem functioning studies that have furthered our understanding of the changes that are occurring and might occur in the future which, combined with ecosystem modelling, have been used to project future changes in ecosystem services indicators; and finally valuation studies that examine how values will change under the different scenarios (Börger et al 2014). Through the VECTORS project we have demonstrated that the tools are now coming into place to make assessments of changes in marine biodiversity terms that indicate their societal importance and can be more easily communicated to policy makers and managers.

A recently started EU project, DEVOTES, is investigating biodiversity indicators for use in monitoring under MSFD across the EU. Early studies suggest that there is little or no incentive to align these indicators with those required to quantify changes in ecosystem services. This could be a missed opportunity for the widespread and routine application of ecosystem service assessment to support policy, regulation and management.

Related reading and web links:

VECTORS: Vectors of Change in Oceans and Seas Marine Life, Impact on Economic Sectors
www.marine-vectors.eu

DEVOTES: DEvelopment Of innovative Tools for understanding marine biodiversity and assessing good Environmental Status <http://www.devotes-project.eu/>

Hattam C, Atkins JP, Beaumont N, Börger T, Böhnke-Henrichs A, Burdon D, de Groot R, Hoefnagel E, Nunes PA, Piwowarczyk J, Sastre S, Austen MC 2014. Marine Ecosystem Services: linking indicators to their classification. *Ecological Indicators*, 49, 61-75.
<http://dx.doi.org/10.1016/j.ecolind.2014.09.026> [open access]

- Börger T, Hattam C, Burdon D, Atkins JP, Austen MC 2014. Valuing conservation benefits of an offshore marine protected area. *Ecological Economics*, 108 229-241.
<http://dx.doi.org/10.1016/j.ecolecon.2014.10.006> [open access]
- JRC 2014 In-Depth Assessment of the EU Member States' Submissions for the Marine Strategy Framework Directive under articles 8, 9 and 10.
<https://ec.europa.eu/jrc/sites/default/files/lbna26473enn.pdf>
- T. Luisetti, S. Boyes, D. Burdon, J. Atkins, K. C. Bizsel, T. Börger, L. Carugati, R. Danovaro, M. Elliot, H. Eronat, G. Kaboglu, A. Murillas, S. Oinonen, L. Paltriguera, N. Papadopoulou, B. Petani, A. Pusceddu, V. Saggiomo, J. Salojärvi, M. Scardi, C. J. Smith, V. Vassilopoulou, M. C. Uyarra, and M. Austen. (in preparation) The European Marine Strategy Framework Directive: barriers to its implementation. http://www.devotes-project.eu/wp-content/uploads/2014/07/7-The-MSFD-barriers-to-its-implementation_final-Luisetti.pdf [Presentation at IMBER Open Science Conference, 24th June 2014, Bergen, Norway]

Marine Data & Information - “Revolution and Evolution”

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The key message that this presentation seeks to impart is that it is time to turn the way we think about data upside down. This is the revolution element. The evolution (or innovative - it's so much more fashionable) element provides evidence to support this drastic assertion. The familiar Data - Information - Knowledge Pyramid with Data at the base supporting Information which is turned into Knowledge and then into Wisdom (or more usefully - improved and informed Decisions) gives a visual impression of stability and implies the more data we have, the bigger and stronger the pyramid becomes. This can only be true if the non-machine parts (i.e. people and their associated theories and understanding) can keep up with the greater flow of data. We need machines to do more (automated tracking of data manipulations also known as PROVENANCE) but we also need to recognise our current limitations in terms of thinking, understanding and resolving!

Evidence is provided, in the form of examples of evolution (albeit pretty rapid), to support our assertion about revolution. We also point out that, without proper data management, all the previous grand thinking we have used will come to nothing or, even worse, result in us believing we have better knowledge and wisdom and decisions BECAUSE we have more data. This is dangerous because we may be deluding ourselves.

A simple diagram and three thoughts as to where we really are in the marine for maps & data, for knowledge use and data management are provided for you to take away. Be afraid, be very afraid as the journey ahead might be uncomfortable!

Reports from the front line of the current mass extinction: ocean acidification, fisheries and ecocide

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We are now well into the Anthropocene. Since the 1950s there has been a human population explosion with widespread coastal habitat damage exacerbated by our ever increasing use of hydrocarbon reserves. This talk uses case studies on inshore fisheries, deep-water coral reefs and ocean acidification to show that we have our work cut out if we are to achieve 'Good Environmental Status' anytime soon. But, if we are sensible, we can limit on-going damage.

Within the past 100 years fishing using internal combustion engines has completely changed the ecology of coastal waters. In the UK, we now mainly import the marine life we eat and export what we are able to catch. Widespread use of diesel-thirsty dredges and trawls has damaged nursery areas and homogenised seabed habitats. We have also fished-down coastal food-webs, removing large long-lived fish (like cod and hake) to the benefit of invertebrates (like scallops and cuttlefish). Giant rays, sturgeon and halibut are now extinct over most of their preindustrial distribution. To make their fuel go farther, large Dutch beam trawlers are now using electricity to stun flatfish throughout the southern North Sea, with unknown effects on the ecosystem.

<http://theconversation.com/we-must-rein-in-heavy-fishing-gear-to-allow-the-seas-to-recover-29118>

Despite this marine ecocide, I am hopeful that we can turn things around, based on experience with cold-water coral reefs. These spectacular reefs, once thought to be restricted to the tropics, occur right up into the Arctic. Colleagues and I provided EU mandarins with evidence of the widespread damage caused by trawls in 2002, advocating the rapid development of towed gear closures to regenerate and protect vulnerable offshore marine ecosystems. Biogenic reefs are a priority for protection as they grow slowly and are easily smashed, yet they provide important habitat for a variety of fish. We worked with industry to design closures that limited displacement of fishing effort, as we did not want to increase damage to other sensitive habitat types or force fishermen further offshore, increasing fuel costs and CO₂ emissions. Several High Seas and EU closures are now in force and satellite vessel tracking data indicate that they are working effectively, with good compliance by international fleets.

A key solution to securing Good Environmental Status is obvious: reduce the footprint of the most destructive practices to allow recovery of coastal systems. Thankfully, the UK Government is tightening controls to ensure that areas that are protected on paper are protected in reality. Attention has recently turned to the question of whether these efforts can really work, given that the temperature, chemistry and biology of the oceans is changing rapidly (Brodie *et al.* 2014).

<http://planetearth.nerc.ac.uk/news/story.aspx?id=1709>

Underwater CO₂ vents show why we need to factor acidification and warming into marine management plans. These vents provide realistic insights as they affect coasts subject to other stressors (e.g. fishing, eutrophication, invasive species) allowing us to scale-up from laboratory work. Areas with abnormally high CO₂ show which flora and fauna are able to thrive, forewarning those people that are reliant on aquaculture, fisheries and coastal tourism.

<http://www.nbcnews.com/video/ann-curry-reports/54882960#54882960>

A new study (Jackson *et al.* in press) uses results from CO₂ vents to examine steps needed to future-proof marine protected areas. If emissions track the present trajectory then by 2060 over 85% of UK deep-water coral reefs will be exposed to corrosive waters, but all is not lost. Relatively shallow areas off Scotland (ca 200 m depth) stand-out as disproportionately important to the regional survival of NE Atlantic coral reefs.

We know we are causing the current planetary mass extinction – what survives will depend on how quickly we can reduce CO₂ emissions and how sensible we are in protecting the resources we still have.

Brodie J, Williamson CJ, Smale DA, Kamenos NA, Mieszkowska N, Santos R, Cunliffe M, Steinke M, Yesson C, Anderson KM, Asnaghi V, Brownlee C, Burdett HL, Burrows MT, Collins S, Donohue PJC, Harvey B, Foggo A, Noisette F, Nunes J, Ragazzola F, Raven JA, Schmidt DN, Suggett D, Teichberg M, Hall-Spencer JM (2014) The future of the NE Atlantic benthic flora in a high CO₂ world. *Ecology and Evolution*, 4, 2787-2789.

Jackson EL, Davies A, Howell KL, Kershaw PJ, Hall-Spencer JM (in press) Future-proofing Marine Protected Area networks for cold water coral reefs. *ICES Journal of Marine Science*. doi: 10.1093/icesjms/fsu099

Molfese C, Beare D, Hall-Spencer JM (2014) Overfishing and the replacement of demersal finfish by shellfish: an example from the English Channel. *PLoS ONE* 9(7), e101506.

From Seahorses & Selfridges to Society – Making a real difference

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Outline

If marine conservation is truly important then why is it such a low priority for most people and bottom of the political agenda? Is the conservation community failing in selling the conservation message to the general public? A growing body of research that indicates that many people – especially children – feel anxious or hopeless about the state of the planet and their ability to effect positive change. Unfortunately, environmental narratives - both mainstream media and scientific - are focused on "doom and gloom" stories, which frighten, disempower and disengage people. Mistakenly, the conservation community often buys into this approach, in the belief that more information about how bad things are will spur people to action.

This talk will explore how we might adopt different, positive and hopeful ways to engage people in marine conservation, leading to changes in behaviour and a more sustainable relationship with the ocean. In this context, I will present a series of 'ocean optimism' case studies developed by the Zoological Society of London (ZSL) that provide potential solutions that can be scaled up and replicated. These include:

1. **Project Seahorse**, which uses seahorses as flagship species to support marine conservation more broadly, for example:
 - Developing research and management options to drive the recovery of seahorse populations and habitats around the world.
 - Generating 34 locally-managed marine protected areas and protocols for effective conservation of many marine fish species.
 - Reconciling disparate interest groups to move traditional Chinese medicine consumption towards sustainability.
 - Prompting a new regulatory option for marine fish exports globally.
 - Implementing an innovative web-based tool to document seahorses globally.
2. **Project Ocean**, an innovative and ground-breaking partnership between the luxury London department store, Selfridges and ZSL to bring ocean conservation to new audiences and change consumer buying habits. Project Ocean has three objectives: 1. raise awareness of overfishing; 2. change people's buying and eating habits; 3. raise money and awareness for marine reserves. This conservation-marketing experiment launched the concept of 'retail activism' and brought together 22 NGOs as well as celebrities, scientists, royalty, fishing industry representatives, youth-group leaders, parliamentarians, heads of state, artists, fashion designers and musicians. Since the launch of Project Ocean, Selfridges has led by example and influenced many of its suppliers on a number of marine issues, including commitment to only stock sustainably-sourced fish in its Food Hall and restaurants, the removal of all beauty and cosmetic products containing shark oil or shark by-products, and addressing the issue of marine plastics through better retail 'plastic practice'.
3. Working with Interface, a world-leading carpet tile manufacturer, ZSL is helping to implement **Net-Works**. This unique initiative is designed to tackle the growing environmental problem of discarded fishing nets in some of the world's poorest coastal communities whilst at the same time support Interface's Mission Zero goal to source 100% recycled material for its carpet tiles. The programme has established a community-based supply chain for collecting discarded fishing nets in rural coastal areas in the central Philippines, with the following results:
 - *Collection levels:* To date, we have collected 41,437 kgs of discarded fishing nets, helping 4,500 villagers in 14 collection sites in Danajon Bank and the Bantayan Islands.
 - *Socio-economic impact:* Through collection of the fishing nets, fishers and community members, who generally live at or below the poverty line, can earn supplemental income. Net-Works is closely integrated with community banking systems that support and

strengthen the local economy and provide new financial opportunities for residents. Community banking empowers programme members to establish forms of micro-insurance, savings and loans for the benefit of both individuals and the community.

- *Environmental impact*: Net-Works helps to ensure that end-of-life fishing nets will no longer be discarded in the natural environment.

The Zoological Society of London (ZSL) is an international scientific, conservation and educational charity. ZSL's mission is to promote and achieve the worldwide conservation of animals and their habitats. Our belief is that a diverse and healthy natural world is valuable in its own right and is essential for ensuring secure and healthy lives for people. Our activities address the variety of problems facing wildlife using a wide array of solutions.

References and websites

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The Ocean Portal (Beyond the Obituaries) <http://ocean.si.edu/conservation/solutions-success-stories>

Zoological Society of London www.zsl.org/conservation

Project Seahorse www.projectseahorse.org; www.iseahorse.org;

Project Ocean www.marinereservescoalition.org; <http://www.selfridges.com/content/project-ocean>

Net-Works www.net-works.com

Day 2 – Thursday 22nd January

Marine Planning: delivery and future development from an England perspective

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The delivery of marine planning in England continues to make progress and continues to remain challenging. The presentation will provide an update on developments with the East and South marine plans, some of the learning thus far, and outline a few considerations in looking forward.

The first marine plans in England - for the East Inshore and Offshore areas - were adopted in April 2014 along with a suite of supporting documents. The plans represent nearly three years of development work in collaboration with a wide range of stakeholders and with government. It is early days in the implementation and monitoring of the plans but some initial experience will be highlighted.

Planning officially started on the South Inshore and Offshore areas in April 2013. The South plan areas are complex and challenging. At the same time marine planning is an evolving process with expectations that the South will differ in some ways to the East plans. Recent progress in the planning process and next steps will be outlined including publication of the revised South Plans Analytical report, consultation on the Vision and Objectives, on-going engagement and analysis, and the development of Options.

The Maritime Spatial Planning Directive was adopted in 2014 and requires marine plans to be in place by March 2021. The presentation will outline some of the issues to be considered to ensure delivery in England given the current rate of progress.

In addressing the points above the presentation will draw out some reflections on the benefits and expectations of marine planning and marine plans.

More information on the MMO's work on marine planning general as well on the East marine plans and South marine plans specifically can be found at

<https://www.gov.uk/government/collections/marine-planning-in-england>

Marine Planning – The European Dimension: The MSP Directive

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The entry into force of the EU's Maritime Spatial Planning Directive in September 2014 requires all relevant European Member States to develop Maritime Spatial Plans by 31 March 2021. It establishes the framework for Maritime Spatial Planning (MSP) aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources.

The Directive sets out the fundamental elements that must be reflected in Maritime Spatial Plans, ranging from the application of an ecosystem-based approach to spatial planning of marine resources to the promotion of the coexistence of relevant uses and activities. The intention was to set out a planning framework within which all human activities at sea could fit. The development of the Directive acknowledged that some EU Member States already had considerable experience in the assessment and planning of marine resources.

EU Member States have until September 2016 to transpose the requirements of the Directive into their own national legislation. This, in itself, may be a challenge for some States where identification of a Competent Authority and coordination between different marine or maritime policy aspects may require new ways of working. Beyond the transposition period, it will be important to ensure that MSP builds on the legislation and processes already in place, e.g. the implementation of the Marine Strategy Framework Directive, to produce coherent results.

In an environment as dynamic and varied as Europe's marine areas, there is no 'one-size-fits-all' solution to the opportunities afforded by traditional and emerging maritime-based activities and the quest for their sustainable and long-term utilisation of marine resources. This presentation will review the process that delivered the MSP Directive, will consider some of the different approaches indicated by Member States in implementing its requirements and will offer some thoughts on how MSP may deliver across the wider EU policy spectrum.

Commission's MSP site:

http://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning/index_en.htm

Final text of the Directive:

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0089&from=EN>.

Mobile marine species conservation: Current challenges

Dr Lissa Batey

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The seas around the UK are home to a biologically diverse array of marine species and habitats. Of the large marine megafauna, we have 29 species of whale, dolphin, porpoise (known collectively as cetaceans) and the second largest shark in the world – the basking shark.

Historical records show that whale, dolphin, porpoise and basking shark populations are significantly lower than they once were. Today, thanks to ever increasing development of the marine environment, the array of potential threats is even greater. Conserving whales, dolphins, porpoises and basking sharks requires a knowledge and understanding of their life history, population ecology, migration routes, breeding and mortality. Direct measures to reduce the impacts of fishing, drilling or pile driving on mobile species are reasonably well accepted. But spatial protection, such as Marine Protected Areas (MPAs), have always been considered controversial.

In general, MPAs alone are unlikely to be an appropriate conservation tool for animals which frequently range across large areas of sea. However, there is increasing evidence that MPAs in areas of high productivity can be important for specific life stages such as mating, pupping or nursing, or activities such as feeding, and if they fit into a framework of ecosystem-based management, they can contribute to the protection of wide-ranging species. Perhaps more important is the protection which an ecologically coherent network can give these species across their ranges – a benefit often overlooked or ignored.

In a world where not only is marine conservation radically changing, but plans for development are also on the increase we need to ensure that these ocean giants are not forgotten. We have the legislation and the power to wield those measures, but sadly, we are yet to do so. If we are to achieve a *well-managed and ecologically coherent network of MPAs*, and *Good Environmental Status*, we must not forget the top predators of our marine environment.

Implications of the EU Landings Obligation for Nephrops (prawn) trawl fisheries

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The new Landings Obligation, often called the discards ban, is a major change in European fisheries policy. This change of direction appears to have been introduced largely in response to the phenomenal success of a high profile publicity campaign - Hugh's Fish Fight. The basic change will be to require all quota managed fish which are caught at sea to be landed to port. This will include under-sized or otherwise unmarketable fish. The change is supposed to largely eliminate, or at least drastically reduce, the practice of discarding which is seen as both wasteful and damaging. The Commission hope that this change in direction should encourage the development and uptake of more selective fishing gears, encourage fisher behaviour which reduces catches of unwanted fish and lead to more accurate recording of total catch.

Perhaps somewhat belatedly the fishing industry, science advisors and politicians are beginning to wake up to what this policy change may really mean for different sectors of the industry. My talk will focus on the Scottish Nephrops trawl fisheries. This is an economically important fishery worth around £68 million (2012 figures) but a fishery which is not without controversy. In some areas, trawling for prawns has been blamed for the depletion of whitefish stocks or the failure of these to rebuild, although the evidence is hotly debated. In addition, incidental mortality inflicted on protected and endangered species, such as common skate, may be an issue in some locations.

In March 2014 we held a workshop attended by representatives from industry, policy, science and other stakeholders to consider the potential impacts of the discards ban and possible ways forward for the Scottish *Nephrops* prawn trawl sector.

In this talk I will summarise the background to the prawn trawl fisheries including the overall value, the vessels involved and where the fleets operate and describe what the "Landings Obligation" may mean for this sector. In the second part of the workshop we discussed potential solutions to some of the issues and I will also describe what new research we think needs to be undertaken.

One major problem with the discards ban is that it may just encourage non-compliance. Nearly everyone involved wants to avoid this situation but we do need to be aware that this could be an unintended consequence of a policy change brought in largely in response to a public campaign.

The full workshop report Fox CJ (2014) A workshop to address the issues surrounding a discarding ban in the Scottish Nephrops fisheries, Marine Alliance for Science and Technology for Scotland, St Andrews, 37 pp. is free to download from:-

http://www.masts.ac.uk/media/119234/masts_nephrops_workshop_report_final.pdf
or from my ResearchGate page [doi:10.13140/2.1.2661.2802](https://doi.org/10.13140/2.1.2661.2802)

Why socio-economics matters in the marine and coastal

Chris Williams

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About NEF and our work on the marine environment: NEF is a leading UK think tank driving change towards a sustainable economy that delivers human wellbeing, social justice and environmental sustainability. NEF's environment programme demonstrates that managing natural resources in a sustainable way is good for the economy and good for people. Fundamentally, our economic stability depends on a healthy environment. However, the economic crisis has revived the idea that protecting the environment is a luxury we cannot afford. In fact, the natural environment offers many solutions to the present crisis. From fish stocks to rainforests, properly managed ecosystems are valuable resources that can offer stable and sustainable economic benefits.

We drive change through the strength of our research and campaigning with others to take practical action. Over the past years NEF has strengthened its role as an organisation that helps other NGOs and civil society groups deliver their mission more effectively by:

- 1) *Increasing their economic literacy* (i.e. training in economics): NEF coordinates the **Marine Socio-Economics Project** which aims to strengthen the economic capacity of UK Marine NGOs. The project is run in partnership with WWF-UK, RSPB, Marine Conservation Society and the Wildlife Trusts. Outputs of this project (provided below) have been adapted to other geographical context and audiences (i.e. Portuguese marine conservation NGOs).
- 2) *Generating economic based evidence to support policy and advocacy work:* through our '**Economics for fair and sustainable fisheries**' project we have generated – and communicated – new evidence to support change towards a fair, sustainable fisheries management in the EU. This has included providing evidence to shape the reformed Common Fisheries Policy (CFP) and a new bio-economic model for EU fleets (The BEMEF model – details below).
- 3) *Mentoring organisations to question their effectiveness and improve their strategies* through the **New Economy Organisers Network (NEON)** a platform of civil society organisations set up by NEF in 2012. <http://www.neweconomics.org/teams/entry/the-great-transition>

Below we provide a summary of our current projects relevant to marine economics.

1. **The Marine Socio Economics Project (MSEP):** www.mseproject.net

This project has the double objective to enhance and build the capacity of marine NGOs to use socio-economic knowledge, tools and information to deliver marine biodiversity conservation objectives; and, to encourage better coordination between marine environment actors. The MSEP began in December 2011 in partnership with the Marine Conservation Society, the Royal Society for the Protection of Birds, WWF-UK and the Wildlife Trusts.

Since 2012, we produced several training materials including a series of briefings on economics in policy making, and a series of facts and figures about marine industries (energy, fisheries, aquaculture, and infrastructure). We have also run two workshops per year (all links to **MSEP outputs are provided in Annex 1** at the end). In 2012, the workshops focussed on [Impact Assessments \(IAs\)](#) and included Defra and Natural England economists explaining the IA process. In 2013, we focussed on [Theory of Change](#) and [economic valuation techniques](#). The workshops for 2014 focussed on the debate around nature valuation (a paper will be forthcoming on the issue) and understanding the [European Maritime and Fisheries Fund \(EMFF\)](#). The last workshop included representatives from port authorities, Defra, IFCA, Fisheries Local Action Groups (FLAGs), aquaculture businesses, NUTFA and other fisheries stakeholders. Sign up to the MSEP Newsletter here: <http://www.mseproject.net/newsletter>
Contact: Chris.williams@neweconomics.org

2. **Economics for fair and sustainable fisheries**

This project has the ultimate goal to drive change towards fairer and more sustainable fisheries management in Europe. The first phase of a project (2011-14) focused on the reform of the CFP. The second phase (2014-17) revolves around the implementation of the new CFP.

The change we want to see:

- Healthier marine ecosystems with fish stocks at bMSY by 2022
- An even-playing field for the fishing fleet within countries and between countries:
 - Quota allocated to fishermen that deliver best value (economic-social-environmental)
 - Funding directed towards fishing activity that delivers best value to society
- An even-playing field for consumers and producers:
 - Consumers do not have to “pay more” for sustainable fisheries products
 - Lower financial risk for businesses that produce sustainably

[Our peer-reviewed research](#) has demonstrated that restoring fish stocks makes economic sense and benefits consumers, industry and society as a whole.

Highlights include:

- [Jobs Lost at Sea](#) estimated that letting fish populations grow to their maximum sustainable yield could deliver an additional amount of fish equivalent to feed 160 million EU citizens a year and additional revenue of £2,700 million per year which could support 100,000 jobs.
- [No Catch Investment](#) showed that the investment needed to restore EU fish stocks could be recovered in just five years, thereafter delivering positive returns of up to £14 for every £1 invested.

Key Facts:

- Restoring 43 EU stocks would generate an additional 3.5 million tonnes more landed fish each year.
- This would lead to £2.7bn additional annual revenues and 100,000 new jobs.
- The UK fishing industry threw away £1bn-worth of cod as discards between 1963 and 2000.

These findings helped shift the focus of EU fisheries policy debate from costs (i.e. catch less now to have more in the future) to benefits (i.e. rents and employment potential). The evidence and figures generated allowed other organisations and decision-makers to think of sustainable fisheries as an opportunity for job creation and profitable investment rather than just as an environmental principle. Contact: Aniol.esteban@neweconomics.org

3. **NEFs Bio-economic model of European Fleets (BEMEF)** (to be launched in January 2015)

The Bio-economic Model of European Fleets (BEMEF) is a tool designed to visualise the economic impacts from fish stock restoration and quota re-allocation. For fleets where adequate data is available, BEMEF calculates current and future economic outputs including profitability, wages, and jobs.

The model will be launched publicly in February 2015 at (www.fisheriesmodel.org). Users will be able to obtain results by type of fleet and country for different scenarios of fish stock restoration and allocation of quota according to social and environmental criteria. They will also have the option to change the model parameters such as job calculation methods, changes in fish price flexibility, and changes in oil prices.

The BEMEF model was developed in close collaboration with a number of partners across Europe and is designed to be open and accessible to all interested users and stakeholders.

Contact: Griffin.carpenter@neweconomics.org

4. **Blue New Deal – good jobs for coastal communities**

This project aims at delivering long-term jobs for coastal communities through a healthier coastal and marine environment. During its first year (2014) we have analysed the challenges that UK coastal communities face; and analysed the potential of the coastal and marine environment to address them. We have also looked at UK public perceptions around marine conservation and the role the media plays in shaping and reflecting these perceptions.

We will release a vision for thriving coastal communities in March 2015. We hope this vision will be supported by a broad base of coastal actors including businesses, councils and civil society organisations and the wider communities.

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Annex 1: RESOURCES FROM THE MARINE SOCIO-ECONOMICS PROJECT

ECONOMICS IN POLICY MAKING – 11 BRIEFINGS: NEF's complete **economics briefings** are online and can be downloaded here: <http://www.neweconomics.org/publications/entry/economics-in-policy-making>

Briefing 1 - An overview of economics

Briefing 2 - How economics is used in government decision-making

Briefing 3 - Valuing the environment in economic terms

Briefing 4 - Social cost-benefit analysis and social return on investment

Briefing 5 - Discounting and time preferences

Briefing 6 - Multi-criteria analysis

Briefing 7 - Beyond GDP: Valuing what matters and measuring natural capital

Briefing 8 - Markets, market failure and regulation

Briefing 9a - Finance and money: the basics

Briefing 9b - What's wrong with our financial system?

Briefing 10 - Property rights and ownership models

Briefing 11 - Behavioural economics - dispelling the myths

The **marine / fisheries case studies** supporting the briefings are available here:
<http://www.mseproject.net/resources/economics-briefings>

FACTS AND FIGURES: The MSEP 'facts and figures' series 1-5 are available from the MSEP website here:
<http://www.mseproject.net/resources/facts-and-figures>

- Series 1, on '[Wild capture fisheries in the UK](#)'
- Series 2 on '[Marine Energy](#)'
- Series 3 on '[Marine Infrastructure](#)'
- Series 4 on '[Marine Recreation](#)'
- Series 5 on '[Fisheries Flows and Aquaculture](#)'

A series of powerpoint presentations with graphs which MSEP partners can use is available on the slideshare page here: <http://www.slideshare.net/nefcomms>

The Marine Strategy Framework Directive – Programme of Measures

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The Marine Strategy Framework Directive (MSFD) requires all EU Member States to take measures to achieve Good Environmental Status (GES) in their seas by 2020 and puts in place a framework to allow co-ordinated action across Europe to improve the marine environment. The aims of the MSFD are consistent with the UK Government and Devolved Administrations' vision of *clean, healthy, safe, productive and biologically diverse oceans and seas*" as set out in the UK Marine Policy Statement.

To achieve the MSFD's objectives Member States must develop Marine Strategies for their seas. These are made up of three main elements:

- a) an initial assessment of marine waters, definitions of GES and targets and indicators to be used to measure progress towards GES;
- b) monitoring programmes that will be used to monitor progress against the targets and indicators; and
- c) a programme of measures for achieving or maintaining GES.

The UK has completed the first two steps through the publication of the UK's Marine Strategy Parts One and Two. We are now working on the Programme of Measures which needs to have been developed by December 2015 and which will form the Marine Strategy Part Three.

In line with the Marine Policy Statement, the UK Government and Devolved Administrations have put in place and are committed to taking many measures which will improve the state of the UK's marine environment as part of ensuring sustainable development, most notably through the UK Marine and Coastal Access Act (2009), the Marine (Scotland) Act (2010) and the Marine Act (Northern Ireland) (2013). Equally, measures taken as a result of existing EU legislation, such as the Water Framework Directive (WFD) the Birds and Habitats Directives and the newly reformed Common Fisheries Policy (CFP) also contribute to improving the state of the UK's marine and coastal environments. These existing and planned measures form the core of our proposed Programme of Measures.

This presentation will explain the approach we have taken in developing our draft Programme of Measures and how we are aiming to meet the requirements of the MSFD.

Related Information:

Further information on the MSFD can be found at:

<https://www.gov.uk/government/policies/protecting-and-sustainably-using-the-marine-environment/supporting-pages/implementing-the-marine-strategy-framework-directive>

The consultation will be published at:

http://www.gov.uk/government/publications?publication_filter_option=consultations

The Marine Strategy Framework Directive – Priority measures for achieving Good Environmental Status

Melissa Moore

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Also representing Joint Links. This presentation reflects collaborative work by Joint Links NGOs and also builds on work by other eNGOs across Europe. Joint Links consists of Wildlife and Countryside Link, Scottish Environment LINK, Wales Environment Link, and the Northern Ireland Marine Task Force?

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The EU Marine Strategy Framework Directive (MSFD) has entered a crucial implementation phase as countries are now developing their programmes of measures (PoMs), which are needed to achieve Good Environmental Status (GES) in marine waters by 2020. These measures need to be ambitious and strong to address the degradation of our seas. Today, less than 20 % of all biodiversity features in EU seas whether looking at marine species or habitats are considered as being in Good Environmental Status¹. Effective public participation and consultation is also needed in the development of these PoMs as a prerequisite for their success.

This presentation provides Joint Links thinking so far on what measures we will be recommending as a priority in the upcoming Government consultation. We also hope the presentation will inspire delegates to get involved in the consultation themselves and recommend their own measures. The presentation focuses on the following MSFD Descriptors D 1 Biodiversity, D2 Non indigenous species, D3 Commercial fish, D6 Seafloor Integrity, D10 marine litter and D11 underwater noise.

We will highlight existing measures that we consider a priority such as the completion of an ecologically coherent network of Marine Protected Areas, but also the development of new measures to support the conservation of mobile species for example. We welcome Government's existing measures to achieve GES, but are very concerned that at present, despite the state of the marine environment as detailed in Charting Progress II², the UK Government do not intend to propose any new measures in its consultation. However, Defra have informed us they will consider new measures proposed (and supported) by stakeholders in response to the consultation and we hope they adopt these in order to achieve Good Environmental Status.

MSFD background notes³

The MSFD is the first all-encompassing piece of European legislation specifically aimed at the protection of the marine environment. Its ultimate objective is to achieve a GES in all European waters by 2020 at the latest. The Directive requires the implementation of an ecosystem-based approach to the management of activities having an impact on the marine environment. The key deliverable stemming from the implementation of the Directive will be a range of "Marine Strategies" which every EU Member State must produce. These have to be developed in three steps:

- In 2012, Member States had to report on the environmental status of their marine waters, descriptions of what Good Environmental Status means for their marine waters and provide an associated set of environmental targets and indicators.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82639/20120327-msfd-consult-document.pdf Also <http://chartingprogress.defra.gov.uk>

- 2014 saw the adoption of national monitoring programmes.

<https://consult.defra.gov.uk/marine/msfd-proposals-for-uk-marine-monitoring-programmes>

- By 2015 at the latest, Member States have to develop programmes of measures designed to achieve or maintain GES. The PoMs should enter into operation by 2016. UK Government hopes to consult on its PoMs in January 2015.

¹ European Environment Agency. 2014. Marine Messages: Our seas, our future — moving towards a new understanding

² <http://chartingprogress.defra.gov.uk>

³ Seas at Risk. NGOs Priorities for Programmes of Measures 2014

The implementation of the Directive so far shows many weaknesses. In February 2014, the Commission published its review of the 2012 reports by Member States, as required by Article 12 of the MSFD. The 'Article 12 report' stated that "The EU is still very far from enjoying healthy oceans and seas. Meeting this objective by 2020, in less than seven years, implies renewed and intensified efforts and rapid and important change in the way Member States, the European Commission, Regional Seas Conventions and other relevant organisations work together"⁴. It is hence very important that countries develop strong PoMs to be consulted and submitted to the Commission in 2015.

Descriptors for determining Good Environmental Status⁵

D1 Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

D2 Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.

D3 Populations of all **commercially exploited fish** and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.

D4 All elements of the **marine food webs**, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.

D5 Human-induced **eutrophication** is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.

D6 Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

D7 Permanent alteration of **hydrographical conditions** does not adversely affect marine ecosystems.

D8 Concentrations of **contaminants** are at levels not giving rise to pollution effects.

D9 Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.

D10 Properties and quantities of **marine litter** do not cause harm to the coastal and marine environment.

D11 Introduction of energy, including **underwater noise**, is at levels that do not adversely affect the marine environment.

⁴ The European Commission's assessment and guidance (SWD(2014) 49 final); The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC). Report from the Commission to the Council and the European Parliament. http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm

⁵ EU Marine Strategy Framework Directive

Changes in the ecosystem of the Clyde

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Coastal and estuarine cities have always had strong connection to the sea. However, these connections change over time as the needs and demands of urban communities evolve. The Firth of Clyde is a large semi-enclosed marine water body which for many centuries has supported the City of Glasgow by providing food, trading and transportation, a sink for urban waste, and recreational space. However, these goods and services have been provided at a cost to the biodiversity of the marine ecosystem and consequently the supply of fresh seafood to the city. This presentation will review the scientific evidence for ecological changes which have occurred in the Firth of Clyde as a result of intensive harvesting and the implications for future exploitation of the living resources in the Firth.

Background reading

Heath, M.R. and Speirs, D.C. (2012). Changes in species diversity and size composition in the Firth of Clyde demersal fish community, 1927-2009. *Proceedings of the Royal Society B*. 279, 543–552.

Published online 6 July 2011, doi: 10.1098/rspb.2011.1015

<http://rspb.royalsocietypublishing.org/content/early/2011/07/02/rspb.2011.1015>

McIntyre, F., Fernandes, P G and Turrell, W R (2012). Clyde Ecosystem review. *Scottish Marine and Freshwater Science* Volume 3 Number 3. <http://www.scotland.gov.uk/Publications/2012/06/7562/0>

Clyde 2020 Summit, 23rd April 2014. <http://www.scotland.gov.uk/Topics/marine/marine-environment/Clyde2020>

Clyde 2020: What do we want and how can we achieve this?

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Isabel Glasgow

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Marine Scotland is a Directorate of The Scottish Government and is responsible for the integrated management of Scotland's seas. Marine Scotland's purpose is to manage Scotland's seas for prosperity and environmental sustainability, working closely with our key delivery partners including Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA). Marine Scotland includes policy, science and compliance functions for marine planning, environment, fisheries and a range of other marine activities. Marine Scotland has been working in partnership with the Clyde Forum to progress the Clyde 2020 initiative. Clyde 2020 provides an umbrella to better co-ordinate existing work and take forward work on key gaps in knowledge or on the ground initiatives with the aim of improving the Clyde ecosystem.

The origins for the Clyde 2020 initiative lay in scientific debate about the state of the Firth of Clyde's ecosystem and the aim of improving the situation. In 2010 scientific work by York University stimulated media interest in the state of the Clyde ecosystem, including a BBC Panorama programme in 2010. Subsequently, Marine Scotland Science (MSS) undertook a review of the Clyde ecosystem. The University of Strathclyde also commenced work on the issue of the ecological status of the Clyde. The conclusions pointed to a major ecological impact of fishing in the Clyde.

The Clyde 2020 Summit was called by Cabinet Secretary for Rural Affairs and the Environment, Mr Richard Lochhead MSP, as part of the Scottish Government's commitment to a programme of measures that will identify, test and implement practical actions which may contribute to the renewal of the Clyde marine ecosystem. The summit was attended by over 100 organisations and interested parties including Members of the Scottish Parliament. The summit was organised by the Firth of Clyde Forum which was tasked by Marine Scotland to do this work as an independent organisation focused on marine planning and integrated coastal zone management in the Firth of Clyde. The South West Inshore Fisheries Group was also involved.

The summit developed a common vision, research and science needs and proposals for on the ground measures. The discussions were based on the following approaches:

- Everyone has an important role to play in helping to take forward the Clyde 2020 programme and deliver our shared vision.
- In developing that vision it's time to be imaginative, look forward, and work together.
- Ministers are committed to working with stakeholders to improve the Clyde ecosystem through the Clyde 2020 programme. That will involve bringing together marine planning, environmental, fisheries and other key interests.

The outputs from the summit and more recent stakeholder workshops are being used to produce a Clyde 2020 Action Plan. The approaches outlined above will also be used in developing and implementing the action plan. Governance arrangements for the initiative are being established including a Clyde 2020 steering group. See: <http://clydeforum.com/>

[http://clydeforum.com/attachments/article/6/Clyde%202020%20Summit%20-%20Report%20of%20Meeting%20-%2023%20April%202014%20\(A1321642\).pdf](http://clydeforum.com/attachments/article/6/Clyde%202020%20Summit%20-%20Report%20of%20Meeting%20-%2023%20April%202014%20(A1321642).pdf)

<http://www.scotland.gov.uk/Publications/2012/06/7562>

CFP Reforms: The direction for Fisheries: It's not the fishermen's fault!

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An Overview

"The reform will tackle the biggest problem of the Common Fisheries Policy, which is continued overfishing." So said Ulrike Rodust, MEP and member of the Fisheries Committee of the European Parliament on the 30th May 2013, the day on which the EP approved the texts of the new (2012) CFP.

The SWFPO came into being in 1974 amongst other things to ensure that fishing is carried out along rational lines and that conditions for the sale of members' production are maximised. The Organisation, along with the many others formed about that time in the fisheries regions of the Member States, was firstly an instrument of the Common Market in Fisheries Products. Rules common to all EU POs require their members to act in full accord with the objectives of the Common Fisheries Policy. If those objectives are ill-defined and vague, then fishermen's compliance with them cannot be held to blame as the cause of the failings of the various incarnations of the CFP since 1983.

Soon after fisheries quotas were first applied in 1983, POs in the UK became instruments of quota management for the Ministry of Fisheries. A benign relationship developed whereby the POs followed a set of mutually agreed Rules and in return the uptake of national quotas has been kept close to or below 100%.

Of course, fisheries management is not just about the Total Allowable catches (TACs) and national Quotas. About 60% of all SWFPO production is of non-quota species, notably Scallops, Cuttle, Squid and Lemon Sole. Of these, Scallops are regulated by the Western Waters Effort arrangements of 1992 (revised 2002). This non-quota imposition of CFP objectives is an unwelcome and nightmarish "horse designed by committee" that had nothing to do with sustainable exploitation and everything to do with politics.

In applying its production and marketing rules to members, Producer Organisations are concerned only with the first marketing stage after landing. This is true even under the newest CFP and issues of traceability from the market to the consumer and of onward disposal of discards under the landing obligation are not matters of obligation for Producer Organisations.

My talk will explore further the complex relationships between Producer Organisations and Member State government Departments in the quest to deliver the manifold and vague objectives of the incarnations of the Common Fisheries Policy since 1983.

LIFE – *but not as we know it* – Low impact fisheries

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80% of the fishing fleet across Europe are deemed to be “small scale”.

Whilst there is an official EU definition for small scale of; “under 12 metres in length, not using towed gears” the actual small scale fleet differs in size and activity across individual Member states. In the UK we have an arbitrary dividing line of 10 metres length whilst across the EU, definitions vary and can include boats up to 17 metres for instance in Atlantic Spain.

The European Maritime and Fisheries Fund requires that in Member States where over 1 000 vessels can be considered small-scale coastal fishing vessels, they produce an action plan for the development, competitiveness and sustainability of small-scale coastal fishing;

The reformed Common Fisheries Policy states that Member States should endeavour to give preferential access to for small scale, artisanal or coastal fishermen and a fair standard of living for the fisheries sector including small scale fisheries.

Article 17 of the CFP requires Member States to include environmental, social and economic criteria when allocating the resource [quota] that should benefit the more sustainable element of the fleet and those who provide the greatest socio economic benefits.

And closer to home, DEFRA's 2027 Vision Document states that; “Access to fisheries continues to be available to small-scale fishing vessels, even if in some cases that is not the most economically efficient way of harvesting the resource. This is because the wider economic, social and environmental benefits of small-scale fishing can outweigh the comparative inefficiency in harvesting the resource and make a significant economic and social contribution to the lives of individuals and coastal communities.....”

Within these references there are six individual definitions of what can loosely be understood to be “small scale”. The common denominator that links them is that the fleet sector they describe has lacked any genuine and dedicated representation for the most part in member states and certainly on a pan European basis.

LIFE, the Low Impact Fishers of Europe organization has been created to provide a coherent voice in this respect. This presentation will describe the aims and objectives of LIFE and how it will endeavor to ensure that the Commission, European Parliament and Member States collectively do what it says on the tin in terms of the statements above in order to provide a secure, sustainable and profitable future for the vessels concerned.

MPA Designation and Management in England

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Marine Protected Areas designated in the right places, and managed in the right ways, have an important role in protecting the marine environment and safeguarding the contribution our marine resources can make to our society for generations to come. MPAs often evoke strong and conflicting views. For MPAs to effectively deliver our conservation objectives, and to minimise their impacts on sea users, it is essential that all those with an interest have an opportunity to contribute to decisions on where MPAs are established and how they are managed.

Over 16% of UK waters and almost a quarter of English inshore waters are now within MPAs. The first tranche of 27 Marine Conservation Zones was designated in November 2013. Following a period of dialogue with stakeholders, the formal public consultation on the second tranche will begin shortly. In this second tranche, we are aiming to address the big ecological gaps in the network of MPAs, such as where a species or habitat is currently not protected in a region, or only a very small proportion is protected. A third tranche is planned for 2016 to complete our contribution to the international ecologically coherent network of MPAs. There is also ongoing work to complete the Natura 2000 Network, led by Natural England and JNCC. Natural England has recently consulted on plans for two Special Protection Areas for birds in English inshore waters, and plans for further sites are being developed with a view to consulting on them this year.

Management measures required within MPAs are decided on a site-by-site basis and will depend on what the site has been designated for. In a similar way to protected areas on land, there will be sites where some activities are not allowed but others can occur, or where there are seasonal restrictions on activities rather than a complete ban. Not all sites will need the same management measures and there is no presumption that any specific type of activity will be restricted. There may however, be some sites where many activities are restricted.

Extensive arrangements have been in place for activities which require a marine licence such as port developments and aggregate extraction. The MPA assessment process is now embedded in the marine licensing process and all sites are assessed to permit new activities in line with legislative requirements.

For commercial fishing and unlicensed activities, appropriate management measures are being put in place using a phased risk-based approach by relevant regulators, regulating only those activities which have a detrimental impact on the features. Within the inshore area, Regulators introduced 17 new byelaws last year to protect the most vulnerable features to damage by certain fishing activities.

In the offshore area the implementation of management measures is through the Reformed Common Fisheries Policy. This includes commercial fishing activities in sites in the 6-12nm area where other EU member states have historic fishing rights and in sites in the 12-200nm area. This requires discussion with relevant member states and ideally agreement of joint proposals for management of sites to put to the Commission which are then formally implemented in EU regulations. Discussions with other member states with an interest in designated MPAs have begun for a number of sites.

We will continue to use a risk based phased approach with the aim of creating a well-managed network of MPAs.

Details of the MCZ second tranche consultation will be available at:

<https://consult.defra.gov.uk/marine/tranche2mczs>

The approach to management of fisheries in these sites was revised by Defra in 2013.

(<https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery>).

MPA designation and management in the Scottish Inshore and Offshore Zone

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Marine Scotland is a Directorate of The Scottish Government and is responsible for the integrated management of Scotland's seas. Marine Scotland's purpose is to manage Scotland's seas for prosperity and environmental sustainability, working closely with our key delivery partners including Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA). Marine Scotland includes policy, science and compliance functions for marine planning, environment, fisheries and a range of other marine activities.

The Scottish Marine Protected Areas (MPA) Project was a joint initiative led by Marine Scotland in partnership with the Scottish Government's advisors (Scottish Natural Heritage, the Joint Nature Conservation Committee, Historic Scotland, the Scottish Environmental Protection Agency and Marine Scotland Science).

The aim of the Project was to provide advice to Scottish Ministers on the selection of MPAs for the purposes of protecting habitats, species and the range of geodiversity considered to be of national importance to Scotland, and contribute to international commitments on MPAs including those under the OSPAR Convention. Scottish MPA Selection Guidelines were developed to reflect best-practice guidance produced by the OSPAR Commission.

A science-led approach was followed from the beginning but it was also considered important to undertake early engagement with stakeholders. One of the first steps was to identify the range of stakeholders that might be affected by the designation of MPAs and take appropriate steps to engage with them. Representative bodies or organisations were the starting point for engagement, along with existing stakeholder fora, and were used to raise awareness of the Scottish MPA Project during the early stages of development.

A series of five national level stakeholder workshops were held, bringing together stakeholder representatives at key milestones in the site selection process. These workshops were supplemented by regular bilateral meetings and communication with key stakeholder groups to maintain dialogue and transparency throughout the process.

As part of workshops discussions, the concept of Management Options Papers emerged. These outlined the risk of achieving the conservation objectives of the protected features under different management scenarios for the range of activities taking place within the sites. Under the Common Fisheries Policy, management measures for fishing activities need to be established through a fair and equitable process. As such, a key element of engagement throughout the project has also been with non-UK fleets.

The public consultation of Nature Conservation MPAs was launched in July 2013 and formed part of Marine Scotland's wider 'Planning Scotland's Seas' consultation, which also included elements of marine planning and the future of marine renewables. To reflect this, the consultation period was extended from 12 to 16 weeks.

The consultation was supported by a comprehensive program of 56 public events held around Scotland, providing sea users and members of the public the opportunity to find out more about the proposals, as well as presentations and meetings with international stakeholders. The consultation was also complemented by materials to encourage wider engagement, and to help bring the underwater environment and MPAs to life. For example, short videos showing underwater footage proved to be particularly successful.

Earlier in the year between April and July, the MPA Project Team met with a number of mobile, static and dive fishing community interests for individual MPAs at regional mini-workshops around Scotland. There were nine of these, held in: Campbeltown, Troon, Oban, Stornoway, Ullapool, Kirkwall and Lerwick, Mallaig, and Kyle of Lochalsh. These events were focused discussions on management options, primarily to seek feedback on the management options papers and better understand how the fishing sector was operating in the pMPAs as well as to gather further information on the locations of the species and habitats the pMPAs were being designed to protect. A further 2 events were held for offshore waters. The main aim of these events were to maximise industry understanding of how the site options were developed and the evidence used.

Following the consultation, a third series of meeting were held, again in nine coastal locations, as part of a study of the potential effects of fisheries displacement which may occur as a consequence of future MPA management. The meetings were also gathering information and seeking views on possible management that could reduce displacement whilst still achieving conservation objectives. These events were in Troon, Castlebay, Kyle of Lochalsh, Ullapool, Stornoway, Oban, Tarbert, Campbeltown, and Mallaig.

In July 2014 Scottish Ministers announced the designation of the 29 recommended Nature Conservation MPAs in Scotland's seas, and included an additional Nature Conservation MPA to enhance the protection for ocean quahog (*Artica islandica*) – an OSPAR Threatened and/or Declining species. Figure 4 shows the 30 Nature Conservation MPAs in Scotland's seas.

Work is ongoing to implement fisheries management measures for the Nature Conservation MPAs and develop a wider MPA monitoring programme. A public consultation on statutory management measures for 20 sites (comprising a mix of inshore MPAs and SACs) was initiated on 11 November 2014 and will close on 2 February 2015. A series of events was organised to raise awareness and provide information on the proposals.

See:

www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork

www.jncc.gov.uk/scottishmpas

www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/mpas/

Inshore Management in Practice

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The Marine and Coastal Access Act 2009 (MACAA) introduced a new framework for managing the marine environment and providing greater access to it. The Devon and Severn Inshore Fisheries and Conservation Authority (D&SIFCA) were established by The Devon & Severn IFCA Order 2010. The powers and duties of the D&SIFCA are provided by MACAA. The Act aimed to put in place better systems for delivering the sustainable management of the marine and coastal environment by creating a coherent network of marine protected areas (MPA) through the introduction and management of coastal European Marine Sites (EMS) and Marine Conservation Zones (MCZ). The IFCAs have been provided with the ability to undertake the management of MPAs within their districts through modernised powers and greater duties to undertake an important role in marine conservation.

The IFCA approach is to ensure delivery of their statutory duties and to be guided by the Government's Marine Policy Statement and adherence to the High Level Marine Objectives which can be summarised as:

- Achieving a sustainable marine economy
- Ensuring a strong, healthy and just society
- Living within environmental limits
- Promoting good governance
- Using sound science responsibility

IFCA Vision *"Inshore Fisheries and Conservation Authorities will lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry."*

What does this all mean in practice? This equates to a district of 4,000km², with 1,100km² of marine protected areas, uniquely for IFCAs we have two separate coasts and a staff of ten officers with which to bring about effective management. There has to be a high level of pragmatism to the work being undertaken as well as some very effective partnership working.

The main focus of the work for all IFCAs has been management of European Marine Sites within their districts following the change of approach by Defra in October 2012. Through the matrix approach high risk activities are identified and management options are considered and then enacted by the IFCA. November 2013 saw the introduction of the first tranche of Marine Conservation Zones and the requirement that the IFCA further the conservation objectives of these sites. The D&SIFCA approach to this challenge has been to introduce a permitting byelaw for towed gear vessels for the whole district and use the permit conditions to introduce restrictions on the most damaging activity from the most sensitive sites. As part of the permit there are plans to introduce a requirement that all mobile permitted vessels will have to have inshore vessel monitoring systems fitted (iVMS) this will greatly increase the effectiveness of the byelaw and protection of the marine protected areas. It will also allow for adaptive management of the whole district.

The D&SIFCA are also working to improve local shellfisheries and their management through the introduction of new permitting byelaws, using a similar model to the mobile gear permits. The permits are also required by recreational fishermen, this will enable the D&SIFCA to monitor all activity in the district to aid protection of this valuable fishery for the future. The third strand of work being undertaken by D&SIFCA is to help improve the local area for recreational sea anglers. The recent Angling 2012 Report showed the value of angling to the local economy and as a result of this D&SIFCA has set out three areas within the district where work will be undertaken to improve the fishery for anglers by restricting some commercial activity.

See: <http://www.devonandsevernifca.gov.uk/>

Fishing in MPAs

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Under the auspices of Defra there is currently a large project underway seeking to make commercial fishing activities compliant with MPA conservation objectives within "English Waters". Spatially this is out to 200nm or the median line with advice provided by Natural England and JNCC, and management put in place by the IFCAs, the Environment Agency, the MMO or the European Commission. Work initially focussed on SACs and SPAs but the project has been extended to include MCZs. Delivery is overseen by an Implementation Group made up of the above partners as well as representatives from both commercial fishing and the NGOs.

Due to the scale of the task, management has been introduced on a risk prioritised basis i.e., initially bringing in measures where either significant damage was being caused or had potential of occurring *and* there was supporting evidence for such. This prioritisation was informed by a Matrix of gear types versus sub-feature type <https://www.gov.uk/government/publications/fisheries-in-european-marine-sites-matrix> coloured coded red / amber / green pending risk presented. This presentation will focus on an approach currently being explored to address some of the amber risks where the level of evidence may be imperfect. The approach has been termed "adaptive risk management" and here we will consider its application to fishing, but it has already been taken forward in the terrestrial environment e.g. in nutrient management plans for impacts on SACs. It is legal.

The uncertainties in evidence may include:

- (i) the relationship between fishing pressure and feature condition
- (ii) knowledge of baseline conditions for some habitats
- (iii) low certainty over the definition of favourable condition
- (iv) vague conservation objectives

Adaptive management is an iterative and systematic approach for managing risk within the context of scientific uncertainty. Evidence from the monitoring of management outcomes, is fed into a structured process which reviews this information and responds, where appropriate, by adjusting the site management measures.

The intention is to avoid introducing overly precautionary measures yet still maintain sufficient protection for the interest features (and meet Article 6 obligations when for SACs /SPAs). The conditions should allow progress towards favourable condition but should be accompanied by an appropriately designed monitoring programme that can detect change and management measures reviewed in light of such changes. Adaptive risk management can only be utilised if particular conditions can be met up front.

<https://www.gov.uk/government/collections/fisheries-in-european-marine-sites-implementation-group>

Coastal Futures 2015 Meeting Evaluation

1. Name: _____ Phone No: _____
Anonymous if you wish

2. How valuable did you find the meeting? (circle)

Not valuable

Very valuable

1

2

3

4

5

3. What benefits did you get from the conference?

- _____
- _____

4. The question and answer times were increased this year meaning that we lost 4 talk slots; do you think that worked? YES - NO (Circle)

Comment: _____

5. Could you suggest one thing that would have improved the event?

- _____
- _____

6. What topics do you see as important in the coming year?

- _____
- _____

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