Coastal Futures 2018
Review and Future Trends

January 17th & 18th January
The Royal Geographical Society, London

Delegate Notes



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Come and talk to us if you have any questions, Jayne and Bob will be at the registration desk; or email or call Jayne or Bob:

Jayne O'Nions: jayne.onions@coastms.co.uk | 07759 134801
Bob Earll: bob.earll@coastms.co.uk | 07930 535283

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.

Wi-fi: The code to access the open network is **RGS-IBG**, no password is needed.

Twitter: If you're tweeting please use #coastalfutures.

Access to lecture theatre: The front doors to the lecture theatre will close when the conference starts, if you arrive after this time you will need to enter the theatre via the back doors downstairs or use the seats upstairs.

Questions – Bookings – Receipts – In-house information
If you have any questions during the event about bookings or finances, talk to **Diana Hunt** at the registration desk or for logistics queries, 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 hundreds of events in London 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.

Special diets: These should be collected from the drinks station in the Main Hall.

Delegate notes: An electronic copy of the full delegate notes will be emailed to delegates' w/c 8th January.

Delegate list: The delegate list to the 8th January is included in the delegate pack and an electronic copy will be on our website to help networking.

Feedback forms: There are feedback forms on the CF18 Evaluation. Please leave these at the registration desk along with your badge when you leave.

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.

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: The presentations and delegate notes will be uploaded after the conference and you can also find the archive of Coastal Futures conferences; the website also provides a single point of contact for future CF events.

Day 1 - Wednesday January 17th

8.30 Registration and refreshments

9.25 **Session 1 Welcome to the conference Chair: Sandy Luk,** CEO Marine Conservation Society
20 minute presentations [15 minutes for presentation & 5 minutes for questions and answers]

9.30 **The UK's role in protecting the marine environment - Dr Thérèse Coffey**
Parliamentary Under Secretary of State for the Environment

9.50 **Health & Wellbeing at the Coast: Practical Programmes that Engage the Public**
Bridget Betts Dorset Coast Forum

10.10 **A Vision for our Coast: Partnership approaches from origin to ocean Amy Pryor**
Thames Estuary Partnership & Coastal Partnerships Network

10.30 **Natural Capital and the sea: the marine pioneer project overview Aisling Lannin**
Marine Management Organisation

10.50 **Adapting to Climate Change at the Coast Professor Jim Hall** Oxford University & Committee on Climate Change

11.10 **Short presentations: Seven x 2 min updates**

UK Coastal Governance – Future Insights Natasha Bradshaw
University of the West of England (UWE Bristol)

Exploring the utility of voluntary coastal partnerships for supporting integrated management
Pamela M. Buchan, University of Exeter & **Katherine L. Yates**, University of Salford

RSPB Sustainable Shores project - challenges and opportunities for UK coastal habitats
Nathan Richardson RSPB

The Seascape scheme - UK's first marine Landscape Partnership Niall Benson
Durham County Council / Durham Heritage Coast Partnership

From planning to action – delivering the Blue New Deal Fernanda Balata
New Economics Foundation

Working towards a framework of monitoring the oceans using autonomous vehicles
Charlotte Williams NOC

The NERC/Defra Marine Ecosystems Research Programme Paul J. Somerfield
Plymouth Marine Laboratory

11.25 First Break: Sandwiches and refreshments

12.15 **Session 2: Chair: Lyndsey Dodds**, WWF-UK

12.15 **The Government 25 Year Environment Plan: implications for the marine environment**
Bob Earll CMS

12.35 **Brexit: The implications for Sustainability & Environmental Management**
With the publication of the European Union Withdrawal Bill (EUWB) this session will explore the bill proposals with four short (10 min) presentations from different perspectives and questions and answers to the speaker panel for 20 mins.

- The Opportunities of Brexit **Steve Hull** ABPmer
- Defra perspective: **Dominic Pattinson** Defra
- Industry perspective: **Peter Barham** Seabed User & Developer Group
- NGO: **Richard Benwell** Wildfowl & Wetlands Trust

13.35 **International commitments: OSPAR, ICES & The UK post Brexit: Frameworks and collaboration** **Mike Elliott** University of Hull IECS & **Bob Earll** CMS

13.55 **Ecosystem Services Framework – Bridge or Barrier for marine & coastal management? Outcomes of stakeholder questionnaire** **Emma McKinley** Cardiff University

14.15 Second break and refreshments

15.00 **Session 3: Chair: Rowan Byrne**, Mott MacDonald
20 minute presentations: 15 minutes for questions and 5 mins for Q&A

15.00 **International development in the marine & coastal environment: work on the frontiers**
Chris McDougall Atkins

15.20 **Offshore wind: Future prospects** **Will Apps** Head of Energy Development

The Crown Estate

15.40 **"Offshore wind and ornithology: collaboration is key to unlocking uncertainty**
Jessica Campbell The Crown Estate

16.00 **Marine Science: Research priorities, Evidence, Foresight and Marine Assessments**
Simon Brockington Defra
16.20 **Marine litter, plastics and the expanding agenda** **David Tudor** The Crown Estate

16.40 **Communicating ocean acidification and climate change** **Phillip Williamson** NERC & UEA
17.00 **Protecting the oceans** - **International trends & outstanding practice** **Dan Laffoley**
Marine Vice Chair, IUCN's World Commission on Protected Areas
Senior Advisor Marine Science and Conservation, IUCN's Global Marine and Polar Programme

17.25 **Wine reception**

Day 2 - Thursday January 18th

8.30 **Registration and refreshments**
9.30 **Session 4: Chair: Julia Hunt**, Evidence Specialist, Marine Planning, Welsh Government
20 minute presentations: 15 minutes for questions and 5 mins for Q&A
9.30 **Marine Spatial Planning in Scotland: Update** **Rhona Fairgrieve** Marine Scotland
9.50 **Marine Spatial Planning in England: Update** **Tom Woolley** MMO
10.10 **Marine Spatial Planning: The International picture & emerging good practice**
Charles (Bud) Ehler Ocean Visions Consulting and Senior Consultant,
Marine Spatial Planning, Intergovernmental Oceanographic Commission UNESCO

10.35 **Mussel culture in Lyme Bay: Emerging understanding of environmental changes**
Emma Sheehan & Danielle Bridger Plymouth University
10.55 **Oyster restoration in Europe & USA: realising multiple benefits** **Morven Robertson**
Blue Marine Foundation
11.15 **Understanding seabird population changes: climate change & the evidence needs**
Euan Dunn RSPB

11:35 **Short presentations: Eleven x 2 min updates**

Conservation beyond the coast and the work of JNCC **Beth Flavell** JNCC
MCS Projects **Gill Bell** Marine Conservation Society
Shelf Seas: the engine of Productivity. Where has the carbon gone? **Gemma Cripps**
University of Southampton
Enhancing knowledge exchange and encouraging collaborations to support marine and coastal management **Katherine Yates** University of Salford & NERC
Managing the inshore marine environment in the Marine and Coastal Access Act era: the Welsh Experience **Alan Terry** UWE
Eco-moorings start to take hold: what have we learnt about environmentally sound anchoring and mooring? **Sue Wells**, National Trust & **Jan Maclennan**, Natural England
'The world likes to see' **Keith Hiscock** Marine Biological Association
A heavy fuel oil (HFO) Free Arctic – the Arctic Commitment **Sian Prior** Clean Arctic Alliance
The Green Blue: Working Together Towards Sustainable Boating **Kate Fortnam** The Green Blue
eXXpedition Round Britain 2017 - an all-female crewed, marine plastics sailing expedition
Bryony Meakins eXXpedition and JNCC
The Commonwealth's 'Blue Charter' **Jeff Ardron** Commonwealth Secretariat

11.55 First Break: Sandwiches and refreshments

12.35 **Session 5:** Chair: **Joan Edwards** Director, Public Affairs and Living Seas, The Wildlife Trusts
12.35 **Brexit & the Fisheries Bill: Change, Opportunities and Threats**

This session will see four perspectives (15 minute presentations) and discussion with the audience for 20 minutes. The objective of the session is to fully brief the audience on the current thinking on the Fisheries Bill.

- Defra: The Government perspective **Anne Freeman** Defra
- Industry perspective: **Mike Park** Scottish White Fish Producers Association
- A seafood industry perspective **Andrew Kuyk** CBE, UK Seafood Industry Alliance
- An NGO perspective: **Helen McLachlan**, WWF-UK

13.35 – 13.55 Discussion

13.55 **Displacement: MPAs and Fishing – developing thinking** **Duncan Vaughan** Natural England & **Suzannah Walmsley** ABPmer

14.15 Second Break

14.55 **Session 6 Chair: Professor Christine Maggs, Chief Scientist, JNCC**

14.55 **Scottish Marine Protected Areas - Socioeconomic Monitoring – Assessing the impact on fishing and other marine users** **Estelle Jones** Marine Scotland

15.15 **Blue economy benefits of MPAs and other spatial protection measures Rupert Haines** ICF

15.35 **The Blue Belt Programme** **Joanna Stockill** MMO & **Chris Darby** Cefas

15.55 **Our marine environment: Where have we come from and where are we going?** **Charles Clover** Blue Marine Foundation

16.15 - 16.20 **Conference Closes**

Rationale for the 2018 Coastal Futures Conference Programme

Bob Earll
T: 07930 535283 E: Bob.earll@coastms.co.uk

The Future: Developing the World View - Vision & Principles into Practice

The conference has reached its 25th year and the achievements over this time and the future challenges will be a key theme of the event. The Coastal Futures conferences have always provided delegates with an overall sense of the mood of the moment and the direction of travel. The Brexit decision is having a huge effect on the way we view our position in the world, our relationship with Europe – our past – and what we are aiming for with the plans that are being put forward. The future will be the key theme and many speakers will be looking at both the vision, policies and the practice we need to meet the challenges of both using and protecting the marine and coastal environment. Among those speakers covering this theme will be:

Dr Thérèse Coffey Parliamentary Under Secretary of State for the Environment - looking at the UK's role in protecting the marine environment, **Dan Laffoley** (IUCN) on protecting the oceans, marine conservation and MPAs, **Jim Hall** (Oxford University & the Committee on Climate Change) on climate change adaptation and the coast, **Bud Ehler** (UNESCO) on the international picture and emerging good practice on marine spatial planning and **Charles Clover** (Blue Marine Foundation) will be challenging us on what more we should be aiming for.

Europe out - the World In

UK plc is very good at having a world view and if we are to have a successful future post-Brexit we will need to be widening our horizons. We have been pioneers in many disciplines not least oceanography, climate change and environmental management. **Thérèse Coffey** has, in the last six months, given four presentations on the UK's vision for the marine environment at major international meetings in New York, Dublin, Malta and Bonn. The themes covered outline UK's role in many international collaborations on everything from MPAs, to plastic pollution and ocean acidification. Her presentation will set the scene for the conference and the work of the coastal and marine community for a generation including the 25 year environment plan.

Leaving Europe begs questions about the way we interact with our international commitments to **OSPAR, ICES** and many other agreements; this will be covered by **Mike Elliott's** presentation. These agreements ***are driven by the principles*** which are ***not*** currently included in the EU Withdrawal Bill. The Government have responded with a consultation on a new independent body on environment and the role of principles. **Richard Benwell** in the Brexit session will highlight where we stand on this and the inclusion of sustainability, precaution and the ecosystem approach in new approaches. **Dominic Pattinson** will present the Government view and **Peter Barham** (SUDG) the views of industry. The **opportunities of Brexit** will be explored by **Steve Hull** based on recent research for the meeting.

Chris McDougal (Atkins) will explore the developing international agendas and we will also hear about the **Blue Belt programme** (**Jo Stockill** (MMO) and **Chris Darby** (Cefas)) which looks at developing UK's work on massive marine protected areas in our Overseas Territories. **Dan Laffoley** (IUCN) on marine conservation and **Bud Ehler** on marine planning will also be looking at the world view of their topics and the innovations driving practice.

Change for Generation: Protecting Marine Ecosystems for Wildlife and Fisheries

It is clear that because of Brexit our new fisheries legislation is going to be a major body of work for many years to come and will reopen debates on how we protect our marine ecosystems. This debate now involves many stakeholders, civil servants, fishing sector interests, managers and NGOs. Brexit provides the opportunity to develop our own fishery legislation and management regime but what direction will it take? The CF18 discussion of the proposed **Fisheries Bill** provides a forum to hear the perspectives of four key stakeholders. **Ann Freeman** (Defra) will present the developing thinking around the bill process, **Mike Park** (SWPA) will put the fishermen's viewpoint, **Andrew Kyuk** (UK SFIA) will represent the considerable interests of the seafood industry and **Helen McLachlan** (WWF-UK) the view

of the NGOs.

Shellfish aquaculture presents a major opportunity. In our estuaries the multiple benefits from reintroducing and restoring native oyster beds will be outlined by **Morven Robertson** (Blue Marine Foundation). The opportunities of open sea hanging mussel culture are being developed and will be described by **Emma Sheehan** (Plymouth University).

In Europe and internationally the thinking on **ecosystem based approach** to fisheries is now widely recognised and managing fish stocks is a part of the way we manage and protect the marine environment as a whole. There is no escaping the changes brought about by ecosystem scale change and **Euan Dunn** (RSPB) will be describing the impact of changing oceanography on significant declines of seabird numbers and their food.

There has always been an uneasy tension between the interaction between fisheries and the protection of marine species and habitats. This will be explored at the conference by **Duncan Vaughan** (NE) who looks at displacement in relation to MPAs and fishing and **Estelle Jones** (Scottish Government) on the socio-economic impact of the Scottish MPAs on marine users including fishermen. There is a growing awareness world wide of the benefits to fisheries and other users of MPAs and a major research programme on this will be described by **Rupert Haines** (ICF). This is also a key issue to the **Blue Belt** programme with massive MPAs in our overseas territories and it will be described by the MMO.

Keeping up with Major Issues, Ideas & Cross Cutting themes Describing the content of Coastal Futures is difficult because there are lots of presentations which often include cross cutting themes; here are some examples.

The Coasts: There is lots of activity at the coast but it has been a long time since there has been a **coherent vision - Amy Pryor** (TEP & CPN) will explore this. The ideas around **health and well-being** have resonance in many settings, **Bridget Betts** (Dorset Coast Forum) will discuss the health context of coastal programmes but there is also increasing take up of the idea for nature conservation. **Aisling Lannin (**MMO) will describe the **Marine Pioneer Project** which seeks to embody the thinking around **Natural Capital.**

Climate change - **Adaptation & Mitigation** The coast is on the front line of a host of climate change issues and **Jim Hall** (CCC & Oxford University) will be describing **adaptation strategies**. The science of climate change and **ocean acidification** & **communicating** will be described by **Phil Williamson** (NERC & UEA), and **ocean warming** by **Euan Dunn** (RSPB). The role of **offshore wind power** in driving UK's mitigation efforts will be discussed by **Will Apps** (The Crown Estate) and the controversial issue of **offshore wind and birds** by **Jessica Campbell** (The Crown Estate).

Marine Planning affects every aspect of the way we manage and protect the marine environment and there will be updates on progress from Scotland (**Rhona Fairgrieve**, Marine Scotland), and in England from **Tom Woolley** (MMO). MSP has really taken off internationally and **Bud Ehler** (UNESCO) will be highlighting this progress and the lessons that can be learnt.

How do we value our marine environment and apply this to decision making? Natural capital will come up in the coastal and 25 year plan settings & **Emma McKinley** will look at whether the language around **ecosystems goods and services** is a bridge or a barrier to understanding. **Morven Robertson** (Blue Marine Foundation) will be looking at the **multiple benefit**s of oyster culture. **Estelle Jones** (Scottish Government) on the **socio-economic impact** of the Scottish MPAs on marine users including fishermen. There is a growing awareness world wide of the **benefits** to fisheries and other users of MPAs and a major research programme on this will be described by **Rupert Haines** (ICF).

Science and the evidence based approach to management characterises our work in the marine environment and **Simon Brockington** will be describing how Defra and the agencies are taking this forward. The biggest issue on the agenda at the moment is **plastics** in the marine environment and **David Tudor** (The Crown Estate) will overview the explosion of interest.

Following the high level of support for the **short presentations** at CF17, eighteen have been accepted for CF18 with 2 minute presentations. These support and develop many of the themes outlined above.

DAY 1 – Wednesday 17th January

The UK's role in protecting the marine environment

Dr Thérèse Coffey
Parliamentary Under Secretary of State for the Environment

It is a great pleasure to be here today to mark the 25th anniversary of the Coastal Futures Conference. As we reflect on 25 years of marine environmental management successes, I am delighted to highlight our ambitions for the next 25 years, encapsulated in our 25 Year Environment Plan that we published last week. We have set out how we will fulfil our ambition to leave the environment in a better state that we found it, building on existing strategies and identifying key areas of focus. We want even cleaner air and water, richer habitats for more wildlife and an approach to fishing, agriculture and land use which puts the environment first.

By using natural capital thinking and embedding the principle of net environmental gain for new development, our plan goes hand in hand with our Industrial and Clean Growth strategies. To protect the natural world that sustains human life and industry in the long term we must take action today to embed sustainable thinking and properly recognise the inherent value of our natural assets.

Thinking specifically of the coast, as we look out to the great seas and oceans, ensuring the future of clean, healthy, safe, productive and biologically diverse oceans and seas has been prioritised repeatedly and emphatically as a fundamental starting point. Oceans supply nearly half of the oxygen we breathe, absorb over a quarter of the carbon dioxide we produce, play a vital role in the water cycle and climate system, and are vital to biodiversity and ecosystem services. Oceans are our greatest natural asset and must be protected for the health of our planet and for the prosperity of future generations.

With over 10,000 miles of mainland coastline, the UK has some of the most varied marine habitats of any coastal waters. As well as their critical contribution to biodiversity and ecosystem services, our seas support the national economy with jobs, provide us with seafood and raw materials and beautiful, irreplaceable recreational destinations. The fresh air, empty horizons and bursting sea life provide a place of relaxation for millions of people every year.

Indeed it is because of the irresistible draw which the sea has for us as a people, that we are seeking to complete the England Coast Path by 2020. This ambitious programme will create the world's longest coastal walking route establishing a 2,700 mile 'National Trail' around all of the English coast and we have future proofed it to take account of coastal erosion. Natural England have made good progress across the country; 314 miles are now formally open, a further 600 are in the last stages of approval and the pipeline is well loaded.
Working together with everyone here today, this Government is determined to restore the health of our seas and to reverse their decline by reducing environmental pressures and by using our marine assets in a sustainable way. After EU Exit, we can embrace the opportunities to enhance marine environmental standards and we intend for Britain to be a global leader for marine environmental policy.

Our successes to date
We have already achieved many successes in pursuit of this ambition. Measures announced over recent decades have seen a gradual yet marked improvement in health of our seas and environment in general. Most particularly:

- Our rivers, beaches and air are considerably cleaner than they were 50 years ago.
- 35% of England's seas are now within designated marine protection areas, safeguarding important and vulnerable habitats and species.

- Since 1970, emissions of potentially damaging sulphur dioxide and nitrogen oxides have fallen by 94% and 69% respectively.
- Over 95% of our terrestrial and freshwater protected sites in England are now in good condition, or have management in place to ensure that they will recover.
- More species are being fished at sustainable levels;
- The Environment Agency has worked hard with partners like Natural England, water companies, landowners, farmers and rivers trusts, to improve river habitats such that we have more freshwater species thriving and otters are now found in every English county.

Tackling marine litter
We must also tackle the plastic pollution that simply does not belong in the marine environment. This Government will lead by example by removing consumer single use plastics across all central government offices.
We have regulated for the world's toughest ban so far against plastic microbeads in cosmetics and personal care products – an easy target as there are so many natural alternatives available so we will continue to assess how to reduce other kinds of pollution and waste, plastic or otherwise.
We must reduce the global reliance on plastics, as well as incentivise the recycling processes to improve waste management, and promote maritime practises that prevent harmful materials entering the seas.

How will we deliver the 25YEP and build on it?
The 25 Year Environment Plan highlights a number of priorities for the Government in relation to our coasts and marine environment. Our policies must follow strong environmentalist principles while also allowing marine industries to thrive. The UK Marine Strategy sets out our overall ambitions for the marine environment, the targets we want to achieve and how we aim to do so.

Following this strategy, we will:

- Later this year, we will have completed a major assessment of how far our seas have moved towards good environmental status since 2012. We will use that assessment to review our targets and put in place an updated strategy that will deliver the objectives of the 25 year plan, including regular review dates.
- We will develop a marine online assessment tool to look at the marine environment and the pressures affecting it that will be made available to all.
- We will deliver the marine spatial planning and licensing systems to support proportionate management of the marine environment, whilst enabling growth and providing greater certainty for industry.
- We will complete the full series of England Marine Plans by 2021 and ensure they work cohesively with adjacent marine plans, whether they are developed within the UK or by neighbouring countries.

The UK welcomes Canada's decision to focus on the oceans and Blue Economy in its G7 Presidency. The G7 will build on the work of the Future of the Seas and Oceans Working Group. At a regional level, we are continuing to work with the other members of OSPAR, to further the protection of the North East Atlantic marine environment. We will use our influence and resources to help strengthen the role OSPAR plays and ensure that the principles and marine objectives of the 25 YEP are reflected in the new OSPAR North East Atlantic Strategy that will be agreed in 2020. It is through collaboration on a regional and global scale that we can address the issues affecting our seas and oceans.

Marine Protected Areas and Marine Conservation Zones
We now have nearly 300 Marine Protected Areas in UK waters. We will consult this summer on our third tranche of marine conservation zones. By 2020, we will deliver a network of Marine Protected Areas that will cover 25% of the UK's Exclusive Economic Zone and we are also on track to protect 4 million square kilometres of ocean across its Overseas Territories by 2020.

I am very aware of the benefits and the challenges that come with such designation as in Suffolk Coastal region, there are a number of Marine Protected Areas but my experience so far is that industry and the environment can comfortably coexist.

Ocean Acidification and Coral Reefs
Climate change is having a direct impact on our oceans too. It increases ocean acidification and causing rises in ocean temperature, both leading to significant damage to the marine environment, particularly to coral reefs.

Ocean acidification is a direct result of CO2 emissions from human activities around the world and can effectively be tackled only when everyone works together at international level. The "Because The Ocean" declaration, signed by the UK, highlights the relevance of ocean protection in the implementation of the Paris Agreement and calls for all parties to include ocean protection in their Nationally Determined Contributions.

The UK will continue to support the need to monitor and assess the health and state of our oceans, and will work with others to drive innovation in monitoring and the collection of data to support policy and vulnerable ocean states.

Coral reefs are under direct and sustained pressure. The UK's ambition is to champion and support their conservation and biodiversity in UK and Overseas Territories' waters and around the world. We welcome the fact that 2018 has been made the International Year of the Reef by the International Coral Reef Initiative, recognised by the UK as the key international body for coral and related habitats. Through increased engagement we will encourage the adoption of best sustainable management practice of coral reefs, as well as its associated ecosystems.

Commonwealth Blue Charter
This year the Commonwealth Heads of Government Meeting is taking place in London and Windsor in the week of 16 April 2018 and will be the biggest gathering of Heads of State and Government the UK has ever hosted. We will use this opportunity to work with the Commonwealth Secretariat and our Commonwealth partners to draw up an ambitious plan for a Commonwealth Blue Charter. This new statement will aim to apply the principles and values of the Commonwealth Charter to oceans and our marine environments.

Coastal Erosion
Coastal erosion is a natural process that always has and always will continue to change the shape of our coastline, but it can be distressing for those living nearby. Central government is responsible for setting the overall national policy, while local councils lead on the management of coastal erosion risk in their areas. A significant decision was taken by the government earlier this decade to formally recognise that it would not be possible nor desirable to defend every part of our coastline from erosion, confirming what had already been happening in practice.

To support councils, the Environment Agency provides a national picture on what is happening on the coast. It has established National Coastal Erosion Risk Maps that provide a consistent assessment of coastal erosion risk around the country and set out a best practice method for calculating this risk. The Environment Agency also ensures different councils take a consistent approach to risk management as actions taken along one part of a coastline can have a direct impact further along the coast. At the same time as the government made the decision formally not to defend the entire coastline, it also made the important decision that any scheme which has a positive benefit cost ratio would be eligible for some government funding. This means that cost beneficial schemes that would not have progressed in the past can now receive some government funding.

Sustainable Fisheries
Closer to home, leaving the EU offers us the opportunity to create a world-class fisheries management system that is based on the principle of maximum sustainable yield and helps to restore and protect the marine ecosystem. As an independent Coastal State outside the EU, the UK will be able to control and manage fisheries in UK waters - out to 200 Nautical Miles or the median line. This will be the basis for negotiations on access to waters and share of quota.

Our new fisheries policy must be forward looking: responsive, sustainable, resilient, competitive and a profitable career choice for a new generation of fishing businesses. It must also bring a cleaner, healthier and more productive marine environment. We will implement science-based plans as part of our approach to managing fisheries sustainably and to restoring fish stocks to sustainable levels in the

shortest time feasible. This Government is committed to promoting the no-discard policy and creating a sustainable fishing industry that promises a sea of opportunity for future generations.

It is important to remember that, overall, many aspects of the UK marine environment are improving. About 30% of fish stocks are now at sustainable levels and the proportion of large fish in the North Sea has climbed steadily since 2010 to levels not seen since the 1980s. We must still seek to ease the impact of human activity, however, particularly on seabed habitats and fish populations. An ecosystem approach to fisheries management will account for, and seek to minimise, impacts on non-commercial species and the marine environment generally, including through technical conservation measures.

Working with devolved governments to implement the plan
Recognising our domestic and global ambitions, we will be an active government working closely with the devolved nations and stakeholders.

Conclusion
I could not finish without referring to David Attenborough and the remarkable Blue Planet 2 which gripped the nation by showing us the beauty, power and vulnerability of our oceans and seas. We were shown the wonderful diversity of what lies beneath our oceans and the complex ecosystems which allow them to survive and thrive. It also showed the impact of human behaviour, specifically the damage but also the opportunity to recover.

As we step into a new era there is scope for Britain to set the very highest standards in marine conservation and be a global leader in environmental policy.

Our 25 Year Environment Plan will be integral to this ambition. It gives us the framework to leave our environment in a better state than we found it. When we succeed, the results will be magnificent and each of us will have played a role in that success.

Health & Wellbeing at the Coast: Practical Programmes that Engage the Public

Bridget Betts
Coordinator, Dorset Coast Forum
E: b.betts@dorsetcc.gov.uk

This presentation is based on the Dorset coast that stretches for 177miles (285 km) from Lyme Regis in the west to Chewton Bunny (Christchurch) in the east. It is a high-quality environment which supports a great diversity of wildlife, beautiful land/seascapes and many coastal communities. It offers a rural, coastal and urban resort experience.

The health and wellbeing of coastal communities is an important issue. A significant number of Dorset's coastal communities fall within the top 20% most deprived nationally in the Index of Multiple Deprivation 2015. This particularly evident in parts of Weymouth, Bournemouth, Poole and Portland. These coastal communities are also associated with poorer health outcomes for people and are special places that need a range of approaches to deliver effective practical intervention programmes.

Through a partnership approach in Dorset there are many who are helping with the delivery of better health and wellbeing of coastal communities and those who visit the coast. The presentation will focus on three practical approaches:

1. Connecting people to the coast by:
   - Delivery of our current coastal community funded project that provides both economic and health benefits to many of our coastal communities
   - Rolling out and promoting the Natural Choices program which aims to encourage and enable people to improve their physical health and mental well-being through different

activities within the natural environment. Natural Choices provides health care professionals with an easy pathway to signpost people to a wide range of providers offering activities using the natural environment. https://www.dorsetlnp.org.uk/Natural_Choices
- iCoast – providing the public with easy access to 26 different coastal activities and all the facilities, weather and tides along the coast. www.icoast.co.uk

2. CoastWise – is a short film on how to stay safe, while still having fun on the coast. With over 65,000 views it has been successful in delivering a range of key messages in a different way - https://www.youtube.com/watch?v=BkefXeBZPi0

3. Litter Free Coast and Sea – Engaging with the community to reduce marine and beach litter and maintain and improve bathing water quality at source. With 10 community groups and over twenty #2minutebeachclean stations people it's becoming easier to help keep the coast healthy as well as stay health while participating. http://www.litterfreecoastandsea.co.uk/dorset/

A Vision for our Coast: Partnership approaches from origin to ocean

Amy Pryor
Programme Manager, Thames Estuary Partnership
Chair of the Coastal Partnerships Network
Room 117, 26 Bedford Way, University College London, London, WC1H 0AP
T: 020 7679 8855 M: 07838386145 E: a.pryor@ucl.ac.uk

Integration of management, governance and delivery has been an aspiration in the UK for over 25 years and its voluntary implementation has been encouraged by Government since the 1990s. So far this has not been achieved as common practice nationwide but has been successful locally through the leadership of a passionate individual or group. The UK is unique in having an established set of local Coastal Partnerships (CP) which are locally accountable, cross-sectoral, informal partnerships advocating the ecosystem approach, sustainable use of marine resources and integrated, co-ordinated management. Each CP arose organically out of a local need for coastal collaboration (many have been running for 20 years) and varies in governance structure, constitution, size, capacity, membership, aims and expertise. Despite their differences, they have played an increasingly vital role in the integration and management of actions and activities on our coasts and are respected locally for achieving more than the sum of their parts through their well-established networks and broad expertise. They excel at landscape scale thinking and strategic approaches, multiple partner project development and management and cross sectoral engagement all of which are necessary to ensure a truly integrated approach. The Coastal Partnership Network (CPN) is a volunteer-led forum established in 2006 to encourage the exchange of information between CPs; give them a national voice; and establish links between them and other coastal stakeholders regionally and nationally. With so many opportunities to create new policies through Marine Spatial Planning and Brexit, now is the time to learn from the successful partnership approaches from around the country; invigorate the political will and embed an integrated and coordinated approach to planning and management across land and water, fresh and marine, upstream and downstream, origin to ocean in UK policy and practice.

Natural Capital and the Sea: the Marine Pioneer Project Overview

Aisling Lannin
Marine Pioneer Programme Lead, Marine Management Organisation,
Lancaster House, Hampshire Court, Newcastle Business Park, Newcastle upon Tyne, NE4 7YH
T: 0208 225 7947 E: aisling.lannin@marinemanagement.org.uk

The pioneers have been instigated to inform delivery of policies and future iterations of the 25 year environment plan. Along with three other pioneers, landscape, catchment and urban, the marine pioneer will test:

- the application of a natural capital approach,
- how to integrate planning and delivery further, and
- how to apply funding mechanisms better.

The marine pioneer will use partnership projects in North Devon and Suffolk to explore new approaches to managing the marine environment and share lessons.

The Natural Capital Committee's first State of Natural Capital report says '*Natural capital refers to the elements of nature that produce value or benefits to people (directly and indirectly), such as the stock of forests, rivers, land, minerals and oceans, as well as the natural processes and functions that underpin their operation.*'

The natural capital approach suggests that if you use this understanding of natural capital to identify, invest in and manage use of resources you will achieve more for people and improve the health of the environment. It aims to integrate an ecosystem approach with sustainable societal and economic planning, decision making and development.

Implementing a natural capital approach is a challenge and particularly in the marine environment. To our knowledge there are very few examples of successful application in the sea. We know there are opportunities which we want to maximise and risks that we must mitigate for with the approach.

Much of our understanding of these comes from the huge amount of work carried out by many people, organisations and partnerships in the last few decades to improve marine management and understand societal, environmental, economic and political drivers, pressures and working. Therefore the pioneer will be carried out by local partnerships with input and advice from a large number of experts and interested parties.

The partnerships will develop, support and deliver demonstration projects based on the natural capital approach and new operating models for delivery of healthier seas. The pioneer will highlight benefits and beneficiaries as well as identifying what does not work. We hope to stimulate practical evidence gathering and new research. In North Devon the marine and landscape pioneers will work together to explore better integration of land-sea management. Publication of the 25 year environment plan will initiate more public communications about the pioneer and identify how people can get involved.

Web links
http://www.northdevonbiosphere.org.uk/marinepioneer.html
http://www.suffolkcoastandheaths.org/
https://www.gov.uk/government/collections/natural-capital-committee-documents
http://naturalcapitalcoalition.org/projects/oceans-supplement/

Adapting to Climate Change on the Coast

Professor Jim Hall
Oxford University & Committee on Climate Change
Environmental Change Institute, University of Oxford
Oxford University Centre for the Environment, South Parks Road, Oxford, OX1 3QY, UK
E: jim.hall@ouce.ox.ac.uk

The coastline is a focal point for adaptation to climate change. The 2017 Climate Change Risk Assessment evidence report highlighted the risks of coastal flooding and erosion as being one of the headline risks in the UK. The coast faces pressure of sea level rise and potentially changing wave and storm surge climates. A natural coastline would be able to adapt to a changing climate, but Britain's coastline is mostly developed – in some places very intensely – which creates vulnerabilities to climate change and means that there can be very little room for adaptation. In addition, much coastal infrastructure, like seawalls, promenades and estuary flood protection, was built during the last century so can be costly to maintain and may not be affordable to replace. Thus coastal communities face growing pressures which some may struggle to cope with.

This year the Adaptation Sub-Committee of the Committee on Climate Change is embarking on an analysis of risks to the UK coastline and of adaptation options. The Committee is considering how these risks are managed and whether reform to management arrangements is necessary in order to adapt to climate change.

Biography: Professor Jim Hall FREng is Director of the Environmental Change Institute in the University of Oxford, where he is Professor of Climate and Environmental Risks. His research focuses upon management of climate-related risks in infrastructure systems, in particular relating to various dimensions of water security, including flooding and coastal change. Jim Hall is a member of the UK independent Committee on Climate Change's Adaptation Sub-Committee. In 2010 Jim was elected as a Fellow of the Royal Academy of Engineering "for his contribution to the development of methods for flood risk analysis, which underpin approaches for flood risk management in the UK and internationally." He sits on the Public Voice Committee of the Institution of Civil Engineers and was a member of the panel conducting the Institution of Civil Engineer's 2014 State of the Nation Infrastructure assessment and the Executive Group for the National Needs Assessment – A Vision for UK Infrastructure.

References:
2017 Climate Change Risk Assessment evidence report https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/

UK Coastal Governance – Future Insights

Natasha Bradshaw
Doctoral Researcher, University of the West of England (UWE Bristol)
T: 0117 328 6919 / 07775 510362 E: natasha.bradshaw@uwe.ac.uuk

Research was launched in Autumn 2017 to review existing and explore new methods to support coastal governance in the UK. It considers:

- Marine and terrestrial approaches to governance across the land-sea interface;
- Opportunities, barriers and mechanisms to support collaboration;
- How to improve coastal stewardship and what benefits that may bring.

The research process is based on the Delphi method with three rounds of enquiry (two online surveys and a workshop). It enables a group of experts from disparate locations to engage in a collective dialogue and be part of the research and its outcomes.

Over 170 people, collectively offering >3000 years of experience in UK coastal governance are participating. In the first online survey they were asked for their opinion on:

- Strengths and weaknesses of existing approaches to coastal governance;
- Opportunities in the future and benefits of improving coastal governance;
- Drivers and mechanisms for collaboration and stewardship;
- A vision for future coastal governance.

Following in-depth analysis, a verification report to participants is being issued in January 2018. This will be followed by a second online survey with more targeted questions based on answers to the first survey. Further analysis will identify to what extent there is potential consensus between participants before they meet in workshop(s) in the Spring. Recruitment into the research process has closed, but the results and recommendations will be widely available later this year and there will be an open invitation to a dissemination event.

This research is being undertaken by Natasha Bradshaw as part of a PhD at the University of the West of England (UWE) Bristol. The overall purpose is to evaluate the current coastal governance arrangements which operate in the UK, focusing on the role of participatory and collaborative

governance mechanisms and their socio-legal context to improve coastal stewardship. The UK Coastal Governance Delphi process is the main mechanism for determining the current position and identifying whether there is any consensus amongst UK experts about future direction.

For further information see: www.watersecuritynetwork.org/uk-coastal-governance/

This research is part of a PhD supervised by Dr Thomas Appleby and Dr Enda Hayes, members of the International Water Security Network http://www.watersecuritynetwork.org/ at the University of the West of England (UWE), Bristol, UK. It is funded by Lloyd's Register Foundation, a charitable foundation, helping to protect life and property by supporting engineering-related education, public engagement and the application of research. For more information see: www.lrfoundation.org.uk

Exploring the utility of voluntary coastal partnerships for supporting integrated management

Pamela M Buchan
University of Exeter
T: 07764 492220 E: pb381@exeter.ac.uk

Dr Katherine L Yates
University of Salford

The EU's 'Recommendation concerning the implementation of Integrated Coastal Zone Management' paved the way for EU member states to adopt integrated coastal zone management. It lays down eight key principles including one focusing on participatory process in decision making, with the explicit inclusion of stakeholders.

Stakeholder participation has been shown to be valuable at all stages of coastal management. Involving stakeholders in planning processes can produce better environmental decisions and enhanced compliance. It gives planners a greater appreciation of the context of a plan's impacts and can facilitate the early identification and thus easier resolution of conflict. Increasing the diversity of voices being heard and encouraging more deliberative participatory approaches may therefore improve the practice of ICZM.

Coastal forums are an established mechanism for facilitating stakeholder participation and encouraging knowledge exchange between sectors in the marine environment. In this research, the North West Coastal Forum, a regional coastal partnership, was used as a case study for a stakeholder analysis. Using online survey and analysis of historical records, the research analysed stakeholder perceptions of the Forum; stakeholder representation over its first 14 years; and the personal environmental and related values of stakeholders, and those of their host organisation.

The Forum was found to be considered highly by survey respondents, particularly as a provider of networking and knowledge exchange. Document analysis findings indicated that the Forum engaged with a wide range of sectors, with event themes in particular attracting new sectors. However representation was dominated by certain organisation types, such as Local Authorities, and there was a lack of representation in others, including some extractive industries. Encouragingly, there was tentative evidence to indicate a growing representation of voluntary/community groups.

Survey respondents predominantly supported a pro-environmental position and their personal values were broadly in line with those held by their own host organisations. This suggested that stakeholder representatives can be effective conduits for their organisation. Whilst unexplored in this study, a perception of the Forum as pro-environmental position may be off-putting for some businesses working in extractive sectors. The study concludes that stakeholders see coastal partnerships as effective engagement mechanisms. However, active recruitment may be necessary to ensure engagement with a full range of stakeholders and thus enable coastal partnerships to more effectively contribute to integrated coastal zone management.

Web-links and references

P.M. Buchan http://geography.exeter.ac.uk/staff/pgrstudents/index.php?web_id=Pamela_Buchan
K.L. Yates https://www.salford.ac.uk/environment-life-sciences/our-staff/els-academics/katherine-yates
Buchan, P.M. and Yates, K.L. (in review) Stakeholder dynamics in a voluntary coastal partnership: implications for Integrated Coastal Zone Management.

North West Coastal Forum http://www.nwcoastalforum.org.uk/

Sustainable Shores - challenges and opportunities for UK coastal habitats

Dr Nathan Richardson
Senior Policy Officer, RSPB
T: 01767 693447 E: Nathan.Richardson@rspb.org.uk www.rspb.org.uk

Between 1998 and 2002 the RSPB undertook a project called '*Seas of Change*' to identify potential opportunities for intertidal habitat creation around mainland Britain. The project helped to prioritise RSPB coastal habitat restoration work and we have been involved in a third of the area of coastal habitat created in the UK since, over 850ha.

20 years on and it is time to re-evaluate the situation and so the RSPB commissioned a new project, 'Sustainable Shores', with the objectives of:

- Reviewing our understanding of why coastal habitats are important for people and wildlife and collating what we know about past and future losses around the UK coast;
- Reviewing the policy and funding context across the four UK countries, identifying what factors promote or inhibit the delivery of schemes; and
- Updating our understanding on where the best opportunities for coastal habitat creation are.

The project will be reporting in early 2018. For more information on the Sustainable Shores project or to receive a copy of the report please email nathan.richardson@rspb.org.uk.

Tyne to Tees Shores and Seas – A Seascape Partnership

Niall Benson
Heritage Coast Officer, Heritage Coast Partnership, c/o Durham County Council
T: 03000 26813 E: niall.benson@durham.gov.uk

Seascape is the UK's first coast and marine Heritage Lottery Fund Landscape Partnership scheme - Tyne to Tees, Shores and Seas – "Seascape" for short.

The scheme focuses on the undervalued Magnesian Limestone seascape between the rivers Tyne and Tees in North East England. This coastline is characterised by its unique geology and is largely designated as Heritage Coast; quite often overlooked as perceptions are blighted by an industrial past. This seascape is rich in maritime, wartime and natural heritage; though much of this is out of sight, held only in memory or hidden beneath the waves, and just waiting to be discovered.

Through the 30 projects, the Seascape scheme will improve access to beaches, explore the shipwrecks and habitats beneath the waves, improve biological recording through citizen science, construct a coastal conservation centre, tackle marine litter and create opportunities for local people and visitors to enjoy being on and in the sea. The detail of these projects will be finalised through the funded development phase, due to commence in January 2018. The scheme aims to take a

community-led approach from the beginning, engaging coastal communities and sea users throughout development and delivery. Total funding is £5m with delivery completing in 2024.

Web link: www.durhamheritagecoast.org

From planning to action – delivering the 'Blue New Deal'

Fernanda Balata
Senior Programme Manager, Coastal Economies – New Economics Foundation
T: 0207 820 6389 E: Fernanda.balata@neweconomics.org

As the UK prepares to leave the EU, the future for the coast – home to some of the country's most 'left behind' communities and precious habitats – is highly uncertain. Since 2015, the New Economics Foundation (NEF) has been calling for a Blue New Deal for the UK coast, to support struggling coastal economies. NEF engaged hundreds of people, up and down the country, to co-develop solutions that demonstrate how better protection and management of our marine environment can, and must, go hand-in-hand with revitalising coastal communities. The measures and recommendations in the Blue New Deal action plan (2016), if delivered as intended, would help maintain and support the creation of good jobs, make these economies more diverse, dynamic and resilient; therefore, better able to withstand future environmental and economic shocks. Fernanda Balata, Senior Programme Manager for Coastal Economies at NEF, will briefly talk about how NEF is working to support the implementation of the Blue New Deal action plan, moving from planning to action. Through a new Centre for Coastal Economies, NEF will work in partnership to empower coastal communities to really take control of their future – putting healthy seas at the heart of new economic plans, projects and businesses.

Web-links and/or references:

Turning back to the sea, a Blue New Deal to revitalise coastal communities (action plan): http://neweconomics.org/2016/11/turning-back-to-the-sea/

Blue New Deal, good jobs for coastal communities through healthy seas: http://b.3cdn.net/nefoundation/2ec4a9d52360c8dd5a_a7m6yt6ik.pdf

Blue New Deal website (stories from around the UK coast): http://www.bluenewdeal.org/

Working towards a framework of monitoring the oceans using autonomous vehicles (AlterECO)

Dr Charlotte Williams
Marine Research Scientist, National Oceanography Centre
E: chwill@noc.ac.uk Twitter: @_Altereco

AlterEco is a recently funded NERC programme which aims to develop an alternative framework to better understand how changing physical and chemical conditions in UK Shelf Seas affects the marine ecosystem and ocean health.
Over the next three years, AlterEco will deploy small fleets ocean robots, including submarine gliders and surface vehicles, to provide a continuous measurement campaign in the North Sea between November 2017 and January 2019. Combined with observations and modelling from a variety of complimentary projects, AlterEco will attempt to provide atmosphere-through-ocean coverage of North Sea conditions at scales from centimetres to 100s of kilometres and seconds to the full winter-to-winter cycle.

By using the latest robotic technology, AlterEco will:

1. Provide measurements of ocean processes to better understand how variability in the atmosphere affects the functioning of the shelf sea ecosystem.

2. Provide the tools necessary for informing ocean forecasting models of the stressors on and consequences of the environmental status of shelf seas.
3. Trial a modular, integrated framework for a new, efficient and diagnostic ocean monitoring system that has global transferability.

The results of AlterECO will help fulfil the UK's legal obligations to monitor water quality and good environmental status (GES). Additionally it will develop a globally transferable framework to assist developing nations achieve affordable marine system monitoring capability, without the need for large scale infrastructure such as dedicated research vessels.

For further information, see http://prj.noc.ac.uk/altereco/

The NERC/Defra Marine Ecosystems Research Programme

Paul Somerfield
Plymouth Marine Laboratory, Prospect Place, Plymouth PL1 3DH
T: 01752 633100 E: pjso@pml.ac.uk

The Marine Ecosystems Research Programme is advancing our ability to predict impacts of change on marine food webs and the services they provide. Integrating existing and new data through different types of ecosystem models the programme will:

1. Improve understanding of how food web components (e.g. plankton or seabirds), pressures (e.g. fisheries impacts) and the environment (e.g. temperature, productivity) interact, to underpin advice on the state of food webs and the environmental conditions required to maintain them;

2. Develop understanding and models of the effects of natural and anthropogenic change on the state of marine food webs to inform effective planning of human activities;

3. Combine ecosystem models and ecosystem service science to understand consequences of potential management actions for ecosystem service provision;

4. Investigate trade-offs between economic and cultural services in the marine environment and examine how benefits from living natural capital can be optimised;

5. Research ways in which multiple activities interact to affect marine ecosystems, to establish the cumulative effects of current and potential management actions on marine ecosystems and services.

For all those interested a **Stakeholder Symposium**, presenting the outcomes of the programme, will be held at the Royal Society, London on April 25th 2018.

Web links:

Please register using the forms on the Marine Ecosystems Research Programme web page: www.marine-ecosystems.org.uk for ongoing newsletters and information about MERP (including the Stakeholder Symposium). Alternatively, email marine.ecosystems@pml.ac.uk.
Twitter: @merp_updates

The Government's 25 Year Plan for our Oceans and Seas

For reasons that will be explained on the day Bob Earll will present on the 25 year plan

Note provided by Dr Gemma Harper

Deputy Director, Marine, Defra
E: gemma.harper@defra.gsi.gov.uk

The Government has pledged to improve the environment within a generation through an ambitious 25 year environment plan. The plan includes a strong focus on clean, healthy, safe, productive and biologically diverse oceans and seas.

Oceans supply nearly half of the oxygen we breathe, absorb over a quarter of the carbon dioxide we produce, play a vital role in the water cycle and climate system, and are critical for biodiversity and ecosystem services. The marine environment supports our economy with jobs, seafood and raw materials; and millions of people flock there for leisure reasons. If we want to carry on with this way of life, and want future generations to be able to do the same, it is vital that we manage our seas in a more sustainable way.

My session will examine what the 25 year environment plan means for our oceans and seas by addressing:

- Our ambitions to restore our oceans and seas and reverse decline through managing environmental pressures and sustainably using marine assets.
- New post EU Exit opportunities in which marine environmental standards are enhanced ensuring we are a global leader in marine environmental policy.

The Opportunities of Brexit

Dr Stephen Hull

Director, ABPmer, Quayside Suite, Medina Chambers, Town Quay, Southampton, SO14 2AQ
T: 023 8071 1849 E: shull@abpmer.co.uk W: www.abpmer.co.uk

The presentation will summarise the findings of a short survey of marine stakeholders on marine opportunities associated with current policy shifts and Brexit

Background

Management of the UK marine environment is changing as a result of implementation of the Marine Acts. The UK's decision to leave the EU will potentially bring further changes. Such changes present both risks and opportunities.

While much has been written on potential risks, there has been limited discussion about potential opportunities although it is clear that there are disparate views about what these opportunities might be. A short survey was carried out in November 2017 via CMS to collect information from marine stakeholders to better understand how the opportunities (both those arising from UK policy implementation and the consequences of EU exit) are perceived.

The presentation will summarise findings from the survey and raise points for discussion in the plenary session.

A summary of the findings of the survey will be provided separately and made available following the presentation.

Leaving the EU: what it means for the marine environment

Dominic Pattinson
Marine Strategy, Marine, Defra
E: dominic.pattinon@defra.gsi.gov.uk

The Government wants us to be the first generation to leave the environment of England in a better state than we inherited it. We already have a long history of environmental protection which we want to maintain and build on as we leave the EU. The EU (Withdrawal) Bill will ensure that the whole body of existing EU environmental law continues to have effect in UK law. In my short session, I will set out what this means for the marine environment.

Marine Industry view of Brexit

Peter Barham
Seabed User & Developer Group
T: 01780 450931 E: peterjbarham@googlemail.com www.sudg.org.uk

SUDG members represent all the key marine industry[1] sectors providing over 900,000 jobs and upwards of 5% GDP. Marine industries are an essential component of the UK economy, central to UK policies on transport and climate change and integral to the Government's desire to promote Blue Growth.

The practical implications arising from the decision to leave the European Union will unfold as the detailed discussions around the nature and form of Brexit continue. In the climate of uncertainty that exists at present, it is important that industry looks at both the risks and potential opportunities that Brexit brings. SUDG believes that it is also important that Government work closely with all stakeholders in determining the way ahead.

The major risk is the uncertainty that exists at present regarding actions on Brexit and what the impacts of any legislative change will be on planning, licensing and even the management of marine protected areas. To assist government in understanding the needs of marine industries, SUDG has prepared statements on Brexit (see link on SUDG website) and we are working closely with Government and the eNGOs to make it clear that the needs of conservation and industry are not diametrically opposed, but are linked by the need to deliver sustainable development.

Abandoning EU legislation would not be in the best interests of the environment or industry. Industry has spent many years working with regulators to understand how to deliver this legislation effectively; however, the Repeal Act and other initiatives do provide an opportunity to clarify its purpose and objectives going forwards. Consequently, the best opportunities will arise from how the legislation that remains is implemented in practice. These could include making greater use of cost benefit analysis linking ecosystem services valuation and the socio-economic benefits that derive from development and streamlining the number of separate assessments that may be required for individual aspects of EU legislation (EIA, WFD, MSFD and H and BD) so that the current complexity could be both rationalised and simplified. Other opportunities for marine management will be discussed on the day, but can be summarised as better use of marine science, better use of good practice and better stakeholder engagement.

The European Union (Withdrawal) Bill

Dr Richard Benwell
Head of Government Affairs, WWT
T: 07900 607 596 E: richard.benwell@wwt.org.uk Twitter: @RSBenwell

[1] Aggregates, Cables, Marine Recreation, Oil and Gas, Offshore Energy, Ports, and emerging sectors such as Carbon Capture and Storage

The EU (Withdrawal) Bill is intended to achieve legal continuity on Brexit day.

However, at the end of its Commons Stages, the bill still includes weaknesses in converting the letter of the law, upholding the principles of the law, and ensuring enforcement of the law. Without remedial action from the Government, the bill poses serious environmental risks.

Rt Hon Michael Gove MP has announced his intention to consult on ways to deal with two of the main weaknesses in the bill—the environmental "governance gap" and the principles of environmental law.

But will a new domestic environmental body be able to hold Government to account as effectively as the EU Commission and courts? How can the EU's purposive take on environmental principles be applied in UK law? And how can Parliament address the other shortcomings of the Withdrawal Bill?

This session will propose essential amendments to the bill; offer a perspective on the essential features of a new framework for environmental governance; and suggest how the Government's response can set the stage to go beyond equivalence with EU environmental standards and instigate a world-leading programme of environmental improvement.

International commitments, frameworks and collaboration: OSPAR, ICES & the UK post-Brexit - Will the UK's international commitments fill the void created by leaving the EU?

Professor Mike Elliott
Institute of Estuarine & Coastal Studies, University of Hull, Hull, HU6 7RX, UK
E: Mike.Elliott@hull.ac.uk Tel. +44 (0)1482 466773 URL http://www.hull.ac.uk/iecs

Sue Boyes
Institute of Estuarine & Coastal Studies, University of Hull, Hull, HU6 7RX, UK E: s.j.boyes@hull.ac.uk

Bob Earll
CMS
E: bob.earll@coastms.co.uk & 07930 535283

In comparison to internal freshwater and terrestrial environments, *Brexit* will arguably create more major challenges for the management of open marine waters that abut other national waters. Despite leaving the EU, the UK currently has access to many international conventions and agreements so we explore their role in this transition. This talk will follow from the Withdrawal Bill session beforehand and will take a wide-ranging approach to reflect on four areas:

1. The international instruments to which the UK is a signatory

This includes the relevant conventions and agreements for the UN (such as the Conventions on Biological Diversity, Climate Change, Sustainable Development, ESPOO/UNECE – Strategic Assessment, UNCLOS), fisheries (ICES, London Convention), shipping (IMO, Ballast water, London (Dumping)), marine management (OSPAR) and conservation (such as BERN, BONN, RAMSAR, CITES).

2. The basic premises and assumptions

This requires us to consider what guides the UK governments in managing the marine environment. This includes the UK philosophies and responsibilities; the adoption of standards, procedures and protocols from the EU and elsewhere; the comparability and coordination of outcomes with adjoining states, and the need for and reaction to arbitration and conflict resolution.

3. The underlying principles and packages of principles to achieve sustainability and governance

This includes globally agreed underlying policies, politics, laws and administrations for the adoption of internationally recognised principles; together these comprise The Ecosystem Approach. These include the precautionary principle, the 'damager debt' principle, diversity conservation and ecological integrity, ecological and economic valuation, inter-generational equity and stakeholder participation.

4. Challenging questions arising from the above

These are in various blocks relating to the UK's support and participation in the integration conventions and agreements. They include our support for international and collaborative marine science, the solving of transboundary issues, the adoption of EU Directives under a possibly diverging system, and the ability of existing fora (or the need for new fora) to achieve the sustainable management of national and international waters.

Ecosystem Services: Bridge or Barrier for Marine and Coastal Management

Emma McKinley
Research Fellow, School of Earth and Ocean Sciences, Cardiff University
T: 02920 879064 E: McKinleye1@cardiff.ac.uk

Across disciplines, the concept of ecosystem services has become an accepted concept through which the complexities of the natural world and its relationships with human society are explained and embedded into global environmental policy. At a time when global ecosystems are continually under pressure due to anthropogenic influences and interactions, it aims to provide policy makers, practitioners and scientists with a common language. In spite of this widespread acceptance, the concept of ecosystem services is in its very nature complicated and full of complex, and sometimes, intangible interactions. As the field of ecosystem service research has grown, the ecosystem services framework has developed, most recently through the Follow on to the UK's National Ecosystem Assessment (2014), to encompass: four different categories of ecosystem services (regulating, supporting, provisioning, and cultural), various ecosystem processes and characteristics, the final ecosystem services and the many associated benefits. While stakeholders have, for the most part, adopted this relatively new language and terminology, questions remain as to whether the ecosystem services concept provides the common language it promotes. There are concerns that the complexities associated with ecosystem services as a concept make it inaccessible for people living and working in these ecosystems.

Through a questionnaire survey, this presentation examines the perceptions of UK marine and coastal stakeholders, researchers and policy makers towards the concept of ecosystem services. The study evaluates respondents' views about its role as either a barrier or a bridge, or both, within the marine and coastal science-policy-practice interface. Finally, the presentation sets out a series of recommendations to support the future use of the ecosystem services concept in UK coastal and marine management.

Web-links and/or references:
RESILCOAST project website: http://www.nrn-lcee.ac.uk/resilcoast/
CoastWEB project website: http://valuing-nature.net/coastweb

International developments in the marine and coastal environment: Work on the frontiers

Chris McDougall
Principal Consultant, Atkins Limited, Ashley Avenue, Epsom, Surrey, KT18 5AL
T: +44 0 1372 756 539, +44 0 7834 506 051 E: chris.mcdougall@atkinsglobal.com

This session is intended as an interactive review of the current emerging fields in coastal and marine environmental science and how the United Kingdom, both now and post Brexit is placed within the industry.

- What changes will technological and engineering improvements bring about? In particular, how will cross-over from the technology industry (Artificial Intelligence, Big Data, Robotics etc) change coastal and marine environmental research?
- How will an increasingly changing climate, and more erratic weather patterns impact our existing coastal and marine datasets and how will we respond?
- What changes will the accelerating trend for investment funds to divest themselves of Oil and Gas holdings bring about?
- Plastics and microplastics, what does the future hold? How will technology and policy react?
- Robotic exploration of the deep ocean
- Nano-technology and ocean clean-up

Come prepared to discuss these questions, in an interactive and open fashion….. no answers are guaranteed!!

Participants are invited to submit comments and topics related to these questions to the speaker in advance, either via email prior to the event or at Coastal Futures conference itself at the Atkins stand.

Offshore wind: Future prospects

Will Apps
Head of Energy Development, The Crown Estate
T: 020 7851 5000 E: will.apps@thecrownestate.co.uk http://www.thecrownestate.co.uk/

Over the course of 2017 offshore wind confirmed its place as a key component of the future energy systems of the UK and elsewhere. Maintaining its position as the World's leading market, UK deployment activity is at an all-time high and the outcome of the 2nd Contract for Difference auction round resulted in prices below that of nuclear and conventional fuel-based generation. Government and the industry are turning their attention to the potential economic benefit the sector can provide in alignment with an industrial strategy centred on clean growth. Looking beyond our shores, it is increasingly recognised that offshore wind will play an indispensable role in Europe's transition to a decarbonised energy system. Alongside the challenges to progress technological advancements and consider whole energy system solutions, interaction with the marine environment will need to be a key focus for all involved.

This presentation by Will Apps, Head of Energy Development at The Crown Estate, will provide an overview of the UK portfolio. It will summarise the near-term and medium term pipeline and consider potential deployment activity out to the mid-2020s and beyond, touching on key factors associated with interaction with the marine environment.

Web-links and/or references:
Offshore wind electricity - The Crown Estate website (including portfolio information):
https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/offshore-wind-energy/

The Crown Estate announcement to consider new seabed leasing (November 2017)
https://www.thecrownestate.co.uk/news-and-media/news/2017/the-crown-estate-to-consider-new-leasing-for-offshore-wind-projects/

Clean Growth Strategy – Department of Business, Energy & Industrial Strategy (Refer page 99 for detail on offshore wind):
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/651916/BEIS_The_Clean_Growth_online_12.10.17.pdf

2nd Contract for Difference auction round - Department for Business, Energy & Industrial Strategy announcement and link to results
https://www.gov.uk/government/news/new-clean-energy-projects-set-to-power-36-million-homes

A visualization of a possible future: focusing on the North Sea, An Energetic Odyssey takes its audience forward to 2050, where we deliver a 2-degree scenario:
http://offshorewind2017.com/exhibition/2050-energetic-odyssey/

Offshore wind and ornithology: collaboration is key to unlocking uncertainty

Jessica Campbell
Marine Consents Manager, The Crown Estate
T: 020 7851 5182 E: jessica.campbell@thecrownestate.co.uk W: www.thecrownestate.co.uk

With more than 15 years of offshore wind development experience in the UK, potential impacts on ornithology remain a key consent risk for new developments. Key impacts of concern are collision mortality, displacement, and barrier effects. Much of the time there is uncertainty over the scale and significance of these potential impacts, and in the face of this uncertainty a precautionary approach must be adopted in decision making which could lead to a consent being refused or restrictive.

So why does this uncertainty exist? Although great strides have been made over the years in our approach to predicting impacts and monitoring for them, many of the questions that we need to answer are of such a scale that they are beyond the ability or resources of individual organisations to answer. For example, if displacement occurs at a particular wind farm site, what does that translate to at the population level, at the seabird colony of interest? We use modelling to predict collision risk and potential mortality, but how do birds behave around wind turbines in real life? If we've predicted a particular impact on a seabird species, how do we know whether this will result in a significant negative effect (or not) on the population if we don't know what's already happening with that population?

These are the 'big' questions that still need to be tackled, and in order to do so we need to adopt a more strategic, collaborative approach to research and monitoring. This presentation will showcase some current examples of collaborative work being undertaken to tackle these uncertainties:

- The Offshore Renewables Joint industry Programme (ORJIP) Offshore Wind bird collision avoidance study, a multi-million pound project monitoring birds' behaviour around turbines;
- Deploying innovative GPS tagging to monitor seabird foraging movements;
- Tagging red-throated divers to better understand their foraging ecology and whether they can 'buffer' themselves against the effects of displacement;
- A new forum established to oversee and coordinate strategic post-consent monitoring.

These examples will highlight that it is only through a more joined up, innovative approach to research and monitoring that we can hope to address these fundamental questions – and that 2018 will be an exciting year in the world of offshore wind and ornithology research.

Useful links:
ORJIP Offshore Wind: https://www.carbontrust.com/offshore-wind/orjip/

For further information on the red-throated diver study, please contact Sue O'Brien at the Joint Nature Conservation Committee: sue.obrien@jncc.gov.uk

Marine Science – Evidence, Assessment and Foresight

Simon Brockington
Deputy Director, Marine and Fisheries Science and Analysis
Department for Environment, Food and Rural Affairs, Area 8AB Millbank, c/o Nobel House,
17 Smith Square, London, SW1P 3JR
T: 07341 509691 E: simon.brockington@defra.gsi.gov.uk

In 2002, the Government set out a strategy for the conservation and sustainable development of the UK marine environment in a publication entitled '**Safeguarding our Seas'**. At the heart of the strategy was a new UK vision for the marine Environment stated as follows:

Our vision for the marine environment is clean, healthy, safe, productive and biologically diverse oceans and seas.

After 15 years this is vision is still at the heart of current UK Marine policy and has subsequently been enshrined in the Marine Strategy Framework Directive (MSFD) and the OSPAR North East Atlantic Strategy.

One of the undertakings from 'Safeguarding our Seas' was to develop an environmental monitoring framework and to produce the first integrated assessment of the UK seas. In 2005 this led to publication of the **Charting Progress** report which provided the first integrated assessment of the state of the seas across the whole of the UK Continental Shelf. The assessment was based on the evidence of peer-reviewed sector reports produced by key marine organisations.

The process of pulling together the evidence and data for Charting Progress resulted in the formation, in 2007, of the **UK Marine Monitoring and Assessment Strategy**. This included cross-UK evidence groups covering Clean and Safe Seas (CSSEG), Healthy and Biologically Diverse Seas (HBDSEG), Productive Seas (PSEG) and Ocean Processes (OPEG). These working groups provided a structured approach to evidence collection, data storage and assessment to guide the monitoring programmes needed to meet the UK commitments for the OSPAR Convention, which publishes regular assessments of the status of the North East Atlantic, and the emerging Marine Strategy Framework Directive. The UKMMAAS continues its work and reports to the Marine Science Co-ordination Committee.

In 2010, UKMMAS published **Charting Progress 2** which provided an updated and more comprehensive assessment of the state of the UK Seas and addressed many of the knowledge gaps identified in Charting Progress 1. This was used as the basis for the **Initial Assessment of Good Environmental Status** (GES) of the UK Seas required under the Marine Strategy Framework Directive**.** This has been published in the **UK Marine Strategy Part 1**, which also sets out the targets and characteristics for the 11 MSFD descriptors which need to be met in order to achieve GES.

In 2015, the UK Published its **Marine Strategy Part 2** which sets out the monitoring programmes for measuring progress towards Good Environmental Status in UK seas. Where possible the UK works with the Contracting Parties of the OSPAR Convention to develop common indicators, so that the methodologies are consistent, and the assessment results are comparable.

In 2017, OSPAR published its **Intermediate Assessment 2017** which shows the progress OSPAR Contracting Parties are making towards the goals of clean, safe, healthy and biologically diverse oceans and seas in the North East Atlantic. This assessment was published in 2017 to assist EU Member States with the development of the updated MSFD initial assessments which need to be reported to the Commission in the autumn of 2018
The UK is currently well advanced in preparing its **updated MSFD assessment of Good environmental status** which are based on over 50 different indicators and is planning to consult and the findings and the revised targets for achieving GES in the summer of 2018. The aim is to have the assessment on line,

so it will be possible to navigate from the high level findings down to the detailed indicator assessments. In essence, this Marine Online Assessment Tool is an evolution of Charting progress 2, as it is now target based and has clear policy goals and can form the baseline for reporting against the Defra 25 Year Environment Plan.

2018 will also see the publication of the Government Office for Science's Foresight report entitled 'Future of the Sea'. Several of the feeder documents for this report are already available, and the main report will consider the role that science and technology can play in understanding and providing solutions to the long-term issues affecting the sea. It is expected to focus upon:

- resources and economic potential of the sea
- environmental issues
- governance of the sea

One of the report's main recommendations is expected to centre upon the opportunity for greater collaboration between different Government Departments dealing with marine issues, potentially with a view to development of a wider, international facing marine strategy.

Web links:
https://www.gov.uk/government/publications/safeguarding-our-seas

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69632/pb13860-marine-strategy-part1-20121220.pdf
https://www.gov.uk/government/publications/marine-strategy-part-two-uk-marine-monitoring-programmes

https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/
https://www.gov.uk/government/collections/future-of-the-sea

Marine litter, plastics and the expanding agenda

Dr David Tudor
Marine Infrastructure Portfolio Manager, The Crown Estate, 1 St James's Market, London, SW1Y 4AH
T: 07766 803 589 E: david.tudor@thecrownestate.co.uk

Marine litter has been established as a serious pollutant for over 50 years but widespread recognition of its ubiquity and pervasive impact only began around twenty years ago. However, it is only within the last five years that it has gained prominence amongst the public and politicians. News of the 'Pacific Garbage Patch', increasing public participation in beach clean ups, the introduction of the Marine Strategy Framework Directive, growing cognisance of micro-plastics and their impact on eco-systems, society's increased focus on environmental issues, plus the social-media explosion have all led to vastly increased public awareness. Despite this, there has not been any reduction in the amounts of debris being found on beaches and in the oceans.

For many years debris on beaches across the world was sporadically measured by academics and a few government agencies. Alongside this, a small number of environmental NGOs were banging the drum for fundamental change to societal practices and were highlighting the impact and the increasing presence of the pollutant.

Now, all that has changed.

The threat from plastic pollution has been said to rival that of climate change and the issue is now firmly on the agenda and in the mainstream. The topic has moved from being labelled 'marine debris/beach litter/ocean trash' to simply '*ocean plastics*'. Now it's not just the environmental NGOs campaigning for change but academics, community groups and intergovernmental bodies.

Recognition that there is a problem is an important first step. However, the use of plastic is ingrained in our society, the pollutant is far reaching, and the solutions are potentially complex.

There are currently numerous groups running campaigns to raise even greater awareness of the issue alongside innovative initiatives that have been launched to tackle plastic use at source. In recent years new legislation at the European and National level has been introduced to help prevent deterioration in the health of the marine environment and the UK Government is said to be at the forefront of the measures to reduce plastic usage. Whilst these endeavours are welcomed they are clearly only part of the solution. Therefore, what is the future agenda for tackling this omnipresent pollutant in our seas and oceans and where should the focus be?

The presentation will cover:

- The scale of the issue.
- The history of public awareness.
- Why the issue is now mainstream.
- Current efforts to clean up.
- The complexity of the solution.
- Future directions.

Links to further information referred to in the presentation:

- Campaign examples:
  - www.sas.org.uk
  - www.onelessbottle.org
  - www.greenpeace.org.uk/what-we-do/oceans/plastics/Greenpeace
  - www.mcsuk.org
  - www.citytosea.org.uk

- Selection of news items:
  - Pacific Garbage Patch: www.independent.co.uk/environment/green-living/the-worlds-rubbish-dump-a-tip-that-stretches-from-hawaii-to-japan-778016.html
  - London Zoo ditches plastic water bottles: www.zsl.org/news/zsl-london-zoo-ditches-plastic-water-bottles
  - World's plastic binge 'as dangerous as climate change': www.theguardian.com/environment/2017/jun/28/a-million-a-minute-worlds-plastic-bottle-binge-as-dangerous-as-climate-change

- UK Government & Intergovernmental:
  - www.ospar.org
  - www.ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm
  - www.gov.uk/government/news/microbead-ban-announced-to-protect-sealife

- Resources:
  - www.chameleon.uk.net/what-we-do-1
  - www.gulbenkian.pt/uk-branch/our-work/valuing-the-ocean/marine-colaboration
  - www.pdpartnership.co.uk/single-post/2017/12/04/A-Clean-Seas-Partnership
  - www.campaignstrategy.org
  - www.gov.uk/government/publications/investigation-of-litter-problems-in-the-severn-estuarybristol-channel-area

Communicating ocean acidification and climate change

Phil Williamson
Natural Environment Research Council & University of East Anglia
T: 01603 593111 E: p.williamson@uea.ac.uk

In a survey[1] carried out in 2013-14, only around 20% of the British public said that they had heard about ocean acidification. Whilst that proportion has, no doubt, been increased by the final programme in the Blue Planet II series – with its audience of more than 10 million – ocean acidification has not achieved the same public and policy attention as human-driven global warming. Likely reasons for that difference include the fact that 'conventional' climate change risks have been known about for longer, also that they can have greater human impacts; e.g. the socio-economic costs of extreme weather events and sea-level rise. Nevertheless, the two components of global change benefit by being considered together, since they are linked by carbon dioxide (CO_2) as their common driver: if CO_2 emissions can be ended, both problems would be solved together.

The fundamentals of ocean acidification are straightforward: they involve the lowering of seawater pH by ocean uptake of CO_2 from the atmosphere, with significant implications for many marine organisms. However, the logarithmic pH scale can be problematic for non-scientists – and can be deliberately misrepresented by climate change sceptics (and some journalists), who argue that the pH changes are too small to be important, and/or that 'ocean acidification' cannot be occurring, since the global ocean pH will never fall below 7.0.

Such pseudo-science relating to ocean acidification may be invalid, yet it is frequently published in apparently reputable media, such as The Times. As a result, scientists with relevant expertise not only need to communicate to fellow-scientists, but also to the wider public and political decision makers. For the latter, care is needed to maintain the crucial distinction between the scientific and policy realms: that scientists provide objective evidence (through hypothesis-testing, verifiable observation and factual information), whilst politicians make subjective decisions (value-based judgements on the best way to advance societal well-being, based on electoral mandates for broad direction of travel). Success in impartially connecting the two activities requires mutual trust and a well-informed civil service, together with the checks and balances of consultations, expert committees and evidence assessments.

For the broader issue of climate change, scientists have had the opportunity to communicate information on the consequences of rising levels of greenhouse gases for more than thirty years. Initially, it seemed good policy progress was made – with the international agreement reached in 1992 to stabilize greenhouse gases in the atmosphere "at a level that would prevent dangerous anthropogenic interference with the climate system"[2]. Yet it then took more than twenty years to define "dangerous" (in the Paris Agreement), during which time greenhouse gas emissions have increased by more than 60%[3] - and the task of keeping global warming "well below 2°C" has become extremely challenging, and maybe impossible without temperature overshoot[4].
Is that an example of a glass half-empty, with failure in science communication, or half-full, showing that science can (eventually) make a difference? Knowing what the best solution may be doesn't make it happen. "The problem with you scientists is that you expect everyone to think on a rational basis. But that's not the way policy decisions are made". That advice was given me by a secretariat staff member of a UN body when I expressed concern at the ambiguous wording of a formal recommendation. But the ambiguity was deliberate and was retained – since without it, international consensus would not have been reached. The policies pursued by the UK government in the topic areas of ocean acidification and climate change have mostly been "in the right direction"; nevertheless, the policy implications of the need for net zero emissions do not yet seem to be fully appreciated. Whilst honest debate is healthy, misinformation and fake news is not – and the scientific community needs to actively defend its integrity, whilst challenging inaccuracies at every level[5].

References

[1] Capstick, S. B., Pidgeon, N. F., Corner, A. J., Spence, E. M., & Pearson, P. N. (2016). Public understanding in Great Britain of ocean acidification. *Nature Climate Change* 6, 763-767.
[2] http://unfccc.int/essential_background/convention/items/6036.php
[3] http://www.globalcarbonproject.org/carbonbudget/index.htm

[4] Geden O. & Löschel A. (2017). Define limits for temperature overshoot targets. *Nature Geoscience* 10, 881-882
[5] Williamson P (2016) Take the time and effort to correct misinformation. Nature 540, 171

Protecting the ocean - international trends & outstanding practice

Dan Laffoley
Marine Vice Chair, IUCN's World Commission on Protected Areas, and Senior Advisor Marine Science and Conservation, IUCN's Global Marine and Polar Programme
T: 07702253031 E: danlaffoley@btinternet.com Web: danlaffoley.com

In the last 25 years we have come a considerable way in our understanding and mechanisms for protecting the global ocean and interest and concern in marine issues. During this period we have seen targets set for protection, with now nearly 7% of the ocean covered by marine protected areas. We have gathered scientific information vastly increasing our understanding of marine habitats, species and ecosystems, and yet in so doing have realised how much more there is still yet to learn.

Our understanding of the value of marine ecosystems has grown and changed, linking them more strongly than ever to human wellbeing, through issues such as supply of renewable resources as well as climate-resonant topics such a blue carbon. We have recognised the significant gaps that exist in action and have worked hard to start to close them – High Seas, Marine World Heritage and management effectiveness being just three examples. Revolutions in technology and computing power have enabled us to study the ocean as never before, and to link arising concerns and action to so many more people worldwide through social media. In recent years we have used the power of celebrity for the ocean cause to accelerate such awareness.

Set against all these achievements is the realisation that the traditional issues such as pollution and overfishing have now been joined by newer more diffuse but overarching challenges arising from our activities, such as ocean acidification, ocean warming and ocean deoxygenation. Science observations shows we are now changing the very nature of our ocean.

The question which now arises is not if we *know* enough, but if we are *doing* enough to get ahead of the impacts of such a cocktail of problems. This presentation will provide a perspective on some of these achievements and some of the major challenges that still lie ahead.

Web-links and/or references:

World Commission on protected Areas https://www.iucn.org/theme/protected-areas/wcpa
IUCN Protected Areas https://www.iucn.org/theme/protected-areas
World Database on Protected Areas https://www.iucn.org/theme/protected-areas/our-work/world-database-protected-areas
IUCN Global marine and Polar Programme https://www.iucn.org/theme/marine-and-polar
Census of Marine Life http://www.coml.org/
Marine World Heritage http://whc.unesco.org/en/marine-programme/
High Seas Alliance http://highseasalliance.org/
Green List for management effectiveness https://www.iucn.org/theme/protected-areas/our-work/iucn-green-list
Ocean Elders http://www.oceanelders.org/
Blue Carbon http://thebluecarboninitiative.org/
Global Ocean Acidification Observing Network http://www.goa-on.org/GOA-ON.php
Ocean warming https://portals.iucn.org/library/sites/library/files/documents/2016-046_0.pdf

Day 2 – Thursday 18th January

Marine Planning in Scotland - update

Rhona Fairgrieve
E: rhona.fairgrieve@gov.scot

Marine planning in Scotland is the responsibility of Marine Scotland, the Marine Directorate of the Scottish Government and the marine planning authority for the waters around Scotland. Domestic legislation, the Marine (Scotland) Act 2010, provides for a system of marine planning for Scottish territorial waters. An agreement with the UK Government gives Marine Scotland powers to plan beyond the 12 nautical mile limit, thus enabling a single Marine Plan to cover the Scottish sea area from MHWS to the 200 nautical miles offshore.

The Marine (Scotland) Act requires a National Marine Plan (NMP) for Scotland and the Scottish National Marine Plan (NMP) was published and adopted by Scottish Ministers in 2015. As a statutory document, it sets out how Scottish Ministers envisage marine resources will be used. The NMP defines clear objectives and provides a range of policies to ensure that marine resources are used sustainably. The NMP applies to all decisions taken by public authorities which affect the marine area. Scottish Ministers are required by relevant legislation to review and publish a review of the objectives and policies of the Plan. To do this within required timescale, and to learn lessons in the early stages of marine planning implementation in Scotland, the first review of the Plan will be reported on within three years of adoption i.e. in early 2018.

The Marine (Scotland) Act also enables a system of Regional Marine Plans to be established in order to supplement and complement the provisions within the National Marine Plan. Regional Marine Planning shall be devolved to a series of Marine Planning Partnerships and the first two such Partnerships have been set up in Shetland and the Clyde Marine Regions. They have been directed by Scottish Ministers to create Regional Marine Plans for those areas and work is under way to engage with key stakeholders and the wider public in order to facilitate the development of such Plans.

Marine Scotland has been a Partner in the EU-funded SIMCelt project (www.simcelt.eu), which has been looking at the issues associated with supporting the implementation of Maritime Spatial Planning in the Celtic Seas. In order to test real-life issues connected to the development and delivery of marine planning within the Scottish context, which are also likely to be applicable in other areas within the Celtic Seas and around Europe, case studies have been undertaken in the Clyde Marine Region and the Solway Firth. The Clyde has used the MSP Challenge game as an innovative approach to stakeholder engagement for regional marine planning, while the Solway Firth project has considered the issues related to a single ecosystem being subject to two different marine planning regimes. The SIMCelt project will conclude in early 2018.

The presentation will give a short summary of recent progress made in the delivery of each of these elements.

David Pratt
Head of Marine Planning & Strategy
Marine Scotland
Victoria Quay (1A South)
Edinburgh
EH6 6QQ

Tel (ext): 0141 278 4453
E: david.pratt@gov.scot

http://www.gov.scot/Topics/marine

Marine Planning in England – Progress and future direction

Tom Woolley
Senior Marine Planner, Marine Planning Team, Marine Management Organisation, Lancaster House, Hampshire Court, Newcastle upon Tyne, NE4 7YH
T: +44 (0) 2080 265 513 E: Tom.Woolley@marinemanagement.org.uk
Website | Twitter | Facebook | Blog | YouTube

In 2017 the Marine Management Organisation made good progress towards development of the South East, South West, North West and North East marine plans for England using a new, iterative approach. Most recently this has been applied to the options approach informing possible marine plan responses to the issues and opportunities that have been identified; options and visions will be the focus of engagement in February and March 2018. The Marine Management Organisation continues to improve its marine planning work with a number of development projects underway including: exploring potential opportunities presented by further use of digital approaches; mapping of decision-maker processes; improving understanding of how to engage hard to reach stakeholders; testing evaluation methods. Alongside development of plans, 2017 also included conclusion of formal consultation on the Draft South Marine Plan and reporting to Parliament on the East Marine Plans, informed by the first exercise in marine plan monitoring. Implementation work has continued, identifying emerging trends in the use of marine plans. The presentation by Tom Woolley, Senior Marine Planner at the Marine Management Organisation, will outline the programme of work underway related to marine planning in England, setting out challenges, learning and future direction of this evolving field.

Web-links and/or references

Marine planning in England: https://www.gov.uk/government/collections/marine-planning-in-england

Marine Management Organisation: https://www.gov.uk/government/organisations/marine-management-organisation

England's marine plan areas: https://www.gov.uk/government/publications/marine-plan-areas-in-england

Marine Information System: http://mis.marinemanagement.org.uk/

Marine Spatial Planning: international picture and emerging good practice

Charles N. Ehler
President, Ocean Visions Consulting and Senior Consultant, Marine Spatial Planning, International Oceanographic Commission-UNESCO, Paris, France
T: +33 6 7044 7163 E: charles.ehler@mac.com

This presentation will provide an overview of progress in MSP since the first international MSP workshop organised by IOC in November 2006. Over the past 10 years MSP has matured from a concept to an operational approach for moving to sustainable development of the ocean. Integrated marine spatial plans have already been implemented in about 20 countries. If current trends continue, by 2030 at least a third of the surface area of the world's exclusive economic zones (EEZs) could have government-approved marine spatial plans. Prior to 2006 only seven countries were experimenting with MSP, mostly in western Europe's densely-used seas, but also including China (marine functional zoning) and Australia (marine bioregional planning). Canada (1997), China (1997) and Australia (1998), were the first countries to have integrated ocean management legislation that eventually led to MSP initiatives in those countries. In 2006 the IOC held the first international workshop on MSP in Paris followed by publication of a guide to "Marine Spatial Planning: a step-by-step approach to ecosystem-based management" of marine areas. A sea change in ocean legislation occurred when the EU in 2014 passed a MSP Directive

that established a framework for MSP and requires Member States (22 have marine waters) to develop approved marine spatial plans by 2021. Today almost half of the MSP initiatives in the world are located in western European countries. Of the 65 MSP plans that have been initiated just over a third are in the pre-planning stage, about a third have advanced to the development of marine plans, and about a fifth have implemented their plans. Ten percent of the plans developed have already gone through one round of plan revision. Just over half of the plans cover the entire EEZ, about 40% cover only the territorial sea, and 10% have been developed at the municipal or local level. Forty percent of the plans are statutory or regulatory; 60% are strategic or advisory.

Almost all MSP initiatives claim stakeholder engagement. However, the definition of stakeholder engagement is widely variable across countries, so its scope and effectiveness is difficult to validate. While MSP should be comprehensive and integrated, fishing is often not included in marine spatial planning. Marine protected areas are also often identified and implemented through a separate planning process. It would be more effective to integrated MSP and MPA planning in the same process. Almost all MSP initiatives claim to be "ecosystem-based", but this is difficult to validate since there is no standard definition of what EBM is. Management objectives are often poorly specified and management actions are not linked to objectives—this make plans difficult to evaluate—monitoring and evaluation of MSP plans remains elusive. Very few trans-boundary MSP examples exist in practice, although the European Union is encouraging a regional, trans-boundary approach among its Member States and all its sea basins.

References

1. Collie JS, Adamowicz WL, Beck MW, Craig B, Essington TE, et al: Marine spatial planning in practice. *Estuarine, Coastal and Shelf Science* 117:1–11, 2013.
2. Douvere F, Ehler CN: The importance of monitoring and evaluation in adaptive maritime spatial planning. *Journal of Coastal Conservation* 15:305–11, 2011.
3. Ehler CN, Douvere F: *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*, Paris, 2009, UNESCO.
4. Ehler CN, Douvere F: *Visions for a Sea Change: report of the first international workshop on marine spatial planning*, Paris, 2007, UNESCO.
5. Ehler CN: *A Guide to Evaluating Marine Spatial Plans*, Paris, 2014, UNESCO.
6. Ehler CN: Present and future of marine spatial planning around the world. *Marine Ecosystems and Management* 65:45–57, 2013.
7. Intergovernmental Oceanographic Commission-UNESCO, Marine spatial planning website: www.msp.ioc-unesco.org.
8. Merrie A, Olsson P: An innovation and agency perspective on the emergence and spread of marine spatial planning. *Marine Policy* 44:366–374, 2014.

Mussel culture in Lyme Bay: Emerging understanding of environmental changes

Dr Emma Sheehan & Danielle Bridger
School of Biological and Marine Sciences, Marine Institute, University of Plymouth,
Plymouth, PL4 8AA
T: +44 (0) 1752 584699 E: Emma.Sheehan@plymouth.ac.uk

The Offshore Mussel Farm Ecology project is investigating the impact that the UK's first large scale offshore mussel farm is having on the surrounding ecosystem. The mussel farm based in Lyme Bay, southwest England, aims to produce 10,000 tonnes of the bivalves per year by 2020. While expansion to this scale is ongoing, the ecosystem within the mussel farm and its surroundings has been monitored continuously since the start.

The project has been funded since 2013 by http://www.offshoreshellfish.com/, and will evaluate the complex effects that the installation of an offshore mussel farm has on the surrounding environment. Preliminary results suggest that the rope installations and elevated biomass within the farm, as

compared to the surrounding area, are attracting a wide range of species. Many of these species, such as brown crab and lobster, are of commercial value.

Samples from this summer's fieldwork are still being analysed and so outputs from this project will be published later in 2018 and in 2019.

Biography

Dr Emma Sheehan https://www.plymouth.ac.uk/staff/emma-sheehan leads a research team at the University of Plymouth https://sheehanresearchgroup.com/. Her aim is to deliver robust, relevant marine research, which links strongly with policy, and contributes towards effective management and mitigation of anthropogenic activities in marine ecosystems. Emma's strategic research focuses on three key areas: (1) Marine Protected Areas (2) Marine Renewable Energy and (3) Sustainable Fisheries and Aquaculture. She has developed a suite of remote video techniques to enumerate marine assemblages to assess change associated with ecosystem processes and services. Danielle Bridger https://sheehanresearchgroup.com/team/ is Emma's PhD student working on the Offshore Mussel Farm Ecology project.

For publications from related projects please see https://sheehanresearchgroup.com/publications/

Oyster restoration in Europe & USA: realising multiple benefits

Morven Robertson
Blue Marine Foundation, South Building, Somerset House, The Strand, London, WC2R 1LA
T: +44 02078455851 E: morven@bluemarinefoundation.com

Overexploitation of oysters as a resource and associated habitat loss have been well documented both in the US and in Europe over the past 150 years. Oysters have been harvested in Europe since at least Roman times. In areas like the Solent, an oyster fishery has been operating for centuries.

Oyster restoration is a high priority at the national, European and global level. The decline of the UK's native oyster population by 50% over 25 years was instrumental in its classification as a priority species in the UK's Biodiversity Action Plan. Globally, an estimated 85% of oyster beds and reef habitats have been lost.

A key consequence of the oyster population loss globally has been a marked reduction the provision of ecosystem services by this keystone species. Oyster beds provide a wide range of ecosystem services and benefits, particularly those categorised as provisioning, supporting broader processes such as nutrient cycling and biodiversity, and culturally, as part of our natural heritage

Oyster restoration initiatives have been growing worldwide over the last few decades. In the US, large scale oyster restoration is mandated by both Federal and State policy. Government funded restoration projects, led by NOAA with strong support from NGO's, have now been running for over 15 years with significant success on both the east and west coasts.

Restoration initiatives in the UK and Europe are still very much in their infancy. In late 2017 the Native Oyster Restoration Alliance (NORA) was established as a Europe-wide information sharing network with representatives from the UK, Germany, Holland, Denmark, Ireland, France and Croatia. The UK has also set up a new national oyster restoration network bringing together existing projects and partners from universities, NGOs and IFCAs. One of these collaborative initiatives, the Solent Oyster Restoration Project, aims to reseed the Solent with millions of oysters over the next five years to restore oyster bed habitat.

http://www.habitat.noaa.gov/restoration/techniques/oysterrestoration.html

https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/southcarolina/howwework/oyster-reef-restoration-southern-solutions-for-a-global-problem-1.xml

https://www.noordzee.nl/project/userfiles//Report_Technical_Workshop_Oyster_Restoration_2_June_2017.pdf

http://uopnews.port.ac.uk/2017/12/01/new-european-alliance-to-save-the-european-flat-oyster/

http://www.bluemarinefoundation.com/wp-content/uploads/2016/06/20160525_Solent%20Oyster%20Restoration%20Project_Management%20Plan_Final%20version.pdf

https://www.zsl.org/conservation/regions/uk-europe/thames-conservation/native-oyster-restoration

https://www.hw.ac.uk/about/news/university-scientists-in-ground-breaking.htm

Understanding seabird population changes: climate change and the evidence needs

Euan Dunn
Principal Policy Officer, Nature Policy, RSPB
T: 01767 693302/ 07714 233728 E: euan.dunn@rspb.org.uk www.rspb.org.uk

The UK supports about 8 million seabirds and globally important populations of some species, making them our most internationally significant avian group. However, this status is under unprecedented threat, not just in the UK: seabirds are the most threatened avian group globally. Since 'Seabird 2000' (the most recent national census of breeding seabirds), most of the species in the UK and Ireland have declined, with surface feeders such as kittiwakes and terns faring particularly badly. The IUCN red list echoes this trend, notably in red-listing Atlantic puffin as Vulnerable in 2015.

The OSPAR Intermediate Assessment 2017 underlines this erosion of the North Atlantic seabird community, with a quarter of species suffering decline in excess of 20% in the last 25 years. The situation deteriorates as you go north, with 25% of Celtic Sea species experiencing widespread breeding failure, 35% in the (Greater) North Sea and 44% in Norwegian and Arctic waters; conditions are particularly challenging in Norway, Faroes and Iceland. Comparable changes are being witnessed on the eastern and western seaboards of North America. The latter is significant not least because remote tracking technology is revealing that outside the breeding season some UK seabird species disperse as far as, e.g., Labrador and Newfoundland where food availability could affect their body condition when they return to the UK to breed.

As highlighted by OSPAR, these changes are driven principally by reductions in food availability, especially of sandeel (vital in the diet of many seabirds), in turn driven by sea warming and disruption (a 'regime shift') of the plankton community, the engine room of the food chain. The effect of this is that chicks are literally starving on the cliffs. In addition, the increasing incidence of extreme winter storms is taking a toll outside the breeding season. These pressures are emphasized by MCCIP which predicts that under modelled climate change scenarios some seabird species will come close to or reach extinction in the UK by 2100, while the ranges of others will decline significantly.

In the UK, although the pattern of decline is complex, northern Scotland is manifestly undergoing the heaviest losses. Possible reasons for this are explored, centred on the availability of alternative prey and oceanography. Seabirds need two things to be successful: a safe place to breed and a readily accessible supply of food. Significant progress is being made with the former (island restoration) but the latter is more intractable and the best we can do is to build as much resilience as we can into our seabird populations. Research needed to better our understanding of the huge challenge faced by our seabird populations is explored in this presentation.

A critical and urgent basic need is to conduct a long overdue, comprehensive national breeding census of these populations, the last such count having been made between 1998 and 2002, and to enlist necessary Government funding to facilitate this. Seabirds are arguably the best indicators we have of climate change, and the failure to benchmark their status in a timely way, and in a period of escalating disruption of the marine environment, is gravely concerning.

References

Global assessment of seabird conservation status:
http://tokyo.birdlife.org/sites/wp-content/uploads/2012/03/Croxall-et-al-2012.pdf
OSPAR Intermediate Assessment 2017:
https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/
MCCIP Science Review 2017 – seabirds:
http://www.mccip.org.uk/media/1764/2017arc_sciencereview_004_seb.pdf
Climate change impacts on North American seabirds:
http://www.digitaljournal.com/news/environment/warm-waters-and-declining-foods-sources-linked-to-puffin-die-off/article/479298
Icelandic and other North Atlantic Nordic puffin colonies in chronic decline:
http://www.rspb.org.uk/community/getinvolved/b/seabirds/archive/2017/03/22/atlantic-puffin-at-the-crossroads-terminal-decline-or-a-cyclical-slump.aspx
UK seabird colonies in decline and the failure to conduct a national census:
https://www.theguardian.com/environment/2017/aug/20/seabird-colonies-face-catatstrophe-gannets-puffins-food-supply

Conservation beyond the coast and the work of JNCC

Beth Flavell
Senior Marine Protected Area Advisor, JNCC
E: Beth.Flavell@jncc.gov.uk

For over 25 years, JNCC have provided robust evidence and trusted advice on nature conservation to UK governments. A key part of our work is the active stewardship of marine natural resources both at home and abroad.

JNCC's portfolio is diverse, with projects ranging from improving understanding of marine natural capital to coordinating the UK's contribution to international marine biodiversity health checks.

For over 10 years, we have led on evidence gathering and site selection for MPAs in UK offshore waters. With projects to improve our understanding of how marine habitats and species respond to human activities underway, our work now turns to supporting effective management of MPAs and leading scientific surveys to monitor condition. Our work supports a variety of customers, aiding the UK in achieving sustainable management of its marine environment.

JNCC actively engages with the UK Overseas Territories to support marine nature conservation. We also undertake core work on Earth Observations to improve our understanding and mapping of the natural world.

For more information please visit our website http://jncc.defra.gov.uk/marine and follow us on Twitter @JNCC_UK

Please also visit http://jncc.defra.gov.uk/offshoreconference for more information on JNCC's Beyond the Coast event taking place on 26th and 27th June 2018.

Priorities for the Marine Conservation Society

Gill Bell
Pennaeth Cadwraeth Cymru / Head of Conservation Wales, Marine Conservation Society,
Overross House, Ross Park, Ross-on-Wye, Herefordshire, HR9 7US
T: 01989 566017 M: 07889251437 E: gill.bel@mcsuk.org

The Marine Conservation Society is the UK leading charity for our seas.

Our vision is '*Seas Full of Life – seas and coasts where nature flourishes and people thrive*'.

Our focus is on marine protection, marine pollution and sustainable fisheries and aquaculture. In 2018, key areas of work will be:

1. Designation and management of Marine Protected Areas/Marine Conservation Zones.
2. Marine plastics and pollution.
3. Fisheries legislation post EU-Exit.

In Wales:

There will be scrutiny, from the Environment Committee, on the review of Marine Protected Area (MPA) management in Wales, which highlighted Welsh Government's failure to adequately protect Welsh MPAs. In addition, the Assessing Welsh Fisheries Activities project identified potential impacts of fisheries upon designated features, yet Welsh Government have failed to undertake any action to address these (unlike England's 'Revised Approach').

2018 will also see the offshore area devolved and Welsh Marine Conservation Zones designation.

MCS are pleased the draft Wales National Marine Plan is currently out but are disappointed by the Strategic Resource Areas, which do not take full account of the visions and objectives of the plan.

MCS will continue to campaign for a deposit return system and other measures to reduce marine plastic pollution in Wales.

Links:
Marine Conservation Society webpage https://www.mcsuk.org/

Climate Change, Environment and Rural Affairs Committee '*Turning the tide? Report of the inquiry into the Welsh Government's approach to Marine Protected Area management*' http://www.assembly.wales/Laid%20Documents/CR-LD11159/CR-LD11159-e.pdf#search=Cabinet%20secretary%20response%20to%20turning%20the%20tide

Natural Resources Wales Assessing Welsh Fisheries Activities which identify potential impacts on designated features by fishing activities https://naturalresources.wales/about-us/our-projects/marine-projects/assessing-welsh-fishing-activities/?lang=en

England's Revised Approach to fisheries management in MPAs https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery

The Wales Act giving devolved powers to the Welsh offshore region http://www.legislation.gov.uk/ukpga/2017/4/pdfs/ukpga_20170004_en.pdf

Draft Wales National Marine Plan consultation https://consultations.gov.wales/consultations/draft-welsh-national-marine-plan

Ongoing deposit return system and compostable petition to National Assembly for Wales https://www.assembly.wales/en/gethome/e-petitions/Pages/petitiondetail.aspx?PetitionID=1142

Shelf Seas: The engine of productivity

Dr Gemma Cripps & Prof Mart Solan
Shelf Sea Biogeochemistry Programme, University of Southampton
T: 02380 592786, 02380593755 E: g.l.cripps@soton.ac.uk, m.solan@soton.ac.uk

Shelf Seas: The engine of productivity

The shelf seas are highly productive compared to the open ocean, supporting more than 90 per cent of global fisheries. Their importance to society extends beyond food production to include a range of ecosystem services including issues of biodiversity, carbon storage and nutrient cycling and climate regulation. The shelf seas have been estimated to be the most valuable biome on Earth, but they are under considerable stress, as a result of anthropogenic activities such as nutrient inputs, overfishing and climate change. Through this programme, we have investigated the status and sensitivity of the shelf seas around the UK, and the interactions between physical, chemical and biological processes occurring in the water column and seafloor sediments. Our findings have important policy and management implications towards improved monitoring and management of Marine Protected Areas, Blue Carbon assessments and marine Natural Capital for the UK.

Further information:

Over the next year we will be communicating our findings, and how they relate to current policy initiatives. Please keep updated through our science outputs, science to policy tools, policy report cards, policy briefs and stakeholder meetings, which will be advertised on https://www.uk-ssb.org/

Web-links and or references:

https://www.uk-ssb.org/
http://www.nerc.ac.uk/research/funded/programmes/shelfsea/

Enhancing knowledge exchange and encouraging collaborations to support marine and coastal management

Dr Katherine Yates
Lecturer, Global Ecology and Conservation, School of Environment and Life Sciences, University of Salford, M5 4WT. NERC Knowledge Exchange Fellow working with the Marine Management Organisation (MMO)
T: 0161 295 2403 E: k.l.yates@salford.ac.uk Tw: @Yates_KL

Marine and coastal management issues are often incredibly challenging, being by their very nature highly complex and multifaceted. The issues are almost always multi-disciplinary and require a very broad range of expertise to resolve effectively. Thus, marine and coastal management institutions often need input from external researchers /academics. Indeed, effective collaboration between external researchers and management institutions could contribute greatly to marine and coastal management, and facilitate the incorporation of the most cutting-edge science into policy and delivery. However, collaboration is not straightforward. Management institutions and researchers may have very different incentives for collaborating and there are a range of barriers, both individual and institutional, that make collaborating difficult.

This project focuses on understanding the reasons why researchers do or don't engage with government institutions involved in marine and coastal management. The project will target researchers across a wide range of disciplines, including those who already work directly on marine and coastal related issues (e.g. fisheries) and those whose research could contribute to resolving marine and coastal related issues (e.g. environmental economics, social sciences, cultural heritage). Our aim is to identify both the incentives that currently drive engagement efforts and barriers that

prevent it, information which we will then use to recommend changes to facilitate enhanced interactions in the future.

The research will involve three phases. The first is a short online questionnaire which will be launched late January/early February. This will be followed by a series of follow-up interviews with a subset of questionnaire respondents that have volunteered to provide more in-depth information. There will also be interviews with individuals from marine and coastal management institutions. Finally there will be a series of workshops that bring together researchers and individuals from various institutions to explore how to capitalise on existing incentives and potential ways round some of the barriers that are reported. The ultimate aspiration of this project is to improve understanding between the two communities and contribute to enhanced collaborations in the future.

This is a collaborative project between myself, Dr Katherine Yates, and Dr Jacqueline Tweddle of the University of Aberdeen, who is also a NERC Knowledge Exchange Fellow with the MMO. You are invited to partake in the project. Your contribution will be valuable and we encourage you to get in touch with any questions. We are actively seeking input from diverse groups, with the hope of gathering as complete a picture as possible, and you are kindly requested to share information about the online questionnaire widely (you will all receive an email invitation). Results of the research will be made freely available, please let us know if you wish to receive a copy of papers/reports.

Web links:
www.salford.ac.uk/environment-life-sciences/els-academics/katherine-yates
www.abdn.ac.uk/sbs/people/profiles/jftweddle

Managing the inshore marine environment in the Marine and Coastal Access Act era: the Welsh Experience

Alan Terry
University of the West of England
E: Alan.Terry@uwe.ac.uk

The Marine and Coastal Access Act 2009 (MCAA) abolished Sea Fisheries Committees in England and Wales. In England Inshore Fisheries and Conservation Authorities (IFCAs) were created and in Wales Welsh Government (WG) centralised inshore fisheries management. Our report examines the impact of WG's approach.

We conclude that centralising marine and fisheries management in Wales has not produced claimed benefits – in contrast IFCAs have embraced their twin roles of fisheries management and environmental protection.

Key findings:

a) WG has not used its powers under MCAA to create Marine Conservation Zones and has not engaged meaningfully with pre-existing European Marine Site management groups;
b) National Assembly for Wales has failed to impose a duty on WG, in its capacity as the inshore fisheries manager, to engage with marine conservation managers;
c) the non-statutory Inshore Fishery Groups were disbanded in 2016 as they were seen to be ineffective and WG does not genuinely engage with the fishing industry and other marine stakeholders;
d) WG is not fully utilising the resources it now has available to monitor adequately fishing activity, nor does it carry out adequate effective enforcement;
e) WG does not appear to have created a regime which learns from its mistakes.

Full report available online at: http://eprints.uwe.ac.uk/34112

Eco-moorings start to take hold: what have we learnt about environmentally sound anchoring and mooring?

Sue Wells
Marine Project Manager, National Trust
E: Sue.Wells@nationaltrust.org.uk

Jan Maclennan
Senior Environmental Specialist: Marine Evidence, Natural England
E: Jan.Maclennan@naturalengland.org.uk

Anchors and moorings often have chains and ropes that, when lying on the seabed, may damage fragile marine life such as seagrass beds through scouring. Recreational boating and other shipping activities are increasing rapidly and there is an urgent need to manage this threat, particularly in MPAs.

Some 30 representatives from the yachting industry, harbour authorities, conservation bodies and other organisations met at a workshop organised by the National Trust, Natural England and the MMO in October 2017 to review progress in understanding the impact of anchoring and mooring, and to share information on developing effective management.

Two Defra-funded studies to be released shortly, indicate that there is no single solution - appropriate management will depend on local conditions. Experience from trials of ecologically friendly moorings (EMFs) underway in Wales, Cornwall and Devon was presented, and information was shared on other trials in Dorset and the Isle of Man. The preliminary results were encouraging and further trials are being encouraged; at least one manufacturer offered to assist. A network of over 50 people has been set up to help share experiences, and the RYA, NE and MMO are developing a website to host information on EMFs and management of anchoring.

Contact Jan Maclennan for copies of the workshop report/presentations, or to be added to the information sharing network.

References

Information on Defra studies:
http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=19777

RYA page on anchoring and mooring: www.rya.org.uk/knowledge-advice/environmental-advice/Pages/anchoring-and-mooring.aspx

PLAS SAC Porthdinllaen Seagass Project:
www.penllynarsarnau.co.uk/projects.aspx?lang=pages&id=19

Torbay eco-mooring trials: www.livingcoasts.org.uk/conservation/conservation-projects/fishcombe-eco-mooring

"The world likes to see"

Keith Hiscock
Associate Fellow at the Marine Biological Association
khis@mba.ac.uk

The title of this presentation is a quotation from Alexander von Humbolt and explains how (in 1807) he used an illustrative approach in the world's first ecological book (*Essay on the Geography of Plants*) to appeal to his readers' imaginations. Although we now take high quality photographs and videos of the natural world for granted, they are not used enough to support and make more interesting and informative our often turgid text books and lectures.

Understanding what lives on and in the seabed around Britain and how that ecosystem 'works' is the subject of a new book *Exploring Britain's Hidden World: a Natural History of Seabed Habitats*. The book aims to 'see' the seabed marine life of our inshore waters. It describes past, present and future methods for their exploration but, mostly, it is book of photographs and drawings that celebrates the range of habitats and associated communities of species (as biotopes) that occur in our shallow seas and explains the significance of the environmental factors that shape those habitats and communities.

The book particularly takes advantage of the great deal of work that has been undertaken in the past 50 years or so (coincidentally, the time that the author has been exploring, photographing and writing). It is much more than just a 'coffee table book' as it provides a foundation of ecological knowledge for anyone who works with seabed habitats. But it is a coffee table book that the author hopes with be enjoyed, inform and, hopefully, surprise.

For further information: http://www.wildnaturepress.com/our-titles/exploring-britains-hidden-world/

A Heavy Fuel Oil (HFO) Free Arctic

Dr Sian Prior
Lead Adviser, Clean Arctic Alliance
M: 07785 747945 E: Sian.Prior@HFOFreeArctic.org www.HFOFreeArctic.org

Heavy fuel oil (HFO) poses a major risk to the Arctic marine environment - it threatens food security and livelihoods of Arctic communities when spilt, and when burnt produces harmful emissions that impact human health and contribute significantly to global warming. The volumes of HFO used in the Arctic are expected to rise as the sea ice decreases and vessel traffic increases.

The HFO Free Campaign is an initiative of the Clean Arctic Alliance, a coalition of 17 not-for-profit organisations spanning 14 Arctic and observer countries. In January 2017, the Clean Arctic Alliance and expedition cruise ship operator Hurtigruten launched the Arctic Commitment which calls for a phase-out of HFO from Arctic shipping. By the end of 2017, the Arctic Commitment has been signed by over 65 organisations and individuals, including cruise operators, shippers, ship designers, indigenous organisations, polar explorers, and polar scientists.

The Campaign's goal is to scale up momentum and convince IMO member states and key industry bodies that a ban on the use and carriage of HFO is the simplest and most effective measure for eliminating the impacts of a HFO spill and reducing harmful atmospheric emissions. A ban has already been introduced in the Antarctic.

Web Links:

HFO Free Arctic Campaign
http://www.hfofreearctic.org/en/front-page/
The Arctic Commitment
http://www.hfofreearctic.org/en/arctic-commitment/

The Green Blue: Working Together Towards Sustainable Boating

Kate Fortnam
Campaign Manager, The Green Blue – The Royal Yachting Association (RYA) and British Marine's joint environmental initiative
T: +44 (0)2380 604227 E: kate.fortnam@thegreenblue.org.uk

Established by the British Marine and the RYA in 2005, The Green Blue environmental awareness programme has helped boat users, marine businesses, sailing clubs and training centres across the UK reduce their impact on coastal waters to keep them in great shape for now and the future.

A new two year educational campaign started in October 2017 and is being led by Kate Fortnam, Campaign Manager for The Green Blue. The campaign is concentrating on environmental training and education for the UK's recreational boating community around marine protected areas (MPA), as well as continuing to raise awareness of the threat of marine aquatic invasive non-native species.

Kate has been working closely with MPA Officers across the UK supporting them in the development of local Codes of Conduct to help minimise any wildlife and habitat disturbance from recreational boating. To coincide with this The Green Blue has delivered environmental training to instructors, helped marinas facilitate and help their clients to adopt environmental best practice as well as supporting clubs, centres and class associations in making their events more sustainable.

By working towards an environmentally self-regulating boating community, The Green Blue campaign aims to help boaters minimise the impact they have on the environment and safeguard the waters and habitats we enjoy and rely on for the future.

For more information on the campaign and the collaborative opportunities, please contact Kate Fortnam and visit www.thegreenblue.org.uk.

eXXpedition Round Britain 2017: Exploring the issue of plastics, chemicals, endocrine disruptors and carcinogens in our personal and global environment

Bryony Meakins
Volunteer crew member, eXXpedition; Marine Assessment Scientist, JNCC
E: bryony.meakins@jncc.gov.uk

An all-female crew sailed Round Britain in 28 days collecting scientific samples and data on plastics and toxics in UK waters. These samples and data will be analysed by specialists across the UK, in Germany and in the USA and will help provide a clearer image of plastic and toxic pollution in UK waters. Microplastic particles were found in all areas tested throughout the journey, although more will be learnt more from the lab results.

The crew stopped at 6 ports during their journey – Plymouth, Cardiff, Belfast, Arran, Edinburgh and London – to host a variety of outreach events with partner organisations. These included science lectures, immersive art experiences, film screenings, crafts sessions and beach cleans. The team met with politicians and collaborated with thought leaders, explorers, artists and activists.

The female crew members included scientists, students, and sustainability professionals, who ranged from first-time to experienced sailors. The crew sailed the 72ft challenge yacht Sea Dragon from Plymouth on the 8th August and completed their sail in the same location on the 4th September. They battled against fierce winds and sea sickness during some of the legs, which tested even the most experienced crew.

Web Links:
eXXpedition web page: http://exxpedition.com/expeditions/round-britain/
YouTube Sky Ocean Rescue documentary: https://www.youtube.com/watch?v=1_xZ77JGDOs

The Commonwealth's Blue Charter

Jeff Ardron
j.ardron@commonwealth.int;

Forty-five of the Commonwealth's fifty-two member countries have a marine coastline. For most, their ocean space is many times larger than their land. Sustainable development of oceans has become an important component of international commitments, especially (but not limited to) the United Nations Sustainable Development Goals. The Commonwealth's *Blue Charter* is a new initiative expected to be endorsed by the Commonwealth Heads of Government Meeting in London in April 2018. It will provide a mechanism for Commonwealth member countries to collaboratively work towards achieving such commitments. Moving from (well-meaning) words to (sometimes difficult) actions will require a concerted strategic effort. Countries will be invited to lead cluster topics of particular interest to them as *Blue Commonwealth Champions*, and guide the development of tools, trainings, and programmes of work.

The Commonwealth's Blue Charter recognises the importance of the ocean to member countries, reaffirms the inclusive values contained within the Charter of the Commonwealth, and will enable Commonwealth cooperation and support progressing these commitments, as well as furthering sustainable blue economic development, conservation, and other national priorities.

Brexit & the Fisheries Bill: Change, Opportunities and Threats

Anne Freeman
Deputy Director, Domestic Fisheries and Reform, Defra
E: FishEUexit@defra.gsi.gov.uk

As we leave the EU, the UK will become an independent coastal state as provided for under the UN Convention on the Law of the Seas (UNCLOS). This will create new opportunities for the UK fisheries sector.

Defra is planning to publish a White Paper which will describe UK Ministers' ambitions for a sustainable, science-led, prosperous fisheries sector. This has been developed following considerable engagement with a wide range of stakeholders and interested parties.

A fisheries bill was announced in the Queen's Speech last June. The short Bill, together with the European Union (Withdrawal) Bill and the announcement of the UK's withdrawal from the London Fisheries Convention are intended to allow the UK to take back control of our waters out to 200 nautical miles and seize the opportunities leaving the EU presents.

The presentation will explain how the legislation will provide the framework for future reform and enable the delivery of the vision set out in the White Paper.

Links
https://www.gov.uk/government/policies/marine-fisheries

The Fisheries Bill and Brexit - A Fish Producers Perspective

Mike Park
Chief Executive, Scottish White Fish Producers Association Limited, Fraserburgh Business Centre, South Harbour Road, Fraserburgh, AB43 9TN
T: 07710504773 E: mike@swfpa.com

The Fisheries Bill and Brexit provide opportunities and challenges. The UK will become a coastal state in its own right from the 1st of April 2019, but how we exercise that power to reinstate the UK as a major fishing nation is, as yet, unclear. The Fisheries Bill will provide some clarity and a template with regard to how we deal with those powers especially in relation to access and the setting of opportunities.

This talk will cover the major issues of concern for the catching sector including:

- The process of change and how we move to the 'end state'
- Who will get access to our waters and to what degree
- Who should manage our fisheries - National Vs regional

You can see our views on this on our website https://www.swfpa.com/

Brexit and the Fisheries Bill – A seafood industry perspective

Andrew Kuyk CBE
UK Seafood Industry Alliance
T: +44 207 253 2114 E: Andrew.Kuyk@provtrade.co.uk

Fisheries present a unique set of challenges for the Brexit negotiations. Under international law (UNCLOS) the UK would automatically be entitled to a 200 mile Exclusive Economic Zone (EEZ) as and when it leaves the EU. This would cover roughly 60% of what are currently shared waters under the CFP and contain around the same proportion of major commercial species.

However around two thirds of the fish we consume come from outside these waters. There is a further paradox in that the majority of what is caught by the UK fleet is exported – and mainly to other EU Member States.

So the shape of future trade arrangements – with the EU and between the UK and third countries – will be every bit as important as future decisions on access to waters and quota shares.

Matters are further complicated by what might happen during a transitional period.
In common with other parts of the food industry, fish businesses need time to plan and adapt to change, especially in a highly competitive global market.

There are also substantial reputational risks for the EU industry as a whole if fishery management improvements in recent years are perceived to be jeopardised by failure to agree suitable new policies for a post Brexit world.

http://www.provtrade.co.uk/seafood-alliance.aspx

Brexit & the Fisheries Bill: an environmental perspective

Helen McLachlan
Fisheries Programme Manager, WWF UK
E: hmlachlan@wwf.org.uk

It will be important for future UK fisheries management to build on the positive trends that were delivered by the most recent reforms of the Common Fisheries Policy. This presentation will focus on some of the key considerations that WWF and other environmental NGOs, as part of the Greener UK coalition, believe will be important to secure in a UK Fisheries Bill in order to do this.

It will be vital for the UK to manage fisheries as part of the wider marine environment in order to deliver sustainable, productive fisheries and a healthy, biologically diverse marine environment. The UK and devolved governments will need to work collaboratively to maintain high standards of environmental protection and effectively address cross-border environmental issues, in line with domestic and international obligations. The result should deliver world leading sustainable fisheries management as per the aspiration identified by Ministers. It will also help provide a viable future for the UK's rich marine and coastal resources along with the industries and communities that depend upon them. Some of the key points we believe a UK fisheries bill should include:

Recognition of the fact that fish are a public resource and must be managed for long term sustainability using precautionary and ecosystem based approaches to minimise and where possible eliminate the negative impacts of fishing on the marine environment in a way that is consistent with national and international legislation.

A requirement for fishing limits to be set in line with the best available scientific advice to ensure that stocks are restored and maintained at levels above maximum sustainable yield (MSY) and to ensure that fishing mortality is below levels that will deliver MSY. A requirement to deliver fully documented and accountable fisheries will also be essential.

Provisions for fishing opportunities to be allocated on the basis of transparent and objective environmental, social and economic criteria in a way that incentivises the most sustainable fishing practices.

High environmental standards must apply to foreign vessels fishing in UK waters and to UK vessels fishing anywhere. The UK and devolved governments must reach agreement on how to maintain and improve on the existing common legislative and policy framework for fisheries management and marine conservation across the UK so as to ensure effective management of this public resource, contributing to the wider requirement to achieve and maintain good environmental status of UK seas.

The Fisheries Bill will be an important milestone towards sustainable UK fisheries management and will need to be underpinned by effective resourcing as well as inclusive, transparent and robust governance across the UK.

Web links:

1. https://www.wwf.org.uk/sites/default/files/2017-10/Remote%20Electronic%20Monitoring%20in%20UK%20Fisheries%20Management_WWF.pdf
2. http://greeneruk.org/Priority_areas.php

Displacement: Marine Protected Areas and fishing – developing thinking

Duncan Vaughan
Senior Environmental Specialist: Marine Fisheries, Natural England
T: 07831698467 E: Duncan.vaughan@naturalengland.org.uk

Suzannah Walmsley
Principal Consultant, ABPmer
T: 023 8071 1858 E: swalmsley@abpmer.co.uk

Fishing effort may be displaced from an area of sea that is either designated as a marine protected area (MPA) or is now used for purposes other than fishing e.g. offshore windfarms. Fishing Effort Displacement (FED) can therefore be permanent or temporary i.e. during periods of offshore windfarm construction. FED can be restricted to certain times of the year reflecting fishing patterns and/or the temporal coverage of the measures introduced to protect the interest feature within an MPA.

FED has for many years been an area of interest to NE as this activity has the potential to result in negative impacts on 1) protected species, 2) designated sites and 3) the wider marine environment. NE has an interest in all three aspects of this activity because of its role as the Statutory Nature Conservation Advisor in England. This interest led to the identification of potential fishing effort displacement pathways and the development of a fishing effort displacement assessment template for regulators to consider when they are developing management measures for MPAs.

The development of the assessment template was developed by ABPmer under contract to Natural England with project guidance provided by the Fisheries Displacement Steering Group. This group consisted of representatives from Defra, MMO, Cefas, JNCC, NE and AIFCA. This Steering Group commissioned ABPmer to:

a) conduct a literature review of FED
b) develop case studies to identify whether fishing effort had occurred in locations where spatial and temporal management measures had been introduced
c) develop a template that could form the basis of assessments by regulators that establish the likely levels of FED following the introduction of management measures within MPAs for conservation purposes and
d) develop a document identifying the information sources that regulators can draw upon to complete fishing effort displacement assessments

References:
Displacement of fishing effort from Marine Protected Areas (NECR241)
http://publications.naturalengland.org.uk/publication/5674265573064704
Vaughan, D. 2017. Fishing effort displacement and the consequences of implementing Marine Protected Area management – An English perspective. Marine Policy. (84) 228-234.
https://www.sciencedirect.com/science/article/pii/S0308597X16307588

Scottish Marine Protected Areas - Socioeconomic Monitoring – Assessing the impacts on fishing and other marine users

Dr Estelle Jones
Marine Social Researcher – Marine Analytical Unit, Marine Scotland
T: 0131 244 5500 E: estelle.jones@gov.scot

As Europe continues to establish Marine Protected Areas (MPAs) and form MPA networks, assessing their impacts is required to understand what they are achieving and for whom. MPA monitoring is an area of much academic interest, but the practical application of MPA monitoring and evaluation, at a national scale, is less common, as are assessments of the socioeconomic components of what are primarily environmental management interventions.

This presentation examines Marine Scotland's first report into the socioeconomic impacts of the first tranche of MPAs in Scotland where fisheries management measures were introduced in February 2016. This talk will outline the approach undertaken - including key informant interviews, analysis of fishing activity data and case study analysis - and explain the changes these management measures have had on the fishing sector and other marine users. The talk will also explore the challenges of this type of research and contemplate the question of how we can conduct efficient and effective socioeconomic assessments of MPAs and MPA networks in the future.

The blue economy benefits of MPAs and SPMs

Rupert Haines
Managing Consultant, ICF, 3 The Crescent, Plymouth, PL1 3AB, UK
E: rupert.haines@icf.com

Expansion of the blue economy and the drive towards greater protection of the marine environment will mean that the interaction between the spatial needs of the blue economy and of marine protected area (MPAs) and other spatial protection measures (SPMs) will continue to increase. A commonly held concern about MPAs, and to a lesser extent SPMs, is that they may constrain economic activity, adding costs to businesses and restricting opportunities for growth and jobs – even for industries that may benefit from improved marine biodiversity and environmental conditions. This is despite the majority of European MPAs allowing many economic activities to continue to operate (subject to certain conditions) within their boundaries. The ways in which MPAs and SPMs can support economic benefits, across the whole of the blue economy, needs to be better understood if the positive influence of MPAs and SPMs for blue economy objectives are to be realised and maximised.

The European Commission contracted ICF, IEEP, PML and partners to undertake a review of the economic benefits of MPAs and SPMs, examining the mechanisms through which they occur, the extent to which different sectors may benefit, and measures used to ensure that potential benefits are realised, maximised and compatible with MPA conservation objectives. The study focussed explicitly on the real economy (i.e. market) benefits. It does not include non-market benefits and does not seek to examine the net effect of benefits vs costs. The presentation will provide an overview of the study's key findings.

The Blue Belt Programme – Marine Protection in the UK Overseas Territories

Joanna Stockill
Head of Blue Belt Integrated Marine Management, Marine Planning Programme Manager, Marine Management Organisation, Unit 2a, Newchase Court, Hopper Hill Road, Eastfield, Scarborough, North Yorkshire, YO11 3YS
T: 02080265296 E: Joanna.Stockill@marinemanagement.org.uk

The Blue Belt Programme supports delivery of the UK Government's manifesto commitment to provide long term protection of over four million square kilometres of marine environment across the UK Overseas Territories.

Globally the marine environment is coming under increasing pressure from unsustainable human activity which is damaging marine ecosystems. The Government has committed to working with the UK Overseas Territories to protect some of the most important marine environments in the world, ensuring effective management, whilst at the same time supporting the social and economic viability of the small, remote communities that live on some of these territories.

The programme is being delivered by the Marine Management Organisation and Cefas. We are initially working with the administrations of seven islands and archipelagos: British Indian Ocean Territory, South Georgia and the South Sandwich Islands, British Antarctic Territory, Pitcairn, St Helena, Ascension Island and Tristan da Cunha. Together with the Territories and partners we are working to improve understanding of the marine environment and activities using a range of traditional and innovative technologies. We will develop and implement evidence-based, tailored integrated marine management strategies and identify affordable and sustainable surveillance and enforcement processes.

Weblinks:

https://www.gov.uk/government/publications/the-blue-belt-programme
https://marinedevelopments.blog.gov.uk/2017/10/19/innovations-and-technology-to-protect-our-overseas-territories/
https://marinedevelopments.blog.gov.uk/2017/09/22/creating-a-blue-belt-around-tristan-da-cunha/

Twitter:
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Our marine environment - Where have we come from and where are we going?

Charles Clover
Blue Marine Foundation
E: crhclover@gmail.com

Blue Marine Foundation [Slide 1]

We live in interesting times. I have been trying to think when we last faced such momentous decisions about the future of our seas and what wisdom from the past might give us confidence as we go into an uncertain future.

[Slide 2] When was the last time we had a really big idea about the sea?

I think that for a time when we had a big idea and had the opportunity to put it into, you have to go back to the era of this man:

[Slide 3: Man with big idea]

Hands up if you know who this is? [No hands go up.] It is Michael Graham, director of the Lowestoft fisheries laboratory, marking a cod. His classic book, The Fish Gate, published in 1943, is now, shamefully, out of print. It is beautifully written, at times rather like the script of a Grierson documentary. It is a work of literature as well as a seminal text for marine scientists._Graham is a forgotten hero of the conservation movement.

In his book, Graham paints a picture of the near collapse of the British fishing industry, though overfishing, that occurred before both the First and the Second World Wars. After the war, as director of the Lowestoft lab, he tried to shape a better future. The seas had been rested for six years, stocks had recovered, and he was confident that it was possible to manage fish scientifically in European waters provided quotas were not exceeded. He hired the mathematicians Ray Beverton and Sidney Holt to work out what those quotas should be.

Graham is best remembered for his Great Law of Fishing [Slide 4], which is that "Fisheries that are unlimited are unprofitable." People tend to forget his observation that "The Great Law is "only fruitful in its converse form, that is, that limiting effort will restore profit to a fishery."

We took 70 years to learn that lesson all over again, but the vision was there in the late 1940s and 1950s. Then, Britain led the world. The vision failed for a variety of reasons, all outside Graham's control.

A bad idea [Slide 5]

Where it all went wrong is that there arose a really bad idea, that people and their jobs are more important than fish. But, if you are to have healthy fishing industries, you must first look after the fish and in doing so you will look after the people. [Slide 6]

That was essentially the conclusion of every story I wrote about fishing as a newspaper reporter, though the Newfoundland cod crash, and forms the substance of my book *The End of the Line* in 2004. [Slide 7] Funnily enough, that lesson also came loud and clear from a conference we, Blue, organised at Fishmongers Hall [Slide 8] last autumn along with other environmentalists and the fishing industry. The report of the conference is called *Best Practice in World Fisheries: Lessons for Brexit* – and it is published on BLUE's website this week.
Editing the report of that conference, I was struck by the revolution in Norway's attitude to the sea over the past five decades, explained by Peter Gullestad, director general of their Directorate of Fisheries. [Slide 9] He said that in the 1960s and 1970s, settlement and employment in coastal communities came first. The fleet was subsidised: profitability came second. The fish came third. As a result, one stock was fished down after another: herring in 1970, capelin in the 1980s, cod in the 1990s.

Today Norway's priorities have neatly reversed themselves. [Slide 10] Ecological sustainability is seen as the top priority: that is it seen as the pre-requisite for achieving anything else. Subsidies have gone. The fish are back.

That in a nutshell is where we have come from in the EU, too, and where, I hope, we in Britain are going, whether or not we leave the CFP. I would like to think that ecological sustainability is seen as the number one priority in the EU, though recent ministerial decisions do not instil confidence. I will say more about that after talking about marine conservation.

A mediocre idea [Slide 11 – the Solent, though it could be anywhere around UK coast]

The idea that we should set aside areas of the sea which we do not exploit, like national parks on land, has been around for a long time. It has been done in various parts of the world since the 1970s. Britain has <u>never</u> been a world leader in this regard. There was the Wildlife and Countryside Act: which foundered in Loch Sween where local people objected to the protection of the seabed for arcane and incomprehensible reasons. Then came European Marine Sites which the British government did its best to neutralise – until my colleague Tom Appleby and others reminded regulators that fishing operations, like any other, should be assessed to see if they were harmful. Then came Marine Conservation Zones – in England – an idea no one has seen fit to replicate elsewhere. The resulting network of paper parks is in the view of Callum Roberts, a BLUE trustee, "a national embarrassment".

Somebody else's idea [Slide 12: pic of Chagos]

An obviously bigger idea about marine conservation comes from America. It is the wilderness park, like Yellowstone. It is an idea that has already won - in terms of the area of sea protected in UK waters where roughly half of the 4 million sq kms of Blue Belt in UK waters is fully protected. The adoption of fully protected areas in the British overseas territories, first of all in the Chagos archipelago, runs contrary to and is enormously challenging to the views of established UK conservation thinking. UK conservation agency staff were brought up on the idea that, on land anyway, there is no wilderness left, that there has to be a scientific reason for doing anything and that surviving ecosystems are not large enough to regenerate themselves.

There is a long way to go in the conflict between these two ideas. The Blue Belts created around the Overseas Territories, will, I predict, create inevitable pressure to <u>"bring it all back home"</u> and create fully protected areas – which of course have benefits for fishing – off the British coast. In the globalisation of ideas there are winners and losers, as in everything else. In the end, it is what resonates with the public that matters.

[Slide 13: #BackTheBlueBelt] Some 260 MPs now support the Blue Belt charter.

So what's the next big idea? [Slide 15: Lyme Bay?]
As we stumble towards Brexit, I think we need the vision and the courage to make choices. For the Fisheries Act we will need will be the first wholly-new Act in more than 100 years. What should it say?

I think we need to start by asking an even bigger question than I have heard anyone ask today: what do we want UK waters to be like?

We should listen to the public, which is much more informed about the sea since the days of Michael Graham, partly thanks to Blue Planet II and being able to see marine life eyeball to eyeball on the TV screen. Fish stocks and the marine environment are public goods and we want to see them healthy. So a Bill needs to incorporate the interests of all of the public, those who live away from the sea as well as the usual suspects, or vested interests, which ministries like to call stakeholders. We are all stakeholders. That is another lesson of the past 20 years.

We need to ask ourselves what we would like UK waters to look like because, assuredly, if we do not ask that question what will happen is first come, first served, which is what happened with pulse fishing.

I think many of the answers are in our conference report [Slide 14]:

I would assume that everyone wants to see an end to overfishing and a recovery of fish stocks. But as the former adviser to the US Senate, Margaret Spring, told our conference, you have to make that a legal requirement in your law if you want it to happen. And, it goes without saying, you need to ensure that politicians can be subject to legal challenge if recovery does not happen. Arguably one of the greatest things wrong with the EU is that you cannot sue the government, which you can in most Common Law administrations.

We are unaccustomed to making the tough decisions that will be needed. If we really want fish stocks to recover, then it is no longer acceptable to operate the west coast of this country as a shellfish farm that suppresses the recovery of white fish such as cod and haddock.

We will need to decide, too, whether we want reduction fisheries in our waters. It is especially difficult to bring back healthy stocks of whitefish when you have a fishery undermining the food chain for both fish and other wildlife.

We have the opportunity to favour fisheries which provide the maximum benefit for the economy, the environment and local communities. This I believe Blue has done with local fishermen in Lyme Bay [Slide 15]. If we are to maximise those benefits, then we have to do far more for the million or two recreational sea anglers who are of similar economic benefit to the country as the entire wild capture industry. Those anglers have to be much more cooperative in reporting their catches in future.

I'm afraid I don't see the same social, economic or environmental gains coming from Norwegian-owned salmon farms, pair trawlers or pulse fishing.

Do we want healthy offshore fisheries for larger but sustainable fishing enterprises? If so need to offer convincing and progressive leadership in international bodies that involve the EU and Norway. We will need to make those countries love us, as Donald Tusk still apparently does, if we are to manage our shared stocks.

On devolution, I would observe that none of the countries we looked at – the United States, Australia, New Zealand and Norway – fully devolved the management of their offshore fisheries. Australia was fully devolved inshore, but that extends out only three miles.

If we prioritise what the public appears to want, as we have the opportunity to do, the future will look very different from the past. We maybe should not have a Fisheries Act at all but, as the Norwegians do, a Marine Resources Act.

In conclusion [Slide 16] I think we need to ask ourselves, what would Michael Graham do? And we should include all the recent lessons from the recent non-EU European and North American experience. What these tell us is that we need to start making choices. As a Norwegian speaker put it at our conference: "You cannot have everything, you have to make a choice and set priorities."

Despite everything I have heard today, I do not see that happening yet. But it must happen and it must be inclusive. Until we have agreed some priorities, I worry that we will squander yet another opportunity.

Coastal Futures 2018 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. **Could you suggest points that would improve the event?**

   - _____
   - _____

5. **The interest in the short presentations grows – What would you do to enhance that aspect of the event?**

   - _____
   - _____

6. **In relation to the 25 year plan - What topics do you see as important in being included in this?**

   - _____
   - _____

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