

#CoastalFutures23

25-26 January, London & livestream



*Our Ocean and Coastal Future
for the Next Decade*



30th annual conference

Coastal Futures 2023

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Opening

Lord Benyon

**Minister of State for Biosecurity,
Marine and Rural Affairs**

Defra

25th & 26th January, 2023 | Royal Geographical Society, London & online



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Keynote speakers





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Q&A

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Coastal Futures Conference

London, 25-26th January 2023

Keynote:
Aisling Lannin
Marine Management Organisation



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Marine
Management
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Marine Management of our Ocean and Coast: the next decade

Dr Aisling Lannin, Head of Evidence and Evaluation

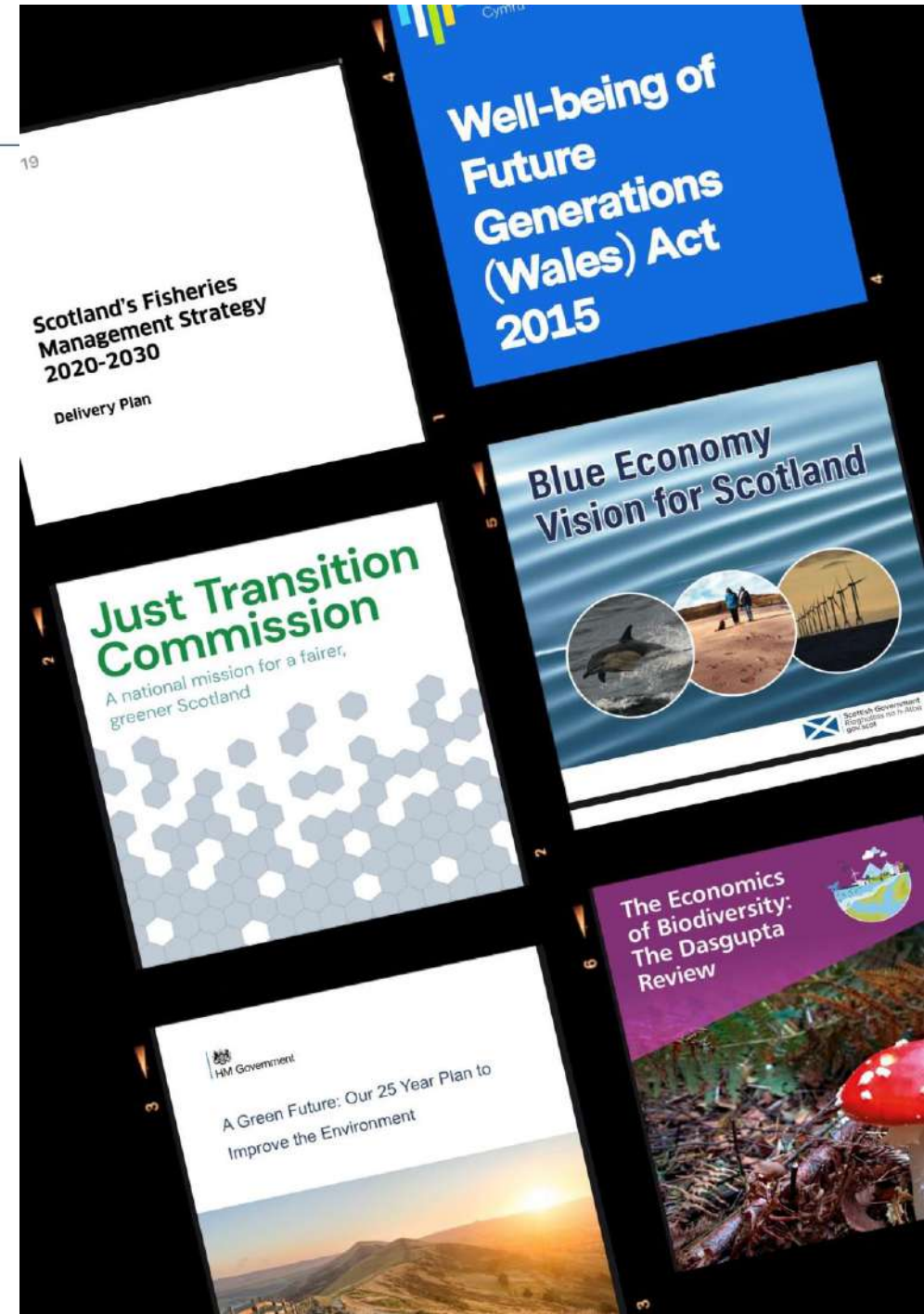
...ambitious for our seas and coasts



UK visions and ambitions

- The UK vision is to have clean, healthy, safe, productive and biologically diverse seas oceans and seas
- The ambition is to achieve this by **restoring** marine ecosystems and our climate, and supporting coastal communities
- Some good UK ambitions and vision documents
- But implementation is the hardest part

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MMO2030 Strategic Plan



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Restoration

MMO Strategic Goal 1: *Work with partners to restore functioning marine ecosystem introducing increased levels of protection and improvement to our marine environment.*



- Underpins and requires a critical mass of multi-level action – collaboration
- Baseline - actions – monitor – evaluate outcomes and impacts – adjust, change
- MMO's protection focus – MPAs
- I admire those leading & championing
- What is missing? Dear Future

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Areas to work on - Fish stock recovery, essential fish habitats, habitat and species restoration, reversing climate change, achieving GES (scale and connectivity – routed via licensing, fisheries management, FMPs, HPMAs, system based management)

Action plans, governance, making decisions

1. Have we got a proactive restoration agenda in UK marine management?

2. Regulation and processes that adapt and flex?

6. Do we deliberate fully with transparency, by understanding together, by agreeing/accepting together, by implementing together?

3. How fast are we at writing action plans versus initiating action?

4. Are we evaluating if plans and actions are achieving the required impact?

5. Is participation /consultation fair, representative, inclusive and diverse?

7. Does good multi level, multi scale governance get as much attention as it needs?

8. Are we thinking and acting as a system?

9. Do we make the most of multi-disciplinary evidence and data?

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Multi scale, multi level governance

MMO Strategic Goal 2: *English marine planning framework that prescribes the strategic priorities for using and managing our seas, integrating terrestrial planning policies across the range of marine sectors.*



- DMF that implements targets for a regenerative economy
- Strategic licensing approach nature, people – shaping and designing projects
- Institutional governance facilitating and supporting local activity and users
- Opportunity with mNCEA – deals with complexity - Neural network-like

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Evidence and Data

MMO Strategic Goal 7: *Maximise value from the use of evidence and data while ensuring effective specification, capture, integration and sharing of marine data and information.*



- Needs a big bang moment
- Evaluate, develop, coordinate, improve
- mNCEA – integrated system of evidence and data
- e.g. fisheries

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Fisheries Management

MMO Strategic Goal 6: *Assure the sustainable and transparent management of fishing opportunities to achieve a resilient and increasingly viable fishing sector.*



MMO Strategic Goal 4: *Manage an agreed framework for a culture of compliance through leadership, co-management and earned recognition leading to, where appropriate, self-regulation.*



- We have seen so many perverse outcomes and unintended consequences in fisheries management - some inspiring cases - we should be the next example – starts with trust and co-design

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Summary

- **We have ambition and visions** for how the future needs to be though they are found across multiple UK documents
- We need a **coordinated system approach to restoration** with a champion at the highest level and a focus on institutional governance to facilitate a critical mass of recovery
- We need a holistic **decision making framework** that has targets and leads to a strategic licensing approach based on insights and intelligence for a regenerative economy, society and sea
- We need to coordinate an **evidence big bang** where accurate information can flow fast bi-directionally to any decision maker
- We need to **build trust, use collaborative design, support local action and management**
- The MMO wants to make a significant contribution to all of the above and our strategy sets our intention, now we want to work as a system to deliver

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Thank You

Aisling.Lannin@marinemanagement.org.uk

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Summary & recommendations



1. Collaboration and partnership – delivering solutions to our challenges requires **considering lots of perspectives and a variety of people working in a transdisciplinary way**, we recommend that **there is creative space to iterate and be agile** as well as task and finish to get the most from the collective
2. Applying a natural capital approach – it is essential that the natural capital approach is given a **holistic framing and is not seen through the restricted lens of a purely economic focus**. **Investment in people to connect the parts of the system and facilitate good interactions (social capital if you like) is optimal** for success of a NCA (see 1, 3, 4, 5, 6, 7)
3. Integrated planning and delivery – works best **with inclusive, collaborative transparent multi-level governance**, we found it underpins every outcome we want to achieve, successful planning and delivery requires decision-making that **consider the whole system, dependencies, complexities and distributional impacts on people**, and must learn from regular **evaluation** (see 1, 2, 4, 5, 6, 7, 8)
4. Innovative finance – **public investment is required to restore nature** but it could be enhanced by blending public and private funding if transparently governed and shared goals with stakeholders that recognise and respond to the public nature of the goods (see 2, 5, 6, 7)

https://zenodo.org/communities/marine_pioneer_sharing/?page=1&size=20

Summary & recommendations



5. Fisheries management – we should **build trust** and exchange knowledge, use multi-level collaborative governance, **ensure a range of perspectives and expertise are applied to co-developing solutions, develop varied and tailored approaches** and use iterative evaluation as a learning tool. Whole system approach to restoration, not just parts of the sea or some species.
6. Marine protected area management – for Marine Protected Areas (MPAs) to be part of the solution to the climate and biodiversity emergencies **their objectives, management, governance and funding needs to evolve** to a whole site approach that benefits nature and people who are more supportive of the protective actions.
7. Community empowerment – the biodiversity and climate crises require adjustments for communities, so we need **inclusive change through community empowerment and just transition**, plans to recover nature **should be co-designed to incorporate people's experience, aspirations and capability to deliver the 25 YEP's ambitions** for nature and people.
8. Applying a net gain principle - **restoration on the scale necessary to impact the biodiversity and climate should go beyond applying biodiversity net gain through the licensing and consents process.**

MMO Strategic Goals 3 and 5

MMO Strategic Goal 3: *Ensure MMO is recognised as a world leader for the marine management activities it regulates and the services it delivers across England, UK and Internationally.*



MMO Strategic Goal 5: *Support global marine protection by example and through sharing our expert marine management services.*



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MMO2030 Strategic Plan overview




Marine
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Our Vision
A prosperous future for our seas, coasts and communities

Our Mission
As England's marine manager, we protect and develop our seas, coasts and communities for the benefit of generations to come

Our 6 Services

- Enabling sustainable marine development
- Delivering sustainable fishing opportunities
- Protecting marine habitats and wildlife
- Administering marine support funds
- Providing regulatory support and assurance
- Supporting global marine protection

Our 7 Goals

- Restore functioning marine ecosystems with increased protection and improvements
- Manage a widely owned Marine Planning framework that optimises, prioritises and manages our seas
- Ensure MMO is recognised as a world leading marine manager for regulation and service delivery
- Manage a culture of compliance through leadership, co-management and earned recognition
- Support global marine protection by sharing our expert marine management services
- Assure sustainable and transparent management of fishing opportunities
- Maximise the value of marine evidence including capture, integration and sharing data and information

Our Values
Together we are Accountable, Innovative, Engaging and Inclusive

Updated July 2022

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SESSION 1

TACKLING THE CLIMATE CHALLENGE: Working Together for our ocean and coasts

CHAIR
Dr Gareth Johnson, Atkins

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**TACKLING THE CLIMATE CHALLENGE:
Working Together for our ocean and
coasts**

**Huib den Rooijen, Marine Advisor,
The Crown Estate**

Our Energy Future

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Our energy future

Huub den Rooijen

Marine Advisor, The Crown Estate

London, 25 January 2023



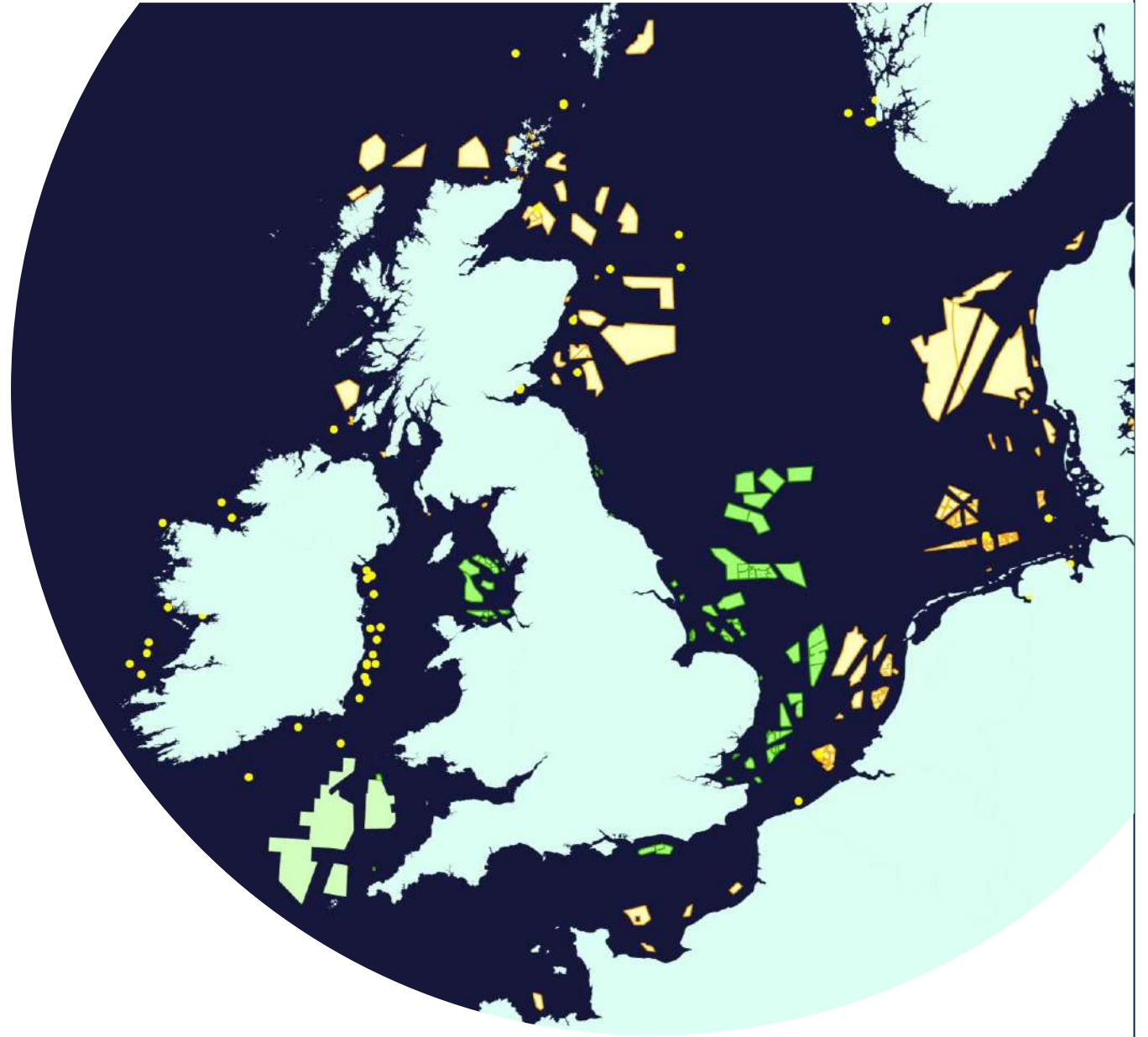
The oasis of Al Ain

- Millennia old desert oasis
- Balance of natural resources, engineering, and social engagement



Our energy future in 2035

- Net zero electricity (1/3 of energy)
- Offshore wind tripling from 20 GW
- New transmission and interconnectors
- Grid reinforcement on land
- Green hydrogen
- New nuclear, wind, solar
- Half a dozen CO₂ storage clusters



To achieve this we must ...

- **Invest** in priority infrastructure – people, ports, power grids
- **Pre-empt** inevitable spatial conflicts
- **Innovate** through data and evidence – be transparent, engage and listen
- **Collaborate** – across sectors, regions, and countries

MDE <https://www.marinedataexchange.co.uk/>

OWEC <https://www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/offshore-wind-evidence-and-change-programme/>



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coasts**

Dr Lissa Batey, The Wildlife Trust

Our Biodiversity Future

25th & 26th January, 2023 | Royal Geographical Society, London & online



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The
Wildlife
Trusts

Our Biodiversity Future: #DefendNature

Dr Lissa Batey, Head of Marine Conservation at The Wildlife Trusts
lbatey@wildlifetrusts.org

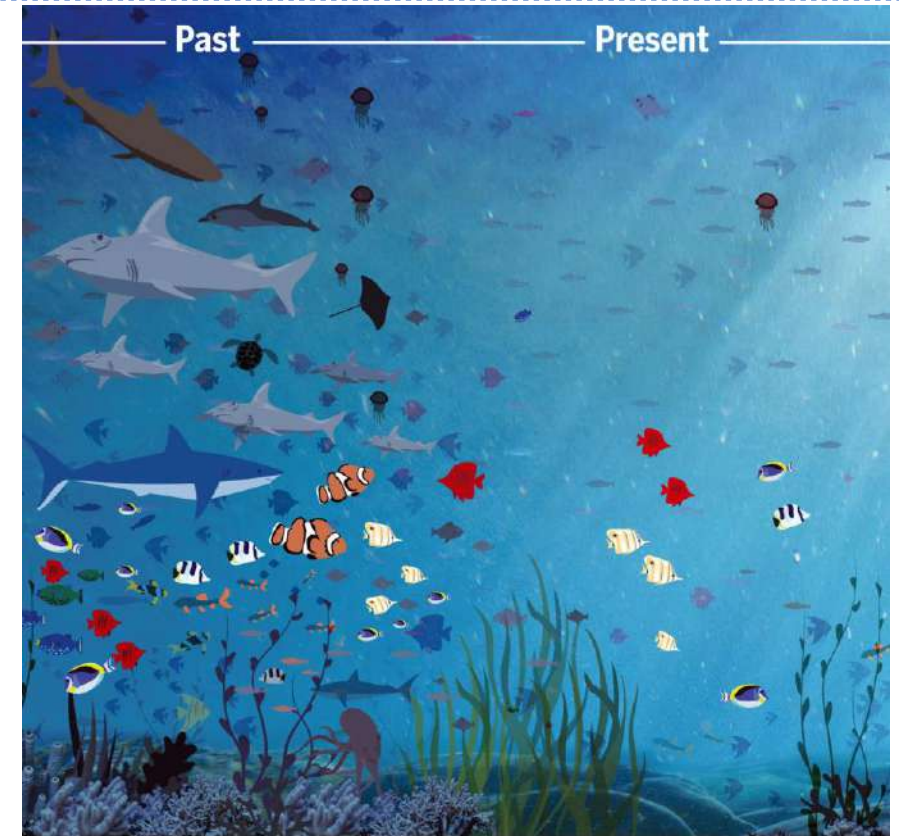


We are losing nature at a faster rate than any time in our history. Decade after decade we have continued to see declines in our wildlife – with 1 in 7 species in the UK now under threat from extinction.

When compared internationally, the UK is in the bottom 10% in terms of how much biodiversity still survives here.

We've failed to achieve Good Environmental Status and we've lost:

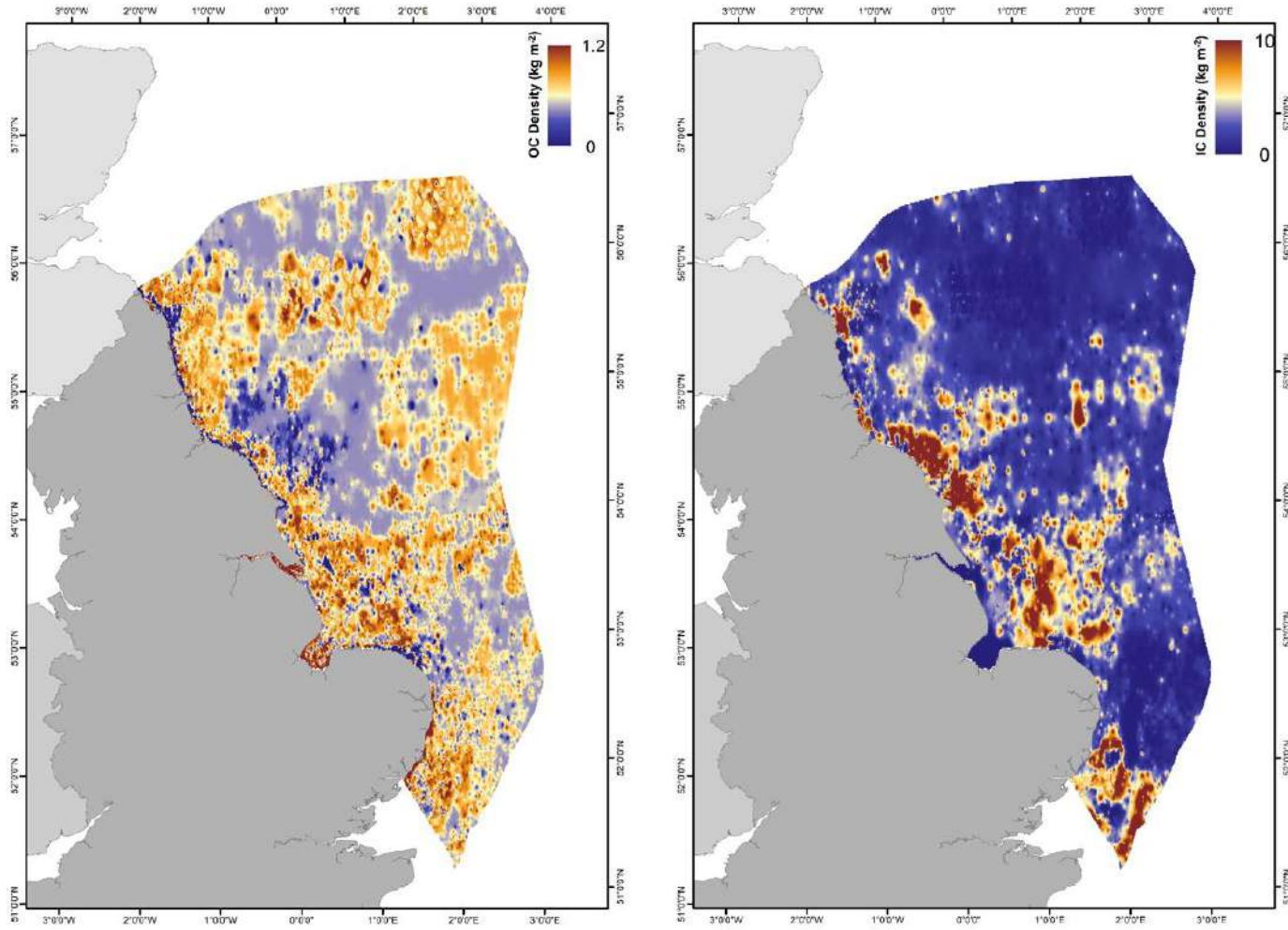
- 20% of coastal habitat (excl. mudflats) in England since 1954
- >90% of our native oysters reefs in England since the mid 1800s
- Up to 92% of seagrass from UK seas



Gorud-Colvert et al., 2021



Climate and nature – two interlinked crises

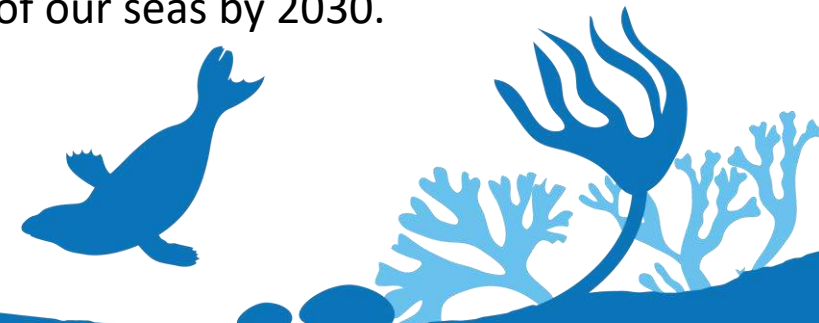


Burrows et al., 2021

We cannot tackle the climate crisis without similar ambition to meet the nature crisis head on.

Nature's incredible ability to trap carbon safely and provide other important benefits is proven. But nature in the UK is in a sorry state and important habitats are damaged and declining.

Rapid cuts in our emissions and a move toward renewable energy must be matched with determined action to fix our broken ecosystems. We must restore nature across at least 30% of our seas by 2030.



Climate and nature – two interlinked crises

Sometimes our efforts to tackle the climate crisis are driving the natural world into decline, putting the carbon it stores at risk.

We want to see renewable energy flourish, but it is essential this shift does not have unintended impacts for wildlife. The planned 14-fold increase in offshore energy production (based on CCC projections) will need a vast amount of new infrastructure to be built in the delicate marine environment.

The industrialisation of our seas.....



Terry Whittaker



7 Years to achieve 30x30 – for climate and nature



Time is running out to achieve 30x30 and tackle the climate crisis.

We need to strategically plan our marine environment to allow space for nature and renewables, as well as pushing for greater energy efficiency so less energy is needed.

Existing laws are important for ensuring standards for developments at sea, minimising pollution and protecting and enhancing marine life.



What is the Retained EU Law (REUL) Bill?

But these very laws are at risk...

The Retained EU Law (REUL) Bill will allow ministers to revoke hundreds of laws that protect wild places and ensure standards for development, water quality and pollution.

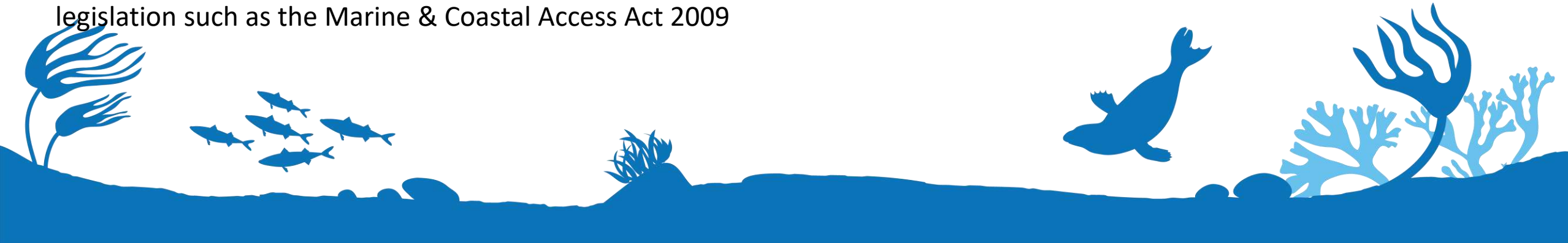
Defra has the greatest amount of law that would be affected by this bill, with **well over 1,000 pieces** of legislation to be reviewed – a huge burden on civil servants' time when there is other vital work to be done.



Some of the key environmental laws at stake include:

- Conservation of Habitats and Species Regulations 2017
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- The Bathing Waters Regulations 2013
- Air Quality Standards Regulations 2010
- Marine Strategy Regulations 2010

.....not the mention the myriad of interactions with domestic legislation such as the Marine & Coastal Access Act 2009



We've been asking people and politicians across the UK to stand up and defend nature. Thousands have got involved, calling on their MPs to oppose dangerous proposed laws that will put wildlife at risk.

- Sending postcards to MPs
- Writing emails/letters to MPs
- Social media actions
- Briefing MPs for parliamentary debates
- Giving evidence to parliamentary committees
- Encouraging local councils to oppose environmentally damaging policies



What do we want to see instead?

Rather than deregulation for the sake of deregulation, we want to see sensible regulations *strengthened* to protect the things we care about – from the fish we eat to the health of our coastal and marine spaces.

Research from Unchecked shows that 74% of the UK public thinks that current levels of regulation are either right or not strong enough. The public is not persuaded that deregulation will deliver economic growth.

The UK Government must scrap the REUL Bill.

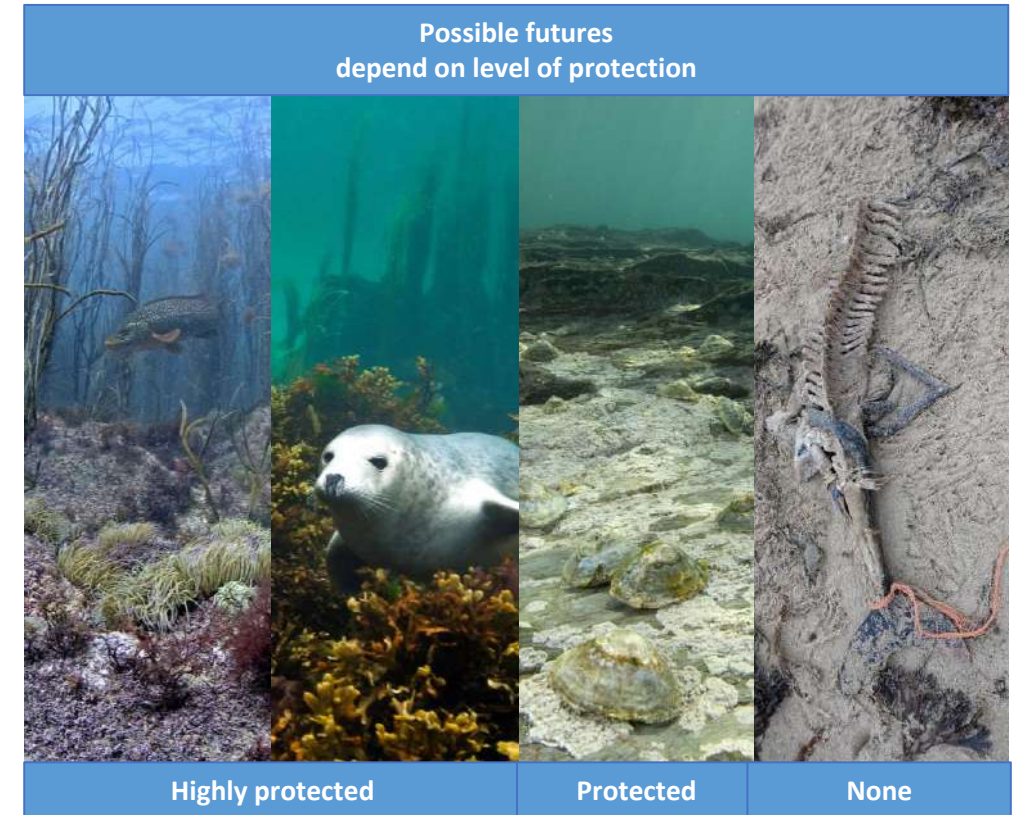


Photo credits, left to right: Paul Naylor www.marinephoto.co.uk; Alexander Mustard/2020VISION; Paul Naylor www.marinephoto.co.uk; Nia Jones.

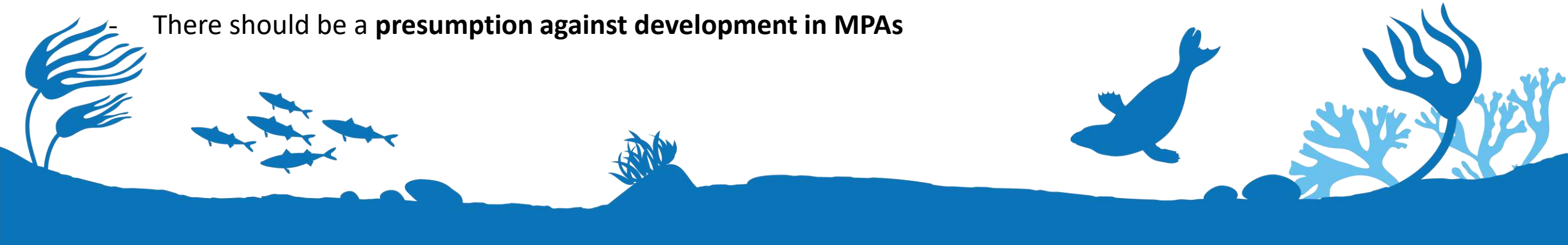


What do we want to see instead?



Paul Naylor

- **Put recovery of the marine environment first**; it's not just about how we deliver on net zero
 - Prevent further failures to meet Good Environmental Status
 - Ensure the ecological functioning of the MPA network is intact
- We need offshore renewables, but not at the expense of our marine environment – the last thing we want is a sea devoid of life, **we need marine spatial prioritisation/strategic planning of our seas**
- There should be a **presumption against development in MPAs**

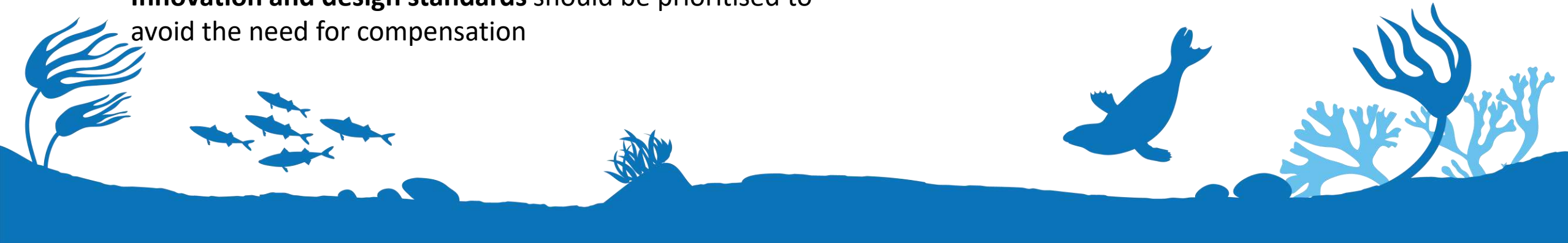


What do we want to see instead?

- Avoid, mitigation, **compensate**
 - There should be a legal 10-year test for all compensation measures
 - Compensation must be based on an ecological needs approach - we need a measure to give certainty that compensation will ensure MPA coherence/environment act targets
 - If compensation is not effective, remedial action must be put in place
- **Innovation and design standards** should be prioritised to avoid the need for compensation



Paul Naylor



What do we want to see instead?

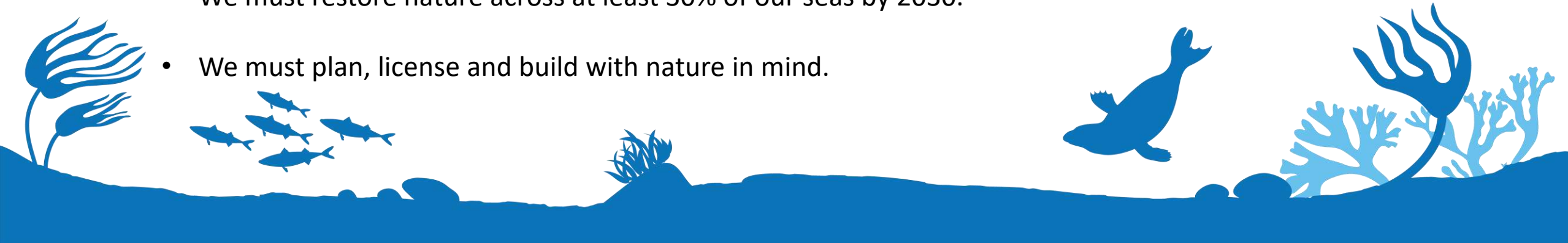
- **Marine Biodiversity Net Gain must become mandatory** and be delivered as soon as possible
- Icing on cake – got to make sure the cake is properly baked first!





Paul Naylor

- We cannot tackle the climate crisis without similar ambition to meet the nature crisis head on.
- A move toward renewable energy must be matched with determined action to fix our broken ecosystems. We must restore nature across at least 30% of our seas by 2030.
- We must plan, license and build with nature in mind.



Help stand up and #DefendNature

Join us in calling on MPs to oppose dangerous proposed laws that will put wildlife at risk.

Reduce your personal emissions.

Support campaigns to recover nature.





Thank you

Dr Lissa Batey, Head of Marine Conservation at The Wildlife Trusts

lbatey@wildlifetrusts.org



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Neil Hornby, Chief Executive, Cefas

Our Energy Future

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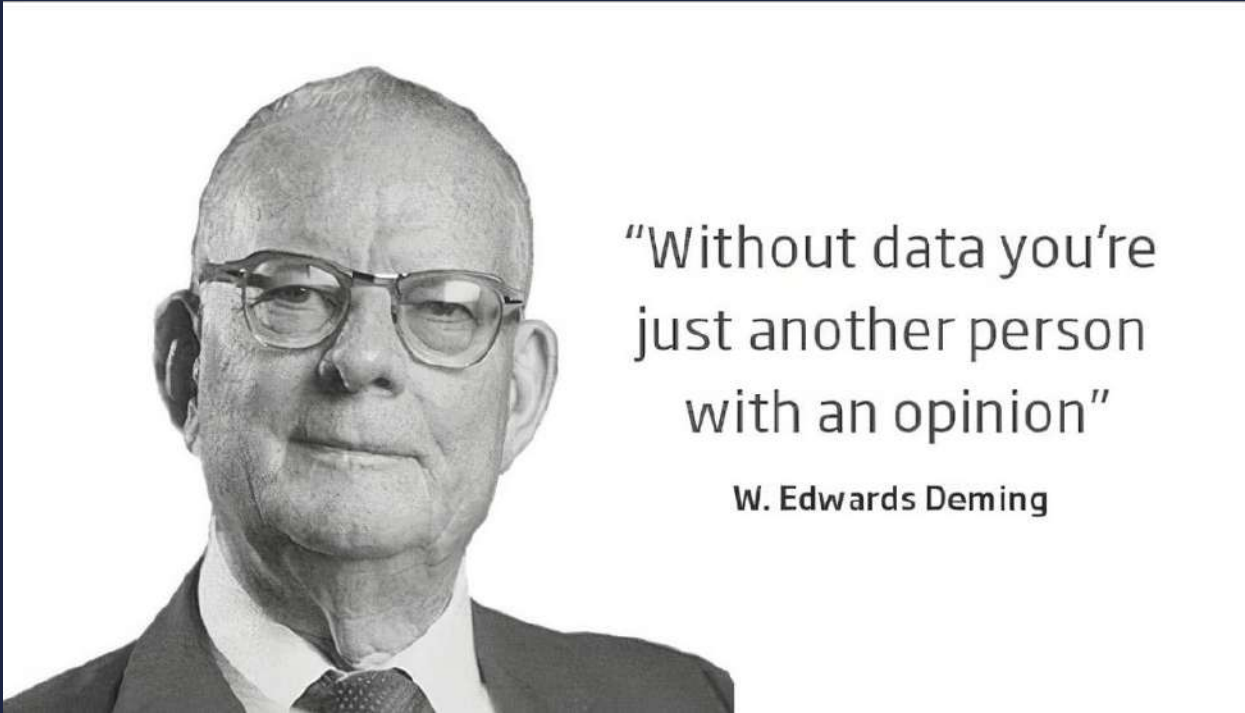
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Tackling the climate challenge: working together for our ocean and coasts

Our Science Led Future

Neil Hornby, CEO, Cefas





“Without data you’re
just another person
with an opinion”

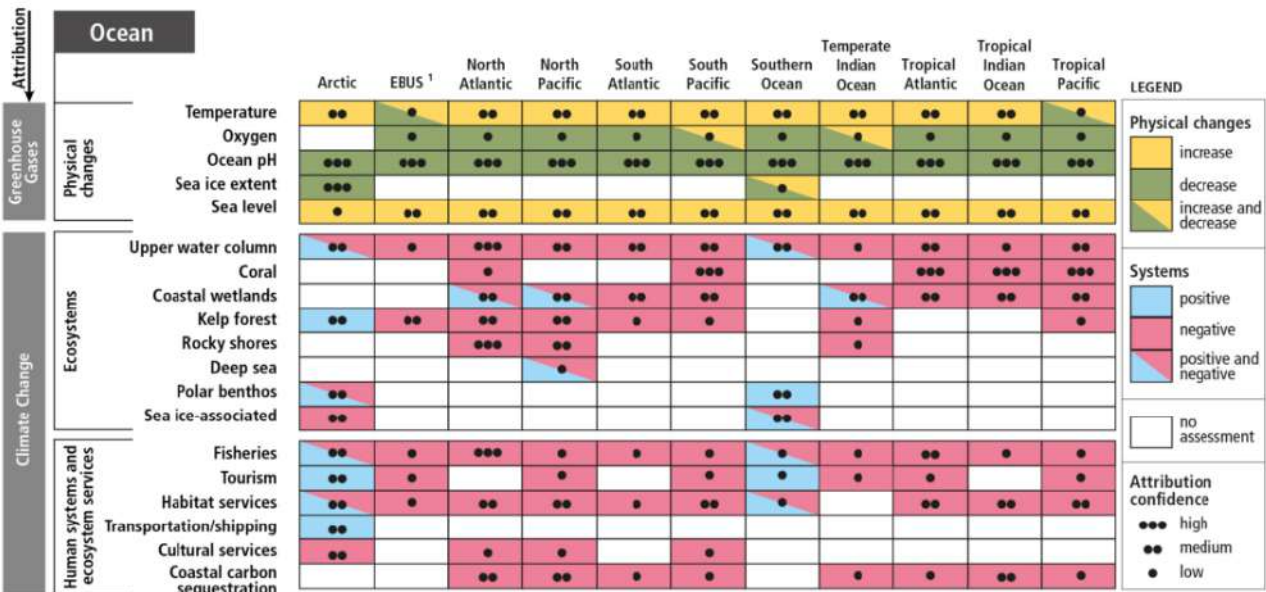
W. Edwards Deming

...but, without an
opinion, it’s just data.

Intergovernmental Panel on Climate Change (IPCC)

Change is already happening. Projections are about scale of further change

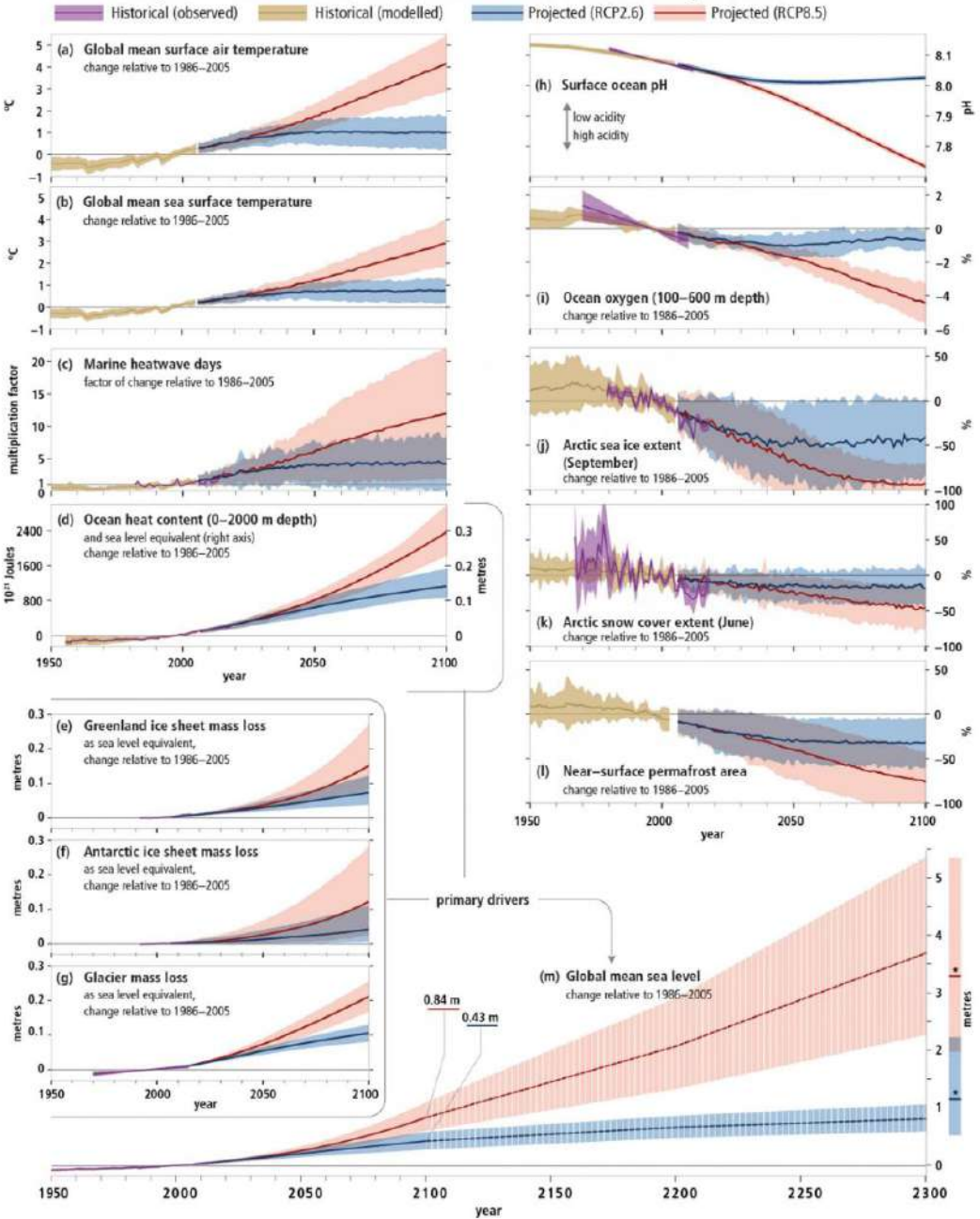
Observed regional impacts from changes in the ocean and the cryosphere



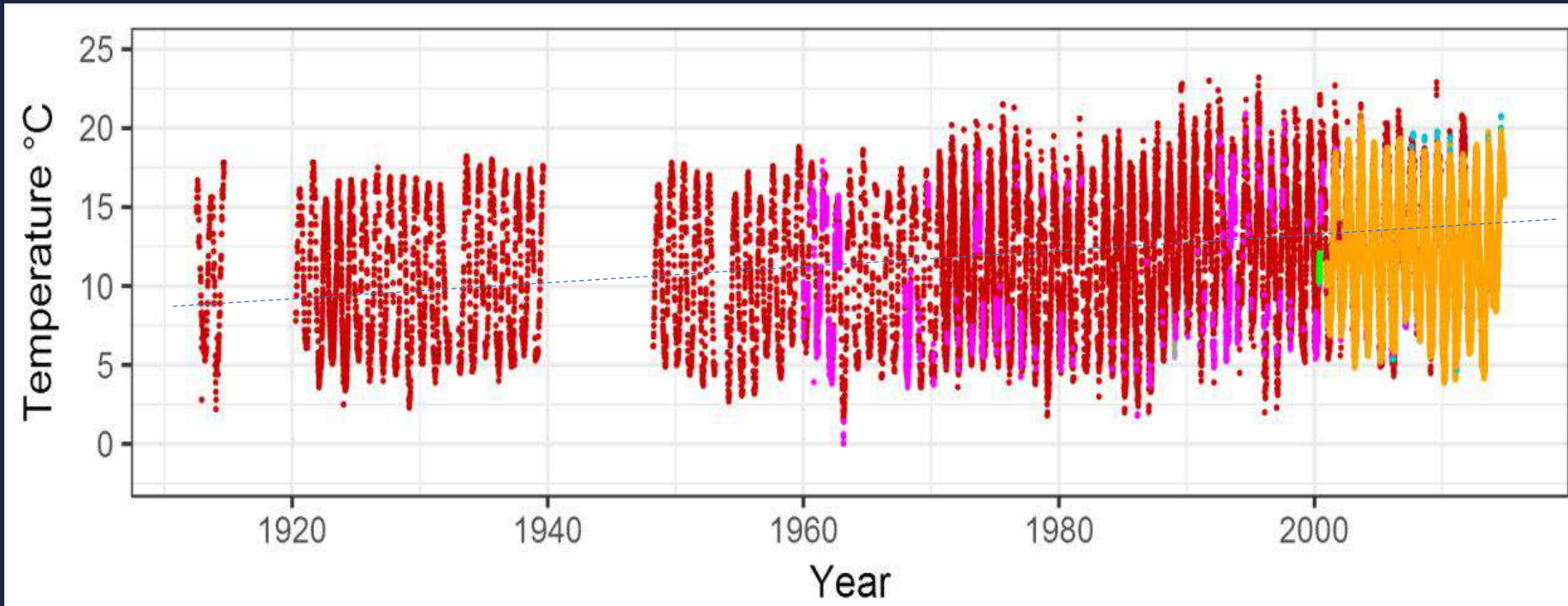
¹ Eastern Boundary Upwelling Systems (Benguela Current, Canary Current, California Current, and Humboldt Current); (Box 5.3)

Past and future changes in the ocean and cryosphere

Historical changes (observed and modelled) and projections under RCP2.6 and RCP8.5 for key indicators

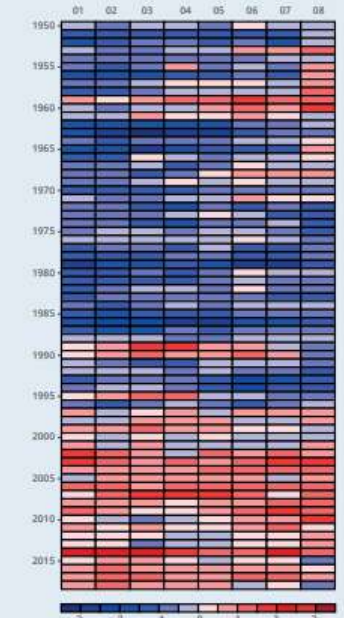


UK seas are changing



ANNUAL UK REGIONAL SEA-SURFACE TEMPERATURE (°C) ANOMALY FOR PERIOD 1950-2018

Fig 1. Sea-surface temperature anomaly (°C) for the period 1950-2018, relative to the 1961-2010 average. Red = positive (warm); Blue = negative (cool). Based on data from ERA5-Interim v1.



01: NORTHERN NORTH SEA
02: SOUTHERN NORTH SEA
03: EASTERN CHANNEL
04: WESTERN CHANNEL
05: IRISH SEA
06: MINCHES WESTERN SCOTLAND
07: SCOTTISH CONTINENTAL SHELF
08: ATLANTIC NW APPROACHES

These eight regions are based on bio-geographical areas used for UK marine assessments.



NEWS

New WaveNet data shows record breaking UK sea temperatures

29 September 2022

NEWS

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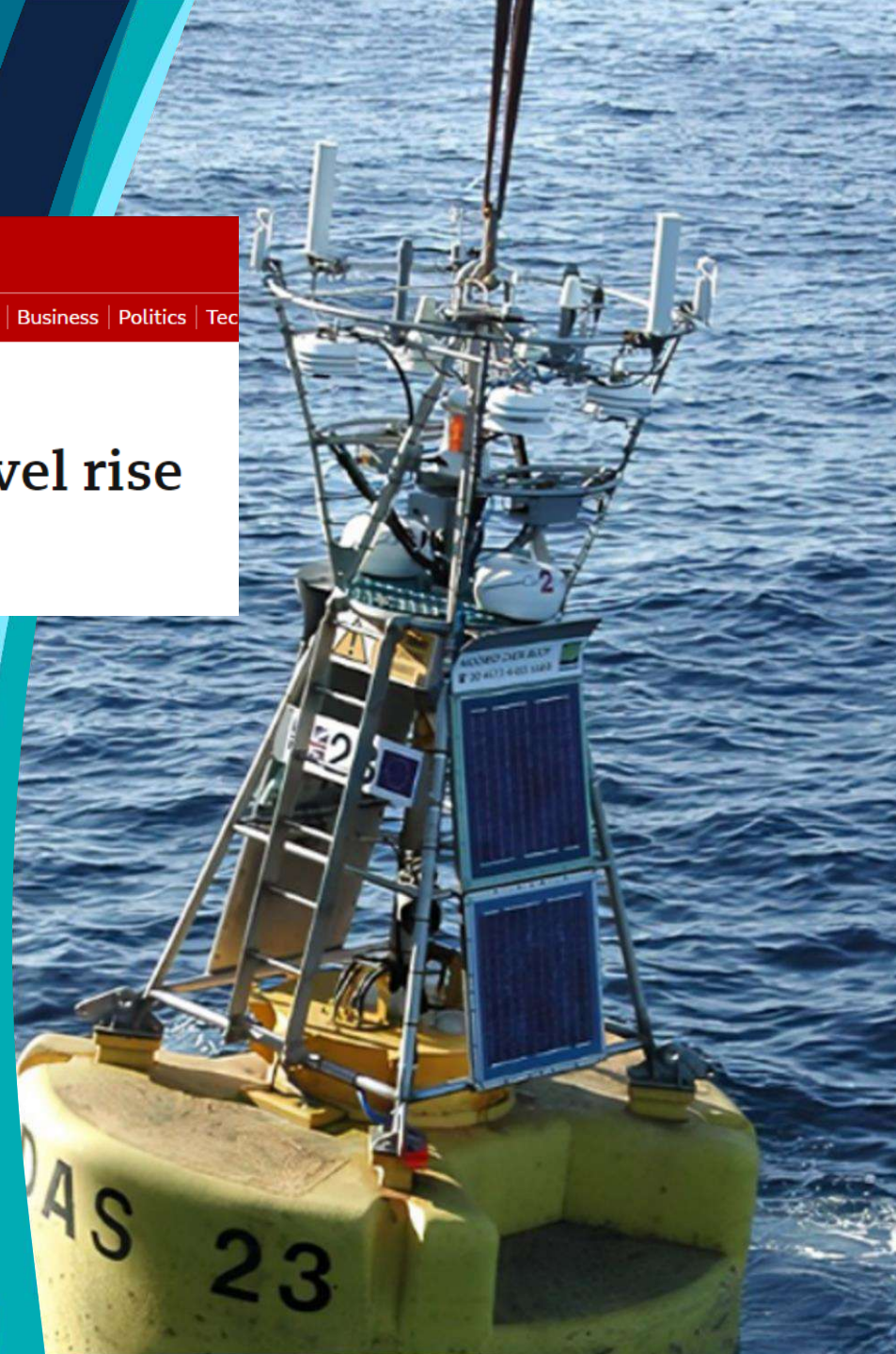
[Science & Environment](#)

Climate change: UK sea level rise speeding up - Met Office

🕒 28 July · 💬 Comments

🕒 NOVEMBER 25, 2022

Ocean warming and acidification impact the marine food web, study finds



Marine Climate Change Impacts Partnership (MCCIP)

- MCCIP evidence reporting since 2006
- Confidence assessments and horizon scanning
- New 'rolling' evidence updates
- Latest reports published last November
- Next round in next few weeks



SNAPSHOTS OF CLIMATE CHANGE AROUND THE UK

INCREASING VIBRIO SPECIES

Elevated levels of pathogenic *Vibrio* species from several south-west UK coastal sites coincided with record water temperatures during the 2018 heatwave. With heatwaves projected to increase in future, higher levels of pathogenic *Vibrio* may be recorded.

DECREASING COLD-WATER KELP

Increases in the abundance of the warm water kelp species, *Laminaria ochroleuca*, have been observed at sites around Plymouth, the Isles of Scilly and Lundy Island. Models project that cold-water kelp species could be lost from southern England and Wales by the end of the century.

DECREASING pH

By 2080, summer warming may exceed the thermal tolerance of the main reef-forming cold-water coral, *Desmoplytium pertusum*, at the Mingulay reef complex, and by 2060 about 85% of cold-water corals in the North-east Atlantic are likely to be exposed to acidified waters.

FISH ASSEMBLAGES

The structure of marine fish assemblages has changed markedly off the west of Scotland over the past three decades, with mackerel increasingly dominant at many survey sites.

OCEAN ACIDIFICATION IN WALES

Impacts of ocean acidification on shellfish fisheries may be most pronounced in Wales, due to the importance of cockles and whelk fisheries there.

COASTAL FLOODING IN SCOTLAND

A review of climate change risks on Historic Environment Scotland properties found 31 to be at high or very high risk from coastal flooding, and 24 to be at high or very high risk from coastal erosion.

NORTHERN HAKE

Northern hake, a warm-water species, has recolonised the northern North Sea after being largely absent for over 50 years, with implications for stock management.

TIDAL SURGES RISK PORT CAPACITY

Half of the UK's port capacity is located on the east coast, where the risk of damage from a tidal surge is greatest. This risk will be enhanced with rising sea levels.

SALINE INTRUSION

Shingle aquifers in the east and south England are likely to be at risk from saline intrusion associated with sea-level rise, combined with reduced rainfall and increased abstraction for public use.

SEA-LEVEL RISE BY 2100

Fig 5. Generally, increases will be greater in the South than in the North (figures reflect sea-level rise by 2100 relative to 1981-2000).



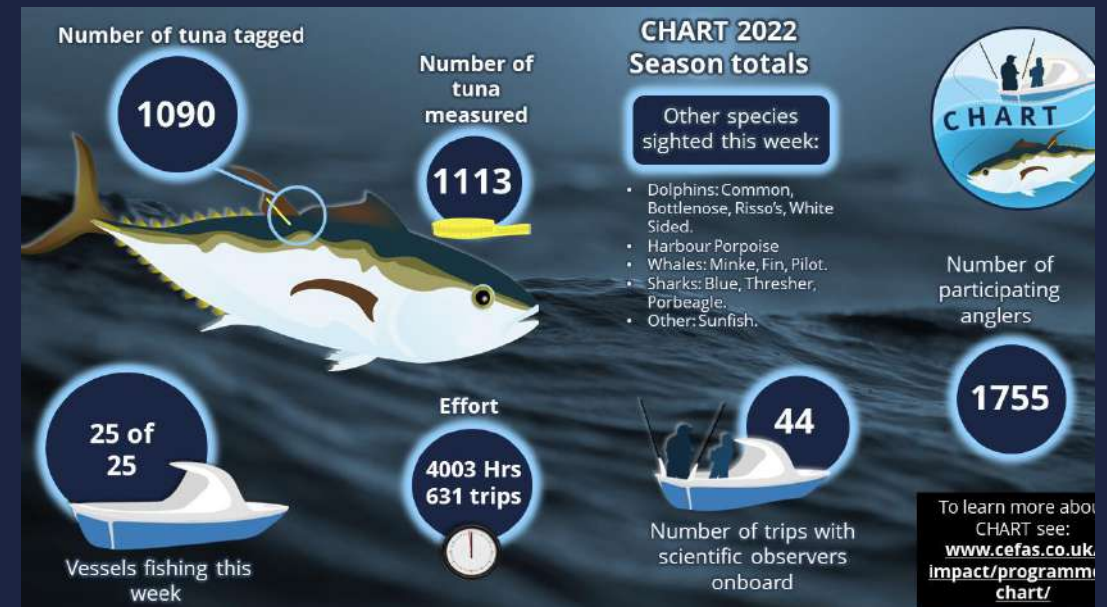
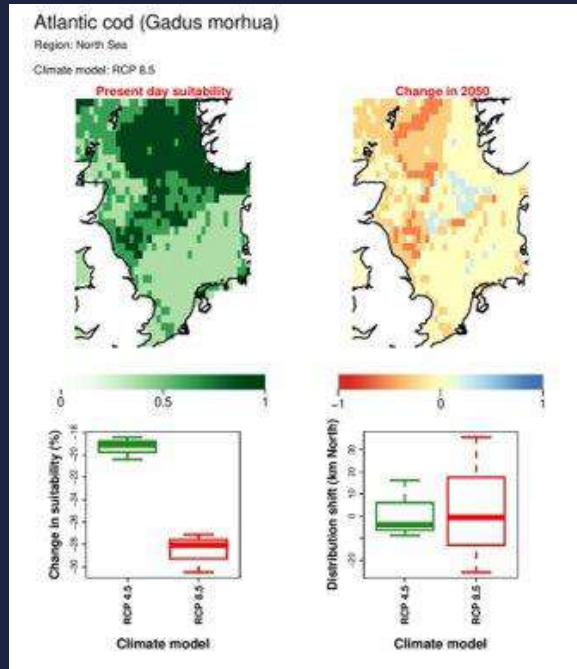
■ RANGE IN LOW EMISSION SCENARIO
■ RANGE IN HIGH EMISSION SCENARIO

Adapted from UKCP18 sea-level rise figures, Crown Copyright 2018, Met Office.

THAMES BARRIER

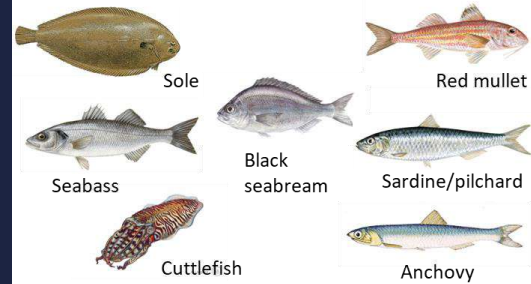
If the Thames Barrier continues to be used for managing both river flow and tidal floods, future sea-level rise is predicted to make the number of closures unsustainable by the 2050s; if used only for tidal flooding, this is predicted to extend to around 2070.

Fisheries impacts



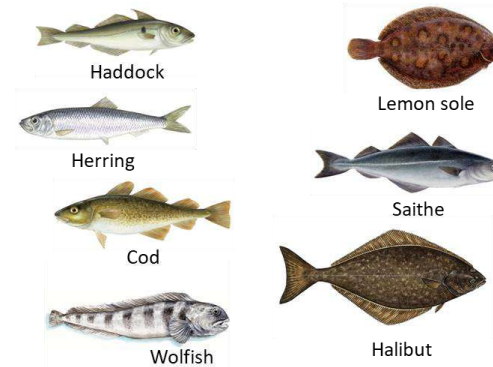
Winners

Stocks where the UK Exclusive Economic Zone (EEZ) is predicted to become more suitable in the future include:



Losers

The UK EEZ will become less suitable for:



Coastal Community vulnerability

Hazard

How much are stocks expected to be impacted, based on their biological and temperature traits?

+

Exposure

How sensitive are communities or fleets to stock changes, based on either a wide diversity or narrow range of species caught?

+

Vulnerability

How resilient are communities or fleets, how is their adaptive capacity to mitigate?

=

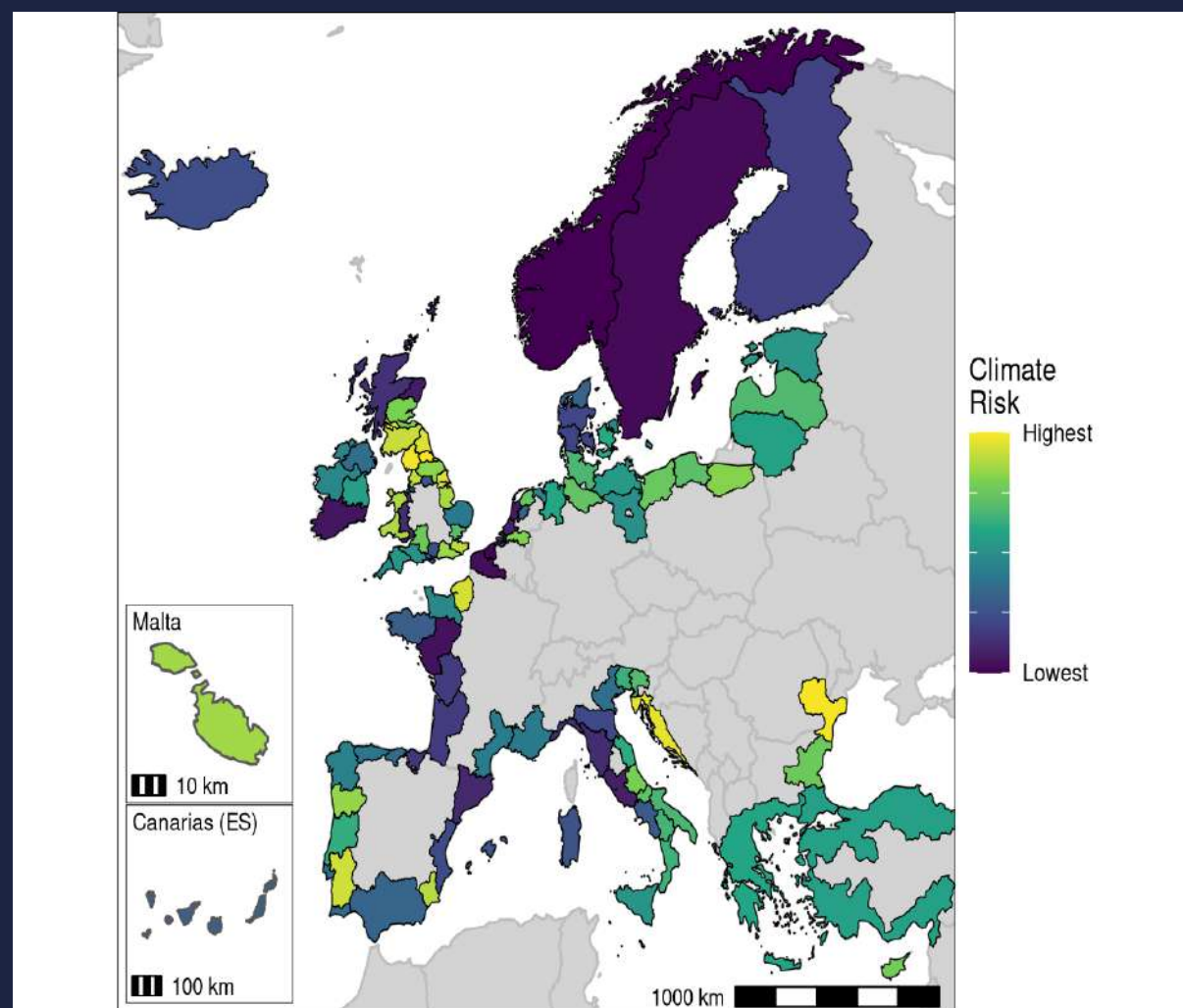
Risk

Based on hazard, exposure and vulnerability, what is the risk to communities or fleets?

The fleet-based analysis ranked the climate-risks of 358 fleet segments

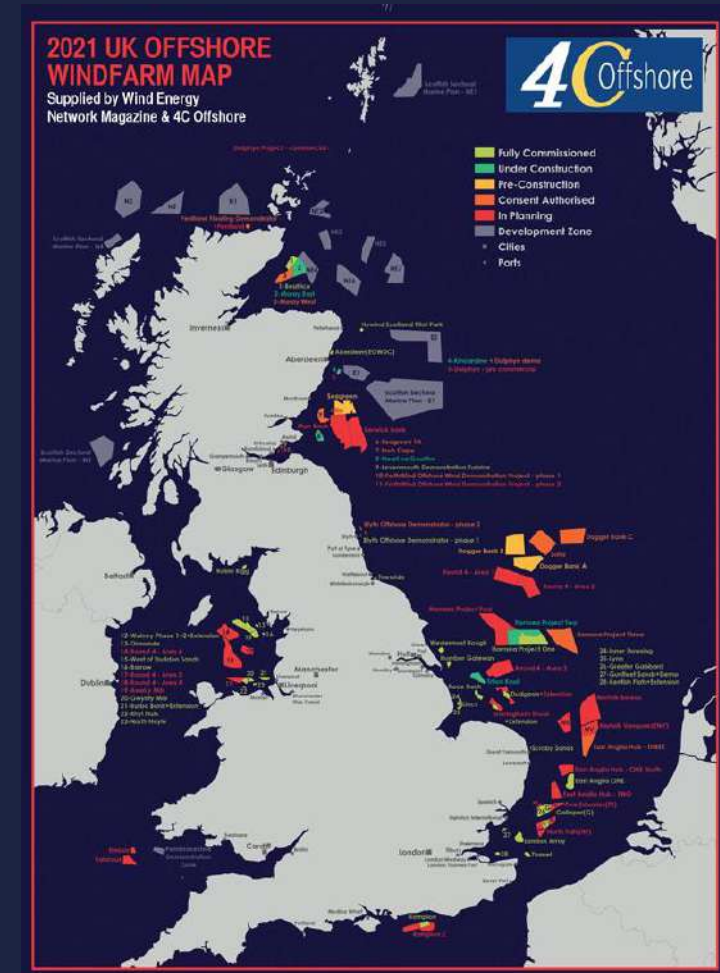
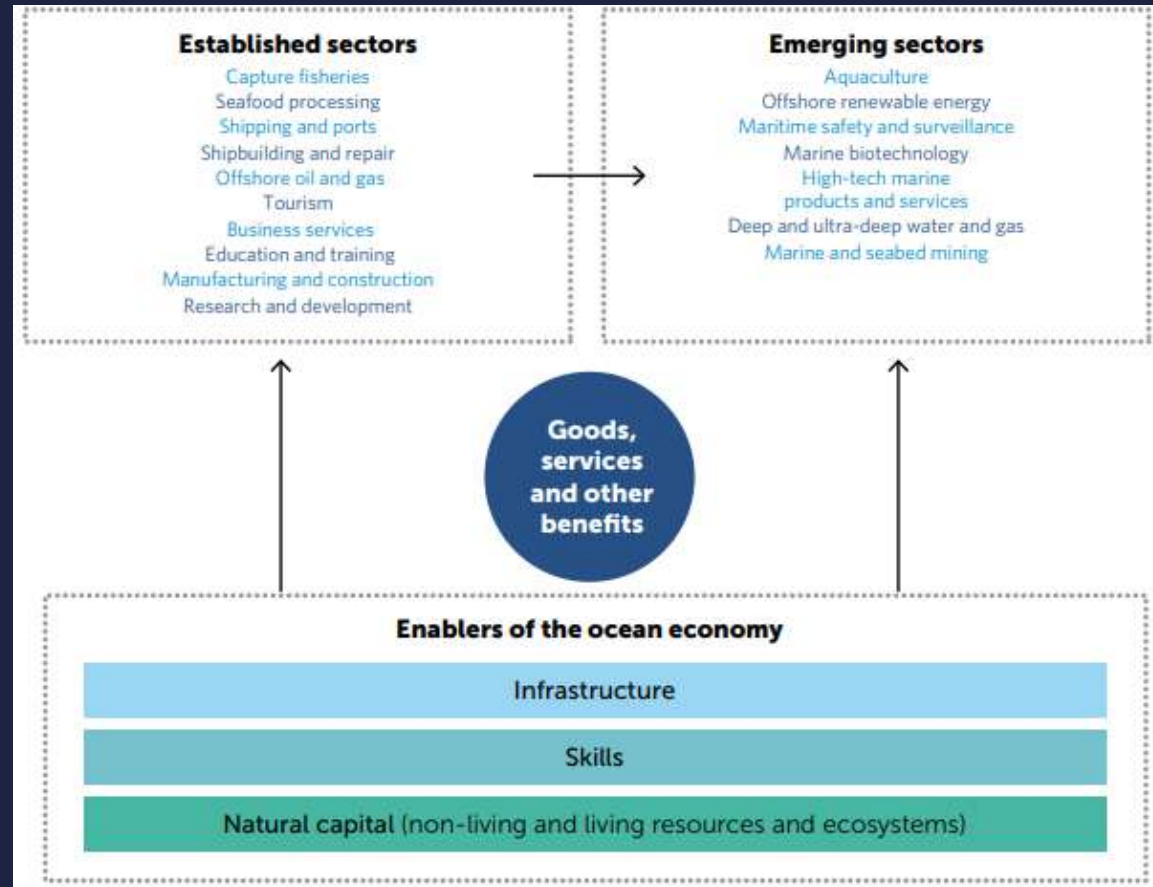
Regional analysis of 102 sub-national coastal regions across Europe (NUTS2)

Fisheries in northern England were identified as being among the most 'at risk' in Europe

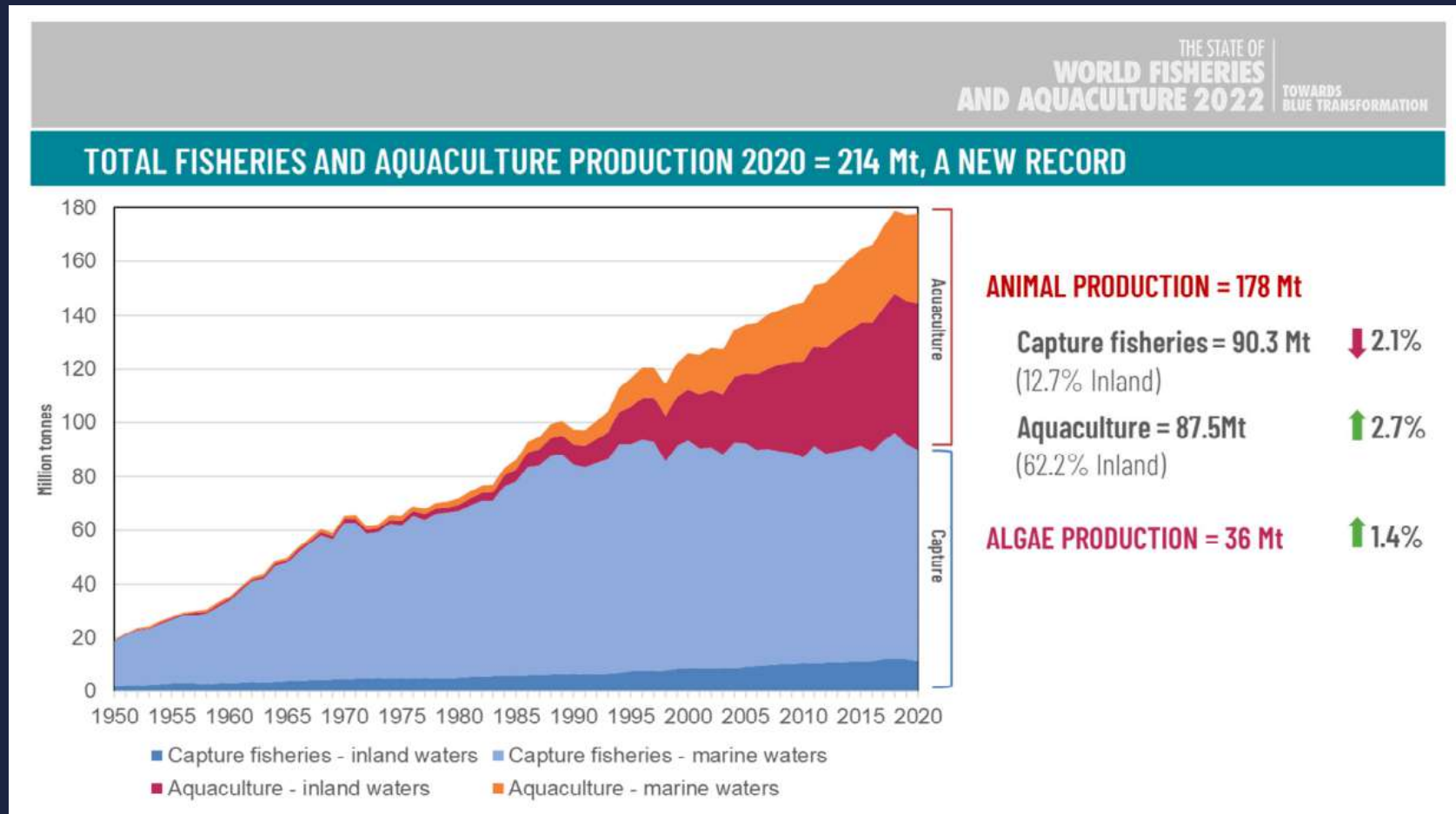


Climate Vulnerability Assessment (CVA)

A changing marine economy

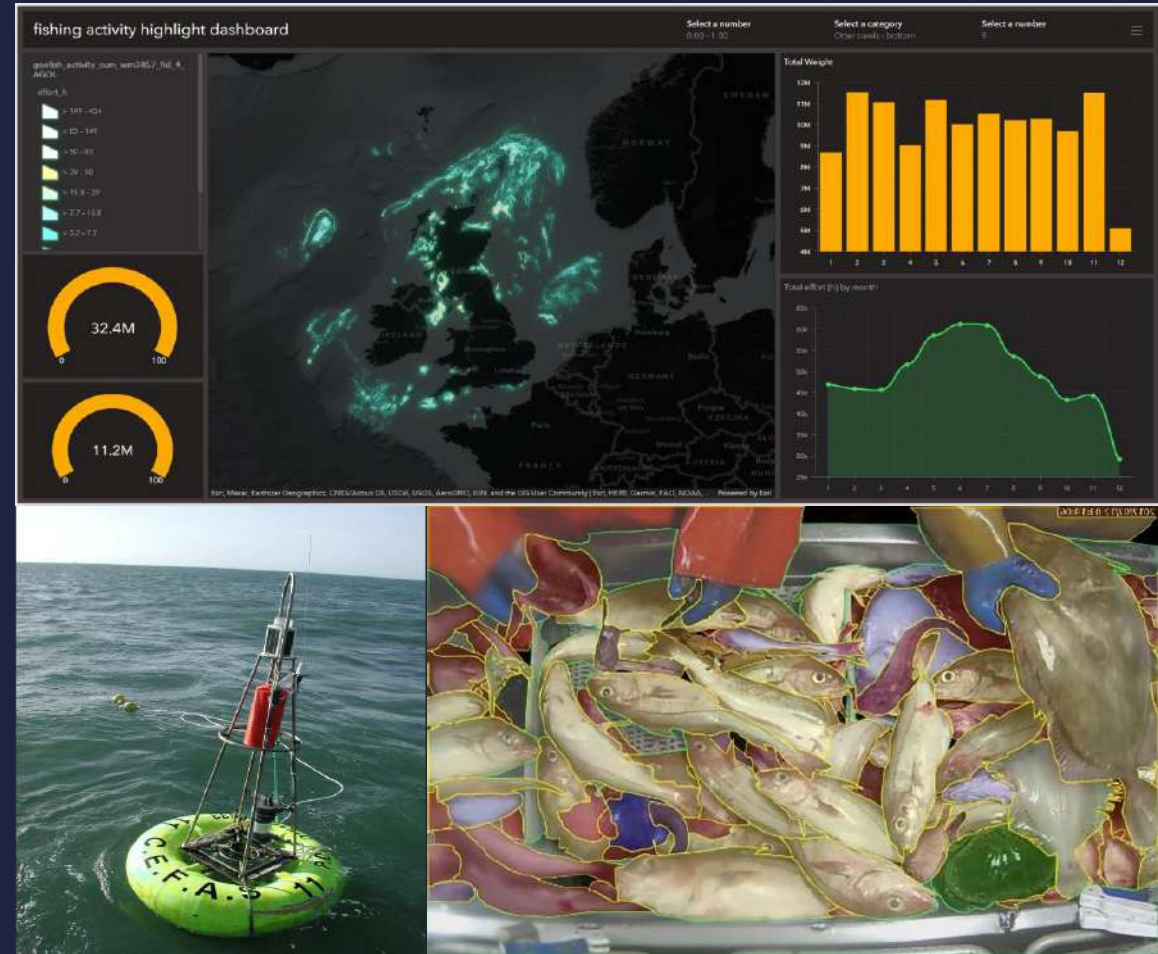


Future growth in aquaculture



Advances in technology – data deluge

- Data will increasingly collect itself - autonomous data collection techniques
- Greater use of modelling and Artificial Intelligence
- Scientists will need to be skilled in analysing, interpreting and visualising vast quantities of new and historic data



Emerging Science

Environmental DNA

Role of blue carbon

Ecosystem based fisheries management

Cumulative impacts of changes

Impacts of marine heatwaves on ecosystems

Co-location of marine activities

Health and wellbeing of coastal communities

Carbon capture and storage

Quantifying climate risks

Multigenerational effects of exposure to pollution



Questions for our coastal and marine community

- Are the policy and regulatory decisions we take today sufficiently taking account of the known future trends in the marine environment?
- How can we make our systems and processes more adaptable to future change?

How can science help?

- Better communication of science to non-scientists
- Move from understanding the problem to proactively identifying solutions.
- More interdisciplinary and cross sector collaboration to address complex problems
- Give decision makers actionable evidence they can use



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*Our Ocean and Coastal Future
for the Next Decade*



SESSION 1

**TACKLING THE CLIMATE CHALLENGE:
Working Together for our ocean and
coasts**

**Dr Pamela Buchan,
University of Exeter**

Our People's Coastal Future

25th & 26th January, 2023 | Royal Geographical Society, London & online



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Research Council

Our People's Coastal Future

TACKLING THE CLIMATE CHALLENGE: Working together for our ocean and
coasts

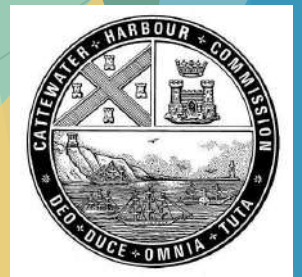
Dr Pamela M. Buchan
University of Exeter

Marine citizenship and me

Marine citizenship is exercising the right to participate in the transformation of the human-ocean relationship for sustainability (Buchan et al, 2023)*

- 🌊 Researcher trained in natural and social sciences
- 🌊 Former Plymouth City Councillor
- 🌊 Devon & Severn Inshore Fisheries and Conservation Authority, Vice Chair
- 🌊 Cattewater Harbour Commissioners, port duty holder
- 🌊 Motion for the Ocean (Local Government Ocean Recovery Declaration)

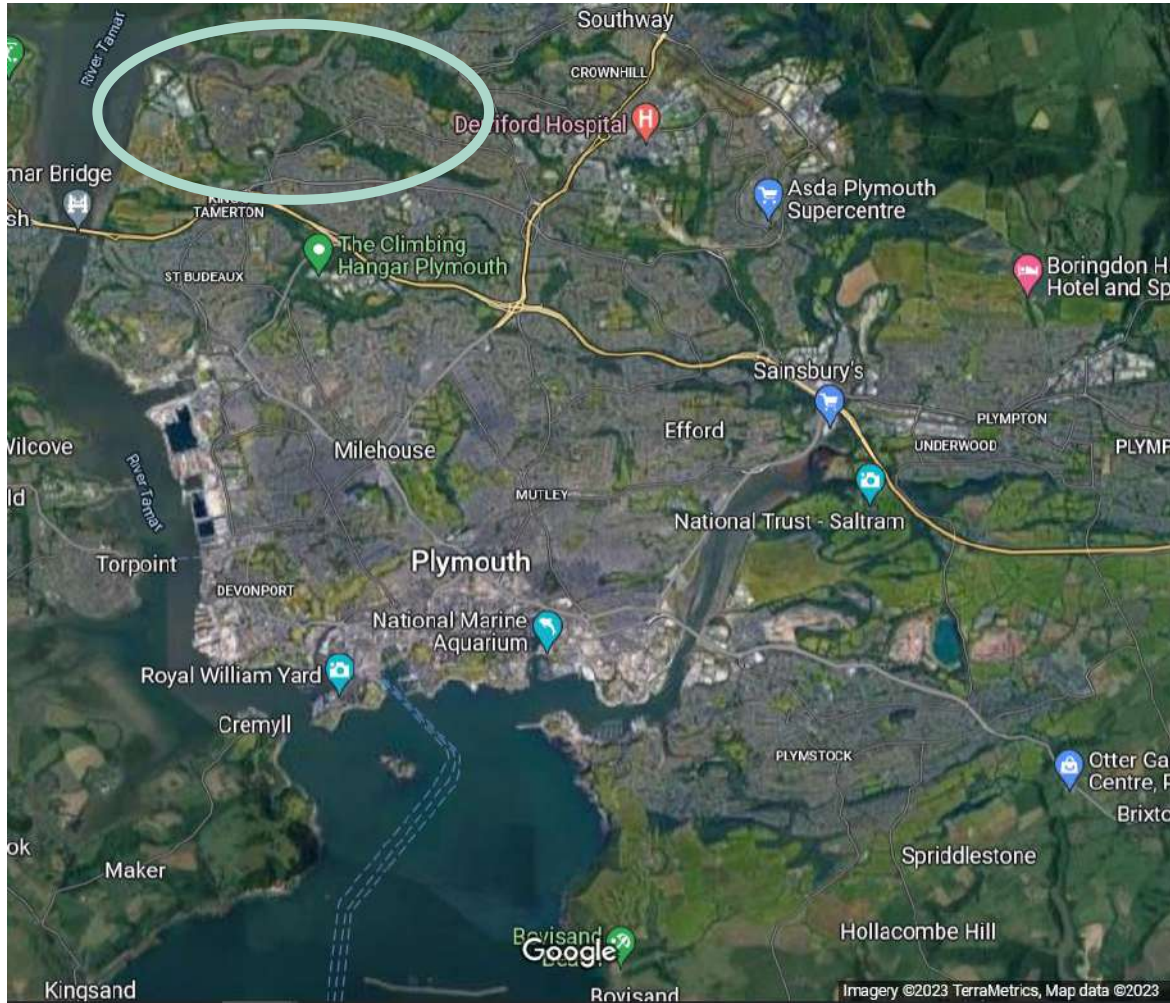
*Buchan et al., 2023. Marine citizenship: the right to participate in the transformation of the human-ocean relationship for sustainability. PLOS ONE. *In press.*



Our people's
coastal future
OR
our coastal
people's future?

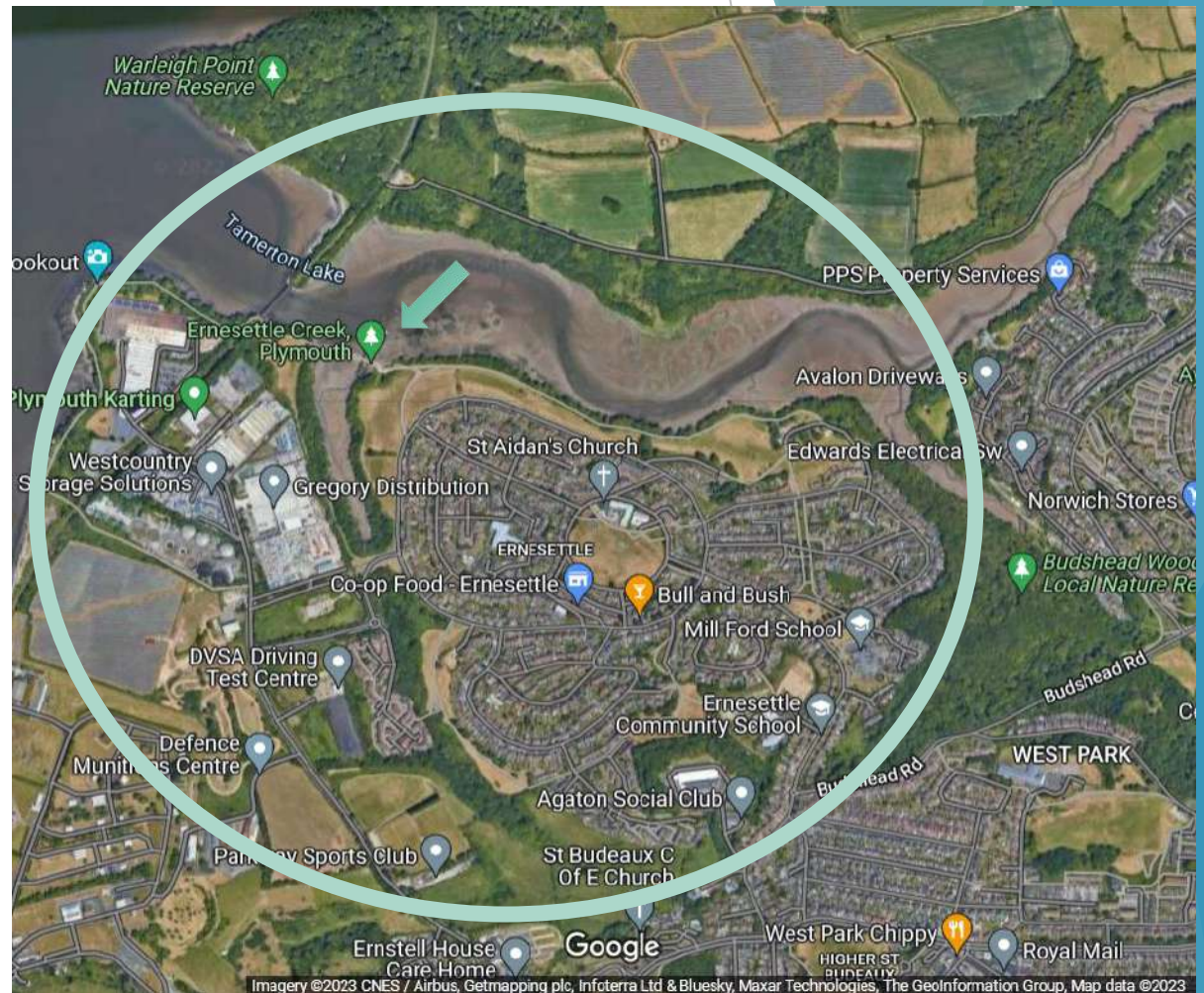


A hyper-local case study



Honicknowle ward in Plymouth

Coastal Futures 2023



Ernesettle

pb381@exeter.ac.uk

@Asterinidae



Location of slipway



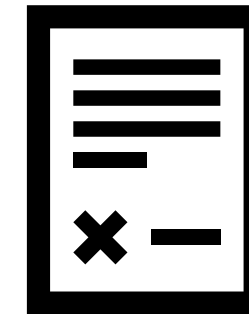
Partially constructed slipway.
Credit: Sarah Maddever Colwill

How to access coastal - a guide for coastal communities



Welcome to the Marine Case Management System

The Marine Case Management System is provided by the Marine Management Organisation. We licence, regulate and plan marine activities in the seas around England and Wales so that they're carried out in a sustainable way. MMO is an executive non-departmental public body sponsored by the [Department for Environment, Food & Rural Affairs](#).











Corporate property
Legal
Natural Infrastructure
Parking (!)



- 🌊 No proper road access
- 🌊 No formal parking area
- 🌊 No public facilities
- 🌊 Existing issues with fly-tipping and vandalism
- 🌊 Unknown impact of increased leisure use on
 - 🏗️ Infrastructure
 - 🌿 Habitats and wildlife



The bigger picture

-  Existing inequalities in health, education, employment*
-  Physical coastal change - erosion, flooding, extreme weather
-  Decision-making -
 -  Hold the line with hard engineering
 -  Planning allocation and reservation of land for nature-based solutions
 -  Retreat of entire communities from the water's edge
-  Physics, finances PLUS emotions, identities, livelihoods
-  Community empowerment

Are we ready to empower communities?

Break down silos (interdisciplinary skills) and community development expertise

Planning system needs revision to mitigate climate change, carbon reduction, and serve community interest

Local government finances in dire straits

Communities lacking capacity and skills to engage in local place-making

Preparing for the future

Economic

- New skills
- New jobs
- Investment

Governance

- Place-based and planning reform
- Strong institutions
- Re-build trust
- Empowered communities

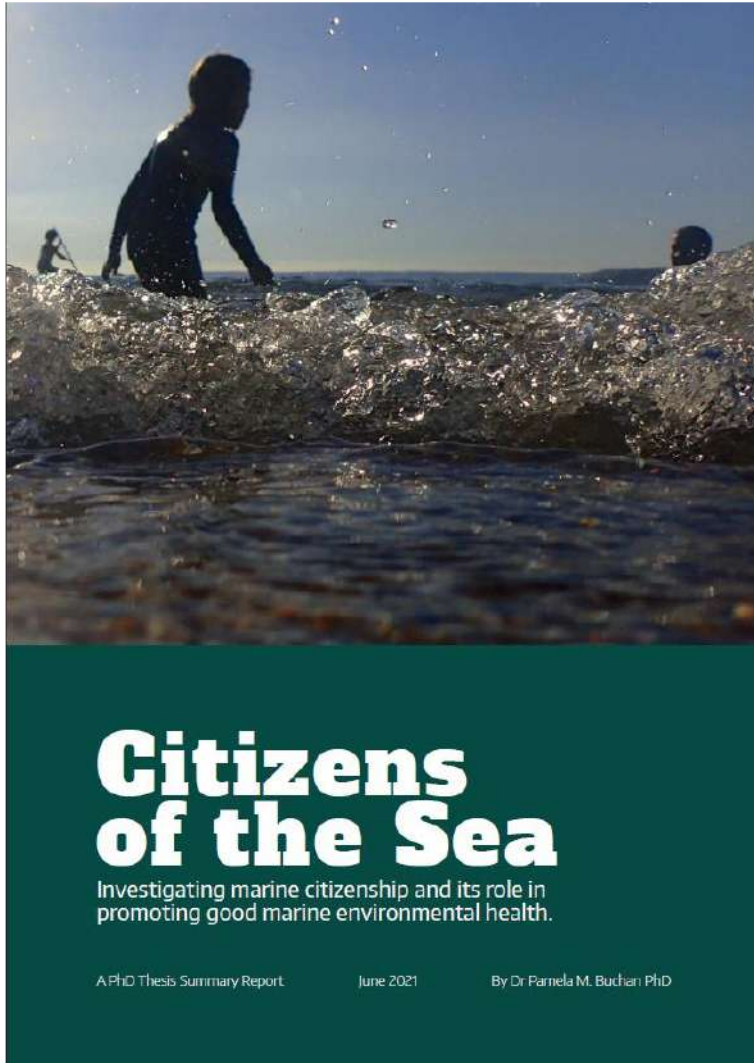
Political

- Right to participate in marine environmental decision-making
- Re-connect communities with the coast and nature
- Motion for the Ocean

Questions for the UK professional coastal community

- 🌊 How can we, as a global north, industrialised nation, bearing much responsibility for the current state of the climate, re-align our own relationship with the ocean to be sustainable, ocean-connected, and just?
- 🌊 How can we, as an island nation, mitigate and adapt to the changes ahead of us that will most-particularly physically impact our coastal communities?
- 🌊 And how can we, as a democratic nation claiming to have the “mother of parliaments” do better at co-developing the future of our ocean and coasts with the people who live there?





Thank you!

🌊 Email pb381@exeter.ac.uk or info@pamelabuchan.co.uk

🌊 Twitter @Asterinidae

🌊 ResearchGate:
<https://www.researchgate.net/profile/Pamela-Buchan>

🌊 Read more about the science here:
https://www.researchgate.net/publication/352508841_Citizens_of_the_Sea_-_A_PhD_Thesis_Summary_Report

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PANEL DEBATE

TACKLING THE CLIMATE CHALLENGE: Working Together for our ocean and coasts

*What is the future for our ocean and
coasts over the next decade?*

CHAIR

Dr Gareth Johnson, Atkins

Dr Aisling Lannin, Marine Management Organisation

Huib den Rooijen, Marine Advisor, The Crown Estate

Dr Lissa Batey, The Wildlife Trusts

Neil Hornby, Chief Executive, Cefas

Dr Pamela Buchan, University of Exeter



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REFRESHMENTS

11:40 – 12:40

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