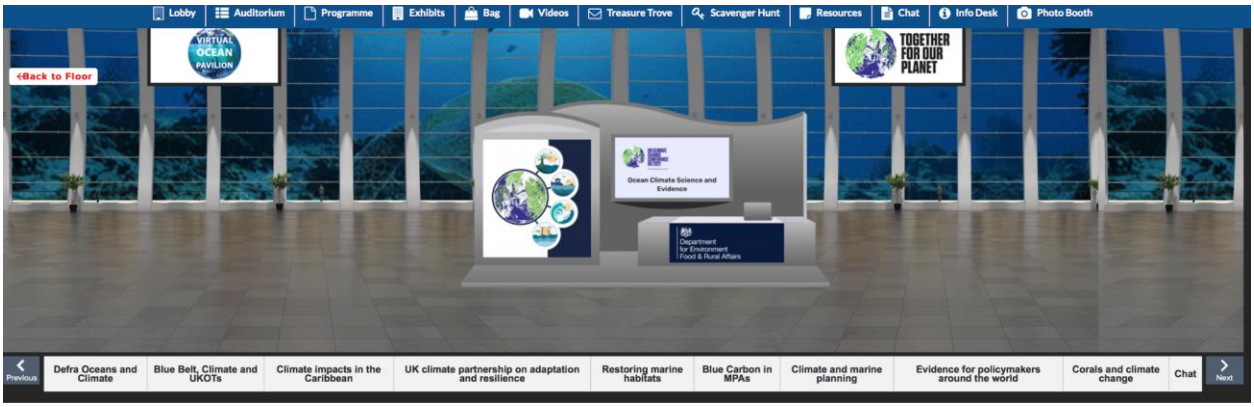
COP26 VIRTUAL OCEAN PAVILION EXHIBITS

Ocean Climate Science and Evidence



Description

UK COP26 Presidency – Ocean Climate Science and Evidence. The UK recognises the vital role of the ocean in a changing climate. Securing global net zero emissions by 2050 and the protection, restoration and sustainable use of key marine habitats and species, will ensure the ocean will be better placed to mitigate, adapt and be resilient to a changing climate. Defra (UK Department for Environment, Food and Rural Affairs) is advocating for greater ocean action and transformative ocean science towards improving ocean health and resilience. This work is developed by world-leading expertise from government agencies and bodies: the Centre for Environment, Fisheries and Aquaculture Science (Cefas), Environment Agency, Marine Management Organisation (MMO) and JNCC (Joint Nature Conservation Committee). The UK Presidency booth demonstrates the UK's commitment to action, both domestically and internationally through our partnerships with experts around the world.

Ocean Climate and Science Evidence Website: https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs

Blue Belt, Climate and UKOTs: Blue Belt and climate science in the UK Overseas Territories. The Blue Belt Programme is an ambitious UK Government commitment to enhance marine protection and management across over 4 million square kilometres of ocean around the UK Overseas Territories (UKOTs). The programme is funded by the Foreign, Commonwealth and Development Office (FCDO), and joint delivered by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and Marine Management Organisation (MMO). The marine environments around the UKOTs that are part of the Programme – St Helena, Ascension Island, Tristan da Cunha, British Antarctic Territory, British Indian Ocean Territory, Pitcairn Islands and South Georgia & the South Sandwich Islands (SGSSI) – are some of the most unique and biodiverse on the planet. Yet they face a range of threats, both global and localised, from climate change to illegal, unreported and unregulated (IUU) fishing. Since 2016, the Programme

has supported the UKOTs to both grow the extent of their marine protected areas and to put in place measures to improve their protection.

All of the UKOTs have now designated Marine Protected Areas (MPA) within their Exclusive Economic Zones. Most recently in November 2020, when the Programme supported Tristan da Cunha to designate the largest Marine Protected Zone in the Atlantic, closing 90% of its waters to fishing and other extractive activities like deep-sea mining. Covering 700,000 square kilometres, the new protected area will conserve key endemic species like sevengill sharks and Tristan albatross.

For more information on the programme and its work on climate change, see the video from Programme Directors Silvana Birchenough (Cefas) and Joanna Stockhill (MMO) below: Blue Belt Programme & Climate Change: https://youtu.be/dx-mMquT3pM

For more information on climate science in the UKOTs, please see the below video from Stephanie Martin, Environmental Policy Officer, Tristan Da Cunha: https://youtu.be/jAYCu4Uo63w.

On the 6th November, COP Nature Day, the United Kingdom Overseas Territories Association (UKOTA) announced the United Kingdom Overseas Territories Climate Change Pledge. The pledge reads: "We, the Governments of the United Kingdom Overseas Territories, are custodians of internationally important habitats which span the globe from the Antarctic to the Caribbean, the South Atlantic to the Indian Ocean. Together with the UK we represent the world's fifth largest marine estate; over 90% of the UK's biodiversity; and are essential to the UK meeting its pledge by 2030 to protect 30% of the world's oceans. Climate change will have a profound impact upon our environments, economies and societies, a failure to act will impact not just us, but our children and all generations to come. To overcome the climate crisis facing our communities we must increase global solidarity and align our actions. As coastal and island communities, our economies rely upon maintaining healthy, sustainable marine and terrestrial environments. We commit to take action to protect our fisheries resources and to conserve and, wherever possible, restore our marine ecosystems and biodiversity. Building on the good work already undertaken by the Overseas Territories, we reaffirm an alliance to take action to tackle the harmful effects of plastic pollution and marine litter, often as a result of other countries which have impacted our shores. Our biodiversity, terrestrial and marine, support not only our wellbeing, but also contribute to our uniqueness, our nature-based fight against climate change and are important to those of us where tourism makes an important contribution to our economies. It is imperative that all nations prioritise their response to prevent further acceleration of human-induced global warming, and collectively commit to developing preventative measures to ensure the surface temperature does not exceed an increase of 1.5C. We, as individual Territories, pledge to work with the UK Government to develop Territory-led actions that tackle the specific challenges climate changes poses for each of us, to use our oceans and natural resources sustainably, for the benefit of current and future generations, and to take action to protect and restore our biodiversity.

As Overseas Territories we pledge to work with others in a spirit of cooperation to secure meaningful outcomes from COP26 that will make a tangible difference in tackling the impacts of climate change in our territories."

You can watch the video from UKOTA on their vision for healthy oceans below:
https://vimeo.com/642648863?embedded=true&source=video_title&owner=4167360

Additional information: For more information on the programme, The Blue Belt Annual report, gives an overview of the Programme and dedicated work across UKOTS. To see the report click here: Blue Belt Annual Report 2021.Blue Belt scientists are working with Blue Abacus and the UK Overseas Territories (UKOTs) on an international underwater camera network that aims to increase our knowledge of and support the protection of wildlife and biodiversity around the UKOTs. The Global Ocean Wildlife Analysis Network, which is part of the Blue Belt programme will help provide the evidence needed to monitor and sustainably manage the UKOTs significant marine areas across the Atlantic, Indian, Pacific and Southern Oceans. For more information, see the following link: Global Ocean Wildlife Analysis Network. The Blue Belt Programme produced the CoRAL report card detailing climate change impacts on corals in BIOT and Pitcairn. To see the report click here: CoRAL report card.

Climate impacts in the Caribbean: UK climate partnership on adaptation and resilience: Marine Climate Change Impacts Partnership (MCCIP). Since 2005, The UK Marine Climate Change Impacts Partnership (MCCIP) has brought together scientists, government, its agencies and NGOs to provide impartial coordinated advice on UK climate change impacts and adaptation.Recent work includes a UKOTs report card, infographic, launch and debate and Parliamentarian article.The video introducing the MCCIP UKOT report card can be watched below: https://youtu.be/jc_n97ytn_0. The scientific discussion can likewise be viewed below: https://youtu.be/8KVQDLIIT4s.

Restoring marine habitats: Restoring Meadows, Marsh and Reef (ReMeMaRe) around English coasts and beyond. “Restoring Meadows Marshes and Reefs (ReMeMaRe)” (pronounced re-memory), is an ambitious restoration initiative with a vision for restored estuarine and coastal habitats that benefit people and nature. The mission is to restore at least 15% of seagrass meadow, saltmarsh and native oyster reef habitats along the English coast by 2043, which fits into the 25 Year Environment Plan (25YEP) time frame. By reversing centuries of environmental decline and restoring these precious estuarine and coastal habitats and the ecosystem services that they provide, the initiative hopes to better connect society with the natural world and make coastal communities more resilient to the impacts associated with climate change and the continued loss of biodiversity, whilst providing social, environmental and economic benefits. Comprised of a growing partnership of over 21 governmental, environmental and academic organisations, the initiative is combining our collective resource and expertise to provide national leadership and joined-up, strategic planning to support restoration projects all around our shores. The initiative has already produced a suite or habitat restoration handbooks that provide guidance to support practical delivery, as

well as a series of restoration potential maps (https://theriverstrust.maps.arcgis.com/apps/webappviewer/index.html?id=d5a3fcd28b9c4cde9caf894cbc690e4a) that provide an indication as to where the restoration of each habitat may have the greatest societal benefit. These tools aim to support the development of local habitat restoration plans and place-based delivery. Moving forward, the partnership aims to develop a National Action Plan that will clearly identify the actions and core deliverables at the national level that will further enable the delivery and upscaling of estuarine and coastal habitat restoration. https://youtu.be/Uc2GJJpBZYY (Restoring Meadows, Marsh and Reef around English coasts and beyond). Link to the European Native Oyster Habitat Restoration Handbook UK and Ireland (now available): https://noraeurope.eu/wp-content/uploads/other-publications/European-Native-Oyster-Habitat-Restoration-Handbook.pdf.

Links to the suite of restoration handbooks (links will go live on 5th November):

- Saltmarsh: https://catchmentbasedapproach.org/learn/saltmarsh-restoration-handbook/
- Seagrass: https://catchmentbasedapproach.org/learn/seagrass-restoration-handbook/
- Dredged Sediments: https://catchmentbasedapproach.org/learn/restoring-estuarine-and-coastal-habitats-with-dredged-sediment/

Blue Carbon in MPAs: Developing the evidence base for Climate Smart MPA planning in the UK. In the UK a variety of evidence projects have been undertaken to improve our understanding of the role of MPAs in climate change mitigation. This case study explains the process followed to build the evidence base and how this has subsequently been used to support Climate Smart MPA planning-- https://youtu.be/Qn3JvnyZoAA

Understanding the role of marine biodiversity in support climate change mitigation

- The literature review
- The two climate services of carbon sequestration and coastal protection
- The resulting blue carbon habitat types

The extent to which blue carbon habitats are already considered protected within the MPA network

- Examining how blue carbon habitats correlate to the protected features of MPAs across the UK
- Producing statistics on this

The extent to which MPA protected features may be impacted by the effects of climate change

- Establishing a list of pressures associated with climate change
- Determining how the protected features of MPAs may respond to the pressures associated with climate change
- Bringing this all together to support decision making (the MPA report cards) . Establishing the relative importance of areas of the UK seabed for blue carbon
- Different habitat types have different stocks and fluxes of blue carbon and therefore different levels of efficiency in supporting the sequestration and storage of blue carbon
- Use initial relative importance findings to support the start of identifying areas for stricter protection in English waters as part of the Highly Protected Marine Areas Project. Further work--
- Impacts of human activities on blue carbon storage and sequestration services
- Further direct evidence collection to support understanding of blue carbon stocks and fluxes on the UK seabed
- Advancing our understanding of the role of deep-sea marine ecosystems in supporting climate change mitigation

The Climate Smart MPAs project aimed to improve understanding of the role of MPA protected features in climate change mitigation and adaptation and identify those most at risk of the effects of climate change.The project undertook a rapid literature assessment to investigate the provision of climate change related ecosystem services by MPA protected features and developed statistics on the climate related ecosystem services provided by the MPA network within English inshore and offshore and Northern Irish offshore waters. Of the MPA features investigated nine habitat types provide carbon sequestration as an ecosystem service. These habitat types range from coastal,

such as saltmarshes and seagrass beds, through offshore habitats such as deep-sea mud. Sensitivity assessments were undertaken for 36 high priority biotopes (habitats with their characteristic species) related to specific MPA features, to four climate change pressures: ocean acidification, ocean warming, marine heatwaves and sea-level rise, and against medium and high emission scenario benchmarks. The Sensitivity Assessments are publicly accessible on the Marine Life Information Network (MarLIN) website. Infographic displaying statistics of the number of MPAs that provide climate change related ecosystem services here. Improvements to the evidence base developed through this project were used to develop example climate profiles for two case study MPAs: The Canyons and Studland Bay Marine Conservation Zones (MCZs). The climate profiles tested an approach for presenting the developing evidence base on climate pressures, feature sensitivity and climate change mitigation and adaptation services at a MPA site level. This work highlighted the complexity of assimilating and presenting climate pressure and sensitivity information at a site level in a way that is accessible to a wide range of stakeholders. This project provides a methodology for undertaking climate change sensitivity assessments, identifying MPA features at highest risk from climate change and identifying the role of MPA features in climate change adaptation and mitigation. More information on this project is available here. Building technical capacity and supporting new approaches to nature conservation JNCC is working with our partners in the UK Overseas Territories and globally (e.g., Chile, Namibia, South Africa, Colombia, Costa Rica, Belize, Maldives), to build technical capacity and support the implementation of new and innovative approaches to nature conservation. A priority area of work has been supporting Governments and communities in making the best use of nature conservation and nature-based solutions to build resilience against climate change and natural disasters. We are working particularly closely with the UK Overseas Territories on disaster and environmental resilience which involves:

- Modelling climate and disaster risks and opportunities for improved environmental resilience
- Valuation and assessment of natural capital and ecosystem services such as coastal protection services
- Developing and providing products that use the latest in technology to provide data to enhance the evidence base to support decision-making
- Identifying evidence gaps and targeted areas for deployment of nature-based solutions
- Mapping and monitoring biodiverse and at-risk habitats e.g. coral reefs and mangroves

Natural capital approaches, such as land use risk assessments, models, valuation, and planning, have been central to this work. These approaches can help identify natural capital assets such as mangroves and coral reefs that perform crucial functions in protecting communities and livelihoods from natural disasters. Alongside this, we are increasingly taking a ‘Ridge to Reef’ approach, using models and employing the skills of our experts in Earth Observation to understand the impact of land use changes on whole catchments and coastal environments, informing planning and decision-making to avert flooding impacts. New programmes of work across the organisation are bringing

together experts in pollution, land use and marine management, species and habitat monitoring and assessment, modelling and Earth Observation to help to provide holistic and innovative solutions. Knowledge exchange, growing technical capabilities and building a shared understanding of the issues and potential solutions across all partners are central to our approach. We prioritise a high level of engagement with senior decision-makers, local communities and businesses to maximise the effectiveness of projects through participatory, collaborative consensus-building processes. https://youtu.be/OIu0hC6Qh8w (UK Overseas Territories).

For more information: JNCC Nature News (Summer 2021) – disaster resilience, natural capital and coral reef health: https://issuu.com/jncc_uk/docs/nature_news_summer2021?fr=sYjA5MTg2NzMzNw. JNCC Nature News (Autumn/Winter 2020) - Ridge to Reef: https://issuu.com /jncc_uk/docs/nature_news_autumn_winter2020. Natural Capital in the UK Overseas Territories - https://jncc.gov.uk/our-work/natural-capital-in-the-overseas-territories/ Our work in the UK Overseas Territories- https://jncc.gov.uk/our-role /the-uks-overseas-territories/.

Climate and marine planning: Marine Plans are an essential tool for ensuring an integrated approach to the sustainable use of England's seas, transforming how we undertake developments whilst protecting and restoring precious ecosystems now and for the benefit of future generations. Here, the Marine Management Organisation talks about how Marine Plans are playing an important role in supporting action on different aspects of climate change including to mitigate impacts, take a joined up approach across different sectors, support nature based-solutions and help build resilience in the marine environment. Marine Plans - Supporting action on climate change: https://youtu.be/PkBZWgAJr6Y. For more information go to https://www.gov.uk/government/collections/marine-planning-in-england or to view the interactive service go to Explore marine plans - GOV.UK (www.gov.uk). Contact: info@marinemanagement.org.uk.

Evidence for policymakers around the world: Designing evidence summaries to inform policy -- With ever increasing amounts of data being collected, complexity of technical analyses made, numbers of scientific papers published, and diversity of objectives supported it is important for policymakers, scientists and advisors to keep sharing information. Increasingly, many research groups are producing more targeted outputs to complement traditional papers, summarising and highlighting their evidence and collaborating with the stakeholders that need to use the information to identify the best ways to communicate it. Below is a collection of different initiatives and products from around the world all working in different ways across the boundaries between policy and marine climate science to help support decision making: https://sway.office.com/CwWG UpsFeyWKfPWY?ref=Link.

Corals and climate change: '*Corals and climate change; addressing threats through global, national, and local approaches*' highlighted the importance of coral reefs

and the impact that joint threats of climate change and unsustainable human activity are having on reefs, the local communities that depend on them, and by extension, the global population. It delivered the message, at this key juncture for the future of humanity, that ambitious action to stop and reverse climate change is of vital importance. The event began at the global level, with a visual presentation of what will happen to coral reefs and the communities and wildlife that depend on them under different warming scenarios, and how reefs are important for everyone, including those not living nearby. We highlighted key findings from the Sixth GCRMN Status of Coral Reefs of the World: 2020 report, the first global status of coral reefs since 2008. We will then progress to a national level, focusing on tools such as the Allen Coral Atlas, the process of creating it, and how it enables data-driven decision making for countries to meet their marine conservation goals. At the local level, we explored real-life case studies from the Atlantic, South Pacific and the Western Indian Ocean. We also heared about the importance of reefs to coastal communities, and the innovative management methods that are being used to increase their resilience and protect them against a myriad of threats. The event concluded that, although the threats facing coral reefs are extremely serious and there is a crucial need for global action to halt temperature rise, there is hope in that corals are incredibly resilient organisms – if we just give them a chance. To watch a replay of the event, see below: https://youtu.be/5McAWovwJ6w

Videos

1. The impact of future climate change on Undulate ray in the UK: https://youtu.be/CjdnUvognjI
2. The impact of future climate change on Native Oysters in the UK: https://youtu.be/vdd6mowOrxw
3. The impact of future climate change on Sandeelsin the UK: https://youtu.be/sdw5GV4yFoU
4. The impact of future climate change on Undulate ray in the UK: https://youtu.be/LXvdcSpdjn4
5. Restoring Meadows, Marsh and Reef (ReMeMaRe) around English coasts and beyond - Environment Agency: https://www.youtube.com/watch?v=Uc2GJJpBZYY
6. UK Overseas Territories Disaster Resilience: https://www.youtube.com/watch?v=OIu0hC6Qh8w
7. Corals and climate change; addressing threats through global, national, and local approaches, Commonwealth Pavilion, 4th November: https://www.youtube.com/watch?v=5McAWovwJ6w&t=7382s
8. A Vision For Healthy Oceans - UKOTA: https://vimeo.com/642648863

Documents

1. Assessing the sensitivity of The Canyons MPA to climate change pressures: https://vepimg.b8cdn.com/uploads/vjfnew/6281/content/docs/1635590020poster-last-ellen-pdf1635590020.pdf

2. CME Renewables Report Card: https://vepimg.b8cdn.com/uploads/vjfnew/6281/content/docs/16355899512021-cme-renewables-final-report-cefas-pdf1635589951.pdf
3. Advancing Understanding of Climate Change Impacts on the UK's Vulnerable Marine Species: https://vepimg.b8cdn.com/uploads/vjfnew/6281/content/docs/1636465080climate-change-impacts-on-uk-s-vulnerable-marine-species-infographic-compressed-pdf1636465080.pdf
4. Natural Capital in the Caribbean UK Overseas Territories: Valuation, Vulnerability and Monitoring Change: https://vepimg.b8cdn.com/uploads/vjfnew/6281/content/docs/1636538767cop26-jncc-naturalcapital-resilience-pdf1636538767.pdf