UK-led Endorsed Decade Projects

“Ocean Generation, Ocean Intelligence”
Ocean Generation

Decade Call 1: Challenges 1 - 10

"Ocean Intelligence” breaks down the seemingly irreconcilable human dilemmas which create Ocean threats into understandable, affordable and practical actions that people can take all over the world to restore a sustainable relationship with the Ocean.

Visit: Ocean Generation

“Global Ocean Biodiversity Initiative”
GOBI & Seascape

Decade Call 1: Challenges 1 - 10

GOBI is an international partnership of organisations committed to advancing the scientific basis for conserving biological diversity in the marine environment. In particular, GOBI contributes expertise, knowledge and data to support the Convention on Biological Diversity's efforts to identify and promote ecologically or biologically significant marine areas (EBSAs) by assisting a range of intergovernmental, regional and national organisations to use and develop data, tools and methodologies. GOBI also undertakes research to generate new knowledge that will enhance environmental protection, management and sustainable use of specific areas in the ocean.

Visit: GOBI.org

“Plastic Drawdown”
Common Seas

Decade Call 2: Challenges 1, 2 & 5

Plastic Drawdown (PD) is a proven rapid assessment tool to help countries develop an evidence-based policy response to ocean plastic pollution when data is limited. We want to use PD to help 10 new countries understand their plastic waste flows, identify policy interventions, and announce evidence-based strategies that reflect their needs and have stakeholder support. PD was developed in consultation with 27 governments, resulting in a rapid, cost-effective, collaborative and user-friendly approach to support policy development, particularly in low and middle-income countries with limited data and a significant plastic problem. Our vision is to support ambitious but resource-constrained decision-makers to deliver effective national strategies that address the full life cycle of plastics with actions spanning the value chain, adapting our approach to meet country-specific requirements. We also want to disseminate the lessons learned from these 10 countries to support action elsewhere.

Visit: Plastic Drawdown

"WCO Biomolecular Observing Network"

Marine Biological Association

Decade Call 2: Challenges 1, 2 & 5

The Western Channel Observatory – Biomolecular Observing Network (WCO BON) will build on the successes of over a century of continuous biological observations (including 20 years of DNA sampling) by combining with innovative autonomous solutions for sampling, data capture and development of predictive capability through biological digital twins. The observatory covers almost 1,000 km2 of coastal ocean in the Western English Channel adjacent to the city of Plymouth; home to three world-leading marine research organisations. Biomolecular observations will help map key biodiversity knowledge through temporal and spatial monitoring, with the bigger challenge of determining the biological functional capacity of this immense evolving marine genomic reservoir. Our ambition is to achieve integrated global biomolecular observations and data sharing through networks of excellence and capacity development. Its predictive capability will ultimately revolutionise sustainable ocean management.

Visit: WCO - Biomolecular Observing Network

"One Ocean Hub – Research Programme 4"

University of Strathclyde

Decade Call 2: Challenges 1, 2 & 5

OOH RP4 is a strand of the One Ocean Hub, an international programme of transdisciplinary research for sustainable development. Focusing on the human right to science through capacity building for deep sea science in the South-East Atlantic, OOH RP4 will advance understanding of offshore marine biodiversity through new deep-water surveys in one of the world's most poorly known ecosystems. It will advance knowledge of environmental changes on deep-sea biodiversity and develop new methods to assess impacts of multiple stressors on deep-water vulnerable habitat-forming species found in Vulnerable Marine Ecosystems and Ecologically or Biologically Significant Areas. It will ensure uptake of science by co-producing novel modelling methods to visualise and predict the distribution of species and habitats and of multiple threats to stimulate various management scenarios.

Visit: One Ocean Hub

"Seabed Mining & Resilience to Experimental Impact (SMARTEX)"

National Oceanography Centre

Decade Call 2: Challenges 1, 2 & 5

Our project aims to provide the critical scientific understanding and evidence base to reduce the risks of the developing deep-sea mining industry for polymetallic nodules. Our project team have secured access to data and test plans, to allow detailed experimental evaluation of impact and recovery from realistic mining disturbance on a decadal scale of vital relevance to understanding the long-term sustainability of deep-sea mining. The project aims to better understand the ecosystem in the Pacific abyss and how the different components interact and interconnect.

Visit: SMARTEX

"Future Coastal Ocean Climates (FLAME)"

National Oceanography Centre

Decade Call 2: Challenges 1, 2 & 5

FLAME will generate innovative, high-resolution, downscaled decadal to centennial projections of future coastal ocean climates and the impacts on coastal ecosystems, hazards, services and resources at the local-regional scales necessary for informed decision making. It will achieve this by making a step-change in regional Earth System Model process fidelity and climate downscaling approaches, and by providing new projections, downscaling, predictive and hazard assessment tools. FLAME sets a high-level framework to be collectively pursued throughout the Decade, aiming to inform future IPCC reporting. Partners here will target specific polar, temperate, subtropical and tropical regional coastal oceans where initial progress will be made. It will use CoastPredict, other Decade programmes and partner stakeholder networks to turn advances in understanding and predictive ability into actionable products that can inform climate change adaptation and mitigation solutions.

Visit: FLAME

"Connecting Communities to Atlantic Ocean Observing"

National Oceanography Centre

Decade Call 2: Challenges 1, 2 & 5

Ocean observing is a necessary service to fulfil our collective stewardship responsibility and understand the effects of climate change on human life, economic, and environmental wellbeing. To fully realize this service, we must expand our view of the value of ocean observing and move towards a sustained observing system to deliver crucial information to stakeholders and policymakers. AtlantOS supports Atlantic basin scale implementation by identifying and fostering collaborative partnerships among user communities and ocean observing and data networks. AtlantOS is actively building formal relationships with international bodies and AtlantOS-connect will facilitate engagement with national and regional entities, connecting observing networks and providing visibility to the common challenges, needs and opportunities of Atlantic communities.

Visit: Connecting Communities to Atlantic Ocean Observing

"Ocean Science in Action (OSA)"

National Oceanography Centre

Decade Call 2: Challenges 1, 2 & 5

"Ocean Science in Action: Addressing Marine Ecosystems, Food Security and Climate Change Impacts" (OSA) aims to build a unique collection of open access online educational and capacity development video resources dedicated to the innovative marine technologies and how they are used to tackle the challenges of sustainable management of marine ecosystems. OSA examines the latest advances in marine robotics, remote sensing, and ocean modelling, exploring their use via real-world case studies from the Indian Ocean. The program brings stories about artisanal fisheries, blue carbon ecosystems and coastal communities at the forefront of the climate change impacts. Working together with a range of interdisciplinary research projects, the OSA international partnership develops and continuously expands a library of engaging video lectures demonstrating how marine science can contribute to the UN Sustainable Development Goals and the challenges of the Ocean Decade 2030.

Visit: Ocean Science in Action

"Polar Ecosystems, Global Impacts (BIPOLE)"

NERC, British Antarctic Survey

Decade Call 3: Challenges 3 & 4

BIOPOLE will address a fundamental aspect of the Earth System; how nutrients in polar waters drive global carbon (C) cycling and primary productivity. Ocean ecosystems absorb atmospheric CO2, mitigating large amounts of manmade C. However, this part of the global C cycle relies on an adequate supply of nutrients, primarily from the polar regions. BIOPOLE will improve our ability to quantify this export and determine its sensitivity to climate change by addressing three major questions: 1 What physical, chemical and biological processes modify nutrient balance en route from source to polar ocean ecosystems, and how sensitive are they to climate change? 2 What influences do ecosystem processes have on nutrient balance and movement of C to depth in polar oceans, and how may this change in the future? 3 How may movement of C to depth and export of nutrients change in the future, and what impacts will this have on global ocean fish stocks and global C cycling?

Visit: BIPOLE

"BORA: Blue Ocean Research Alliance"

National Oceanography Centre

Decade Call 4: Challenges 6 & 8

BORA Blue Ocean Research Alliance® is an innovative relationship with a vision for marine scientists and the offshore industry to work together to improve the understanding of the world's ocean for a sustainable future. BORA was initiated to enable and energy transition stakeholders to support scientific monitoring during the UN Decade of Ocean Science for Sustainable Development. The alliance facilitates access to the deep ocean via Subsea7's offshore vessels and underwater vehicles for scientific observation and monitoring in areas they operate. BORA supports projects from broad disciplines that can take place during operational time or through access to existing data. So far, BORA has integrated sensors into deep-water ROVs, set up projects to monitor submarine canyons. and generated information on benthic species abundance and diversity from images. It is building commitments from partners to join the alliance and develop a range of projects to observe the ocean.

Visit: Blue Ocean Research Alliance

"BIO-Carbon"

National Oceanography Centre

Decade Call 4: Challenges 6 & 8

The ocean stores huge amounts of carbon dioxide that would otherwise be in the atmosphere. Marine organisms play a critical role. but emerging evidence indicates that climate models are not fully accounting for their impact. This programme will deliver the new understanding of the role of marine life that is needed to make robust predictions of future ocean carbon storage. To do so BIO-Carbon will address 3 major challenges: Challenge 1: how does marine life affect the potential for seawater to absorb CO2. and how will this change? Challenge 2: how will the rate at which marine life converts dissolved CO2 into organic carbon change? Challenge 3: how will climate change-induced shifts in respiration by the marine ecosystem affect the future ocean storage of carbon?

Visit: BIO-Carbon

"Haig Fras Marine Protected Area Digital Twin"

National Oceanography Centre

Decade Call 4: Challenges 6 & 8

A Digital Twin of the Haig Fras Marine Protected Area (MPA) will be developed. At the heart of this project is the principle that the developments are made publicly accessible and reusable by design. A digital twin asset register, developed in this project, will ensure that components and concepts are reusable in future projects and opportunities for delivering interoperability are fully explored. Marine photography is increasingly used as a low cost, accessible and non-destructive method of capturing community status. When completed, the digital twin will allow a more complete view by integrating baseline data such as seafloor geology, combined with observations, dynamic model outputs and will facilitate the application of artificial intelligence tools to provide an accessible representation of our seas and oceans for scientists, governments and marine operators.

Visit: Haig Fras MPA Digital Twin

"Global Real-time Early Alarm for Tsunami"

Cardiff University

Decade Call 4: Challenges 6 & 8

Tsunami warning relies on seismic measurements causing false alarms. which result in financial loss due to evacuation and business shutdown. Moreover. people's confidence reduces due to repeating false alarms leading to increased number of casualties in real tsunami. Reducing false alarms is an intergovernmental priority led by the UNESCO in accordance with SDG's Goal 11 to make cities inclusive. safe. resilient and sustainable. Therefore. we developed a real-time early tsunami warning technology based on analysing fast travelling sound signals that carry information on tsunamis. The technology will be deployed in two NTWCs for operational validation. then it will be deployed in more centres to provide tsunami emergency response. The technology is built on years of research in the field bridging cutting-edge deep-sea observations to inverse modelling. AI and numerical modelling. Such a technology is complimentary and inclusive with the conventional tsunami detection techniques.

Visit: GREAT

"COLaB: Coastal Observation Lab in a Box"

University of Edinburgh

Decade Call 5: Challenges 1 & 2

Coastal Observation Lab in a Box (COLaB) will address the critical lack of quality oceanographic data that exists for many coastal ocean regions, most often due to lack of resource in island and rim nations. A key feature will be affordable new instruments for determination of a wide range of biological, physical and biogeochemical parameters. Notably, these can be used to address diverse scientific questions, in settings ranging from nearshore wetlands to the shelf edge, all without need of a formal research vessel or laboratory. Protocols for all methods, combined with in-person training, at regional training camps and as part of the Coast Predict programme, will serve to train up multiskilled, hands-on oceanographers. Modelling tools and an easy-access data management package will help to maximise the value of the standardised observations, both to local end users (food security, ecosystem function and health, hazard resilience etc) and to the global scientific community.

Visit: COLaB

“Transboundary governance for climate change adaptation in marine socio-ecological systems”
Lancaster University

AXA Research Fund

Dr Emmanuel Mbaru will work to develop a novel interdisciplinary network modelling framework to empirically quantify climate impacts on fisheries and examine how legal pluralism in fisheries governance affect ability to adapt to climate change.
Visit: Transboundary Governance for Climate Change Adaptation

“Women’s livelihoods in vulnerable coastlines”
Institute of Risk and Disaster Reduction, UCL

AXA Research Fund

Pointing out the lack of gender-disaggregated data, Dr Megnaa Mehtta will investigate several forms of differentiated vulnerability among coastline resident women of the Bay of Bengal Delta, such as notably intra-household inequalities, endemic health and livelihood risks, and migration-related pressures, with a view to better inform relevant decision-making.
Visit: Women's Livelihoods in Vulnerable Coastlines

“Integrating aquaculture with capture fisheries to avert hunger in coastal communities in Africa”
University of Leeds

AXA Research Fund

Dr Nwamaka Okeke-Ogbuafor will seek to harmonize and integrate marine aquaculture and fisheries to help eradicate hunger and create new income opportunities for communities in Sierra Leone and other parts of Africa, with the aim of strengthening people’s resilience.
Visit: Integrating Aquaculture with Capture Fisheries to Avert Hunger in Coastal Communities in Africa