



National  
Oceanography  
Centre

# OUR IMPACT

2021/22



“ Our work continues to have global impact. This annual collection of stories demonstrates the passion of our people and the truly exceptional work they are undertaking to pursue and promote ground-breaking research and innovation.

We believe that if we all have a deeper understanding of the ocean, we can unlock its potential and provide solutions to problems facing the world today.

Because by helping our ocean, all life on Earth will benefit.

A handwritten signature in black ink, appearing to read 'Ed Hill'.

PROFESSOR ED HILL CBE  
CHIEF EXECUTIVE

# AN OCEAN OF WONDER

Our planet is a blue planet. 70% of its expanse is covered by the ocean.

With a rapidly changing climate there's a lot of worry about, our fate is bound in our ocean. So, we go deeper, with our charitable goals we pledge to advance, share, enable and innovate. To unlock the potential and provide solutions to problems facing the ocean today and tomorrow.

**30 MILLION PEOPLE**  
WERE IN FULL TIME EMPLOYMENT  
THROUGH THE OCEAN ECONOMY IN 2010<sup>1</sup>

BY 2030, EMPLOYMENT IN OCEAN  
BASED INDUSTRIES WILL REACH  
**40 MILLION PEOPLE<sup>2</sup>**

**OVER HALF**  
OF ALL THE OXYGEN ON EARTH  
IS PRODUCED BY OUR OCEAN<sup>3</sup>

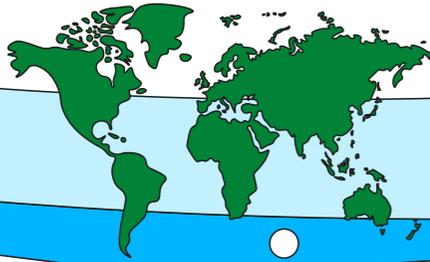
OUR OCEAN PROVIDES THE  
MAIN SOURCE OF PROTEIN FOR  
**1 BILLION PEOPLE<sup>2</sup>**

**95%**  
OF ALL THE UK'S IMPORTS AND EXPORTS  
TRAVEL VIA OUR OCEAN PORTS<sup>3</sup>

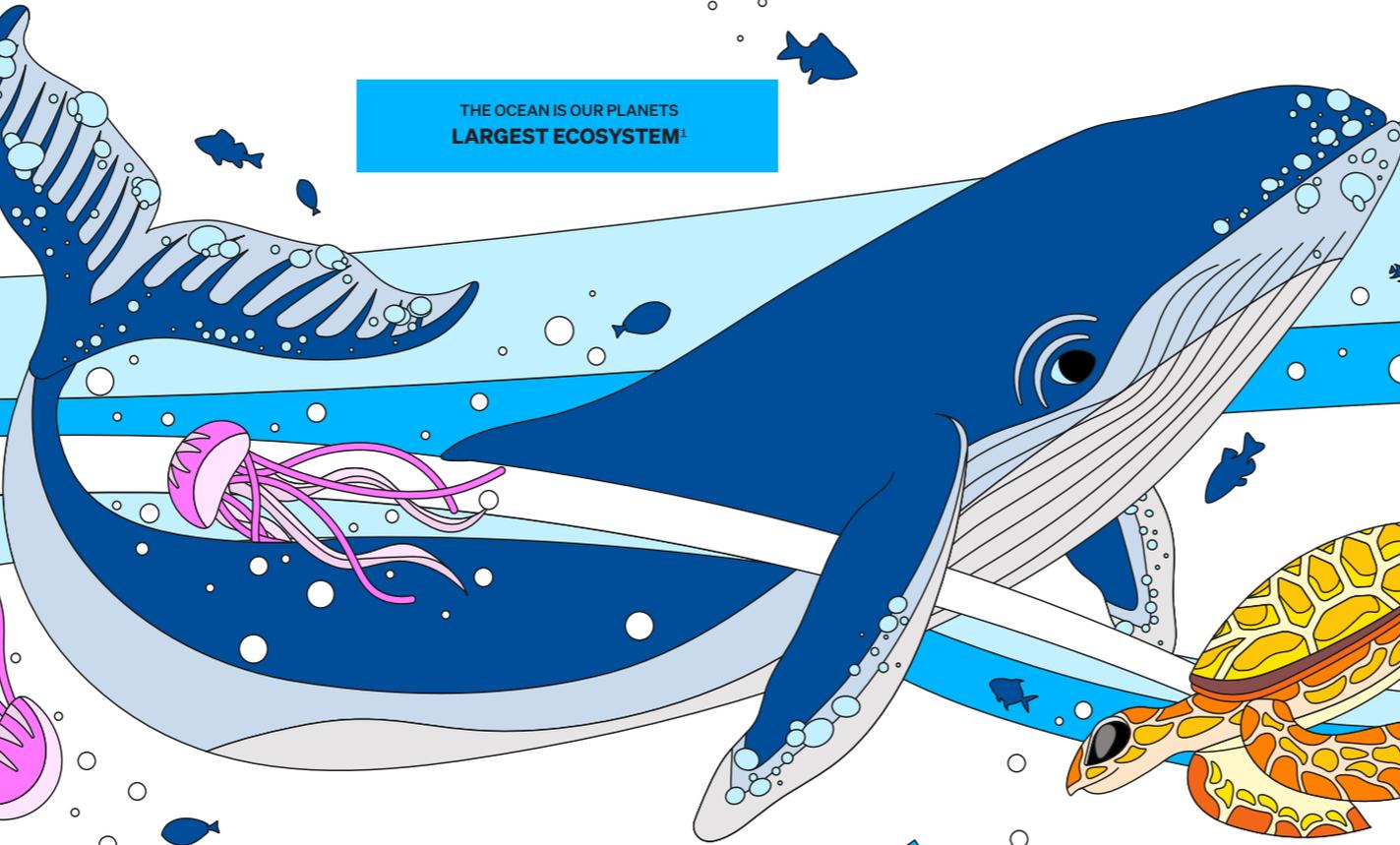
OUR OCEAN SUPPORTS  
THE LIVELIHOODS OF OVER  
**3 BILLION PEOPLE<sup>1</sup>**

**A QUARTER**  
OF OUR ENERGY SUPPLIES  
COMES FROM THE OCEAN<sup>3</sup>

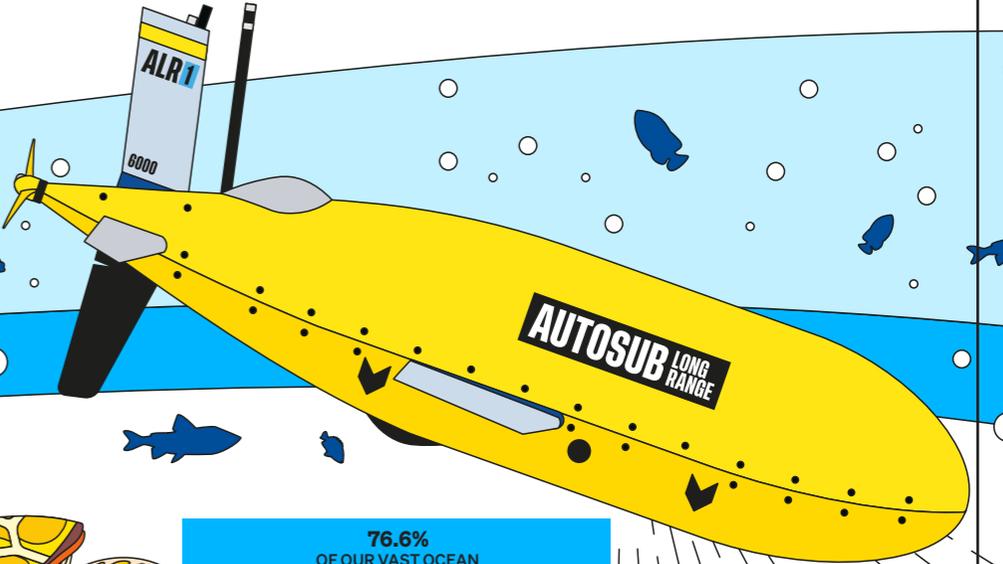
OUR OCEAN CONTAINS 97% OF ALL WATER<sup>1</sup> AND COVERS 70% OF EARTH<sup>2</sup>



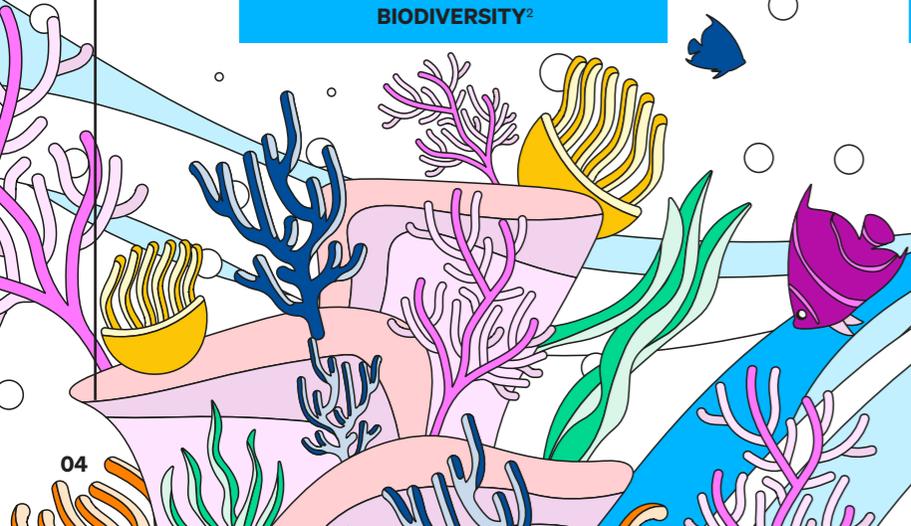
THE OCEAN IS OUR PLANETS LARGEST ECOSYSTEM<sup>1</sup>



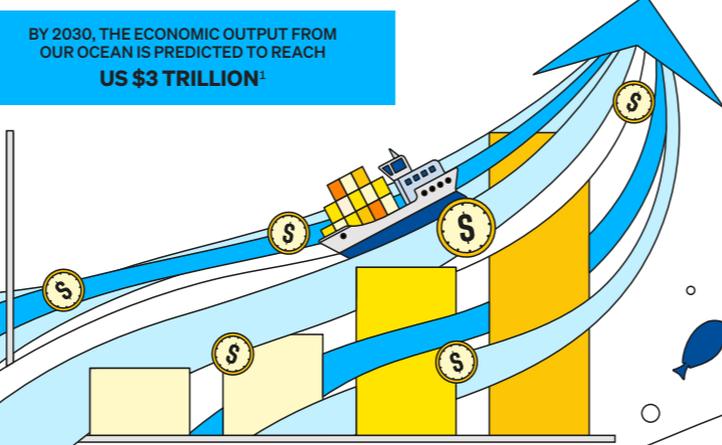
76.6% OF OUR VAST OCEAN FLOOR REMAINS UNMAPPED IN ENOUGH DETAIL<sup>3</sup>



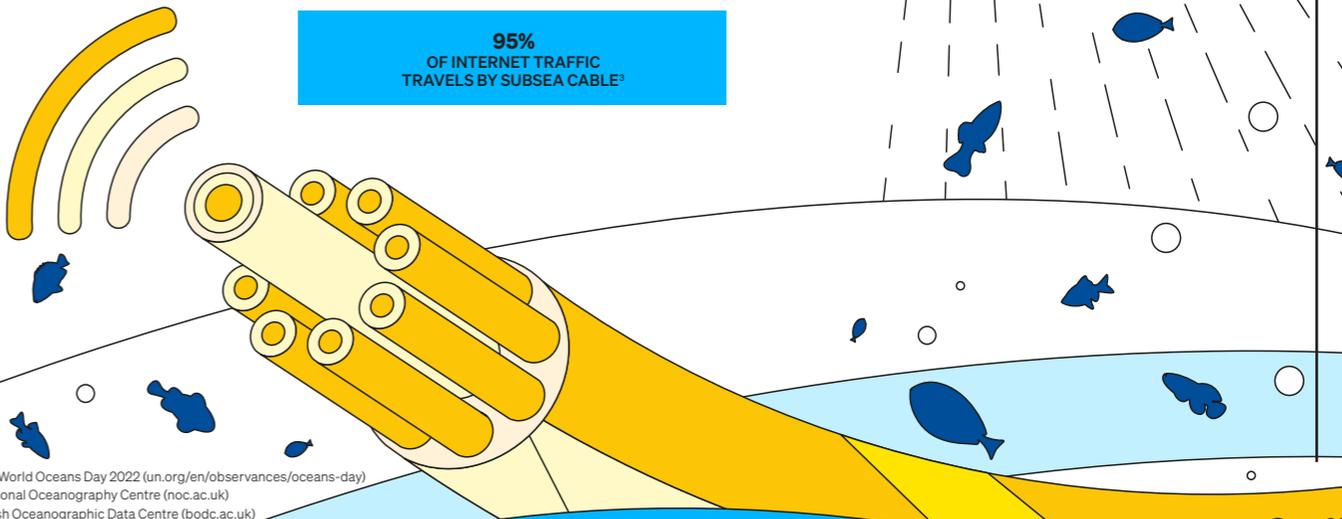
OUR OCEAN IS HOME TO THE MAJORITY OF EARTH'S BIODIVERSITY<sup>2</sup>



BY 2030, THE ECONOMIC OUTPUT FROM OUR OCEAN IS PREDICTED TO REACH US \$3 TRILLION<sup>1</sup>



95% OF INTERNET TRAFFIC TRAVELS BY SUBSEA CABLE<sup>3</sup>



<sup>1</sup>The Sustainable Development Goals Report 2022 (Unstats.un.org/sdgs/report/2022) & Sustainable Development Goal 14 (sdgs.un.org/goals/goal14)

<sup>2</sup>UN World Oceans Day 2022 (un.org/en/observances/oceans-day)  
<sup>3</sup>National Oceanography Centre (noc.ac.uk)  
British Oceanographic Data Centre (bodc.ac.uk)

# AN OCEAN OF WORRY

To influence positive change for our ocean and planet we provide unbiased and independent research to governments, business, academics and the public.

Some of the headline evidence we provided this year was published in the Sixth Intergovernmental Panel on Climate Change (IPCC) Report and the Met Office State of the UK Climate Report 2021.

**CLIMATE CHANGE IS A MAJOR THREAT TO HUMAN WELLBEING AND THE HEALTH OF THE PLANET**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**ANNUAL SPRING BLOOM OF PHYTOPLANKTON HAS SHIFTED EARLIER**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**IN EUROPE, SEA LEVEL RISE REPRESENTS AN EXISTENTIAL THREAT FOR COASTAL COMMUNITIES AND THEIR CULTURAL HERITAGE**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**CLIMATE CHANGE IS CONTINUING TO CAUSE SUBSTANTIAL DAMAGE TO OPEN OCEAN MARINE ECOSYSTEMS**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**OCEAN WARMING AND ACIDIFICATION HAVE ADVERSELY AFFECTED FOOD PRODUCTION FROM FISHERIES**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**SINCE THE 1900'S, THE SEA LEVEL AROUND THE UK HAS RISEN BY AROUND 16.5CM**

MET OFFICE STATE OF THE UK CLIMATE REPORT 2021

**ABOUT HALF OF THE WORLD'S MARINE SPECIES ARE MIGRATING POLE-WARD IN AN ATTEMPT TO SURVIVE IN COOLER WATERS**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**SCIENTISTS ARE PREDICTING THE LOSS OF MUCH OF THE WORLD'S CORAL REEFS AND LOW-LYING COASTAL WETLANDS**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

**ALL THE TOP TEN WARMEST YEARS RECORDED IN THE UK SINCE 1884 HAVE OCCURRED THIS CENTURY**

MET OFFICE STATE OF THE UK CLIMATE REPORT 2021

**IN EUROPE, COASTAL FLOOD DAMAGE PREDICTED TO INCREASE TEN FOLD BY END OF THE 21ST CENTURY**

IPCC CLIMATE CHANGE 2022:  
IMPACTS, ADAPTATION AND VULNERABILITY

“The second report from the IPCC emphasises that climate change is a major threat to human wellbeing and the health of the planet. It has highlighted that climate change is continuing to cause substantial damage to open ocean marine ecosystems.

Ocean warming and acidification have adversely affected food production from fisheries in some oceanic regions, and forecast levels of climate change, plus habitat destruction, will lead to the loss of much of the world’s coral reefs and low-lying coastal wetlands.

The next 20-50 years will see a change in the Earth’s climate, and how that will affect nature and humans will depend on how plants, animals and people adapt.

There is a rapidly closing window of opportunity to both reduce greenhouse gas emissions and develop climate resilient adaptation measures. By conserving, protecting and restoring ocean ecosystems, we can reduce the vulnerability of biodiversity to climate change.”

**PROFESSOR STEPHANIE HENSON**  
PRINCIPAL SCIENTIST  
NATIONAL OCEANOGRAPHY CENTRE

DISCUSSING THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)  
SIXTH ASSESSMENT REPORT



“Tide gauge records provide robust observational evidence that sea level around the UK continue to rise due to increased rate of ice loss from the Greenland and Antarctic ice sheets, as well as continued glacier mass loss and warming of the ocean.

Our long term records show that over the past few decades the rate of sea level rise in the UK is increasing. As sea levels rise there can be greater impacts from storm surges. Last year storm surges of over 1.5m were seen during Storm Arwen, but extreme sea levels were avoided as this occurred during low water and a neap tide.

**DR SVETLANA JEVREJEVA**  
PRINCIPAL SCIENTIST  
NATIONAL OCEANOGRAPHY CENTRE

DISCUSSING THE MET OFFICE STATE OF UK CLIMATE 2021 REPORT



**50%**

LOWER ATMOSPHERIC CO<sub>2</sub> LEVEL IS ONLY POSSIBLE DUE TO THE CONTRIBUTIONS OF THE 'BIOLOGICAL CARBON PUMP'

**2/3**

OF BRITISH PEOPLE SURVEYED SUPPORT INVESTMENT INTO SEA LEVEL MONITORING SYSTEMS TO TACKLE COASTAL FLOODING

**1/4**

OF GLOBAL ANNUAL CO<sub>2</sub> EMISSIONS ARE ABSORBED BY OUR OCEAN

**93%**

OF EXCESS HEAT FROM CLIMATE CHANGE IS ABSORBED BY OUR OCEAN



GOAL 1

# ADVANCE

Undertake internationally excellent research and technology development to advance the frontiers of knowledge about the ocean

To solve the huge problems facing our world and climate today, we need to go deeper. We need to go further in our thinking than ever before. That's why with the intellect and dedication of world leading scientists, we've pursued deeper understanding and have collaborated on the most influential, agenda setting research and reports this year, both at home and internationally. Whilst our facts highlight threats to human wellbeing, our long-term goal to advance solution-focused work continues stronger than ever. We are committed to not only understand the issues better but to mitigate the impacts on our coasts and deep ocean.

197

RESEARCH PAPERS PRODUCED

154

GOLD OPEN ACCESS RESEARCH PAPERS

9

GREEN OPEN ACCESS RESEARCH PAPERS

34

NON-COMPLIANT RESEARCH PAPERS

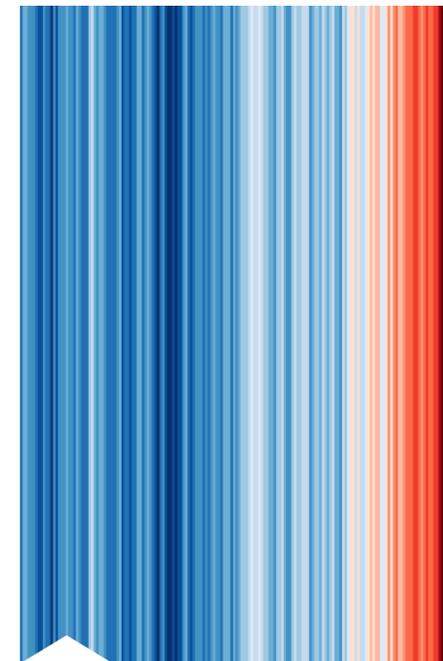
83%

OF ALL RESEARCH PAPERS ARE OPEN ACCESS

### OCEAN EYES

At the 2021 United Nations Climate Change Conference, more commonly referred to as COP26, we called for investment in the global ocean observation system, after all, how can we manage what we cannot measure. We're nothing without quality data so this action is imperative to fulfil our collective stewardship responsibility and understand the effects of climate change on human life, economic, and environmental wellbeing.

To fully realise 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. UN Ocean Decade endorsed initiative 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.



## The Science We Need for the Ocean We Want



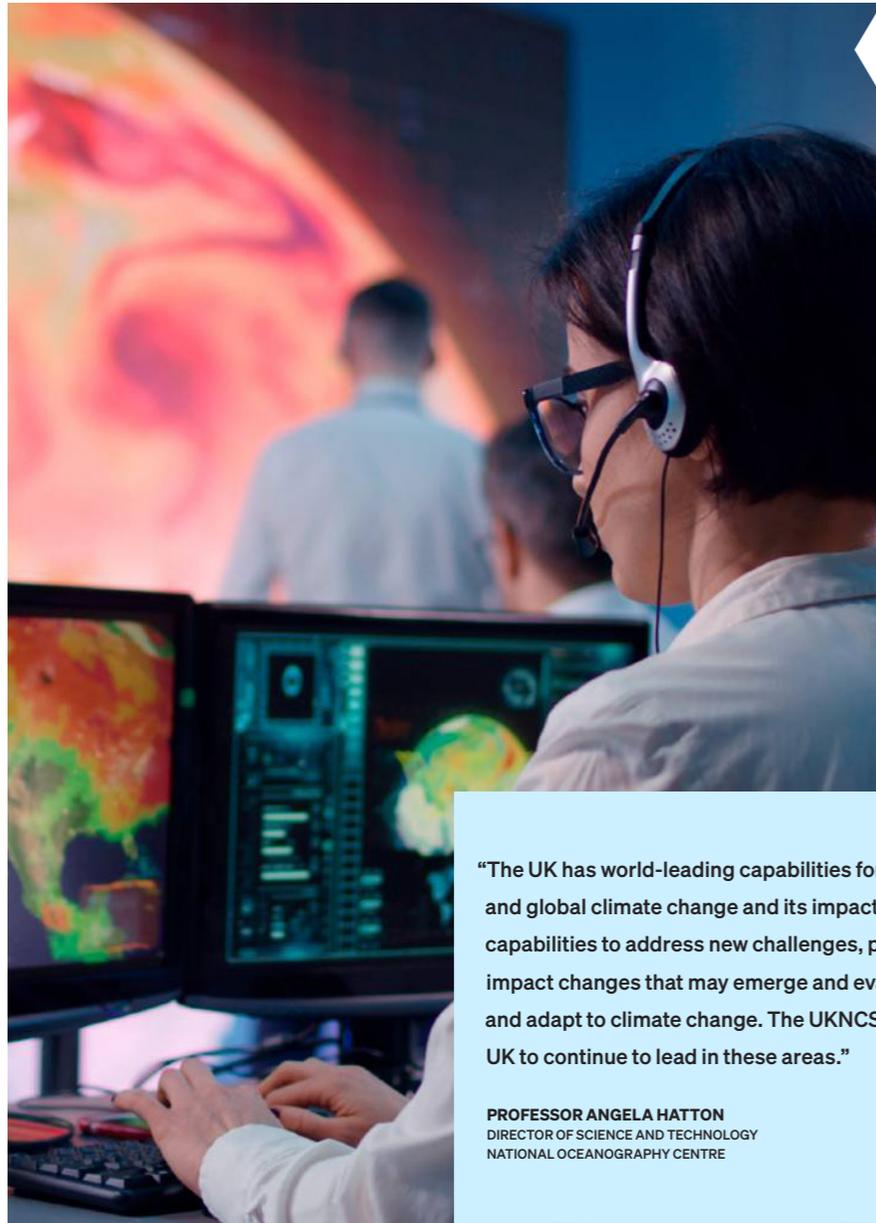
### PREDICTING CHANGE

From real life ocean observations, we can inform digital climate models to forecast how the world will respond to climate change caused by increasing carbon dioxide in the atmosphere.

UN Ocean Decade endorsed initiative FLAME will act as the international focal point and coordinator for understanding the impacts of future climate change in the global coastal ocean.

Within the project we'll generate innovative, high-resolution, projections of future coastal ocean climates and the impacts on coastal ecosystems, hazards, services and resources. We will do this at the local-regional scales necessary for informed decision making across a range of polar, temperate, subtropical and tropical regions.

Hawkins, Ed, 2018. "Warming stripes for 1850-2018" Climate Lab Book. 4 December 2018. Creative Commons Attribution-ShareAlike 4.0 International License.



### STRENGTH IN NUMBERS

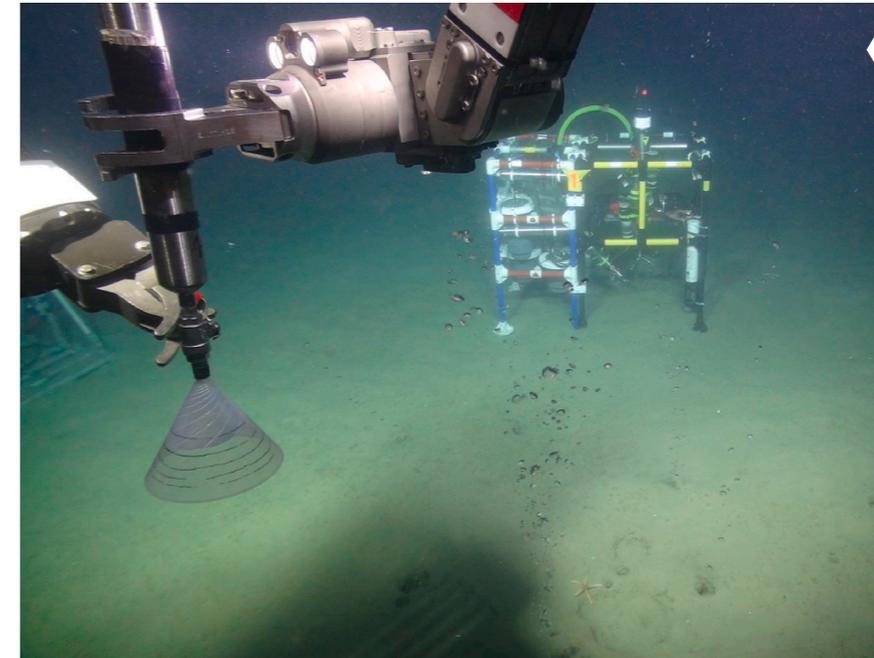
We joined with other leading UK climate science organisations to develop a new national alliance focused on climate solutions for society. Together, with six Natural Environment Research Council (NERC) supported centres and the Met Office, we will work together as the new UK National Climate Science Partnership (UKNCSP) to respond to threats posed by a rapidly changing climate by putting climate science at the forefront of the solutions agenda.

Recognising the urgency of accelerating action towards the goals of the Paris Agreement and UN Framework Convention on Climate Change, the UKNCSP will play a leading role in the development of an end-to-end climate strategy.

The solutions-focused approach is supporting the UK Government in developing and evaluating solutions to the challenges of mitigating and adapting to climate change. The partnership will also work with the public and private sectors to ensure decision makers and businesses have access to the climate information they need, in order to build resilience and adapt to the pressing challenges of the coming decades.

“The UK has world-leading capabilities for monitoring, modelling and predicting UK and global climate change and its impacts. We need to continue to develop these capabilities to address new challenges, provide early warning of potential high impact changes that may emerge and evaluate specific policy options to mitigate and adapt to climate change. The UKNCSP provides the foundations to enable the UK to continue to lead in these areas.”

**PROFESSOR ANGELA HATTON**  
DIRECTOR OF SCIENCE AND TECHNOLOGY  
NATIONAL OCEANOGRAPHY CENTRE



### BLUE MEADOWS

A study underway on the Isle of Man is investigating, for the first time, the Island’s marine and coastal role in storing carbon to help mitigate climate change.

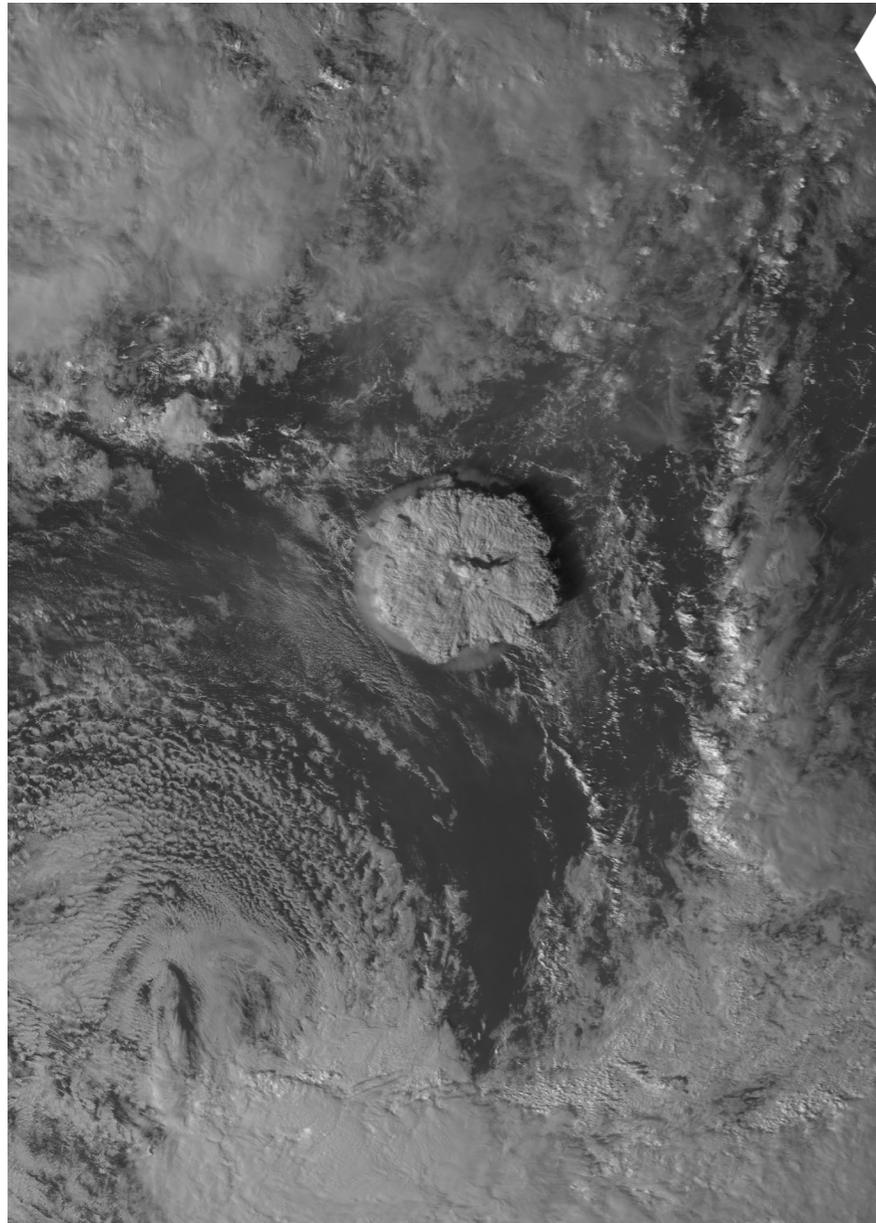
Blue carbon habitats like seagrass meadows, which are found around the Isle of Man, capture significant amounts of carbon, and they can also protect coastal communities against storms and flooding, improve ocean health and provide habitats for a multitude of species and commercially important fisheries. Understanding the management and restoration of these environments supports the Manx government’s ambition to achieve carbon neutrality on the Isle of Man by 2050.



### CARBON VAULT

In a world-first, our research off the coast of Scotland suggested that storing carbon dioxide (CO<sub>2</sub>) under the sea is both viable and safe.

The process, known as carbon capture and storage (CCS), is regarded as one of the more effective tools in the fight against climate change. The process involves separating the CO<sub>2</sub> generated during industrial processes and injecting it directly into rock formations or depleted oil and gas reservoirs deep underground. Evidence from our pilot study will now help inform the direction of technology development for the long-term monitoring of offshore CO<sub>2</sub> storage reservoirs. It is a huge step forward in assuring regulators that this process is safe by being able to monitor any potential leaks as well as assess any potential damage to marine life.



### RAPID RESPONSE

The eruption of the Tongan Volcano Hunga Tonga – Hunga Ha'apai, which culminated in the most explosive eruption in more than a hundred years, took the world by surprise and highlighted a global vulnerability to large magnitude volcanic events. The most explosive phase of the eruption broke the only seafloor telecommunication cables that connected the Kingdom of Tonga to international telecommunications; effectively cutting an entire nation off from the rest of the world for more than five weeks, at a critical time for disaster response.

Commitment to our Values and Sustainability and Social Responsibility Strategy (see Goal 7) saw us rally into action and form an international collaboration. Working with the National Institute of Water and Research (NIWA), New Zealand, the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), collaborators across the Kingdom of Tonga and subsea cable companies, we coordinated ambitious research to understand the processes that drove the eruption and the resultant cascades of hazards.

We led a NERC Urgency Grant, which enabled seafloor surveys to be performed within two months of the event - revealing powerful seafloor flows were triggered by the eruption, travelling at fast speeds over tens of kilometres, explaining the widespread damage to seafloor telecommunication cables. These findings were immediately transferred to local stakeholders and subsea cable companies to select optimal locations for the repaired cables and design new cable routes that are required to improve resilience in the region.

The power of the Hunga Tonga – Hunga Ha'apai eruption was unexpected, but there are many similar volcanoes along the Tongan Volcanic Arc. A new NERC Global Seedcorn project aims to improve our knowledge of these kinds of hazards, identifying other volcanoes that pose a similar risk. This research builds on our strong background in assessing threats to critical infrastructure and volcanic hazard research across the Pacific including a similarly rapid response to the 2019 eruptions of Tongan Volcano F and Late'iki.



### SAFTEY FIRST

Working on behalf of the Government of Saint Lucia through the Disaster Vulnerability Reduction Project we installed three new tide gauges to help reduce the island's vulnerability to natural hazards and climate change. The network of tide gauges will continuously measure and report sea level and tidal variability, providing valuable information to local seafarers and port authorities, as well as being an important addition to the Caribbean Early Warning System for tsunamis and other coastal hazards.

Alongside an existing tide gauge installed by NOC under the Commonwealth Marine Economies Programme in 2016, the data from these gauges will be transmitted in near real-time to the Sea Level Station Monitoring Facility, enabling the data to be publicly accessible globally.

With the frequency of coastal inundation due to storm surges projected to increase and global mean sea level likely to rise by up to 0.23m by 2050\*, the installations will help local planning authorities to decide how high to build coastal defences to protect coastal populations from the dangers of flooding. In addition, the gauges will enable the Saint Lucia Meteorological Service to produce tide tables that show times and heights of sea level to aid safe navigation and port operations.

**GOAL 2**  
**SHARE**

**Create public benefit from all of NOC's capabilities**

Our science must go deeper than just gaining academic understanding. Understanding needs to translate into awareness, action and positive change. That's why we're inspiring and empowering the next generation of ocean scientists and technologists through community events, school projects, education resources and online engagement. We're helping young people have a deeper connection and a deeper understanding of the ocean. We passionately believe positive change for the planet starts with ocean literacy.



"We really enjoyed working with this group of young students to engage them in oceanography in such a unique way. It's so important to inspire people from a young age, especially on crucial environmental issues like climate change and microplastics that they might not otherwise be exposed to in school."

**DR B.B. CAEL**  
RESEARCHER  
NATIONAL OCEANOGRAPHY CENTRE



**SMALL BUT MIGHTY**

Our scientists, engineers and mariners worked with students from King Edward VI School in Southampton to send a miniature research sailboat on a 46-day expedition of discovery.

Named 'KES Kraken' by the students, the mini-boat was built over several weeks as part of a hands-on after school project. The students equipped it with a sail and a satellite tracker, as well as a unique suite of scientific sensors, that enabled them to track in real time the air and water temperature and compare it with NOC research.

During the build, to support our commitments to ocean literacy, NOC scientists dropped in to provide support and educational talks on ocean and environmental issues including microplastics and climate change.

Once complete, KES Kraken was launched into the Atlantic Ocean by our crew on board RRS Discovery on the 19th February. After 46 days at sea KES Kraken was successfully recovered on the shores of Brazil having travelled 40,000km and provided the captivated students with a unique and unforgettable experience.

The King Edward VI School project is a collaboration between NOC, Educational Passages non-profit and EU Interreg iFADO project, with additional support from the EU-funded GOCART project and the NERC-funded DIAPOD projects.

"I hope all students involved in the project were inspired by the NOC experts who visited the school, and have dedicated their careers to science. It was also wonderful to see Sixth Form assisting younger students with the project."

**DR MAYOR**  
TEACHER  
KING EDWARDS VI SCHOOL



### WORLD OCEAN DAY

In London our Board of Trustees and Executive team welcomed friends, supporters and Ocean Alliance partners from across government and business who, like us, recognise the need to act to protect our ocean and our planet.

Our position as the UK's leading marine charity, having left the public sector in 2019, allows us to unite and explore new innovative opportunities. Keynote speaker The Right Honourable Lord Goldsmith, Minister of State for the Pacific and the International Environment, acknowledged our work has been key to understanding the urgency with which we need to act to protect our ocean.

Internationally, as part of the United Nations Ocean Conference, we partnered with aligned research organi-

sations, UN agencies and industry partners in delivering many side events. We participated on a number of exciting panels to raise awareness and champion ocean sustainability, women leadership and empowerment, and inclusive governance. All causes supported by our vision, mission and values.

Digitally, our education focused hybrid event on site in Southampton, allowed us to broadcast live into classrooms and homes internationally. Our experts shared knowledge on the challenges we face, as well as the solutions we're helping to advance.

**1207**

ONLINE DELEGATES

**2759**

VIEWS ON DEMAND

**175k**

SOCIAL MEDIA REACH

### CASTING FURTHER

Into the Blue is our latest free and online resource designed to share our understanding of the ocean environment and enable everyone to dive deeper.

In each episode we unravel the complexity of issues facing today's ocean and the variety of ways a healthy ocean supports human wellbeing and prosperity. These conversations complement the already popular 'Under the Surface' pages on our website, giving even more accessibility to ocean literacy. The podcast introduces the wealth of talented scientists and engineers working at NOC and gives them a platform to educate and inform about their passion projects and world leading work.

**889**

PODCAST LISTENS SINCE LAUNCH ON WORLD OCEANS DAY 2022

**957**

VIDEO VIEWS SINCE LAUNCH ON WORLD OCEANS DAY 2022



**145**

COUNTRIES WITH MOOC PARTICIPANTS

**4**

CASE STUDIES IN THE INDIAN OCEAN

### MOOC

The highly successful Massive Open Online Course (MOOC) ran for its fifth year with 2021-22 seeing new lectures launched on Somalia upwelling and fisheries.

The free course introduces learners to innovative marine technologies and their applications used to tackle the challenges of the sustainable management of marine ecosystems.

**2271**

TOTAL ACTIVE MOOC PARTICIPANTS

**721**

FULLY COMPLETED MOOC COURSES

**4199**

INTERACTIVE COMMENTS

**4140**

TOTAL "OCEAN SCIENCE IN ACTION" MOOC LEARNERS

## OCEAN NEWS

We pride ourselves on being the spokespeople for the ocean. We're a trusted source of facts and our people are passionate.

We share stories of our research and experiences in lots of different ways to turn ocean worriers into action advocates. You've likely seen some of our work on the news, or in a magazine, you may have read our newsletters or visited our website. If so, we're delighted you've joined us as part of our growing ocean news community.

**64k**

TOTAL SOCIAL MEDIA AUDIENCE

**626**

PIECES OF MEDIA COVERAGE

**788k**

TOTAL TRADE MEDIA REACH

**191.1M**

TOTAL MAINSTREAM MEDIA REACH

**5763**

OCEAN NEWS EMAIL SUBSCRIBERS

**596k**

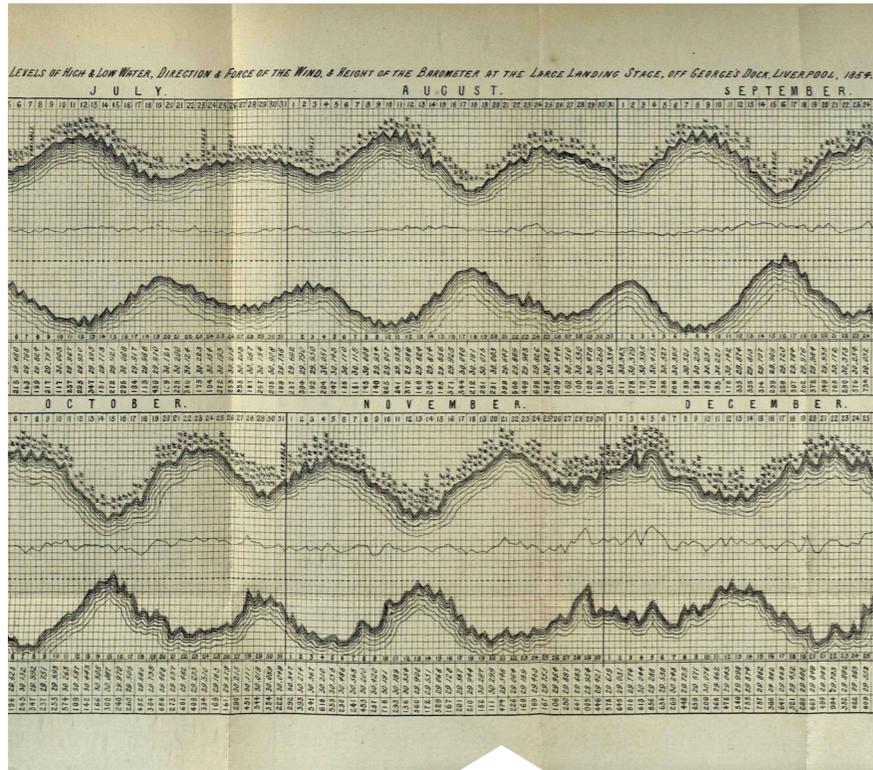
UNIQUE PAGE VIEWS ACROSS NOC WEBSITE

**77k**

UNIQUE PAGE VIEWS ON NOC NEWS STORIES

**103**

NOC NEWS STORIES PUBLISHED ON WEBSITE

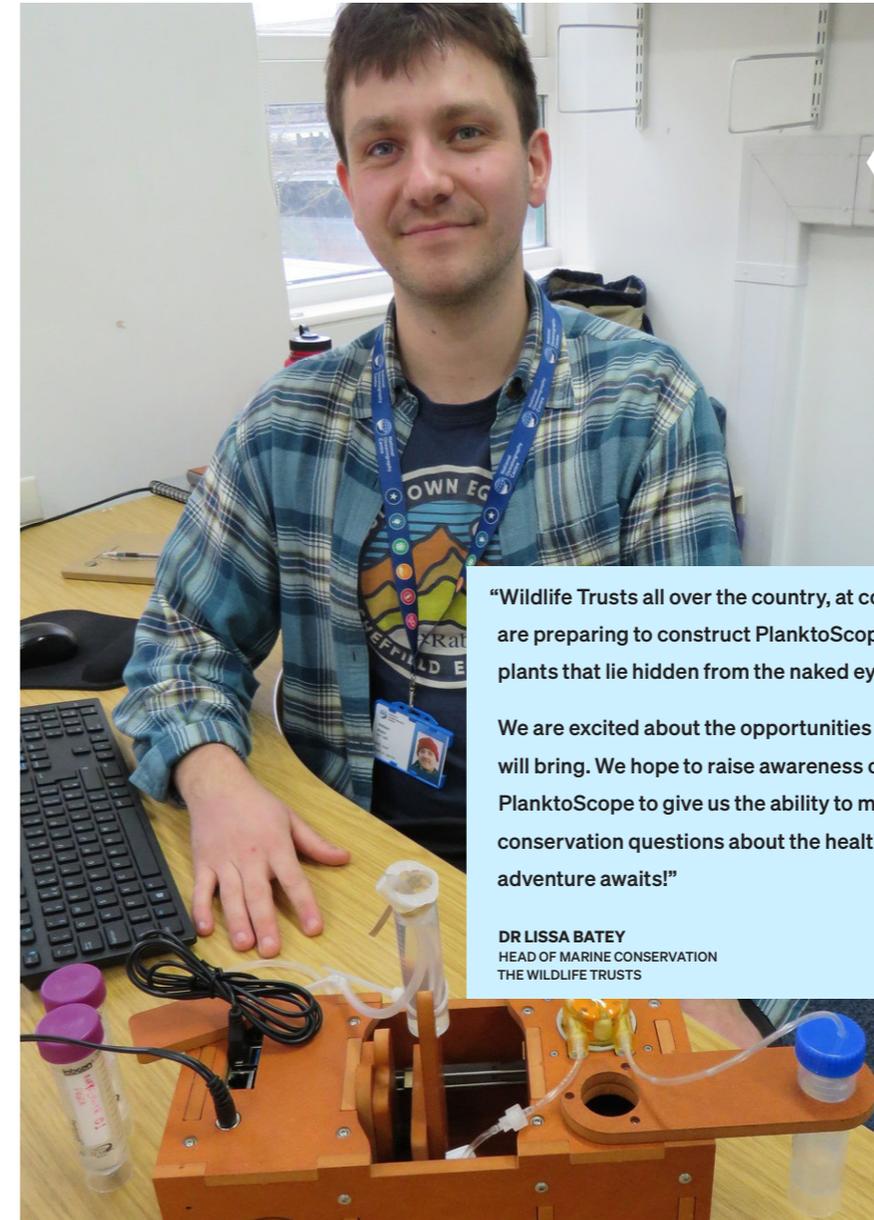


## TIDE OF SUPPORT

Over 3,800 volunteers from The Zooniverse, an online citizen science platform, helped to digitise historical data of tides and sea level near Liverpool.

We launched the UK Tides Citizen Science Project in January 2021 and asked you to help transcribe handwritten tide data from two gauges in Hilbre Island and George's Pier between 1853-1903.

The new data gathered will help the science community understand how tides and extreme sea levels have changed over the past two centuries and allow them to better quantify the risks we face from flooding in the future.



## TRUST TRAINING

Microplastics are of emerging global concern, due to their potential to cause harm across eco systems, but more data is needed about their spread in the ocean, and their interaction with plankton – a food source for many aquatic organisms.

In order to fill this data gap, we're training citizen scientists at The Wildlife Trusts to generate a microplastic and plankton time-series using Stanford University's PlanktoScope. The PlanktoScope, a low-cost flow imaging microscope, is composed of a Raspberry Pi computer and a camera, two lenses for magnification and a flow system. The flow system affords efficient imaging of microscopic particles in a water sample as they move past the camera.

"Wildlife Trusts all over the country, at coastal locations and inland on our waterways, are preparing to construct PlanktoScope to take a closer look at the animals and plants that lie hidden from the naked eye in our waters.

We are excited about the opportunities that having these specialised microscopes will bring. We hope to raise awareness of these tiny life forms and use the PlanktoScope to give us the ability to monitor long term and help us address conservation questions about the health of our waters, both fresh and salty. The adventure awaits!"

**DR LISSA BATEY**  
HEAD OF MARINE CONSERVATION  
THE WILDLIFE TRUSTS



**GOAL 3**  
**INNOVATE**

Successfully translate world-leading and innovative research and technology developments to achieve wider impact

The brilliant minds at the helm of ocean discovery need equally brilliant technology to push the boundaries of innovation. That's why the latest, cutting-edge technology plays a major underpinning role in our work. This technology doesn't just take us to the depths of the ocean, it gives us a deeper understanding of everything past, present and future, from the coast to deep ocean. From deep diving data, to pioneering measurement technology, we're living our value of innovation.

**INDUSTRY ALLIANCE**

The launch of the BORA Blue Ocean Research Alliance® has helped us bridge the gap between industry and science to support sustainable research and development. Together the BORA Blue Ocean Research Alliance® is providing researchers access to hard-to-reach areas and sharing open access scientific data and knowledge at every step of the way.

The BORA Blue Ocean Research Alliance® successfully developed a prototype essential ocean variable sensor box and deployed it for trials in the North Sea with Subsea7. The first complete box is now being commissioned in Brazil with Subsea7 on one of their client sites and will be in service for 18 months to supply key data on the health of the ocean in that region. There are also projects in development to research acoustic monitoring in deep-sea canyons and management of endangered species.



**DOUBLE ACT**

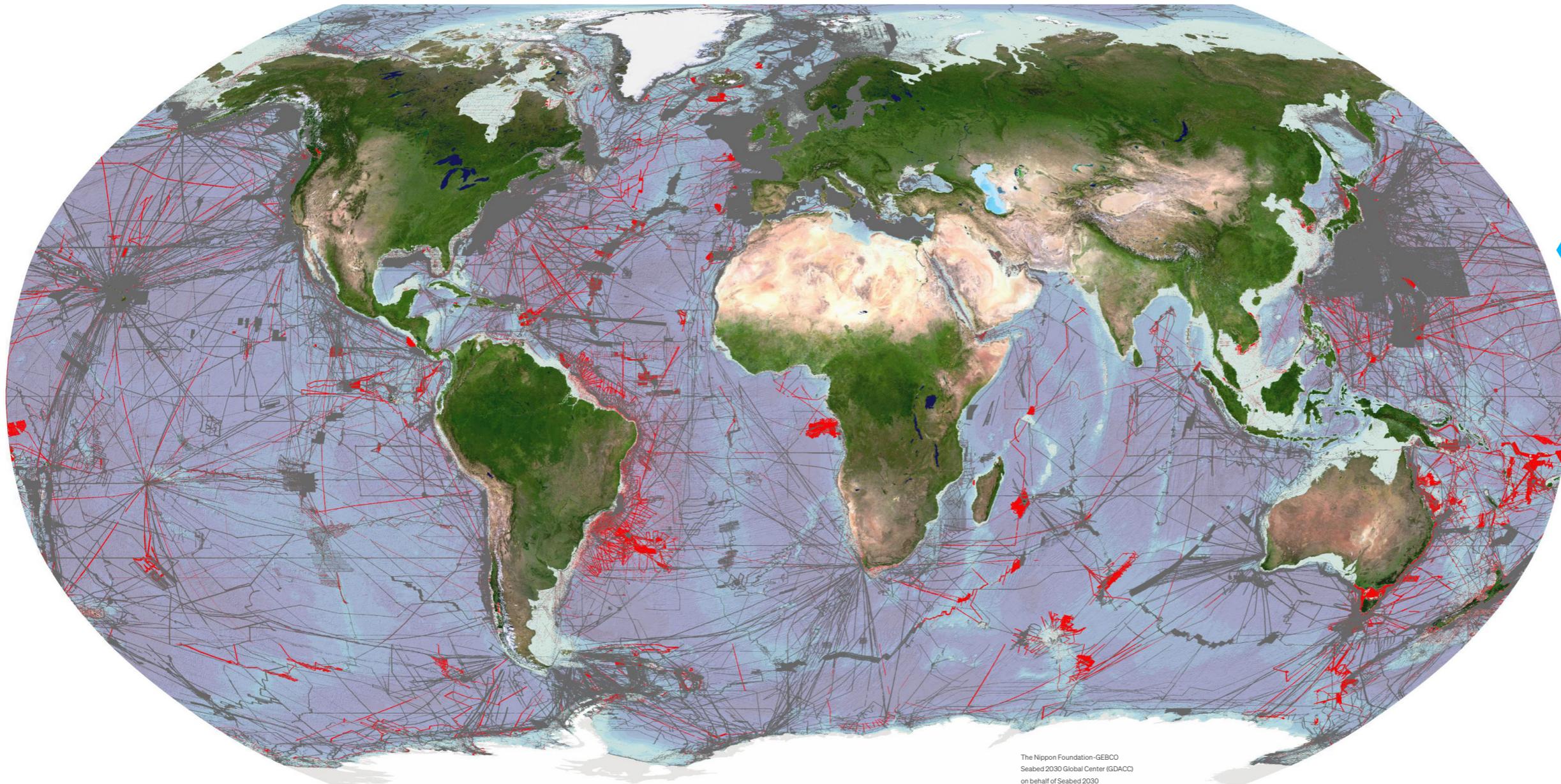
Digital Twins, a virtual representation of an object or system, have the potential to be a massive step-change in the way we understand our evolving environment.

These intelligent systems, using simulations or data-based methods such as machine learning, are already revolutionising how some sectors work. Our experts are championing progress towards digital twins of the ocean and environment as they could be a solution towards net-zero targets and a paradigm shift in protecting and managing our ocean.

In pursuit of this vision our experts lead a community report, which has outlined the building blocks necessary for unlocking the true potential of environmental digital twins. The recommendations cover everything from a conceptual framework, management and governance, common language to pilot studies and computational architecture. This first report, 'An Information Management Framework for Environmental Digital Twins (IMFe)' is just the first collaboration into this exciting digital frontier.

**“With innovation at its heart, BORA Blue Ocean Research Alliance® will help push the limits of scientific knowledge, setting the standard for collaboration between the industrial and scientific communities and delivering meaningful research on a global scale that will provide benefits for all communities.”**

**HUW GULLICK**  
ASSOCIATE DIRECTOR  
NOC INNOVATIONS



The Nippon Foundation-GEBCO  
Seabed 2030 Global Center (GDACC)  
on behalf of Seabed 2030

### MAPPING UNKNOWN

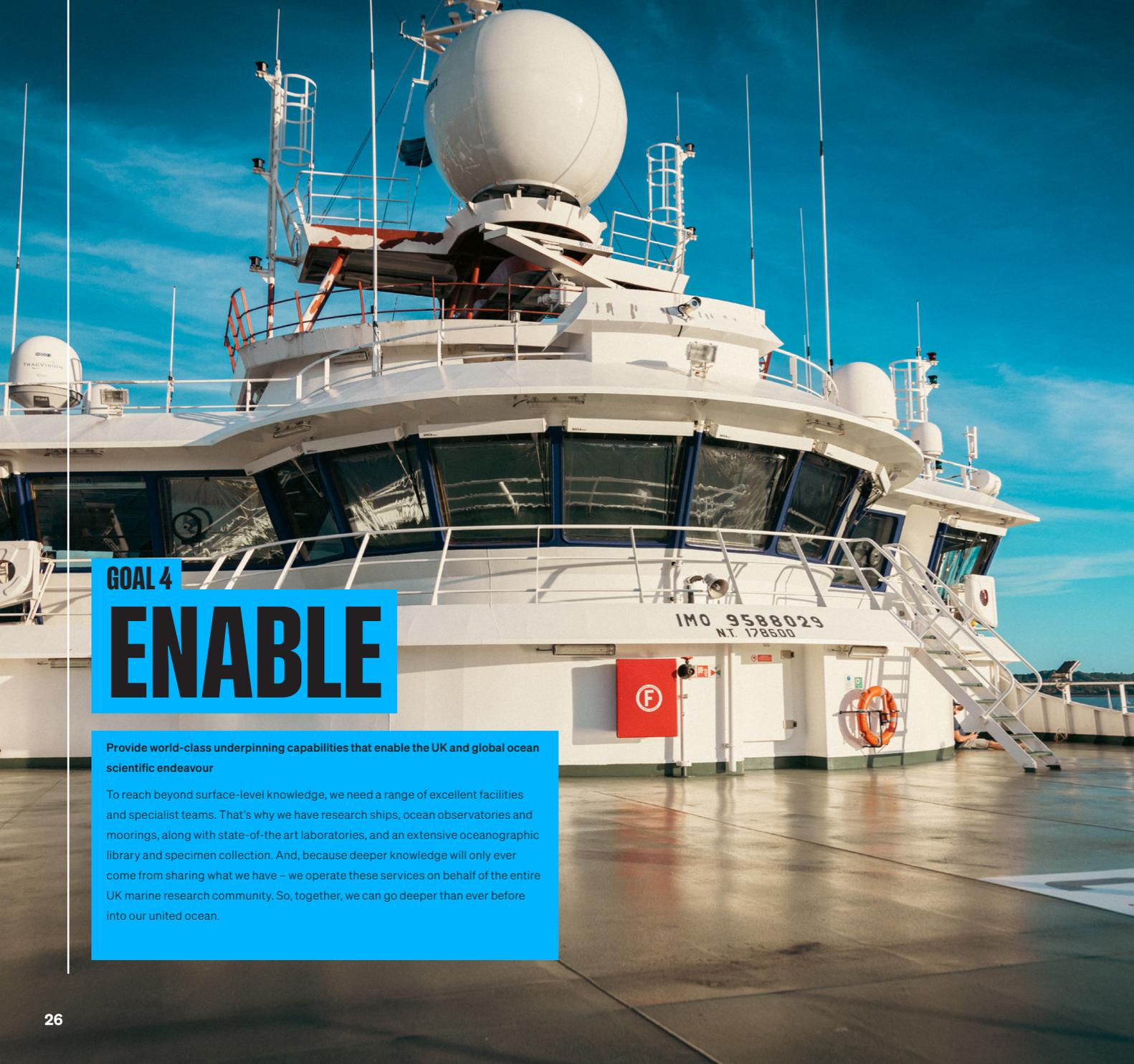
It covers 70% of our blue planet yet the ocean is still a greater mystery than our moon.

But Seabed 2030 is out to change that. Endorsed by the UN Ocean Decade, it's an international effort to chart the world's entire ocean floor. This year the total amount of sea floor mapped now stands at 23.4%, reflecting an increase of 10.1 million square kilometres of new bathymetric data. This increase is equivalent to an area around the size of Europe; and slightly larger than the Sahara - Earth's largest hot desert. As the global centre for Seabed 2030, NOC's British Oceanographic Data Centre brought together the regional compilations into a single, global, harmonised, data set. This will help identify underwater hazards and inform sustainable marine resource management and infrastructure development, ultimately saving lives.

# 76.6%

**OF THE SEA FLOOR IS UNMAPPED IN ENOUGH BATHYMETRIC DETAIL**

**THE GEBCO SEABED 2030 PROJECT AIMS TO MAP THE WHOLE OCEAN TO THE ORDER OF TENS OF METRES IN SCALE BY 2030**



**GOAL 4**  
**ENABLE**

Provide world-class underpinning capabilities that enable the UK and global ocean scientific endeavour

To reach beyond surface-level knowledge, we need a range of excellent facilities and specialist teams. That's why we have research ships, ocean observatories and moorings, along with state-of-the-art laboratories, and an extensive oceanographic library and specimen collection. And, because deeper knowledge will only ever come from sharing what we have – we operate these services on behalf of the entire UK marine research community. So, together, we can go deeper than ever before into our united ocean.

**ANNUAL HEALTH CHECK**

The Porcupine Abyssal Plain Sustained Observatory (PAP-SO) is the longest running abyssal time-series study site in the world, with observations dating back to 1985. This expedition saw 18 researchers and engineers make the same pilgrimage to take ocean health checks, including annual sampling and servicing of infrastructure that cannot be achieved autonomously.

It may sound like every year is the same but new technology and methods, such as our new Marine Snow Catchers, are fundamental to these expeditions. They continue the legacy of carbon and climate recording and also allow us to study new threats such as microplastics in the Twilight zone and beyond.

Recently endorsed as a UN Ocean Decade initiative, JETZON, looking at the study of the Twilight Zone, the dimly lit region extending from a few hundred metres depth to 1,000m. It is poorly understood from almost any perspective. However, it contains possibly the world's largest and least exploited fish stock and recycles ~80% of the organic material that sinks out of the productive surface waters. Expeditions like this continue our understanding of these valuable ocean zones.

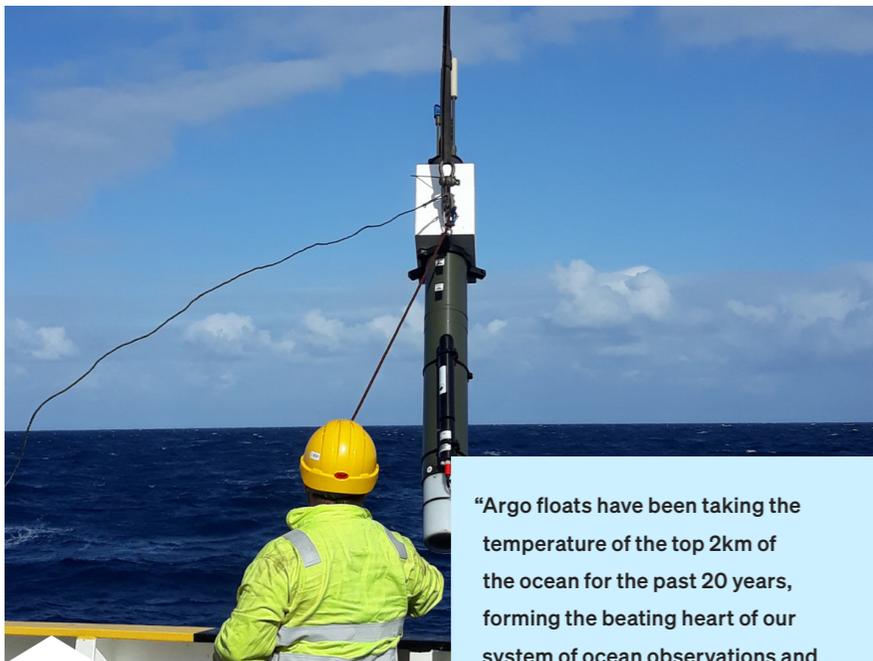
**7** EARLY CAREER RESEARCHERS, SUPPORTED TO JOIN THIS EXPEDITION BY POSTDOCTORAL FELLOWSHIPS FROM NOC'S CLASS PROJECT



**OCEAN SENSORS**

Three novel marine sensor suites, integrated by our engineers into Autosub Long Range (ALR), were successfully validated as part of an expedition with our pioneering Oceanids project team.

Two of them, AutoNutS nutrient sensors and CarCASS carbonate chemistry sensors, are both based on the Lab-on-Chip technologies developed in-house at NOC. All three sensors can now be used for autonomous monitoring of the oceans without the need for an on-site presence by a research ship, a significant step on the road to the future Net Zero Oceanographic Capability large research infrastructure.



### FLOAT AND SINK

Using RRS *Discovery* we deployed the first of the UK's new fleet of Biogeochemical (BGC) Argo profiling floats.

The fleet of 15 robotic floats makes up 50% of the UK's contribution to BGC Argo and is a vital source of ocean data, transforming the understanding of oceanic processes at depths up to 2,000m. The deployment formed part of our RAPID project's expedition to the Atlantic, where we serviced a collection of moorings that help measure ocean currents and examine the effects on short-term weather and long-term climate.

The floats – which saw an investment from the Natural Environment Research Council (NERC) and NOC of £3.7million – have successfully performed several 24-hour cycles from the surface to depths of 2,000m, marking a huge step towards the UK's enhanced ocean observations capability.

“Argo floats have been taking the temperature of the top 2km of the ocean for the past 20 years, forming the beating heart of our system of ocean observations and revolutionising the information we have to guide climate solutions for society. This new generation of BGC-Argo floats, with their additional sensors, will provide a step change in our understanding of how the ocean's changing biology, chemistry and physics interact to drive the ocean carbon cycle, including the exchange of carbon between the atmosphere and the ocean.”

**NATHAN BRIGGS**  
OCEAN BIOCHEMIST  
NATIONAL OCEANOGRAPHY CENTRE

### UNDER PRESSURES

Alongside scientists from the Scottish Association for Marine Science (SAMS) we embarked on an expedition to the North Atlantic Subpolar Gyre to measure ocean changes and how they affect the UK's weather systems.

The team made observations of ocean variables such as temperature, salinity, carbon and oxygen, as well as deploying a new recorder to measure water pressure at the seafloor. The pressure recorder will remain in the water for ten years and the data it gathers will be harvested remotely without a need to recover the device. The pressure at the bottom of the sea is three hundred times greater than air pressure on land, and how it changes over time tells scientists about the ocean currents. The new pressure recorder will pave the way for net zero carbon methods to measure the huge ocean currents that flow through the North Atlantic.



### ADDRESSING KNOWLEDGE GAPS

We set off on the latest CLASS expedition to advance knowledge of some of the richest and most complex deep-sea ecosystems on Earth.

The Whittard Canyon system is home to a variety of species, including cold-water coral reefs, clams, deep-sea oysters. It is a key area for understanding the interaction between coastal, shelf waters and the open ocean, however, there are currently gaps in knowledge in how the system responds to human impacts such as climate change and bottom trawling. To address these knowledge gaps we collected sustained ocean observational data of the canyon using our own recently trialled new Autonomous Underwater Vehicles (AUV) equipped with the latest sensors.

### WORLD-CLASS RESEARCH SHIPS

The ability to explore remote and challenging areas at sea is critical to understand the complex nature of our oceans in order to predict future change. Thus, we operate two world class royal research ships on behalf of the marine community;

#### RRS *DISCOVERY*

**260**  
DAYS IN SUPPORT OF SCIENCE

**75**  
DAYS ALONGSIDE

#### RRS *JAMES COOK*

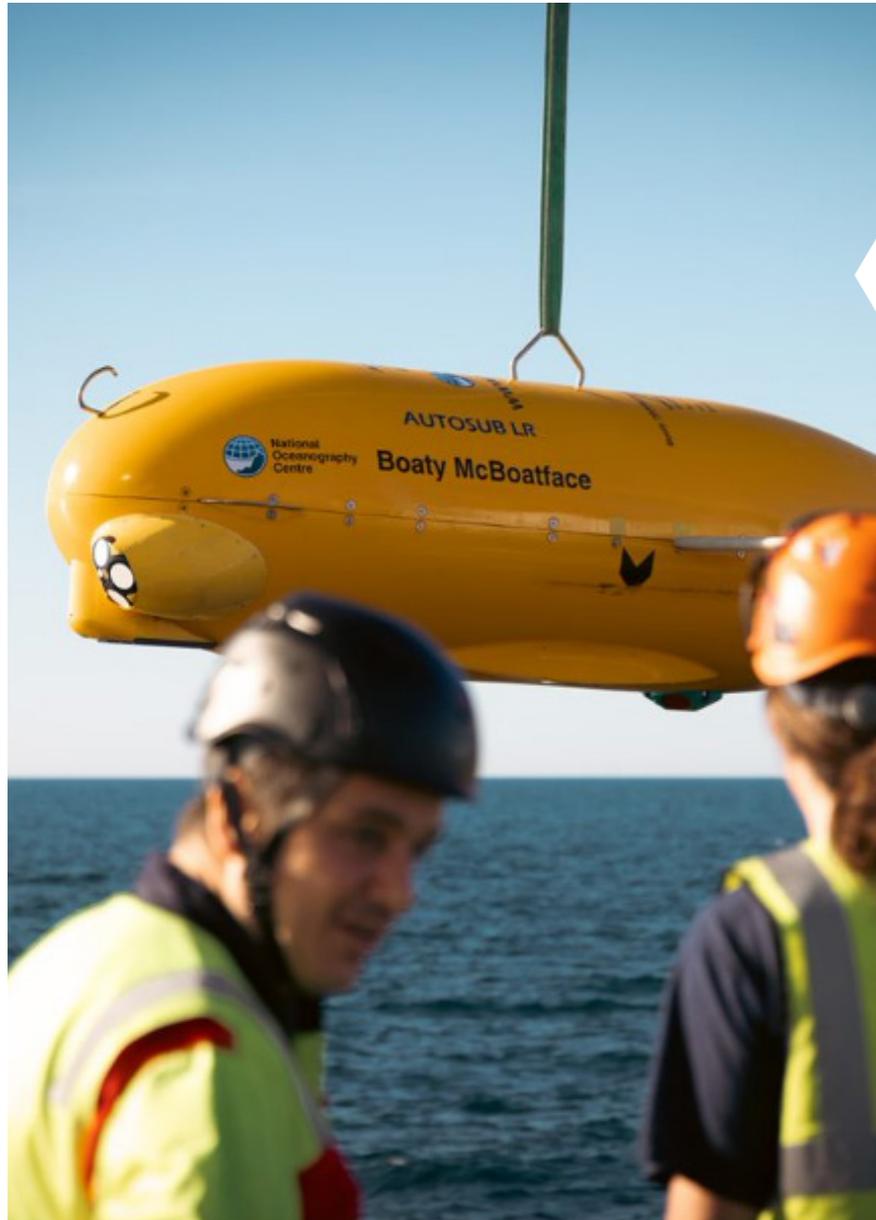
**200**  
DAYS IN SUPPORT OF SCIENCE

**33**  
DAYS ALONGSIDE

**118**  
DAYS IN REFIT\*

**14**  
DAYS ON PASSAGE TO DESTINATION

\*RRS James Cook undertook a longer refit period due to starboard motor repair.



### BOATY PASSES THE TEST

The most anticipated expedition of the year saw us complete the final deep-sea tests of our newest ocean robots, sensors and control software. A culmination of several years of shore-based trials, this expedition deployed several autonomous underwater vehicles (AUV) out into Haig Fras, a Marine Protected Area of Celtic Sea lying about 95 km northwest of the Isles of Scilly, and the deep waters of the Whittard Canyon complex 300km to the south west.

In the first week Autosub 5, our new work-class AUV, carried out its first ever science survey by taking part in a sidescan sonar mission that helped generate habitat maps. It also took part in its first ever overnight mission on multibeam and camera surveys. In its second week Autosub 5 had achieved its deepest ever dive, reaching an incredible depth of 4,197.48m. It spent 14 hours in the water undertaking 50km of multibeam and sidescan sonar mapping south of the Whittard Canyon. On a separate deployment it also collected 25,000 images of the seafloor and marine life, including starfish, eels and lobsters. These successful milestones marked its official commissioning into active service.

Autosub Long Range 3, better known as Boaty McBoatface, successfully spent several unaccompanied days completing surveys and capturing seabed imagery all using the University of Southampton's unique and low power 3D visual mapping system BioCAM.

Making a hat trick of success for the expedition, the Deepglider, built to withstand the 600 atmospheres of pressure found in the deepest parts of the ocean profiled south of Whittard Canyon down to targeted depths of 4,000m.

**106**  
ANALYSIS REQUESTS

**1434**  
HOURS OF ANALYSIS

**1652M**  
SEDIMENT CORE ANALYSED

**21**  
SAMPLE REQUESTS

**16**  
UNIQUE USERS

**3807**  
SUBSAMPLES COLLECTED FROM THE CORE COLLECTION

**13**  
INSTITUTES

**3000**  
SEDIMENT CORES APPROXIMATELY, WHICH IS 12.77KM OF DEEP SEA CORE

### BOSCORF

The British Ocean Sediment Core Research Facility (BOSCORF) is the UK's largest deep-sea sediment repository and state-of-the-art research facility.

Our core collection holds unique geological samples used by scientists worldwide to investigate topics such as geo-hazards, climate change and marine ecosystems.

### BODC

The British Oceanographic Data Centre (BODC) provides instant access to over 130,000 unique data sets with 1,640 new data sets processed this year alone.

Our data helps provide answers to both local questions such as the likelihood of coastal flooding, or global issues such as the impact of climate change. This year our data are being used in projects to:

- Research of the feasibility of a tidal power lagoon in Swansea Bay.
- Research on the change in dissolved oxygen concentration in seawater, as a consequence of climate change.
- Impact of bottom trawling fishing gear on the benthic habitats in the UK EEZ.
- Research on the effects of salinity on tidal turbine blades.
- Planning the nuclear decommissioning of Dounreay.

**1274**  
NEW USERS

**479k**  
NON-BATHYMETRY SETS DOWNLOADED

**89%**  
OF DATASETS AVAILABLE WITHIN 2 CLICKS OF MEDIN PORTAL

**1.31M**  
DOWNLOADS OF THE NERC VOCABULARY SERVICE (NVS)

**100%**  
OF CRUISE DATA ARCHIVED WITHIN 1 MONTH OF RECEIPT

**34k**  
NEW NERC VOCABULARY SERVICE (NVS) USERS

**76%**  
OF NRT PROFILES AVAILABLE IN DELAYED MODE

**3629**  
DELAYED MODE ARGO SETS PROVIDED

**78k**  
BATHYMETRY SETS DOWNLOADED

**77k**  
TOTAL NERC VOCABULARY SERVICE (NVS) USERS

**201**  
DATA DEPOSITS RECEIVED

**8022**  
ARGO DATASETS SENT TO MET OFFICE

## GOAL 5

# GROW & DIVERSIFY

Responsibly grow and diversify revenue to sustain our mission with a critical mass of scientific and technical capability

As the UK's leading marine charity, we've worked hard and smart to get the best results for our ocean from careful use of time, resource and funding. With newly defined donation streams we've carved out exciting new ocean literacy and education offerings for the next generation of science and engineering students. We've built on our reputation as the spokesperson of the ocean, maintaining our authority on the world stage as an impartial expert. New business-sector relationships, aligned to our purpose and five-year plan, have already seen creation of several exciting partnerships and missions.



### ACTION IN ALLIANCE

We launched a new fundraising call to enable individuals and businesses to protect the future of the ocean by joining our Ocean Alliance. The funding programme will be an essential resource for global ocean research and vital technological development, empowering society to become more involved in the global science needed to support a sustainable ocean.

The Ocean Alliance is a group of partners that promotes knowledge, innovation and sustainable use of the ocean and fund the research and technology development needed to make a positive impact and drive change. As the largest, most connected and vital ecosystem on earth, the ocean sustains all life. Yet today, ocean conservation receives less than 1% of global charitable giving. With the United Nations Decade of Ocean Science highlighting the importance of including the ocean in climate conversations, NOC is encouraging those interested in protecting the oceans and the planet to join the Ocean Alliance and have the chance to directly impact the global scientific findings, innovations and education needed to tackle climate change.

The alliance comprises four funds:

### THE ADVANCE FUND

BRINGING SCIENTIFIC SOLUTIONS TO THE WORLD'S MOST COMPLEX PROBLEM

### THE EMPOWER FUND

INFORMING GOVERNMENT POLICIES, GOOD CORPORATE PRACTICES, AND A STEP CHANGE IN PUBLIC AWARENESS OF THE ROLE THE OCEAN PLAYS

“When we can understand the ocean and its ecosystems, we are in a better position to know how to not only preserve it, but also to manage it to ensure that it is protected for the future. At NOC we have the existing scale, experience and infrastructure to deliver the science needed to drive forward global action, but require the financial support to continue driving discovery and pursue bold new lines of ocean research in ways other funding types cannot.

We want our supporters to come with us on this journey and learn about the impact they are having.”

**SOFIE BENNETT**  
HEAD OF PHILANTHROPY  
NATIONAL OCEANOGRAPHY CENTRE

### THE INNOVATE FUND

USING SCIENCE AND TECHNOLOGY TO FUEL INNOVATIVE SOLUTIONS TO CREATE A THRIVING OCEAN ECONOMY FOR ALL

### THE EDUCATE FUND

A DIVERSE WORLD OF FUTURE SCIENTISTS TO ENSURE THE OCEAN REGAINS AND MAINTAINS ITS HEALTH



### EUROPEAN GLIDER CENTRE OPENS

Working in partnership with Teledyne Marine, NOC took the stage at Oceanology International 2022 to announce a new European Glider Service Centre.

Based in our Southampton dockside location, the Service Centre will offer an official service, support and repair facility for Teledyne Slocum Gliders.

“Our new NOC Glider Service Centre builds on years of expertise from servicing our own underwater glider fleet – part of the largest autonomous vehicle fleet in Europe – to offer a commercial service incorporating our own in-house Calibration Laboratory and Pressure Testing Facility.”

**HUW GULLICK**  
ASSOCIATE DIRECTOR  
NOC INNOVATIONS



#### BURSARY ON BOARD

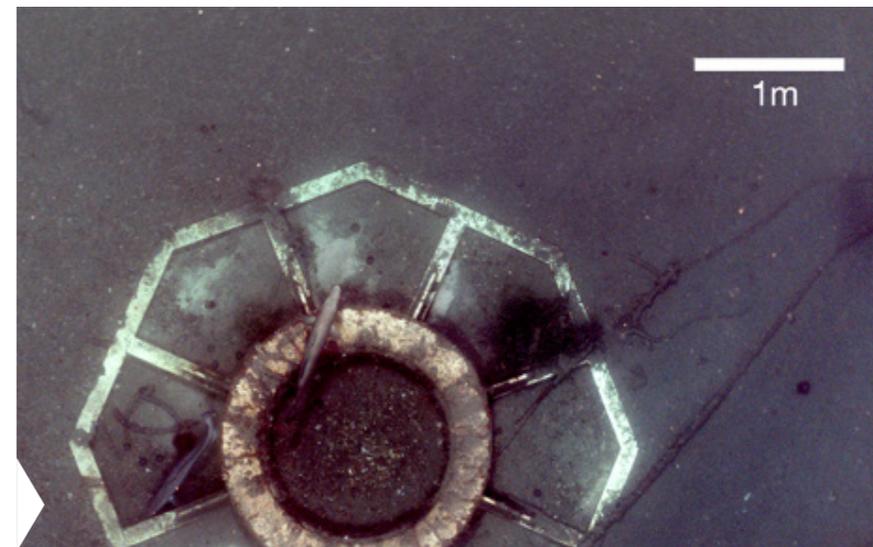
Together with the West of England P&I Club (West P&I) we were proud to announce Adeola Dahunsi and Selasi Yao Avornyo as the two students selected for the second year of our collaborative international bursary programme.

They joined their first sea-going research expedition in July to get hands-on experience of working and living on an oceanographic research ship. As part of the science team on board the RRS *James Cook* (JC238) they travelled to the North Atlantic Subpolar Gyre to measure ocean changes and how they affect the UK's weather systems.

The West P&I Seagoing Science Bursary provides financial support to enable students and early career researchers in the field of marine science or oceanography, or those from developing countries who are keen to become involved in the field of marine science or oceanography, to gain practical experience of ship borne science.

“It’s so exciting to be able to provide this sea-going experience thanks to the bursary programme with West P&I. Adeola and Selasi Yao were selected for it because of their research interests, which fit with the expedition objectives, plus the commitment and talent they demonstrated during the bursary programme’s first year which had to be run completely online.”

**DR SAMIA BURRIDGE**  
HEAD OF PHILANTHROPY  
NATIONAL OCEANOGRAPHY CENTRE

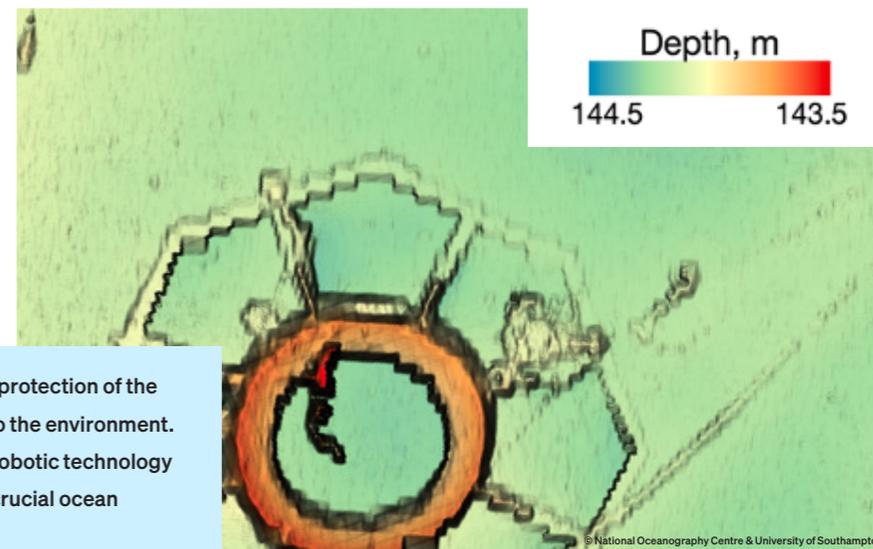


#### NET ZERO DECOMMISSIONING SURVEY

We proved it’s possible to launch an autonomous underwater vehicle (AUV) from shore to undertake a long-distance, high-tech, low-impact marine monitoring survey.

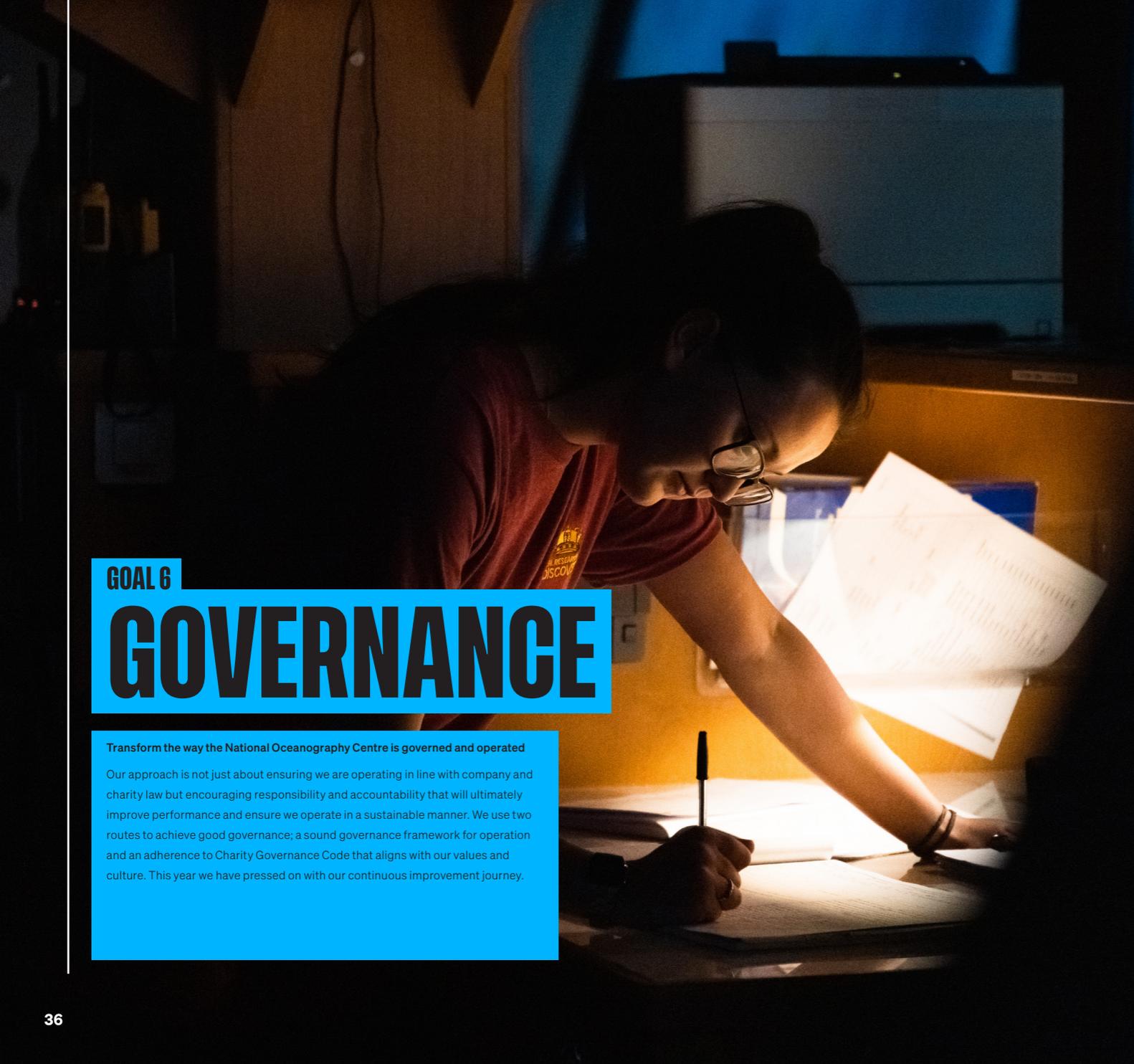
This huge step forward in technology may eventually replace the current approach for environmental monitoring at decommissioned oil and gas sites, which need dedicated ships and teams of people offshore.

Our technical mission ended up being a great success and provides a huge step forward in operations offshore and the journey to net zero.



“Our goal is to improve the environmental protection of the North Sea at a reduced cost and impact to the environment. We aim to demonstrate how this leading robotic technology could be used worldwide to support this crucial ocean monitoring.”

**DR DANIEL JONES**  
ASSOCIATE HEAD OF OCEAN BIOGEOSCIENCES  
NATIONAL OCEANOGRAPHY CENTRE



**GOAL 6**

# GOVERNANCE

**Transform the way the National Oceanography Centre is governed and operated**

Our approach is not just about ensuring we are operating in line with company and charity law but encouraging responsibility and accountability that will ultimately improve performance and ensure we operate in a sustainable manner. We use two routes to achieve good governance; a sound governance framework for operation and an adherence to Charity Governance Code that aligns with our values and culture. This year we have pressed on with our continuous improvement journey.

## GOVERNANCE FRAMEWORK

We have worked to improve our governance framework, we have reviewed our audit approach and developed a more practical and sustainable route, that is linked to the identified risk areas and meets the requirements of the charity governance code.

## CYBER SECURITY AND DATA PROTECTION

Cyber security activity has seen significant investment during this year and we have recruited a new Head of Information Technology and a Cyber Security Manager who have increased our skills and improved our approaches.

We have delayed our Cyber Essentials Accreditation submission, to dedicate resources to completing a ship cyber review for the two NERC research vessels we operate. Installation of our new Active Directory setup and completing a third-party vulnerability assessment have improved our current position, and our ability to adapt to future threats. We will continue with Cyber Essentials Accreditation and aim to complete this in spring 2023.

This year we began work to analyse the current status of Data Protection policies and procedures, and other information available to staff in relation to current data protection legislation. This has included reviewing and updating Data Privacy Impact assessments; and reviewing and updating all privacy notices on the NOC website. This activity will continue next financial year, where we aim to improve our training approach for the organisation.

Recruitment of a new Information Governance & Publications Officer during Q3 provides the further resource needed to support this activity.

There were no reportable data protection breaches during the financial year.

## RISK MANAGEMENT

The Trustees continue to have oversight of the risk management of the organisation. Staff training and workshopping have continued through 2022, this has helped to embed risk understanding, and improve monitoring and reporting across the organisation.

As our maturity increases, we will continue to develop improved approaches to support our staff who on a day-to-day basis manage our operational risks in specialist areas.

## ETHICS, SAFEGUARDING AND CONFLICTS OF INTEREST

We have reviewed our Research Integrity Policy, and have identified the need to deliver specific training in this area.

The training programme is in development and we will look to roll this out during the next financial year. A full review of NOC's Safeguarding Policy, Safeguarding Guidance and Reporting Procedure has been conducted by the Legal & Governance team, considering current Charity Commission guidance; UKRI guidance and requirements for projects that its funds; and current legislation and practice. The update provides the inclusion of comprehensive descriptions for specific scenarios to help considerations and support to our staff.

There were no externally reportable conflicts of interest and no significant governance or control issues during the financial year.

## RECRUITMENT

We have continued to develop our skills with the recruitment of new leaders across Corporate Business Support who are contributing to significantly improving our operations and governance.

## DUE DILIGENCE

Carrying out effective due diligence allows NOC to make good decisions; to understand and mitigate risks; and to ensure that in working we comply with our governance, and terms and conditions flowed down by our funders, customers, regulators including the Charity Commission and Scottish Charity Regulator (OSCR) and other third parties.

NOC has reviewed and updated its approach to due diligence of our partners with whom we work with. The new approach sits alongside the NOC Ethics Policy, and sets out (a) the requirements in relation to due diligence to be undertaken prior to NOC and/or National Oceanography Centre Innovations Limited (NOC Innovations) entering into an agreement with a third party.

It also outlines a route for monitoring projects with other parties where a specific risk in relation to the other party is identified.



**GOAL 7**

# PEOPLE & CULTURE

Responsibly grow and diversify revenue to sustain our mission with a critical mass of scientific and technical capability

As the UK's leading marine charity, we've worked hard and smart to get the best results for our ocean from careful use of time, resource and funding. With newly defined donation streams we've carved out exciting new ocean literacy and education offerings for the next generation of science and engineering students. We've built on our reputation as the spokesperson of the ocean, maintaining our authority on the world stage as an impartial expert. New business-sector relationships, aligned to our purpose and five-year plan, have already seen creation of several exciting partnerships and missions.

**SUCCESS IS SILVER**

We were awarded the Investors in People (IIP) silver accreditation – an accolade awarded to just 15% of organisations assessed. This is the first time NOC has achieved Silver, and reflects the positive progress made since our last assessment in 2018, especially during the last two years as we transitioned into a charity and navigated the pandemic.

Results from a recent staff survey showed 80% of staff agreed or strongly agreed that NOC was a great place to work. Our people also believe that we have supported them exceptionally well during the COVID-19 pandemic. Our initiatives are providing a measured and integrated approach to supporting the current and future wellbeing of our people.

We are all incredibly proud of this achievement, and we are committed not only to maintaining the silver standard, but to exceeding it in the future. The same week we won the award we published our Sustainability and Social Responsibility Strategy, which sets People as one of our five pillars of culture, alongside community, environment, operations and research ethics.

“To be given this award, by the organisation that sets the benchmark when it comes to people management, is testament of our shared commitment to a positive, values-focused internal culture. I'm delighted to know that staff feel supported and that they believe as I do, that their work has purpose and are proud to associate with the NOC's world class reputation.”

**PROFESSOR ED HILL CBE**  
CHIEF EXECUTIVE  
NATIONAL OCEANOGRAPHY CENTRE

**34%**

OF OUR WORKFORCE ARE FEMALE

**40%**

OF OUR 151 PEOPLE MANAGERS ARE FEMALE

**56%**

OF OUR WORKFORCE ARE ON NOC CLG T&C's

**9**

EMPLOYEES ARE TRAINED AS MENTAL HEALTH FIRST AIDERS

**115**

VACANCIES FILLED

**15%**

OUR STAFF HAVE FORMAL FLEXIBLE WORKING PATTERNS

**397**

STAFF MEMBERS ATTENDED ACTIVE BYSTANDER TRAINING

**131**

TOOK PART IN OUR PEOPLE MANAGER DEVELOPMENT PROGRAM

**IIP**

THE INVESTORS IN PEOPLE ASSESSOR DESCRIBED OUR WELLBEING STRATEGY AS BEING OUTSTANDING





### COLLABORATION AWARD

It was an incredibly proud day for everyone at NOC when SeaDataCloud, a collaborative project involving our British Oceanographic Data Centre, was awarded a “les Etoiles de l’Europe” trophy.

The award was presented by the French minister of Research and Innovation in Paris, as part of the 2021 Horizon Europe summit. This innovative project is the latest in a series of EU projects to develop a pan-European infrastructure called SeaDataNet, set up to enable the management and sharing of marine data and information across Europe and beyond. The SeaDataCloud project, managed by the team at the BODC and its European partners, has considerably advanced the technological infrastructure of SeaDataNet, with the adoption of cloud and high-performance computing capabilities.



“We are delighted that SeaDataCloud has been presented with this prestigious French award that recognises excellence in project coordination and European-wide collaboration. We have a long association with SeaDataNet - as data providers and technical experts – and we are immensely proud of our contribution to this latest project. It represents a huge step forward for the international exchange of marine data and information.”

**MARK HEBDEN**  
SENIOR MARINE DATA MANAGER  
NATIONAL OCEANOGRAPHY CENTRE  
PROJECT LEAD FOR SEADATACLOUD

### ENVIRONMENT AWARDS

Our Environmental Management System was recertified with ISO14001, with its effectiveness demonstrated through operational processes, internal audit programme, monitoring, measurement, leadership and processes.

Our dedicated team ensured that we met objectives and demonstrated regulatory and legal compliance.

We were re-accredited with 0 non conformities and only four minor observations.



### DECARBONISATION PLAN

We set ourselves new challenging science-based targets, driven by the Paris Agreement, to reduce our Scope 1 emissions by 27.5%, Scope 2 emissions by 46%, and Scope 3 by 46% with an ultimate goal of becoming a zero emissions based organisation by 2040.

Scope 1 emissions relate to the direct burning of fossil fuel on site (gas consumption) and Scope 2 emissions relate to the indirect generation of electricity for use on site (electricity consumption). This year we have generated 233,579.90 kWh of our own energy through our solar PV array.

We made good progress already this year, with annual gas consumption reduced by 26% from the 2019 baseline. The reduction in electricity consumption has been less significant (only 5% compared to 2019), but associated carbon emissions have decreased substantially due to the decarbonisation of grid electricity. The grid is expected to decarbonise further by 2030, which would allow us to meet the 2030 Scope 2 target (for building energy use) without the need for further reduction in energy consumption. We are engaged with our partner consultants to ensure a decarbonisation roadmap is fit for future and meets the required need to achieve our targets at 2030 and 2040.

As an international research centre, travel is an inevitable part of our scope 3 emissions. As part of our new decarbonisation plan, we have committed to reducing our business travel by 23% over the next 4 years. We have launched our Sustainable Travel and Commuting Guidance to support and guide staff to choose lower carbon modes of travel.



### COLLEAGUE RECOGNITION

Staff were rewarded for all their hard work and contributions over the year at our annual Summer Celebration and Values Awards event.

Held in person at our sites and ships we saw 14 awards, all reflecting our corporate values, presented to peer-nominated colleagues. As a fantastic celebration of all we’ve achieved together this event is always the highlight of the social calendar and especially so this year as it marked our first in person staff event since the pandemic.



### CARBON CHANGES

Science expeditions have been an integral part of learning about our oceans for a very long time. We currently operate two world-class scientific research vessels, RRS James Cook and RRS Discovery, which have travelled around the world completing important missions and exploring every aspect of the ocean.

But our social media campaign #pastpresentfuture explored the exciting and innovative ways we’re upholding our commitment to the environment and moving towards the 2040 future of net-zero oceanographic capability.



## FIT FOR FUTURE

To continue to see us thrive in all that we undertake, we have embarked on an ambitious journey of internal transformation. Our Fit for Future programme, spanning our long-term strategy, will create a collaborative, welcoming and inclusive environment that accommodates post pandemic working styles and is synonymous with creativity and unity. It will actively encourage cross functional working and facilitate rich and unique conversations that lead to scientific, technological, and collaborative innovations. The look and feel of this environment will be 'more than the sum of its parts', creating not only an exceptional and collaborative workplace but also somewhere to showcase NOC to the external environment.

This creative environment will be supported by highly efficient, digitally connected, corporate business support teams who are able to generate strong and sustainable value. These teams will embrace the culture of consistent innovation and continual improvement with the aim of delivering accurate, timely, and best in class services, ultimately creating more time for world class engineering and science. Executed well, this transformation will become enabling and energising, delivering an exemplary environment where our teams are able to work to their full potential, collaboratively and seamlessly from any location.



**4**  
**'OCEAN LITERACY' SESSIONS WITH LIVE Q&A**

**4**  
**HYBRID 'HOT TOPIC' PANEL DISCUSSIONS**

## OCEAN EDUCATION

If there was ever a day in the year for us to shout that extra bit louder about our passion and hopes for the ocean, it's the United Nations International World Oceans Day, this year framed around the theme of revitalisation.

Supported by the UN Decade of Ocean Science and the UN Ocean Conference, we proudly participated in events locally, virtually and internationally. Schools, homes and offices tuned in to our dedicated day of education, through our hybrid talks and online classroom sessions, all delivered by our skilled ocean literacy ambassadors.



**1207**  
**ONLINE DELEGATES**

**175k**  
**TOTAL SOCIAL MEDIA REACH**

**4235**  
**VIEWS ON DEMAND**

**6.2%**  
**AVERAGE SOCIAL MEDIA ENGAGEMENT**

## BUSINESS SMART

We've gotten smarter at project management by further integrating our bespoke business systems.

The resource planning and financial outputs are now directly linked, enabling staff to more effectively plan out time and directly see the financial impact from their planning. There is now the possibility to assess the performance of projects on a real time basis where information is kept up to date. Regular proactive reporting to senior leaders, much earlier in the plan, means our people and business benefits from quicker and more informed decision making.



## RESPECT AT SEA

Creating an even more inclusive workplace culture is an ongoing priority for marine science institutions worldwide. Given the unique working environment of research ships and the potential to be at sea for weeks or even months, it is essential to promote positive values that instil respect for their colleagues.

To galvanise inclusive culture onboard research ships, NERC (Natural Environment Research Council) launched a thought-provoking training video designed to empower ocean researchers and remind them of their responsibility to respect colleagues and promote inclusion. The video is the latest element of NERC's ED&I (Equality, Diversity and Inclusion) commitments and features some NOC oceanographers and marine engineers who share their joy of going to sea and calls for colleagues to treat each other with respect. The film is being shown on board both NERC ships, operated by NOC, as part of the onboarding training for those setting sail.



## CODE OF CONDUCT

We take a comprehensive view of our entire supply chain and work closely with our suppliers to ensure social responsibility is at the heart of what we do. Last year we reported that a Supplier handbook had been drafted and was ready to be launched this year. We're excited to update that the implementation was very successful and has helped consolidate vendor relationships and further improve our due diligence processes.

Through adoption of this guide we know all our suppliers agree to a code of conduct, clearly outlining our expectations and ways of working. All new suppliers that follow the full due diligence process are now categorised as TRUSTed. This commits to treating all people and communities with respect across the entire supply chain; recognise and work to minimise environmental impacts; understand our ways of working, our processes and needs; support our science and engineering through continual improvement and innovation; and be technically competent and compliant.



**"Working globally and leading the broad science and technology around our vast ocean is one of the great challenges of our age. This needs the talents of many people from different backgrounds to make it possible, and to engage with diverse communities about the importance of the sea in all our lives.**

**We strive for excellence in this area, whether that is through delivering education and awareness or driving change to our cultural practices."**

**CAIT ALLEN**  
ASSOCIATE DIRECTOR FOR ENGAGEMENT  
NATIONAL OCEANOGRAPHY CENTRE



## STAY IN TOUCH

The National Oceanography Centre is one of the world's top oceanographic institutions. We provide the UK's National Capability needed to be a top global player, to lead and participate in international co-operations.

We undertake world leading research in large scale oceanography and ocean measurement technology innovation; working with government and business to turn great science and technology into advice and applications. We support scientists in universities and research institutes with facilities, research infrastructure and irreplaceable data assets – enabling the UK to harness the full power and diversity of its ocean science talent.

To get bite-sized updates on our Science and Technology, Latest News, Public Events, Career Opportunities and Educational Resources, subscribe to Ocean News via our website or follow us on social media:

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NOC.AC.UK



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