

MAKING WAVES



Dynamic
Earth



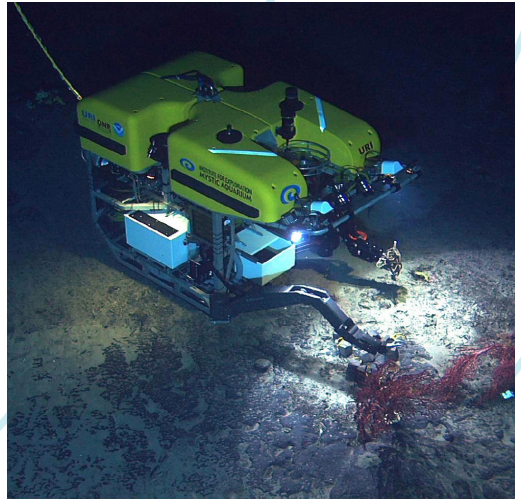
DISCOVER
THE DEEP





Thousands of meters below the waves, hidden in darkness, an underwater world teems with life. Animals adapted to the extreme pressure, freezing temperatures and lack of sunlight call this place home.

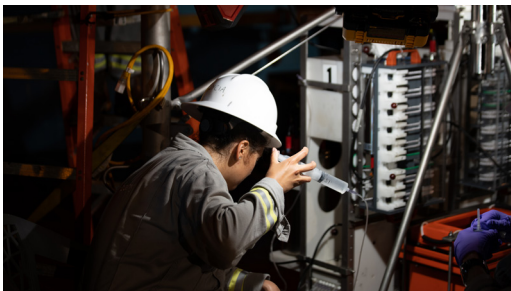
In this exhibition we wanted to showcase a collection of inspiring scientists, and ocean advocates, who are studying and protecting the deep-sea. There is still so much of our ocean left to explore, maybe one day you could follow in their footsteps!



ALYCIA SMITH



“ The best time to take action – for yourself or for a cause – is yesterday. The next best time is today. If you need a break, the best time is tomorrow. ”



Alycia is a PhD student at Heriot-Watt University, Edinburgh, studying the seafloor in the northeast Pacific Ocean at around 4300m depth. She looks at what the plants and animals in the habitat are doing: How much are animals breathing? How fast are they using carbon and nutrients? How are these things changing across different parts of the ocean and timescales? The area she studies is covered by special rocks known as polymetallic nodules, which we may begin harvesting soon. Her aim is to use her research to help reduce the potential environmental impacts of deep-sea mining.

BHAVANI NARAYANASWAMY



“ The deep-sea is home to many different habitats and species waiting to be discovered. It provides us with a wealth of resources, stores vast quantities of carbon and methane, and provides us with cultural and spiritual services. ”

“ We need to do all that we can to study and protect our deep-sea environment; out of sight should not mean out of mind. ”



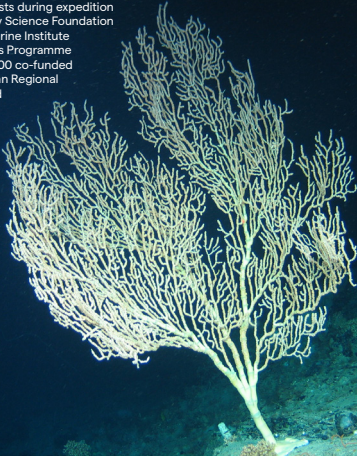
Bhavani is based at the Scottish Association of Marine Science (SAMS) and has been studying the ocean for over 20 years, researching a variety of topics including the impacts of our changing climate. Her team collects creatures off the West Coast of Scotland from around 2000m below the surface and takes them back to the lab for identification. Then - using historical data - the team can look at how the diversity and characteristics of the species has changed over time. She has also led outreach programmes sharing her knowledge of the ocean and getting people involved with citizen science projects.

DECLAN MORRISSEY



“ *There are so many animals that we have yet to discover! Embrace the weird ones. Try not to have any preconceived notions about what type of work you think you would enjoy. Make sure you explore every opportunity that comes your way and then try to make some more. I never imagined I would enjoy a laboratory environment or be venturing offshore to explore habitats that no one has ever seen before.* ”

Images taken with ROV Holland I deployed from RV Celtic Explorer by NU Galway scientists during expedition CE18012 funded by Science Foundation Ireland and the Marine Institute under Investigators Programme Grant SFI/15/IA/3100 co-funded under the European Regional Development Fund 2014-2020.



Declan is an Irish Research Council funded PhD student at the National University of Ireland Galway. His research focuses on exploring the biodiversity and evolution of deep-sea bamboo corals (pictured) from the Atlantic. To do this he spends time at sea on the Irish national research vessel *RV Celtic Explorer* exploring the seafloor hundreds to thousands of metres below the surface using the remotely operated vehicle *Holland I*. Declan also spends a lot of time in the lab where he extracts coral DNA and uses the variation in the DNA sequences to help him identify the corals present on the seafloor.

KELSEY ARCHER BARNHILL



“ Take any class that sounds interesting to you, even if it seems challenging. Don’t be afraid or embarrassed to share your dreams, they are not too big! ”

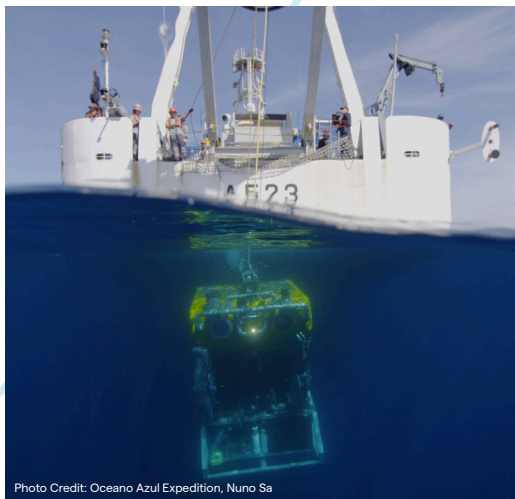
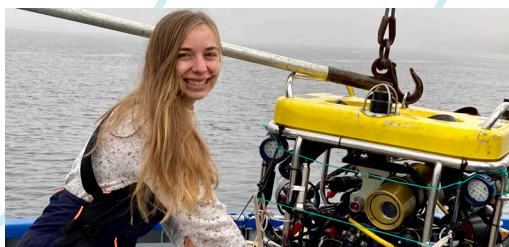


Photo Credit: Oceano Azul Expedition, Nuno Sa

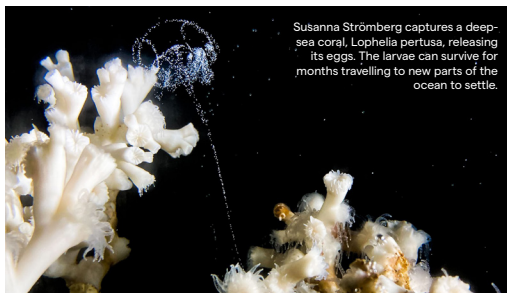
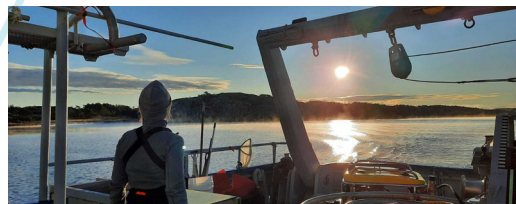


Kelsey is completing a PhD at The University of Edinburgh. Her research focuses on the cold-water coral *Lophelia pertusa*, and how it is being impacted by climate change. While on research trips Kelsey uses remotely operated vehicles (underwater robots) to record the amount of live coral cover on cold-water reefs. She also collects samples to take back to the lab to conduct experiments to explore the effects of ocean acidification, warming, and deoxygenation on *Lophelia pertusa*. Kelsey is also an All-Atlantic Ocean Youth Ambassador promoting sustainable development and stewardship of the Atlantic Ocean.

LAURENCE DE CLIPPELE



“ Stay curious and keep wondering about the world and how things work; the next big discovery might be waiting for you. ”

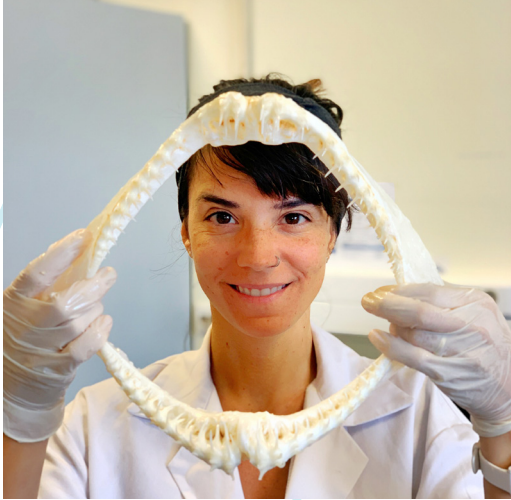


Susanna Strömberg captures a deep-sea coral, *Lophelia pertusa*, releasing its eggs. The larvae can survive for months travelling to new parts of the ocean to settle.



Laurence is a marine ecologist studying cold-water coral reefs. One of her research topics involves listening to sound recordings from Tisler reef in Norway to find out how the noise pollution from local ferries affects biodiversity. "The Oceanocular" is a sculpture created by artist Hannah Imlach in collaboration with Dr Laurence De Clippele and Dr Seb Hennige. It is a natural light viewing device with interchangeable image discs representing deep-sea coral and created as part of the From the Dark Ocean Comes Light art-science collaboration project.

SOFIA GRAÇA ARANHA



“ The Earth cannot sustain life without healthy oceans. ”



Sofia is a PhD candidate in Marine and Environmental Sciences at the University of Algarve. As part of her work with the Portuguese Institute of the Sea and Atmosphere, Sofia explores the biology, ecology and conservation of deep-sea sharks and skates and how deep-sea trawling impacts on their health and wellbeing. Sofia is the project leader of the Delasmop project, researching if it is possible for deep-sea sharks and skates to thrive and survive in fishing grounds and is funded by the Save our Seas Foundation.

WINNIE COURTENE-JONES



“ It’s so important to be doing what you love so follow your passion, but remain open to new experiences. Life doesn’t always take the most obvious path. Sometimes it is surprising opportunities that bring the biggest rewards. ”

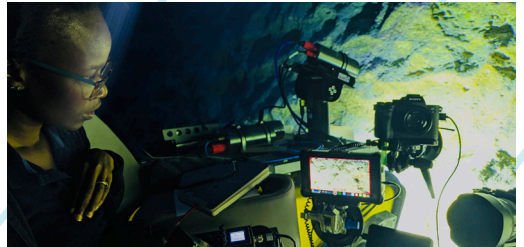


Winnie is a plastic pollution scientist who researches the quantity, long-term fate and impacts of different kinds of plastics on natural ecosystems. Her studies have led her to research plastic pollution in a variety of environments from the coastline to some of the most remote parts of our planet, including the deep sea and oceanic ‘garbage patches’. Winnie has spoken at the UK and European Parliament to provide evidence to help with the effective development of solution to plastic waste.

ZOLEKA FILANDER



“ Everything you need to be an ocean explorer is already within you, so don't be afraid to communicate your ideas. The first step to creating solutions is asking question. ”



Zoleka is a South African ecologist specialising in the deep ocean and currently works for the Department of Environmental Affairs in Cape Town. She is also a PhD student at Nelson Mandela University and the recipient of the 2022 National Geographic Wayfinder Award. Her research focuses on deep-sea mapping and exploring the sea bed; identifying which species live there, how many there are and how they are distributed. She also spends time spreading her passion and knowledge of the ocean through outreach programmes, many of which support under-represented groups in marine science.

FOLLOW IN THEIR FOOTSTEPS



Whether you want to become an ocean scientist or you just love the sea, volunteering is a great way to explore and help protect our oceans!

Below are some local charities that you can volunteer with, from helping out at science events to joining a beach clean or even researching whales and dolphins. The ocean is at your fingertips!

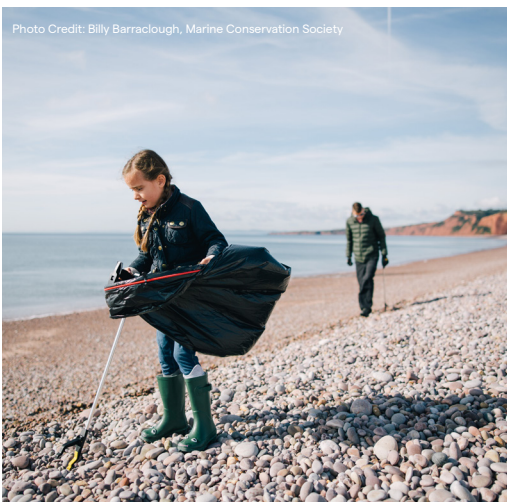


Photo Credit: Billy Barraclough, Marine Conservation Society



Crab surrounded by cold-water corals on
George Bligh Bank, 800m water depth.
Credit: NERC Deep Links Project: Plymouth
University/Oxford University/JNCC/BGS



Registered in Scotland as a charity, number SC020363.