

Scientists take part in world-wide ocean health check

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Scientists at Bangor University will be joining forces with marine scientists across the world on 21 June to take part in an ambitious global research project – [Ocean Sampling Day](#).

80% of all life on Earth comes from the World Ocean which covers more than 70% of the Earth surface. Marine microorganisms are responsible for a smooth functioning of global elements' cycles, however less than 1 % of them are known. The School of Biological Sciences will join 150 research organisations from Iceland to Antarctica and from Moorea (French Polynesia) to South Africa to study and health check the world's oceans.

Scientists across the globe will take samples of seawater on mid-summer's day to form the biggest marine research initiative that has ever taken place on a single day.

Professor Peter Golyshin's team at the School of Biological Sciences will be sampling the Menai Strait on Ocean Sampling Day.

Professor Golyshin explained: "The research findings will help us to better understand the sea at the microbial level, to determine the composition of microbial communities, their diversity and their contribution in maintaining marine environment health."

Research colleague Dr Tran Hai added: "Today, scientists have the expertise, the tools but not the data and I am proud that Bangor

University can contribute to this world event by sampling the UK coastal waters."

The sample taken from the Menai Strait will, along with all other samples, be sent to the lead research partner, Professor Frank Oliver Gloeckner at the Jacobs University in Bremen (Germany). Bulk microbial DNA will be extracted from all samples, sequenced and analysed, forming the biggest standardised reference data set in the world which can be used by generations to follow.

Samples will also be sent to the world famous Smithsonian's Institution Natural History Museum in Washington DC, USA. The Museum will keep up to 10000 samples, collected every 21st June, in a time-capsule. This precious data bank will allow future generations of [marine scientists](#) to understand and benchmark changes in the marine environment.

Bangor University's research team will also be analysing the DNA contained within the microbes in a number of seawater samples provided by partners. Ocean Sampling Day forms part of a large pan-European project "MicroB3" which is investigating the microbial biodiversity of the oceans and their potential for biotechnology. Bangor University's role in that project is also to reveal genes in microbial communities which could be developed into novel enzymes which may be of industrial importance. These are most likely to come from environments so harsh, we would consider them to be at the physical or chemical limits to life.

Prof Golyshin explained: "The enzymes we screen for, have a broad range of industrial applications and establish the background of "White Biotechnology". This relies on harnessing naturally occurring enzymes for use in industry, and is a greener alternative to the traditional environmentally-damaging chemical synthetic processes. Enzymes are used for synthesis of fine chemicals, for biodegradable biopolymers and

new materials. They are used in washing detergents, food and feed, "green" herbicides, biofuels and drugs."

Ocean Sampling Day leader, Professor Dawn Field from Oxford University added: "This is the first simultaneous sampling of the world's oceans at a significant scale. As such, it is a historical event and hopefully it's just the beginning."

Other organisations based in the UK taking part in Ocean Sampling Day are Aberdeen Marine Laboratory, CEFAS (Lowestoft), Newcastle University and Plymouth Marine Laboratory, ensuring a full picture of bacteria in sea water for UK marine scientists now and in the future.

This worldwide effort is coordinated jointly by Jacobs University in Bremen, Germany and University of Oxford, UK. It is funded by the European Union.

Provided by Bangor University

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