

The Ocean Race Europe to Gather Data on the State of the Seas



The Ocean Race, the world's toughest test of a team in sport and sailing's greatest round-the-world challenge, will collect vital data about the impact that humans are having on the ocean during its inaugural European Race.

Several teams taking part in [The Ocean Race Europe](#) this summer will carry scientific equipment on board to capture measurements of microplastics in the

water and data about the impact of climate change on the seas. The Ocean Race Europe scientific data collection activity is endorsed by the UN Decade of Ocean Science for Sustainable Development, which supports efforts to reverse the cycle of decline in ocean health and create improved conditions for sustainable development of the ocean.

Two classes of boat will take part in the race, IMOCA 60s and VO65s. Two VO65 teams, AmberSail2 and W Ocean Racing, will take samples of microplastics as they race, while one IMOCA 60 boat, sailed by the 11th Hour Racing Team, will take 24/7 surface measurements of carbon dioxide (CO₂), sea temperature and salinity – indicators of climate change.

Climate Change and Plastic Pollution

Climate change and plastic pollution are two of the biggest threats to the health of the seas. The ocean plays a critically important role in climate regulation. It has absorbed over 90% of man-made excess heat since the 1970s [1], and absorbs a quarter of human-made CO₂ [2], helping to effectively mitigate climate change. Plastic, meanwhile, is a more visible problem, with at least 8 million tons of it entering the ocean each year [3], harming marine species that ingest or become entangled in it.

The data collected during The Ocean Race Europe will be provided to scientific organizations that are studying and mapping these issues. Measurements of dissolved CO₂ taken by the 11th Hour Racing Team will be used by EuroSea, a European Commission funded programme that assesses the role of the ocean in climate change and improves the ocean observing system. During The Ocean Race Europe, boats will race through the western Mediterranean, one of the global hotspots for carbon absorption by the ocean and one of EuroSea's focus areas for their carbon audit project.

Dr Toste Tanhua from EuroSea said: "The ocean is doing humankind a great service by absorbing huge amounts of CO₂ and heat. EuroSea is working to improve the way that these benefits are measured and understood, including the monetary value they bring."

"The Mediterranean Sea is very efficient at absorbing CO₂, but its ability to do this can vary and needs to be closely monitored, which is why additional data is so useful. Working together with the sailing community on this quest is a great opportunity to align our interest and passion for the sea for a common goal."

Sailors and Ocean Research Organizations

11th Hour Racing Team will submit CO₂ measurements to the Surface Ocean Carbon Dioxide Atlas ([SOCAT](#)), which provides data for the Global Carbon Budget, a yearly assessment of CO₂ that informs targets and predictions for carbon reduction. It is vital that scientists understand the levels of CO₂ in the ocean to form an accurate budget and keep the world on track to stay within the Paris Agreement goal of limiting global warming to below 1.5 degrees Celsius.

Mairéad O'Donovan, The Ocean Race's science programme lead, said: "We know how important the ocean is, not just to the sport we love, but in regulating the climate and providing us with food, jobs and the oxygen we breathe. We also know that human impacts are seriously degrading the ocean. By capturing data about the state of our seas, through this unique collaboration between sailors and ocean

research organizations, we are able to contribute to increased understanding of ocean health. It's a privilege to be able to provide data of value to the scientific community and it's vital that governments act on the scientific evidence to protect and restore our ocean and all that depends on it."



Fitting of the microplastic data equipment. (Courtesy: Jesus Renedo/Volvo AB)

3D Map of all Plastic in the Ocean

In collaboration with [GEOMAR Helmholtz Centre for Ocean Research Kiel](#) and [Utrecht University](#), the data gathered by the VO65 teams will contribute to the development of a three-dimensional map of all the plastic in our ocean, by providing measurements in areas where there is currently a lack of data. Samples will be analysed by GEOMAR laboratory scientists and the data will be modelled by a team at Utrecht University who will investigate the potential for the microplastics to transfer into the food chain and deep-sea ecosystems.

Erik van Sebille, oceanographer at Utrecht University, said: "The unique feature of The Ocean Race is that the vessels go lightning-fast. This speed provides a great opportunity for us, because it means that the measurements at different locations are taken with a minimum amount of time between them, meaning the ocean currents won't have changed during the sampling. This makes interpretation of the observations much easier. Measuring microplastics in the ocean is really difficult work, and the more organizations and teams help out, the more data we get."

Insights on Weather, Climate Change and Microplastics

The Ocean Race Europe takes place in May/June this year, starting in Lorient in north-west France and finishing in Genoa, Italy. As well as capturing data during the race, Ambersail2 will also collect data during a prologue event in the Baltic Sea in northern Europe. This will be the first time such measurements have been taken in the Baltic sea, which is considered to have very high pollution levels. Gathered data will be shared with the [Marine Research Institute in Klaipeda University](#) for further research of pollution in the Baltic Sea.



11th Hour Racing Team crossing the North Atlantic. (Courtesy: Amory Ross)

The Ocean Race launched its innovative science programme during the 2017/18 edition of the round-the-world sailing race. As the seven boats travelled through some of the most remote parts of the ocean, they measured a range of variables to help provide insights on weather, climate change and microplastics.

For the next edition of The Ocean Race in 2022/23, the science programme will be expanded further, with even more boats carrying specialized equipment so that a fleet will capture direct measurements from parts of the ocean rarely accessible for scientific research.

The science programme is part of The Ocean Race's multi-award winning 'Racing with Purpose' sustainability programme, which brings together a range of tangible ways that we can have a positive impact on the marine environment. Working with 11th Hour Racing – the founding partner of the Racing with Purpose programme and premier partner of The Ocean Race – and Volvo Cars, we are equipping children with the knowledge to help the ocean, holding high-level summits to drive global decision-makers to create policies to protect and govern the ocean, working with the world's leading organizations and NGOs and much, much more. Find out more [here](#).

Sources:

1. [IPCC](#)
2. The oceanic sink for anthropogenic CO₂ from 1994 to 2007, published in *Science*
3. [IUCN](#)

More information:

[UN Decade of Ocean Science for Sustainable Development](#)

Utrecht University's [microplastic mapping project](#)

[EuroSea](#)