



## CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

The CNRS supporting the 2030 Agenda – a few examples:

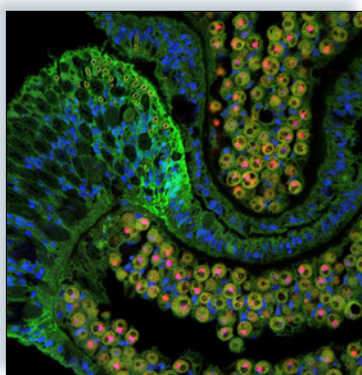


**From the coast to the deep sea, the ocean covers 70% of the world's surface and is studied in all its forms at the CNRS, from physical, biological and ecological viewpoints and from a historical, legal and socio-political perspective. Research on interactions and dynamics, its functions and vulnerabilities, its uses and services enable new scientific discoveries and innovative solutions in a context of global change. Numerous experiments, measurements and observations are possible thanks to the various infrastructures used by the CNRS teams, working with national and international partners. The resulting oceanographic campaigns, network of marine stations, satellite data, development of multiple sensors and innovative techniques, the outcome of partnerships between oceanographers, ecologists, chemists, biologists, mathematicians and physicists, drive the advancement of knowledge and data acquisition.**



### THE CNRS ON-BOARD TARA TO LEARN MORE ABOUT THE SEAS AND OCEANS

The TARA expeditions give many CNRS researchers and technicians better understanding of life in the oceans, including microscopic life, plankton and marine micro-organisms, using the latest technologies. The data collection and samples feed a database to improve knowledge of marine ecosystems and their relationships with the major biogeochemical cycles (nitrogen, carbon and oxygen). The discoveries of new species recently published in Nature could provide new molecules for the food, pharmaceutical and biotechnology industries. These expeditions also measure the impacts of human activities and climate change on marine species and assess the evolution of coral reef health.



*Section of a coral polyp, 'Stylophora pisitillata'; observed by confocal fluorescence microscopy. Image generated as part of the TARA Pacific project, an expedition that explored the potential for coral reefs to withstand, adapt and remain resilient to global change. © Abdelnadir Djerbi/IRCAN/MICA/CNRS*

### CORAL REEF HEALTH IN THE FACE OF GLOBAL CHANGE

The French coral reef research community works together in the CORAIL laboratory of excellence, which encompasses a large number of the CNRS joint research units. Largely based in the French overseas territories, the more multidisciplinary research aims to further understanding of interactions and biological processes, from the molecule to populations, to study their evolution in the face of local and global stresses, most notably in a context of acidification. Analysis of the structure, functioning and macro-ecology of communities is used to determine their adaptive capacities and resilience to temperature variations and other factors. This implies understanding the associated socio-ecosystems and the values given to reefs as a resource and service with multiple uses that raise questions about conservation. From traditional skills and practices to management methods, understanding the dynamics and vulnerability of these specific socio-ecosystems also provides input for decision-making in concertation with local stakeholders.

Find out more: [www.labex-corail.fr](http://www.labex-corail.fr)

## SIMULATING COASTAL RISKS TO BETTER ANTICIPATE THEM

Researchers at the Littoral ENvironnement et Sociétés (LIENSs—or coast, environment and societies) laboratory in La Rochelle develop simulation models integrating multiple parameters (geographical, socio-economic, climatic, etc.) and use data collected by numerous observatories (on coastal waters, the evolution of coasts and practices, the protection of marine mammals and birds, etc.) to raise local awareness of coastal risks and enable stakeholders to improve management and develop protection measures adapted to local realities.

**Find out more:** [lienss.univ-larochelle.fr](http://lienss.univ-larochelle.fr)

## TACKLING AN OCEAN OF PLASTIC

Given the huge quantities of plastics in the oceans, where continental pollution is amassed, the CNRS set up a 'Polymers and Oceans' research group in 2019 to federate the French scientific community involved in shaping the future of polymers in the aquatic environment, to encourage the development of experimental research and sources of new partnerships, to better promote the latest results and to propose innovative solutions to meet these environmental challenges.

**Find out more:** [www.gdr-polymeresetoceans.fr](http://www.gdr-polymeresetoceans.fr)

## THE POTENTIAL OF ALGAE

The European GENIALG project aims to highlight the value of algae and the transformation processes that have multiple applications in the food, cosmetics and biomaterials sectors. Sargassum, which has become a scourge on certain coasts, could actually become a resource!

**Find out more:** [www.sb-roscoff.fr/fr](http://www.sb-roscoff.fr/fr)

## SEASHELLS, THE SENTINELS OF THE OCEANS: Arctic Blues, an exhibition on the B.B. Polar project

The 'Arctic Blues' exhibition showcasing the Arctic Ocean research theme was the work of a multidisciplinary team bringing together art, science, research and creation. A new way of inviting the general public into the underwater polar world and sharing scientific results in the fields of ecology, bio-geochemistry and so on, while demonstrating how scallops and bivalves are a valuable biological archive on the environment and climate.

**Find out more:** [lejournal.cnrs.fr/articles/coquillages-les-sentinelles-des-oceans](http://lejournal.cnrs.fr/articles/coquillages-les-sentinelles-des-oceans)

The Scientific Interest Group on Maritime History comprises 325 French and international researchers, including about a hundred PhD students, who pool their expertise in the social and environmental sciences of the coast and the sea.

**Find out more:** [www.histoire-sciences-mer.org](http://www.histoire-sciences-mer.org)

A community of scientists specialising in Marine Renewable Energy form a Research Group (GDR) that promotes dissemination and interdisciplinary expertise and the forging of links with industrial players in the sector.

**Find out more:** [gdr-emr.cnrs.fr](http://gdr-emr.cnrs.fr)

### The Ocean Task Force

The CNRS Ocean Task Force was created to address ocean-related issues and contribute to the Decade of Ocean Science for Sustainable Development (UN, 2021–2030).

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*Works by scientists to share knowledge about oceans, seas and their resources.*

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