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Microbiome mission: the schooner Tara arrives on the West African coast to study the marine microbiome for 5 months

After traveling more than 53,000 km, the Tara Ocean Foundation schooner is beginning the last stage of the Microbiome mission — a study of the West African coast.

For a year and a half, the laboratory-ship explored Chilean, Caribbean, Brazilian and Argentinian waters, then accomplished a mission in the Weddell Sea in Antarctica.

Now the scientific team will complete this demanding program by exploring some of the most productive regions on the planet—the Benguela current and the coasts of Senegal. We will also analyze the influence of 3 of the main African rivers on the Atlantic Ocean.

An ambitious scientific program in West Africa

The schooner will pass **7 African countries, making stopovers in South Africa, Namibia, Angola, Democratic Republic of Congo, Republic of Congo, Gambia, and Senegal.**

During this voyage along the West African coast, the Tara Ocean Foundation and associated research institutes will try to answer 3 major scientific questions:

- The first phenomenon studied will be **the Benguela current**, which moves up from South Africa towards the coasts of Namibia and Angola. To the south, the waters of the Atlantic mix with those of the Indian Ocean, causing multiple whirlpools that reach as far as Brazil. Along these coasts, cold waters called «**upwellings**» rise from the depths, bringing nutrients to the surface. Because it is so rich in nutrients, the Benguela Current is very productive in fish, with an abundant and varied ecosystem. It has considerable influence over the South Atlantic Ocean.
- The second major research subject will be an **analysis of the impact on the Atlantic Ocean of certain major African rivers: the Congo, Orange, Gambia and Senegal.** The scientific team will study the effect of nutrients present in these rivers (in particular iron for the Congo River) and will also seek to identify the sources of plastic pollution, to quantify and analyze the different types of plastic, understand their fragmentation in rivers, and finally know the impact of this pollution on the marine microbiome.
- Finally, the researchers will study a third zone where **one of the 3 most powerful global upwellings occurs off the Senegalese coast** (after Chile and Benguela). These seasonal phenomena strongly impact biological production and consequently the local— and even international— economic activity, since many distant countries also come to fish here, and even over-fish here. The schooner will study this area outside the very active upwelling seasons in order to carry out a comparative study with the data collected during the upwellings.

“With this expedition we want to establish collaborations with the African scientific community and share the data that will be produced. Indeed, the availability of scientific data is an important issue for Africa to establish an inventory of the health of marine ecosystems and take measures to protect them.” Romy Hentinger, director of the advocacy division at the Tara Ocean Foundation

Each **stopover** will be an opportunity to **raise awareness** among as many people as possible and organize meetings around the preservation of the ocean. Tara’s stopovers are strong moments of exchange that serve as parentheses in the scientific adventure. Scientists and sailors will thus be able to interact with the general public, schoolchildren, the scientific community and political decision-makers.

AGENDA OF STOPOVERS – AFRICA

South Africa - Cape Town: 23/04 - 01/05

Namibia - Walvis Bay: 01/06 - 06/06

Angola - Luanda: 23/06 - 26/06

Democratic Republic of Congo - Matadi: 01/07 - 06/07

Republic of Congo - Pointe Noire: 12/07 - 15/07

Gambia - Banjul: 11/08 - 15/08

Senegal - Dakar: 03/09 - 12/09

Senegal - Saint-Louis: 18/09 - 19/09

The Microbiome Mission

Conceived by the Tara Ocean Foundation, the European AtlantECO program and our scientific partners including the CNRS, CEA and EMBL, this mission engages 42 research structures around the world to study the Ocean microbiome and its interactions with climate and pollution.

Marine micro-organisms hold an essential place in the Ocean, representing more than two thirds of the marine biomass. They are the first link in a huge food web that feeds much of humanity. Providing real ecological and economic services, these marine organisms participate in the Ocean’s carbon cycle which absorbs 25% of anthropogenic carbon emissions. Finally, they play a key role in the productivity of marine ecosystems. An essential cog in the great “climate machine”, the functioning of this invisible world remains largely unknown at present.

THE TARA OCEAN FOUNDATION:

The Tara Ocean Foundation is the first recognized public interest group in France dedicated to the Ocean. We have two main missions: EXPLORING the Ocean to better understand it, and SHARING scientific knowledge about the Ocean in order to create collective awareness. For 18 years, we have been developing high-level ocean science, in collaboration with international research laboratories of excellence, to explore, understand and anticipate the upheavals linked to climatic and environmental risks, as well as the impacts of various forms of pollution. To make the Ocean a common responsibility and to preserve it, the Tara Ocean Foundation also strives to make as many people as possible aware of ocean science and to educate younger generations.

Studying and protecting the Ocean means caring for the global system of our planet.

www.taraoceanfoundation.org

THE INTERNATIONAL ATLANTECO PROGRAM:

The Tara Ocean Foundation's Microbiome Mission is part of the European AtlantECO project, funded by the European Commission, which brings together more than 36 scientific institutions in Europe, Brazil and South Africa. This international scientific collaboration aims to develop a detailed understanding of the issues related to the Atlantic Ocean. AtlantECO will crisscross the Atlantic Ocean with 6 main expeditions. During these expeditions, scientists will study the functioning and circulation of the marine microbiome, as well as analyze the impact of pollution (plastic and chemical) and climate change on these microorganisms.

www.atlanteco.eu

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