

The flash



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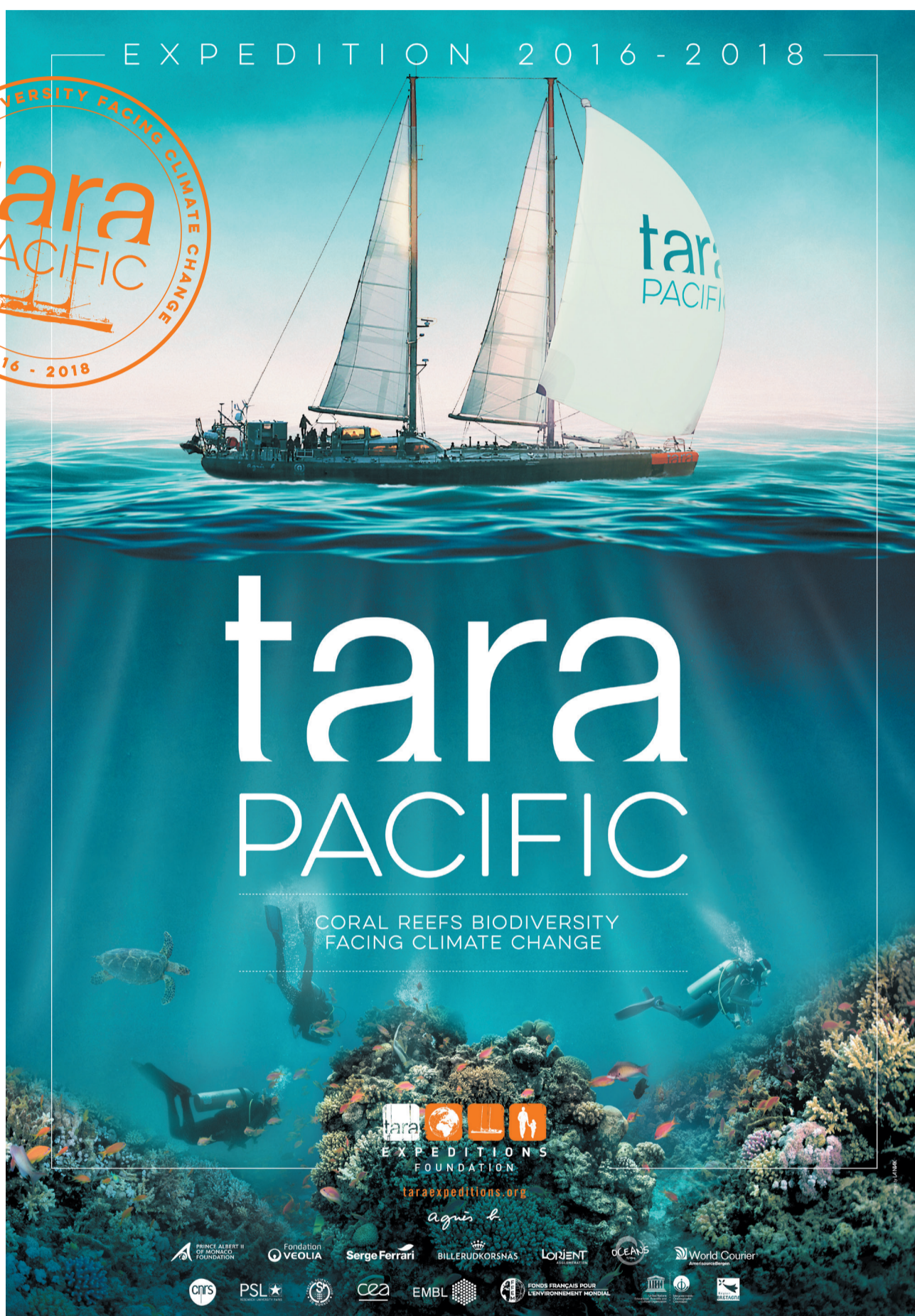
TARA SETS COURSE TOWARDS CORAL REEFS AND THEIR BIODIVERSITY

After sailing every ocean around the globe to learn more about the planktonic world, the Antarctic and Arctic Oceans, and crossing the Mediterranean to assess the damage caused by plastic pollution at sea, Tara is now heading towards the Pacific Ocean and Asia. This 21/2 -year expedition (May 2016 - October 2018) aims at better understanding past climate, today's threats and the future of coral reef biodiversity. From east to west and from north to south, Tara will study this rich and fragile ecosystem, and its resilience at a time when the Ocean is undergoing major upheavals.

Though coral reefs cover less than 0.2% of the ocean floor, they represent nearly 30% of marine biodiversity. True oasis of life, they provide food, breeding areas and habitat for many species: fish, crustaceans, anemones, etc. They also supply a livelihood via fishing for 500 million people worldwide. Moreover, the value of ecological services they provide – protection of coasts from erosion, tourism, etc. – is estimated at about \$30 billion a year. Essential but fragile, coral reefs are affected by global warming, ocean acidification and increasing human activities. In this context of global change, Tara's new objective is to study one of the ecosystems vital for marine life in the largest ocean on the planet. Sailors, scientists, journalists and artists will relay each other on board for over 2 years.

EL NINO 2015-2016: WHAT IMPACTS SHOULD WE EXPECT?

Crossing the Pacific Ocean from east to west and from north to south will give the scientists aboard the schooner the opportunity to study the impact of El Niño on the ocean. In a context of climate change and ocean warming, the temperature variations of the El Niño current have traumatic effects on reefs leading to high coral mortality. In 2016, this phenomenon is expected to be more devastating than the 1998 event, responsible for the disappearance of 18% of corals in 6 months (Hoegh-Guldberg et al., 1999).



TARA PACIFIC IN NUMBERS

- Tara's **11th** expedition since 2003
- Voyaging **100,000** km
- Visiting **30** countries
- Making **70** stopovers
- Lasting **2 1/2** years
- Collecting **40,000** samples
- Involving **26** labs - **9** different countries
- **70** scientists
- **8** artists in residence

INTERVIEW WITH SERGE PLANES

*Scientific director of the Tara Pacific expedition,
CNRS - PSL director of research in Environment*



Corals are the subject of numerous studies. What characterizes the Tara Pacific expedition?

The uniqueness of this expedition is its “transversal” approach over a vast geographical area – the Pacific Ocean – hosting more than 40% of coral reefs on the planet. Such an approach has never been conducted at this scale.

A second specificity of this expedition is its multidisciplinary. International teams of coral biologists, oceanographers and plankton experts will collaborate to establish an extensive genomic, genetic, viral and bacterial on-site analysis of coral biodiversity. The results will then be compared with that of the body of water surrounding the corals, their “amniotic fluid”. The goal is to provide a thorough inventory of the biodiversity of a coral colony. Like *Tara Oceans*, this expedition is expected to advance the frontiers of our knowledge about the ocean.

What do we know today about reef resilience to global warming?

“The increase in ocean temperatures causes coral bleaching and disrupts the symbiosis between polyps and algae. In a prolonged situation, the coral will lack the essential nutrients supplied by the alga and ultimately die. On a large scale, reef disturbances can be major. The data collected during the expedition aim at providing information on how biological, chemical or physical parameters influence the life of coral colonies and their ability to adapt to environmental changes.

“An increase in sea surface temperature of about 0.5% is sufficient to cause a cataclysmic event visible to the naked eye over several square kilometers: coral bleaching.”

Denis Allemand,

Scientific co-director of the Tara Pacific expedition.

“Beyond research objectives, Tara will take this opportunity to give voice to the communities of the Pacific Ocean, first populations impacted by global warming.”

Romain Troublé,

Executive director of the Tara Expeditions Foundation.

TARA OCEANS : A TREASURE TROVE OF SHARED DATA



Information about plankton collected during the *Tara Oceans* expedition represents an unprecedented resource for studying and understanding the Ocean. Based on these findings, the Tara Expeditions Foundation and the Fonds Français pour l'Environnement Mondial (French fund for the global environment) in 2015 launched a 4-year program of North-South cooperation, involving 6 countries. Objectives: to train young researchers from southern countries (including Senegal, Chile, Brazil and Argentina) in using this data, and to create new networks for exchanging knowledge about the planktonic world. The “*Ocean Plankton, Climate & Development*” project will also generate indicators to better understand the consequences of climate change.

TARA EXPEDITIONS BECOMES A PUBLIC INTEREST FOUNDATION



“The recognition of Tara Expeditions is the culmination of a long process, a project of public interest since its origin. Beginnings were sometimes difficult but in the end, the project has exceeded all our expectations and it's all the better! Tara has become an internationally recognized common good, shared by people of very different backgrounds. It is a beautiful place of creation, exchange and knowledge. With this new status, the Tara Expeditions project becomes more sustainable while remaining independent. Tara will pursue her mission of disseminating scientific knowledge to all – civil society and decision makers, large and small – and help protect our common heritage: the Ocean.”

Étienne Bourgois,

President and founder of Tara Expeditions.



oceansbydisney.fr

During the 2016-2018 Tara Pacific expedition, Oceans by Disney, along with the Tara Expeditions Foundation, is committed to raising awareness among young people about ecological issues facing the Ocean and its marine and coral biodiversity.

PARTNERS OF TARA PACIFIC



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