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2017 CRIOBE Newsletter A Year in Review

Message from the Director

Dear Friends of the CRIOBE,

The beginning of the New Year marks an important moment for coral reefs around our planet as 2018 is the [International Year of the Reef \(IYOR\)](#). With increasing evidence that climate change is impacting coral reefs in numerous and often catastrophic ways, **now more than ever, rigorous science that is focused on helping managers and decision makers navigate the way forward is of utmost importance.**

Through our leadership role on the [Tara Pacific Expedition](#), now in its second and final year, we are collecting vast amounts of critical data to determine how coral reefs around the Pacific, are adapting to climate change, and what we can do, if anything, to facilitate this process. In another project called [Reef Services](#), Dr Parravicini and his collaborators across nearly 10 institutions here in France and around the globe, will spend the next three years trying to measure and predict the impacts of global warming on coral reefs and the services they provide to more than 500 million people around the globe. These projects are large scale and ambitious – but it is only working at these scales that we will have a chance at sustaining coral reefs. **The current state of the world's coral reefs has once again made the work that we do at the CRIOBE all the more urgent and important.**

Another highlight for us this past year was the privilege of hosting the [10th Indo-Pacific Fish Conference](#) in Tahiti, an event which brought together hundreds of experts from around the world to discuss a vast array of topics in the field of coral reef fish science. The conference provided participants with the opportunity to share scientific results, and created a space for new collaborations to form. Hosting this event in French Polynesia was an exceptional opportunity as it drew the attention of world experts in the field of coral reef science and focused their attention on today's challenges facing these important reef resources.

In September, in the presence of the high commissioner of French Polynesia René Bidal, the president of the [EPHE](#) Hubert Bost, the associate director of the [CNRS INEE](#) Martine Hossaert and Françoise Gail from [Ocean & Climat](#), we celebrated the opening of our new amphitheatre in Moorea. This building (capacity: 120pax) has already hosted both local and international events and beginning in 2018 will host a series of scientific seminars and a new monthly public conference series '[Jeudis du Savoir](#)' which will engage members of the public in a range of topics in science.

In early 2018 we opened a new office in Paris, at the [House of Oceans](#). This location is ideal as it brings together, at one location, some of France's best and brightest in the fields of the environment and ocean protection: the Oceanographic Institute, the Prince Albert II of Monaco Foundation, IUCN, the Foundation for Research on Biodiversity, the French Agency for Marine Protected Areas, INDEMER. For the CRIOBE, the office will provide a space for our researchers to go, while in Paris, to easily attend meetings, media events, and to build new collaborations.

This year will be my final year as Director of the CRIOBE. In December I will hand over the baton to Annaïg Le Guen, who will be leaving her post as the Director of CNRS's Research Station in Guyane, and will join the CRIOBE in early 2019. Over the next 12 months I will work to ensure that the transition to new leadership is smooth and will continue to work with our partners in science and with our tutelles to ensure that CRIOBE maintains its standing as France's premier research laboratory for the study of coral reefs.

I want to thank you for your continued support and engagement in the work of the CRIOBE and I wish you a happy and healthy 2018.

Serge Planes - Director - CRIOBE

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ADVANCING CORAL REEF SCIENCE AND OCEAN POLICY / 2017 proved to be another strong year for the CRIOBE in terms of [publications](#), where researchers and students collectively published over 100 articles in peer reviewed journals, **18% of which were in top journals** (IF ≥ 5). In addition to publishing, our researchers used their expertise in coral reef science to impact ocean policy at the highest levels. As part of the [Tara Pacific Expedition](#) and the BNP Funded [Reef Services](#) project, our researchers were invited to participate in several sessions with a focus on coral reefs and climate change at the UN Climate Change conference in Fiji in July and at the [COP 23](#) in Bonn, Germany, November 2017.



EDUCATION / In 2017, CRIOBE, in collaboration with the [IRCP](#) and [ENSAD](#), educated more than 60 students, from undergraduate level to Masters and PhD. Six PhD students finished their dissertations, and we awarded 6 students with EPHE Diplomas, 2 of whom are now enrolled in Doctoral programs. In addition to graduate level supervision, the CRIOBE offered 10 courses (300 hours) at the Masters level in 2017, spread between Perpignan, Moorea, and online through ENSAD. The CRIOBE also participated in several public outreach events including the [Fete de la Science](#) (Perpignan and Moorea), where we engaged school children and members of the public in activities surrounding the topic of coral reefs, conservation and the Tara Pacific expedition.



CORPORATE PARTNERSHIPS SUPPORTING FUTURE SCIENTISTS / In 2016, we launched important corporate partnerships with companies wanting to support future scientists and researchers in the field of coral reef science. In 2017, for the second year in a row, through a partnership with the CRIOBE, [Europcar Polynesia](#) awarded two of CRIOBE's students for their work focused on the health of coral reefs in Polynesia. In another partnership, [AirTahiti Nui](#) and the [InterContinental Resort of Tahiti](#) were the official sponsors of this year's [Indo-Pacific Fish Conference](#) and through this sponsorship, they helped to support the participation of nearly 600 participants at the event.

CRIOBE | RESEARCH HIGHLIGHTS



TARA PACIFIC / In 2017, [TARA](#) finalised the first year of sampling along the east-west transect (from Panama to Japan) and started along the south-north transect (from Australia to China) which will take the expedition through its second and final year. CRIOBE researchers and technicians visited the islands of Fiji, Kiribati, Chuuk, Guam and Ogasawara to finish the first year of sampling. After spending the summer in New Zealand, where the crew prepared for the next leg of the transect, Tara set off for Australia, Chesterfield and Noumea. Before Christmas, we spent 2 months in the islands of Papua New Guinea and the Solomon Islands, a region that lies in the eastern corner of the [Coral Triangle](#)—the global centre for marine biodiversity. To date we have visited more than 25 archipelagos, and 3 species of corals from more than 2250 colonies have been sampled, yielding more than 15 000 samples in total. The first sequencing data from Genoscope will arrive at the CRIOBE in early 2018 and we expect that these data will keep researchers, students and technicians extremely busy for the remainder of the year and beyond.



UNDER THE POLE EXPEDITION / In 2018, in partnership with Under the Pole expeditions, CRIOBE researchers will embark upon a new mission aboard the vessel WHY, to explore the mesophotic ecosystems (below 30 m of depth) (Project : [DeepHope](#)) and the elusive giant sharks (Project : [UTP Superpredators](#)) of French Polynesia. The expedition will go from August 2018 to April 2019 and will sail throughout 16 islands and archipelagos of French Polynesia. Researchers focused on corals will attempt to determine whether greater oceanic depths may eventually serve as refuges for coral reefs within the context of climate change, and to examine the mechanisms by which corals are able to survive at greater depths. With respect to sharks, our scientists will gather data on bull and great hammerhead sharks to gain a better understanding of the ecology of these rare animals and their role within the larger ecosystem. This information will help to improve the management of these loved, feared and threatened animals within the context of their protection through Marine Protected Areas, sustainable ecotourism activities, and for the reduction of negative human-shark interactions.



BIO2MAR ANALYTICAL CHEMISTRY PLATFORM / The [Bio2Mar](#) platform is a state-of-the-art service and research facility affiliated with the CNRS, UPMC, Pierre Fabre laboratories and UPVD. One of its four research units, MSXM (Secondary Metabolites, Xenobiotics, and Environmental Metabolomic) is based at the CRIOBE in Perpignan. MSXM stands out as a unique analytical chemistry platform in France, with a range of cutting edge equipment that offer researchers the ability to analyse, detect, identify and quantify biologically active natural and man-made compounds, pure or in complex mixtures, applied to the study of biodiversity and ecosystems. In 2017, the MSXM added efficient high-performance LC-MS instruments to its platform, including an Ultra High Pressure Liquid Chromatography (UHPLC) ThermoScientific Vanquish, coupled with a Bruker Q-ToF maXis mass spectrometer, and a ThermoScientific UHPLC Vanquish equipped with a QExactive plus mass spectrometer. In 2018, we will upgrade our existing spectrometer to a new 500 MHz NMR. Today, the MSXM unit is a highly sought after platform both within the CRIOBE and with our partners, as it provides the equipment necessary to develop new approaches in metabolomics that can be applied to current topics in marine ecology or for impact studies of emerging pollutants.



SAFENET / Area-based fisheries management rules and Marine Protected Areas are increasingly recognised as the most effective solution to achieve marine conservation while granting the recovery of fish stocks and hence sustainable fisheries. However these results can realistically be achieved in the Mediterranean only if coherent and ecologically connected networks of protected areas and area-based management measures are implemented and enforced. 2017 was a busy year for the Safenet project, which engaged modelers, field ecologists, fisheries scientists (including industrial, small scale and recreational fisheries experts) and NGOs in an effort to fill knowledge gaps on the ecology and fisheries of the North Western Mediterranean. The result of this data-rich effort will be used to develop realistic spatial fisheries management scenarios (based on networks of MPAs or area-based fisheries closures) to improve marine conservation and the socio-economic status of NW Mediterranean fisheries. 2018 will see the project team focused on the development and test of the spatial fisheries management scenarios, which will be shared with stakeholders in order to identify the most suitable management options. By the end of 2018 the project will deliver final science-based and stakeholder-inclusive recommendations to the EU to achieve Good Environmental Status, as well as the environmental, economic and social sustainability of fisheries in the NW Mediterranean, as dictated by the Marine Strategy Framework Directive and the Common Fisheries Policy respectively.



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