



CORCOPA: Optimized Conservation of Europa's Coral Reefs using Eco-Acoustics

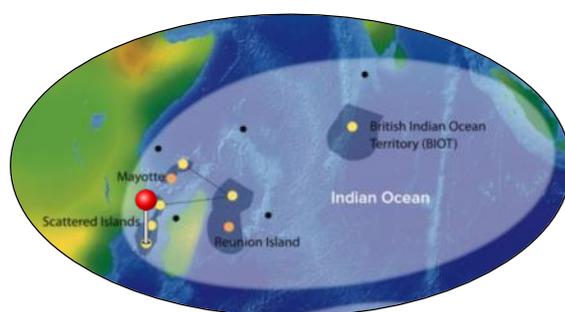
Targeted territory: Scattered Islands (Europa)

Total project budget: 112,610 Euros

BEST 2.0 grant awarded: 99,620 Euros

Duration: January 2018 – December 2018 (12 months)

Lead organisation: Université de La Réunion



Background:

The coral reefs of the island of Europa are among the 2% of reefs in the world that have been preserved from direct human impacts. As sanctuaries of marine biodiversity, they constitute a priority for conservation efforts.

The French Southern and Antarctic Lands - TAAF - manage the island of Europa. Its isolation makes ecological monitoring operations complex and expensive. The frequency of these operations – which occur every five years - is insufficient to support the effective management of Europa's coral ecosystems in the context of accelerating effects of climate change and taking into account the temporal dynamics of reef populations.



Description of the Project:

The CORCOPA project has the specific objective of reinforcing and sustaining the technical capacities of the TAAF for the management of the coral ecosystems of the Scattered Islands. It will set up and implement an innovative, operational and inexpensive monitoring tool, adapted to both the isolation of Europa and the pace of change being experienced by its ecosystems. The eco-acoustic approach, which is booming worldwide, is based on the passive recording of the

"soundscape" and its ecological interpretation.

By coupling spot recordings of soundscapes and visual assessments of reef stands the project team is planning to define the links between the characteristics of ambient sound and the ecological status of associated stands on Europa's reefs in order to establish reference acoustic state. An autonomous underwater station will be installed with the aim of performing and interpreting a continuous monitoring – daytime and nighttime - of the sound environment of Europa's reefs. Two major aspects of sound will be studied: sound volume (SPL) and signal complexity (ACI), especially on frequency bands already identified as representative of the activity of certain reef organisms (examples: 0.1-0.5 kHz for fish , macro crustaceans, 2-20kHz for micro crustaceans). The detection of marine mammals is also envisaged.

Finally, the team proposes to transmit to the TAAF a ready-to-use tool for non-specialists in the field of eco-acoustics to enable the long-term monitoring of biodiversity and ecosystem services and so contribute to better management.

Intended results:

The project, which is led by UMR Entropie of the University of Reunion, in collaboration with the TAAF and a private company specializing in bioacoustics, plans to achieve the following results:

1. Establish models for predicting the status of Europa's reef stands based on acoustic indicators and define a reference acoustic state.
2. Conduct a continuous monitoring (24h a day) of the soundscape around a pilot and autonomous station throughout the project, and interpret in ecological terms the detected variations.
3. Contribute to the management plan of the island of Europa thanks to the knowledge acquired by acoustic monitoring.



Given the innovative nature of the proposed ecological monitoring methodology, special care will be taken in disseminating information on projects and preliminary results to various audiences.

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