

## Coral reef restoration using acoustic enrichment



Coral reefs are home to 30 % of marine biodiversity and provide goods and services to over a billion people worldwide. Due to the increasing impact of human activities, up to 90 % of coral reefs could disappear by 2050. France is the fourth country with the most coral reefs in the world and the only country with coral reefs in all oceans, and therefore has a great responsibility in protecting these ecosystems. Current monitoring methods are no longer sufficient to meet the needs of those involved in coral reef management, particularly because of their limited spatial and temporal coverage.

Reef Pulse develops monitoring and restoration tools to safeguard coral reefs globally using soundscape recording and Artificial Intelligence. Reef Pulse was founded in 2021, is based in Reunion Island (France, Indian Ocean) and was awarded several innovation prizes. Digital signal processing tools and Artificial Intelligence algorithms automatically analyse the data collected, enabling the daily and yearly comparison of the ecological status of a large number of sites. To complement this diagnosis, Reef Pulse is developing in 2025 a restoration solution based on broadcasting ambient sound recorded on healthy reefs onto degraded areas. Our partners include several universities, research laboratories, Protected Marine Areas stakeholders, and public authorities. Most of our funding is provided by french funds but also comes from the European Union through the ERDF and BestLife2030 programmes.

### Job description

You will join the R&D department and will develop the project to restore coral reefs using acoustic enrichment. You will join a team of eight people who are passionate about audio, natural sciences and committed to saving the oceans. The technicians, engineers, researchers, and divers at Reef Pulse combine skills in coral reef ecology, field deployments, computing, signal processing, and Artificial Intelligence.

The REACT project (a french acronym for Restoration of Tropical Coral Reefs using Acoustic Enrichment) is funded by a multiannual ERDF grant. The aim of the project is to identify the optimum conditions for implementing acoustic enrichment. This will involve analysing the effects of reef initial ecological state, as well as noise pollution, on the effectiveness of acoustic enrichment, and assessing whether it is possible to promote the recruitment of larvae from particular fish species or functional groups ([Gordon et al., 2019](#); [Lamont et al., 2022](#); [Boulais et al., 2023](#); [McAfee et al., 2023](#); [Pysanczyn et al., 2023](#); [Aoki et al., 2024](#)).

You will be responsible for the successful planning and implementation of the REACT programme over a 24-month period. You will supervise contractors and interns, interact with engineers and researchers from Reef Pulse, as well as from the research laboratory [UMR ENTROPIE](#). You will contribute to pre-processing and assessing raw data integrity and quality before extracting trends or anomalies. You will take part in fish larvae collection using Fish-ARMS and light traps, as well as sorting and identifying them and ensuring their survival in the aquarium. You will design and carry out acoustic tests on larvae using choice chambers. You will analyse coral larvae recruitment tiles and ecological data on fish assemblages and their habitat. You will build models on the effects of noise pollution and of the reef initial ecological state onto the effectiveness of acoustic enrichment. As part of your mission, you will also contribute to internal and technological monitoring resources in order to keep the state of the art on these subjects up to date. You will write several technical reports and at least two scientific articles in international peer-reviewed journals. You will also be responsible

for pursuing our international collaborations on acoustic enrichment and for creating new ones.

## Requirements

- PhD in ecology obtained before November 2025
- Advanced knowledge on coral ecosystems
- Proficient in English
- At least one programming language for statistical analyses and modelisation (R, Python, Matlab...)
- Ready to move to work in our office based in Reunion Island
- Organisational and management skills

## Nice to have

- Scientific Diving Certificate or [the french CAH Class 1 Mention B](#) equivalent
- Previous field experience with professional scientific Diving
- Previous experience in aquariology
- Knowledge on marine acoustics
- Knowledge on fish post-larvae and coral larvae recruitment and identification

## Details

- Job offer released in February 2025
- Deadline for application: 31st May 2025
- Starting between 1st September 2025 and 1st November 2025
- Monthly gross wage depending on candidates: 32-38 k€

## Hiring process

- Phase 1: before the 31st may 2025, send your resume, cover letter, and references to [contact@reef-pulse.com](mailto:contact@reef-pulse.com) in english or french, with the subject "CDI enrichissement acoustique"
- Phase 2: technical interview in June 2025 with [Simon Élise](#), CEO and PhD in bio and eco-acoustics of coral reefs
- Phase 3: interview with [Yann Bayle](#), CTO and PhD in Artificial Intelligence applied to audio analysis

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