



Research & Development

Research & expertise



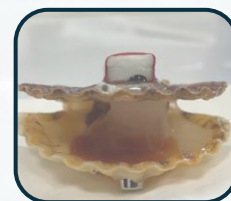
Ecosystem monitoring

- Monitoring of **abiotic and biotic** environmental variables (multi-sensor systems)
- **Behavioral ecology** (biologging and acoustics)
- **Soundscape description** (passive acoustics)



Noise pollution

- **Characterization** of noise pollution (sound pressure, ground vibration)
- **Prediction** of noise pollution in the ecosystem through acoustic modeling
- **Assessment of the effects** of noise pollution on:
 - Invertebrates across multiple biological scales (behavioral, physiological, cellular, and molecular)
 - Marine mammals (behavior)



Innovation & method optimization

- ✓ Development of algorithms for the detection and classification of acoustic signals from marine mammals, fish, and anthropogenic activities
- ✓ Design and optimization of moorings for in situ monitoring
- ✓ Development of multi-sensor buoys
- ✓ Continuous improvement of acoustic propagation models (e.g., 3D propagation) and biological effect models
- ✓ Development of biologging methods (e.g., bivalves)
- ✓ Development of methods for measuring other pressures (e.g., ground vibration)

Recent projects

- Impact of anthropogenic noise on harbor seals – CIFRE thesis (SOMME – PELAGIS)
- Impact of vibrations from human activities on benthic fauna in situ (project funded by the French Office for Biodiversity – OFB) and in the laboratory (EMOTIONAL project with IFREMER, funded by ANSES)
- INTAROS – Experimentation in Svalbard (IPEV, European funding)
- Study of cetacean presence in Saint Pierre and Miquelon