Modular Buoy Detection System (PAM)

The Modular Buoy Detection System uses Passive Acoustic Monitoring (PAM) to provide a flexible approach to monitoring vocalising marine mammals and underwater noise.

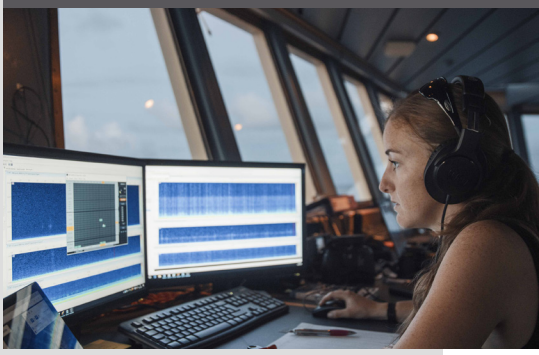
The system consists of a remote moored buoy with a multi-element detachable hydrophone array suitable for mitigation and anthropological noise capture. Signals can be captured up to a sampling rate of 500 ks/s at 16 bit depth. The system can be configured to record the data locally within the buoy or remotely at the receiving station, whichever is required.

Further options include:

- Remote on/off via Radio Frequency (RF) link (868 Mhz)
- Real-time remote monitoring of audio via RF link (2.4 Ghz)
- Truly global remote control via Iridium
- Truly global GPS via Iridium

Applications

+ Marine mammal monitoring
+ Underwater vessel noise
+ Civil engineering projects
+ Ordnance clearance



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A shore or vessel-based receiving station is provided to receive the signal transmitted from the buoy. This signal is routed through an interface unit for signal conditioning and conversion prior to analysis and display. PAMGuard software is used for real-time analysis and local data recording. The system allows for both single and multiple buoy deployment.

Telemetry

The buoy has the necessary components to transmit signals received at the hydrophone (PAM data) to the survey vessel, as well as transmitting position information (from an Iridium GPS receiver on board the buoy).

- The telemetry system for the PAM data operates in the 2.4 GHz band
- The position telemetry system operates in the 1–2 GHz band
- The remote power control system operates in the 868 MHz band

Hydrophone

Due to the modularity of the array sections, Seiche can provide custom-made array sections to suit specific needs. However, we also offer an off-the-shelf option with the following specification:

- Hydrophone element H1
- Super Broadband 10 Hz to 200 kHz (3 dB points)

Specification

The buoy electronics are securely housed within a custom water-tight housing
Radio controlled latching switch (868 MHz) to turn on telemetry system, otherwise in standby mode @ 26 mA current draw
National Instruments cDAQ9181 card with a NI9222 interface sending acoustic data over ethernet
Ubiquity Wi-Fi module transmitting data wirelessly over coax cable leading to external antenna located on mast
Additional filtering module to reduce noise

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