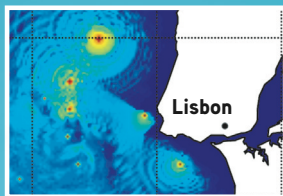




# UNDERWATER SOUND

## SERVICES

- **In situ noise measurements & data analysis:** wide range of temporal and spatial configurations, real-time monitoring.
- **Noise mapping & prediction:** acoustic modelling for noise level prediction over space and time.
- **Prediction of impact** on marine fauna for risk mitigation.
- **Planning and coordination** of noise monitoring programmes.
- **Custom-made technological solutions** tailored to specific problems.



## PRODUCTS

The MarSensing **digitalHyd** line of products is designed to provide a user-friendly and compact equipment solution in underwater acoustic signal acquisition activities.

### digitalHyd SR-1

An autonomous underwater acoustic recording device with field removable battery and memory card. Expandable for longer term monitoring through additional battery packs.

### digitalHyd TP-1

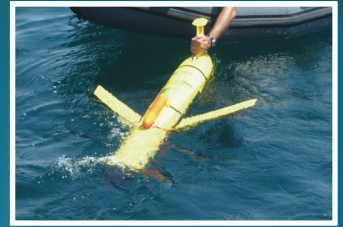
A telemetry based acoustic recorder with real-time streaming of acquired data for remote visualisation, and internal data processing capabilities. Ideal for integration into existing systems, or for real-time monitoring.

## //SOLUTIONS IN UNDERWATER NOISE MONITORING//

- In house development of instrumentation for surveys and monitoring.
- Acoustic measurements by means of compact autonomous or telemetric acoustic instruments.
- Complementation of *in situ* measurements with active acoustic surveys and acoustic modelling tools.
- State-of-the-art processing and impact assessment techniques.

TECHNOLOGY  
CONSULTANCY  
RESEARCH





## WHO WE ARE

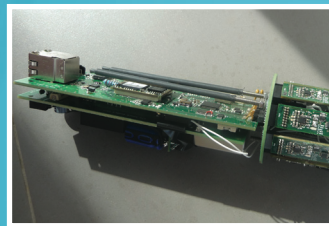
**MarSensing** is a company consisting of a group of scientists and engineers with activities in **Underwater Acoustics (UA)**.

The company provides consultancy services in UA, develops instrumentation for acoustic data acquisition, and participates in R&D projects. Our experience comes from over a decade of research and technological development in UA. We can implement custom-made solutions, integrating acoustic and non-acoustic sensors with data storage, onboard processing and telemetry.

## TECHNOLOGY

**MarSensing** has many years of accumulated system development and design experience in electronics, software and mechanics in the marine environment. This knowledge is applied in the development of specialised devices with focus on underwater acoustics and integration of other marine sensors into monitoring platforms:

- **Autonomous Underwater Acoustic Recording Systems.**
- **Monitoring Buoys.**
- **Multi-Channel Acoustic Systems.**
- **Shore Connected Underwater Monitoring Stations.**



digitalHyd SR-1

Do you have questions? Are you looking for specific solutions? Do not hesitate to contact us so we may provide a customized solution to your needs. We are open to new challenges!

## REFERENCES

**READ** A. Silva, A. Matos, C. Soares, et al. *Measuring underwater noise with high endurance surface and underwater autonomous vehicles*, OCEANS 2013, San Diego, USA. September 23-26, 2013.

**READ** C. Soares, S. Patrício, F. Zabel and A. Moura. *Baseline Measurement of Underwater Noise Under the SURGE Project*, ECUA 2012, Edinburgh, Scotland, 2-6 July, 2012.

**READ** C. Soares, F. Zabel, C. Martins and A. Silva *On the applications of a compact autonomous acoustic recorder*, OCEANS 2011, Santander, Spain, 6-9 Jun, 2011.

**READ** C. Soares, F. Zabel and C. Martins *An acoustic inversion technique using a single autonomous hydrophone: Experimental results*, Internoise 2010, Lisbon, Portugal, 13-16 Jun, 2010.

**READ** S. Patrício, C. Soares and A. Sarmento. *Underwater Noise Modelling of Wave Energy Devices*. In Proc. 8th EWTEC, pp. 1020-1028, 2009.



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