

# Building an information system for managing multidisciplinary open access data on seamounts within Portuguese waters

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The deep-sea is Earth's final frontier for exploration, hence the conservation, management, and sustainable use of its resources are among the most critical and pressing ocean issues today [1].

Seamounts are areas with special characteristics where industrial fisheries are targeting resident fish aggregations.

**SeaBioData<sup>(a)</sup>**  
**Portuguese Seamounts**  
**Biodiversity Data**  
**Management**

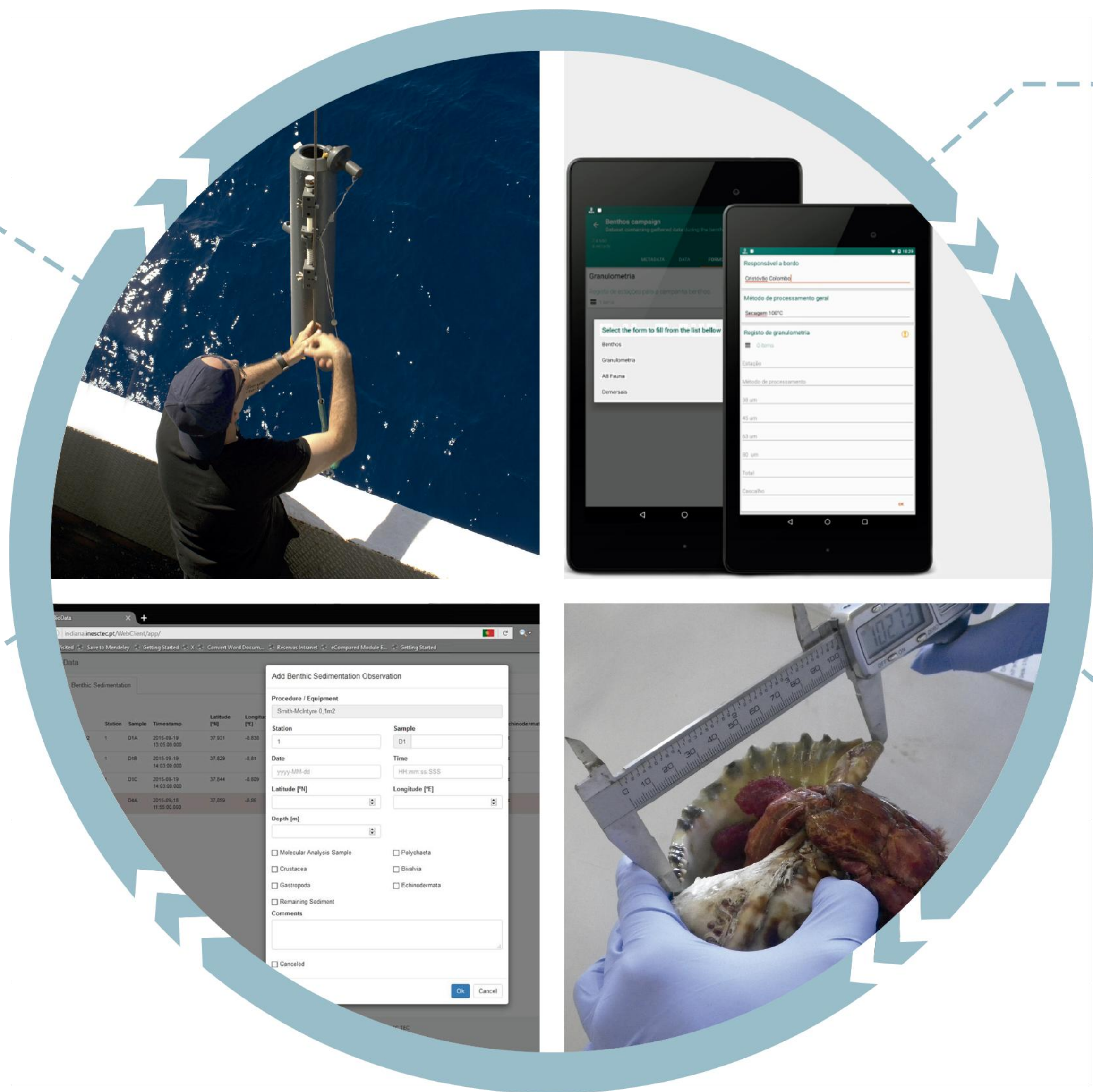
**Information system**  
for organising and storing  
marine information

## FIELD

Data acquisition  
Recording on digital support

## OPEN ACCESS

Dissemination  
Availability for further  
analysis and validation  
Starting point for new  
investigations



## LABORATORY

Data acquisition  
Data analysis and validation  
Recording on digital support

## DATABASE

Data long-term  
storage  
Data management



Feature



Property

feature of interest

observed property

procedure

result



Process

Value

Sample Id	Locality	Date	Depth (m)	Substrate Type	Species	No*0.1 m <sup>2</sup>
T11	Aveiro	09-02-2015	15.8	Medium sand	Donax vitatus	1
T11	Aveiro	09-02-2015	15.8	Medium sand	Oligoneis pupillator	1
T11	Aveiro	09-02-2015	15.8	Medium sand	Heulthys cornuta	9
T11	Aveiro	09-02-2015	15.8	Medium sand	Philochorus crispus	1
T11	Aveiro	09-02-2015	15.8	Medium sand	Portunus latipes	1
T11	Aveiro	09-02-2015	15.8	Medium sand	Polychaeta borealis	1
T22	Aveiro	09-02-2015	8.2	Fine sand	Ophiura neglecta	2
T22	Aveiro	09-02-2015	8.2	Fine sand	Heulthys cornuta	8
T22	Aveiro	09-02-2015	8.2	Fine sand	Spisaphanes bombyx	1
T22	Aveiro	09-02-2015	8.2	Fine sand	Amphura chaperi	1

## System characteristics

- Data collected during *BIOMETORE's* surveys <sup>(b)</sup>.
- Data sets are georeferenced and time stamped.
- Data can be uploaded directly from the mobile application *LabTablet*.
- Design follows *MoReq2010*® [2].
- Metadata models follow the *INSPIRE* directive [3].
- Conceptual domain model follows *Observations and Measurements (O&M)* specification [4, 5]: *Observation* is the act of measuring the *value* of a *property* that is attributed to a *feature*, using a *process*.

## SeaBioData's avail

- To provide innovative and imperative tools for marine research.
- To promote links between the scientific community and other stakeholders related to the marine environment.
- To ensure the data management, long-term preservation, and open access to high quality marine data.
- Ultimately, to improve the ability to assess and predict the environmental status in Portuguese marine waters.

**Footnotes:** (a) Portuguese Seamounts Biodiversity Data Management, EEAGrants, PT02\_Aviso5\_0002; (b) Biodiversity in Seamounts: the Madeira-Tore and Great Meteor, EEAGrants, PT02\_Aviso2\_0001

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**References:** [1] Clark, M.R., *et al.* (2006). Seamounts, deep-sea corals and fisheries: vulnerability of deep-sea corals to fishing on seamounts beyond areas of national jurisdiction. UNEP-WCMC, Cambridge, UK, 80 pp. [2] EC (2011). MoReq2010, Modular Requirements for Records Systems – Core services & plug-in modules (version 1.1), DLM Forum Foundation. 524 pp. [3] EC (2007). Council Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). OJ L108/1. [4] Cox, S. (2013). Geographic Information – Observations & Measurements. Tech. Rep. OGC and ISO 19156:2011(E), Open Geospatial Consortium. 46 pp. [5] Schleidt, K., *et al.* (2014). Guidelines for the use of Observations Measurements and Sensor Web Enablement related standards in INSPIRE: Annex II and III data specification development. Tech. Rep. D2.9.v2.0, INSPIRE Cross Thematic Working Group on Observations & Measurements. 93 pp.