From FAIR to FAIR²: Turning Principles into Practice for Responsible, AI-Ready Data

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FAIR² Open Specification

The exponential growth of research data demands new standards that go beyond FAIR — ensuring datasets are AI-ready, Responsible, and Reliable.

The FAIR² (FAIR-Squared) Specification builds upon the FAIR principles by integrating Responsible AI and machine learning interoperability.

Extending FAIR for Responsible AI

FAIR² Pillar	Enables	Built on
F - Findable	Persistent identifiers, discoverable metadata	DataCite DOI, schema.org/Dataset
A - Accessible	Standardized access protocols, clear licensing	FAIR² accessRights metadata
I - Interoperable	Schema alignment and validation, standarized units & roles	JSON-LD + SHACL, QUDT, CRediT +CRO
R - Reusable	Provenance, ethics, and licensing	W3C PROV-O process & method linkage
² – AI Ready and Responsible AI	AI/ML-ready metadata, bias transparency, model traceability	MLCommons Croissant, Croisant RAI

FAIR² development

- It is a community-driven specification
- It evolves through real-world use: every dataset published, validated, or certified under FAIR² contributes feedback to improve the standard.
- By adopting FAIR², organizations help refine shared validation shapes, metadata practices, and Responsible AI criteria.

FAIR² Applied

frontiers
FAIR² Data Management
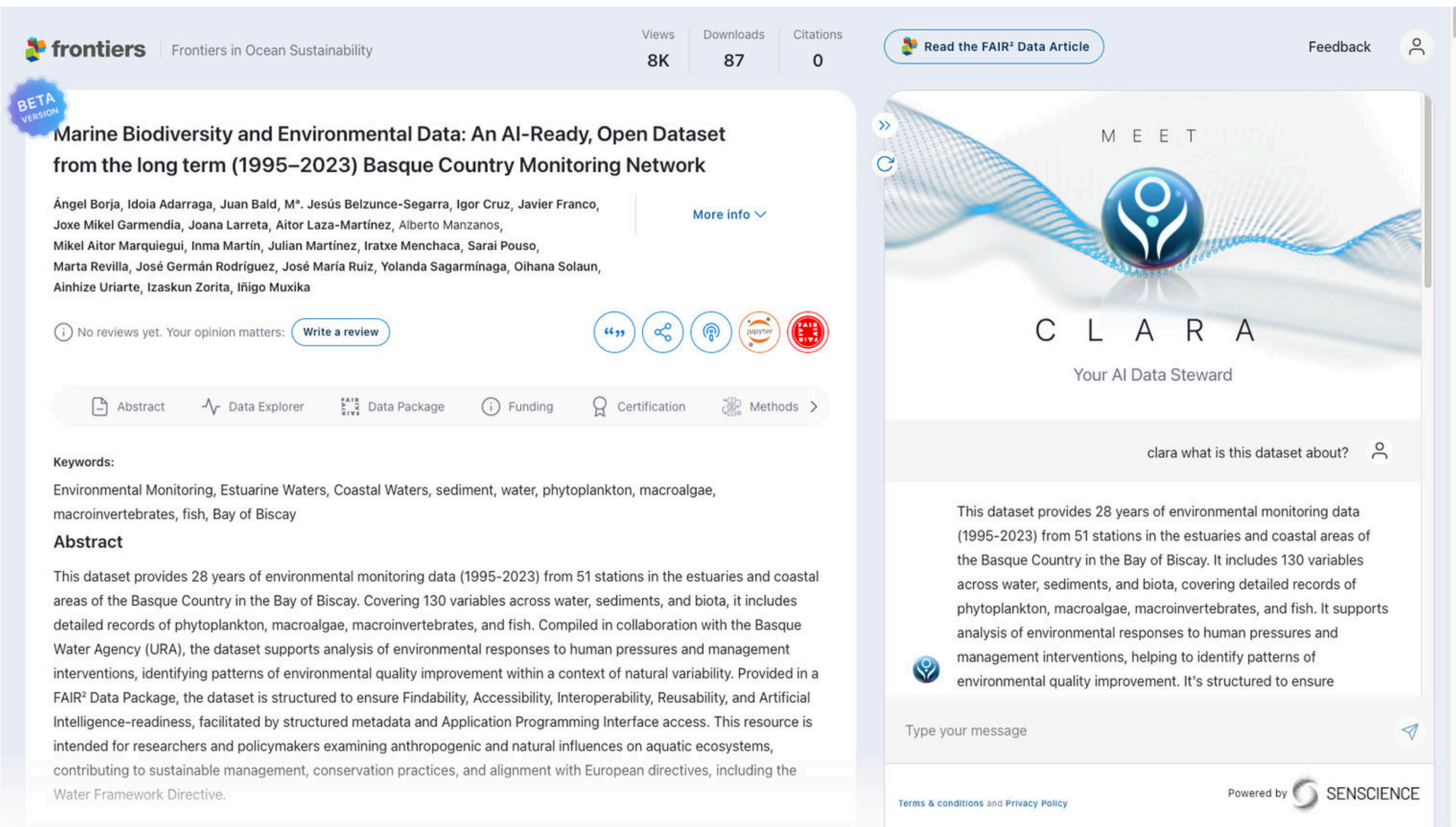Powered by Senscience

From Certified Data to Citable Research

Every curated dataset in FAIR² data management produces peer-reviewed:

- **FAIR² Data Article**
- **FAIR² Data Portal**
- **FAIR² Certification**

From Datasets to Living Portals

Each FAIR² dataset generates an interactive Data Portal

- Structured **Methods**
- **Data Explorer** with visualization tools
- **Chat with** *Clara*, the FAIR² AI Data Steward
- Linked **Jupyter notebooks**
- A lively conversation **podcast**
- **FAIR² Certification** summary

Contact
Learn More & Get Involved

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