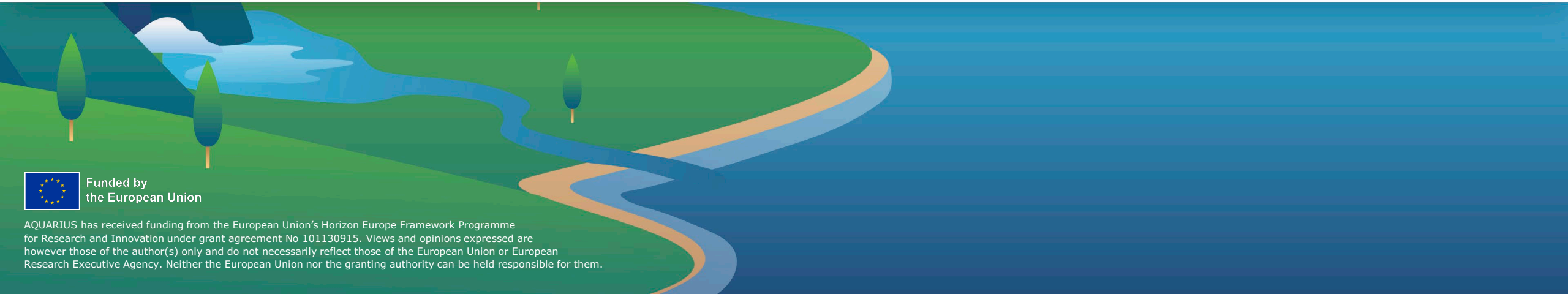
Aqua Research Infrastructure Services for the health and protection of our unique, oceans, seas and freshwater ecosystems (AQUARIUS)

AQUARIUS

Project Coordinator: Aodhan Fitzgerald (Marine Institute)

POLARIN Kick-off Meeting



Funded by
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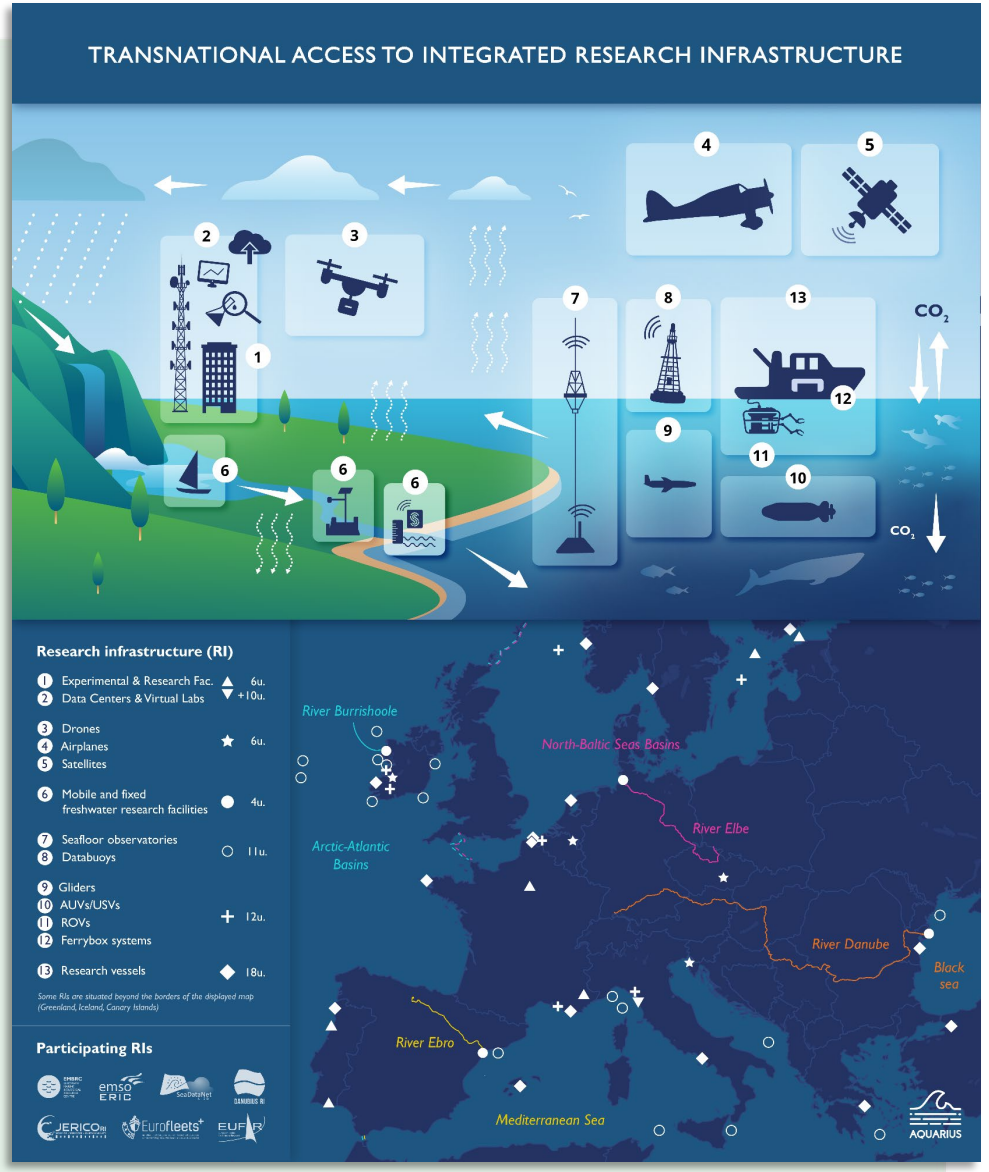
Project Overview

Coordinator: Marine Institute
Funding: 14.5M€
Duration: 48 Months
Start Date: 1st March 2024
Finish Date: 29th February 2028
Number of Partners: 41 (+ 4 affiliated partners)
Work Packages: 7
Research Infrastructures:

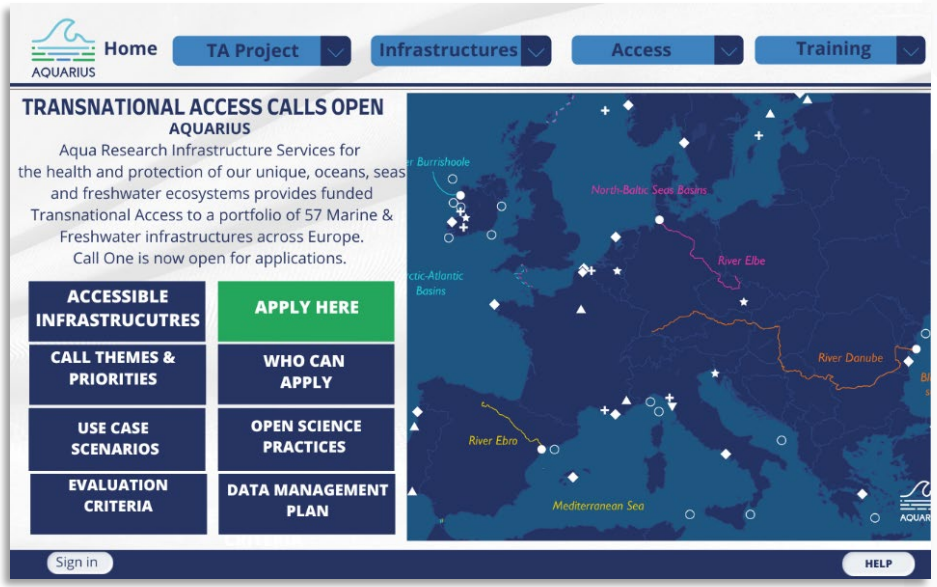
1. Research Vessels (18)
2. Mobile Marine Observation Platforms (12)
3. Fixed Marine Facilities (11)
4. Experimental Research Facility (7)
5. River and Basin Supersites (9)
6. Aircrafts (3)
7. Drones (2)
8. Satellite Services (1)

\+ Data infrastructures (+10)



AQUARIUS OBJECTIVES

- Coordinate the **enhancement** and **integration** of a diverse range of top-level infrastructure services.
- To provide **efficient**, **single-point**, transnational access to a broad range of integrated research infrastructure that can support the Mission 'Restore our Ocean and Waters by 2030.
- To design, develop, and manage **Transnational Access Calls** to the research infrastructure
- Facilitate **efficient** and timely **access** to the distributed research infrastructure portfolio, for selected projects, according to the needs of the selected user communities
- Deliver highly **effective training** and scientific and **technical support** for users of the research infrastructures
- Ensure **advanced data management, interoperability**, as well as the connection of digital services (e.g., data services) to the European Open Science Cloud.
- Maximise the impact of the project through dynamic dissemination, exploitation and communication activities, ensuring that the projects using the integrated research infrastructures can support the Mission 'Restore our Ocean and Waters by 2030.



Work Packages

1 PROJECT MANAGEMENT (MI)

2 TRANSNATIONAL ACCESS

3 RI CA ESS PLATFORM

4 RI A ANCE

5 RI TE

6 DATA MANAGEMENT AND OPEN SCIENCE PRACTICES

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION

WP1 Coordination and Project Management

1.1 Kick-Off meeting
1.2 Project management
1.3 AQUARIUS Project Brokerage Event
1.4 Clustering and Networking with RI Projects
1.5 Project Reporting

Work Packages

1 PROJECT MANAGEMENT

2 TRANSNATIONAL ACCESS

3 RI CALL DESIGN, MANAGEMENT, EVALUATION AND ACCESS PLATFORM

4 R ERNANCE

5 R

6 DA

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION

WP2 Transnational Access

Infrastructure Profiles and Modality of Access

Work Packages

1 PROJECT MANAGEMENT

2 TRANSNATIONAL ACCESS

3 RI CALL DESIGN, ACCESS, MANAGEMENT, EVALUATION (AWI)

4 ...ND GOVERNANCE

5

6 D... ...ACTICES

7 IMPA... ...OMMUNICATION

WP3 RI Call Design, Management, Evaluation and Access Platform

3.1 TA Call Priority Analysis Requirements
3.2 TA Call Design and Development
3.3 Integrate TA procedures and implement Call
3.4 Access Platform Customisation and Development
3.5 Scientific and Logistic evaluations
3.6 Follow up implementation of Projects

Work Packages

1 PROJECT MANAGEMENT

2 TRANSNATIONAL ACCES

3 RI CALL DESIGN, MANA SS PLATFORM

4 RI ACCESS FACILITATION, MANAGEMENT AND GOVERNANCE (MI)

5 RI TECHNICAL TRAINING

6 DATA MANAGEMENT AND OPEN SCIENCE PRACTICES

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION

WP4 RI Access Facilitation, Management and Governance

4.1 Online Infrastructures Catalogue
4.2 TA Logistics evaluation
4.3 Online Schedule of TA Projects
4.4 TA Administration

Work Packages

1 PROJECT MANAGEMENT

2 TRANSNATIONAL ACC

3 RI CALL DESIGN, MA

4 RI ACCESS FACILITA

5 **RI TECHNICAL TRAINING (OGS)**

6 DATA MANAGEMENT AND OPEN SCIENCE PRACTICES

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION

WP5 RI Technical Training

5.1 Training Needs Analysis & Ad hoc Training for RI Users
5.2 Training on use of Access Platform
5.3 AQUARIUS Technical Training Hub and Training Repository
5.4 Floating University & Internship Open Calls
5.5 Data Management and Data Stewardship Training
5.6 Virtual Access and Analytics Training
5.7 Training Monitoring and Assessment

Work Packages

1 PROJECT MANAGEMENT

2 TRANSNATIONAL ACCESS

3 RI CALL DESIGN, MANAGE ESS PLATFORM

4 RI ACCESS FACILITATION ANCE

5 RI TECHNICAL TRAINING

6 DATA MANAGEMENT AND OPEN SCIENCE PRACTICES (MARIS)

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION

WP6 Data Management and Open Science Practices

6.1 Analysis of data gaps
6.2 FAIR Data Management
6.3 Open science practices

Work Packages

1 PROJECT MANAGEMENT

2 TRANS

3 RI CA FORM

4 RI A

5 RI TECHNICAL TRAINING

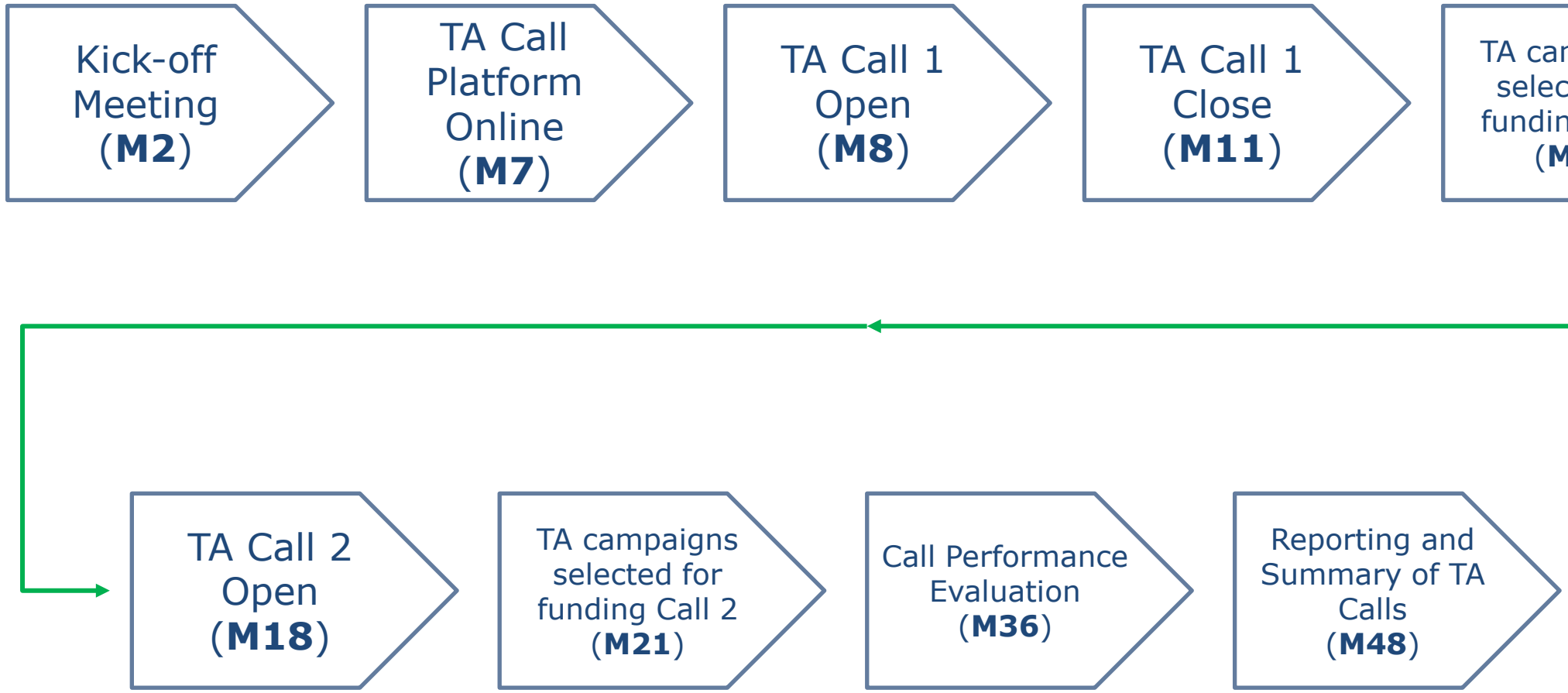
6 DATA MANAGEMENT AND OPEN SCIENCE PRACTICES

7 IMPACT: DISSEMINATION, EXPLOITATION AND COMMUNICATION (SSB)

WP7 Impact: Dissemination, Exploitation and Communication

7.1 Designing an impact driven Communication/Dissemination Plan
7.2 Project outreach, engagement, and dissemination of results
7.3 Activating paths towards exploitation of results
7.4 Ensuring legacy through strategic foresight and road-mapping

Project Timeline



Mission Regions

Thematic and geographic focus for the proposed transnational Calls aligning with the Lighthouse Regions:

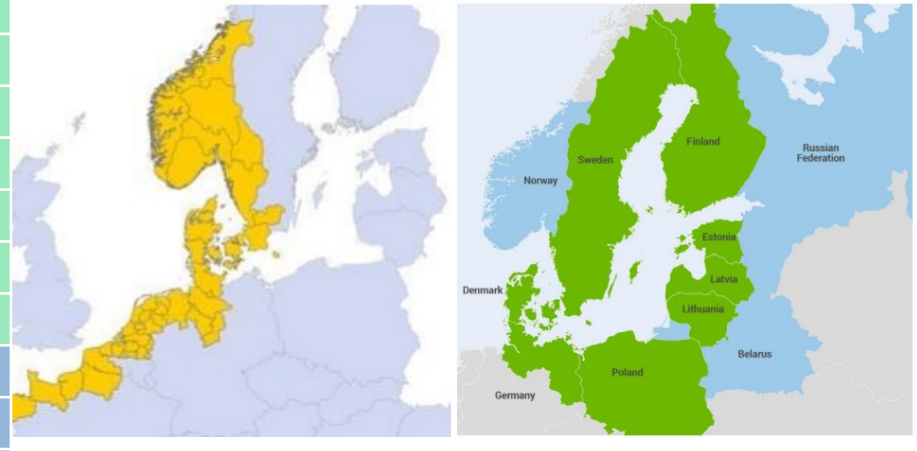
- Arctic-Atlantic Basins
- North-Baltic Seas Basins
- Danube Basin/Black Sea
- Mediterranean Sea

Arctic & Atlantic (25 Infrastructures across 8 Types)

Type	Infrastructure	Provider
Research Vessels	Sarmiento De Gamboa	CSIC (ES)
	Sanna	GINR (GL)
	Thalassa	IFREMER (FR)
	G.O. Sars	IMR (NO)
	Arni Friedrikson/ RV Bjarni	MFRI (IS)
	Celtic Explorer	MI (IE)
	Wim Wolff	NIOZ (NL)
	Belgica	RBINS (BE)
Mobile Marine Observation Platforms	HROV	IFREMER (FR)
	SmartBay	MI (IE)
	UL_IROV	UL (IE)
	UL_MRE-ROV	UL (IE)
Fixed Marine Facilities	SmartBay	MI (IE)
	IMDBON	MI (IE)
	Lehanagh Pool	MI (IE)
	SmartBay	MI (IE)
	Plocan Test Site	PLOCAN (ES)
Experimental Research Facility	EMBRC-FR Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	RAS	MI (IE)
River & Basin Supersites	Newport Catchment	MI (IE)
Aircrafts	CWIS-II	Vito (BE)
Drones	UL Drone	UL (IE)
Satellite Services	Terrascope	Vito (BE)

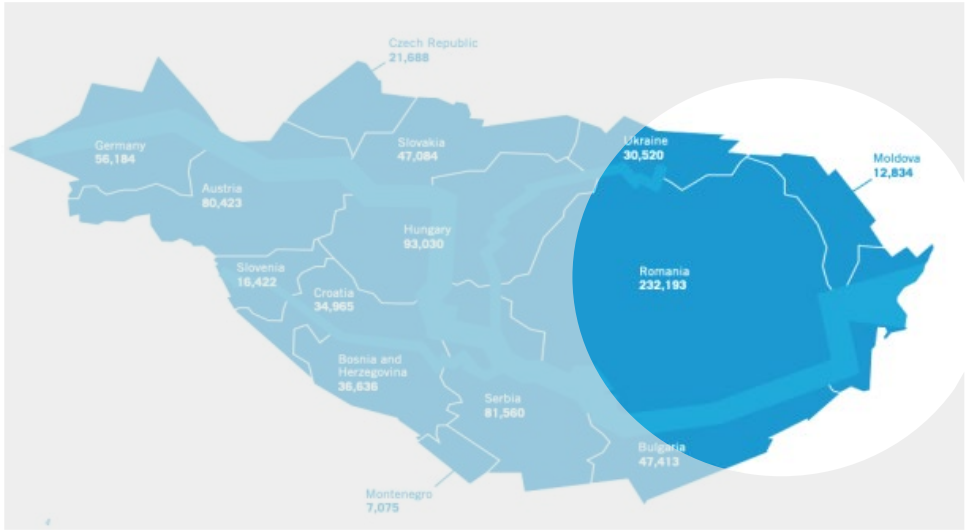
Baltic and North Sea (22 Infrastructures across 6 Types)

Type	Infrastructure	Provider
Research Vessels	Jakup Sverri	FMRI (DE)
	G.O. Sars	IMR (NO)
	Wim Wolff	NIOZ (NL)
	Belgica	RBINS (BE)
	Svea	SLU (SE)
	Aranda	SYKE (FI)
	Simon Stevin	VLIZ (BE)
Mobile Marine Observation Platforms	Baltic Gliders	FMI (FI)
	NorSOOP	NIVA (NO)
	Algaline	SYKE (FI)
	Glider Yoko	VLIZ (BE)
	AUV Barabas	VLIZ (BE)
	USV Adhemar	VLIZ (BE)
Experimental Research Facility	EMBRC-FR Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	Utö	FMI (FI)
	MESO&CAL	SYKE (FI)
River & Basin Supersites	Elbe Supersite	HEREON (DE)
Aircrafts	CWIS-II	Vito (BE)
	FLIS	CzechGlobe (CZ)
Satellite Services	Terrascope	Vito (BE)



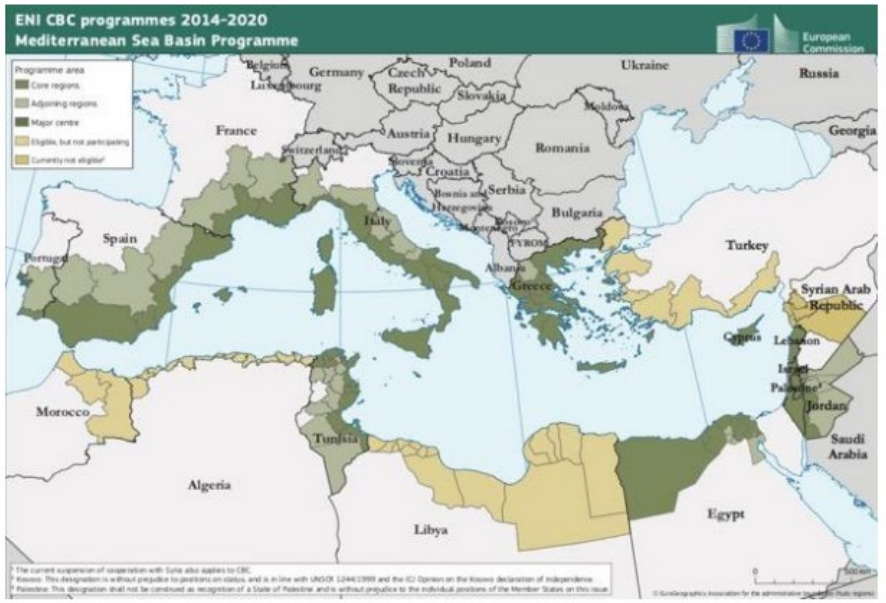
Black Sea (12 Infrastructures across 5 Types)

Type	Infrastructure	Provider
Research Vessels	Mare Nigrum	GeoEcoMar (RO)
	Danubius-RI (RV Istros)	GeoEcomar (RO)
Experimental Research Facility	EMBRC-FR Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
River & Basin Supersites	Danubius-RI (Water Chemistry)	GeoEcomar (RO)
	Danubius-RI (Microplastics)	GeoEcomar (RO)
	Danubius-RI (Mineralogy)	GeoEcomar (RO)
	Danubius-RI (Geochemistry)	GeoEcomar (RO)
	EMSO-EUXINUS	GeoEcomar (RO)
Aircrafts	FLIS	CzechGlobe (CZ)
Satellite Services	Terrascope	Vito (BE)



Mediterranean Sea (21 Infrastructures across 7 Types)

Type	Infrastructure	Provider
Research Vessels	Gaia Blu	CNR (IT)
	Aegaeo	HCMR (GR)
	L'Europe	IFREMER (FR)
	Socib	SOCIB (ES)
	Tubitak Marmara	Tubitak Marmara (TR)
Mobile Marine Observation Platforms	Max Rover	HCMR (GR)
	Socib Gliders	SOCIB (ES)
Fixed Marine Facilities	W1M3A	CNR (IT)
	CoCM	CNR (IT)
	SiCO	CNR (IT)
	Poseidon Obs	HCMR (GR)
	WIS	INGV (IT)
	E2M3A	OGS (IT)
Experimental Research Facility	ISC-Lab	CNR (IT)
	EMBRC-FR Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
	EMBRC-PT Research Facilities	EMBRC (FR)
River & Basin Supersites	iCIEM Ebro Delta	UPC (ES)
Aircrafts	AiRS	OGS (IT)
	FLIS	CzechGlobe (CZ)
Satellite Services	Terrascope	Vito (BE)



EU Mission "Restore our Ocean and Waters by 2030"

The objective of the Mission 'Restore our Ocean and Waters by 2030' is to provide a systemic approach for the restoration of the ocean, seas and waters by 2030.

Specific Objectives:

- Protect and restore marine and freshwater ecosystems and biodiversity, in line with the EU Biodiversity Strategy 2030
- Prevent and eliminate pollution of our ocean, seas and waters, in line with the EU Action Plan Towards Zero Pollution for Air, Water and Soil
- Make the sustainable blue economy carbon-neutral and circular, in line with the European Climate Law and the holistic vision supported by the Sustainable Blue Economy Strategy

Area-based lighthouses will be the main implementation vehicle of the Mission in its first phase. Lighthouses will act as hubs and platforms for the development, demonstration, and deployment of solutions to those challenges.

Call development – Themed by Mission Basin Lighthouse Objectives

Atlantic/Arctic Basins – Mission objective 1 - *protect and restore marine and freshwater ecosystems and biodiversity*

Mediterranean Basin – Mission's objective 2 - *prevent and eliminate pollution.*

Black sea/Danube Basin - Mission objective 1 - *protect and restore marine and freshwater ecosystems and biodiversity*

Baltic and North Sea basins– Mission objective 3: '*Make the sustainable Blue economy carbon neutral and circular*

Call development – two stages

Task 1 **Analysis of challenges across Marine and Freshwater including analysis of knowledge deficit and data gaps**
Priorities will be established to ensure integrated and dedicated TA services allowing that the results and subsequent impact meets the mission European Mission Ocean 2030 Challenges

Task 2 Set Scientific Challenges and goals for the Transnational Access Calls

Scientific Challenges and goals for the Transnational Access Calls will be framed around the Infrastructures offered for TA by AQUARIUS with a clear roadmap of how the outcomes of the funded projects will contribute to the Restore our Oceans and Waters by 2030 implementation plan development phase as well as Marine Strategy Framework Directive, the Integrated Maritime Policy and the European Blue Growth Strategy, OSPAR and other initiatives

Use Case Scenarios will also be developed to provide examples of how 'Super Integration Projects' can be developed to implement multidisciplinary projects with maximum impact utilising diverse but complementary Infrastructures .

Call development – two calls/ Access platform

Call 1 will be strongly 'topic-specific'

Call 2 will be an 'adapted' and responsive Call, depending on the outcomes of the first Call.

The second Call could focus on new emerging issues, include themes not adequately covered in Call 1 or reflect developments within the Mission Ocean *(Misson objectives and targets to be refined in 2026)*

The TA platform is based on the same system - INTERACCESS - in AQUARIUS and POLARIN and will be developed jointly by both projects.
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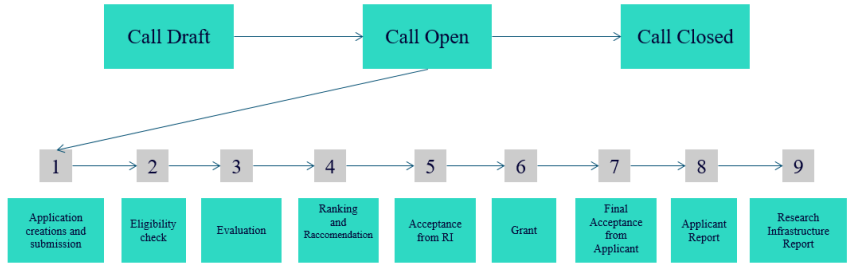
AQUARIUS ACCESS PLATFORM

WORKFLOW scheme



Data Management and Open Science Practices

- Optimise open and FAIR access to new data, data products, and scientific knowledge to ensure a maximum return of investment from granted TA projects involving multiple RI platforms towards serving the targets of the Mission ‘Restore our Ocean and Waters by 2030’ and associated initiatives and projects.

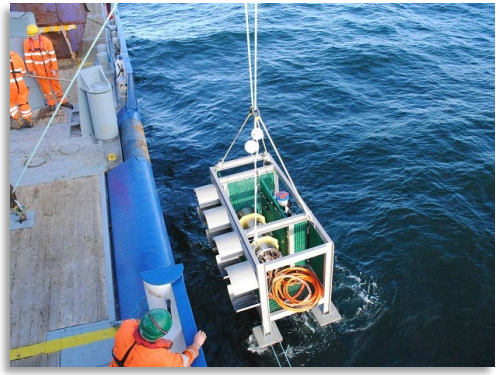
- Ensure TA project researchers benefit from Copernicus, GEOSS, EMODnet and the European Digital Twin of the Ocean (DTO) initiatives, while making their TA project results (new data, data products, and scientific knowledge) available for these initiatives.

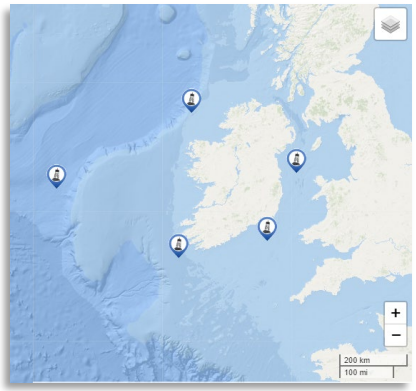
- Plan, develop and operate a federated data management and analytical system for supporting the implementation of an Open Data Strategy; this system will give FAIR access to new data, data products, and scientific knowledge, derived from the TA projects, through a common AQUARIUS Dataflow Dashboard (ADD)

Example complementary infrastructures?: Ireland

Marine Institute Research Infrastructures:

- RV Celtic Explorer
- Smartbay Glider
- Smartbay Buoy
- Smartbay Observatory
- Irish Marine Data Buoy Observation Network
- Newport Catchment Research Facility
- Newport Recirculating Aquaculture System
- Lehanagh Pool Marine Research Site





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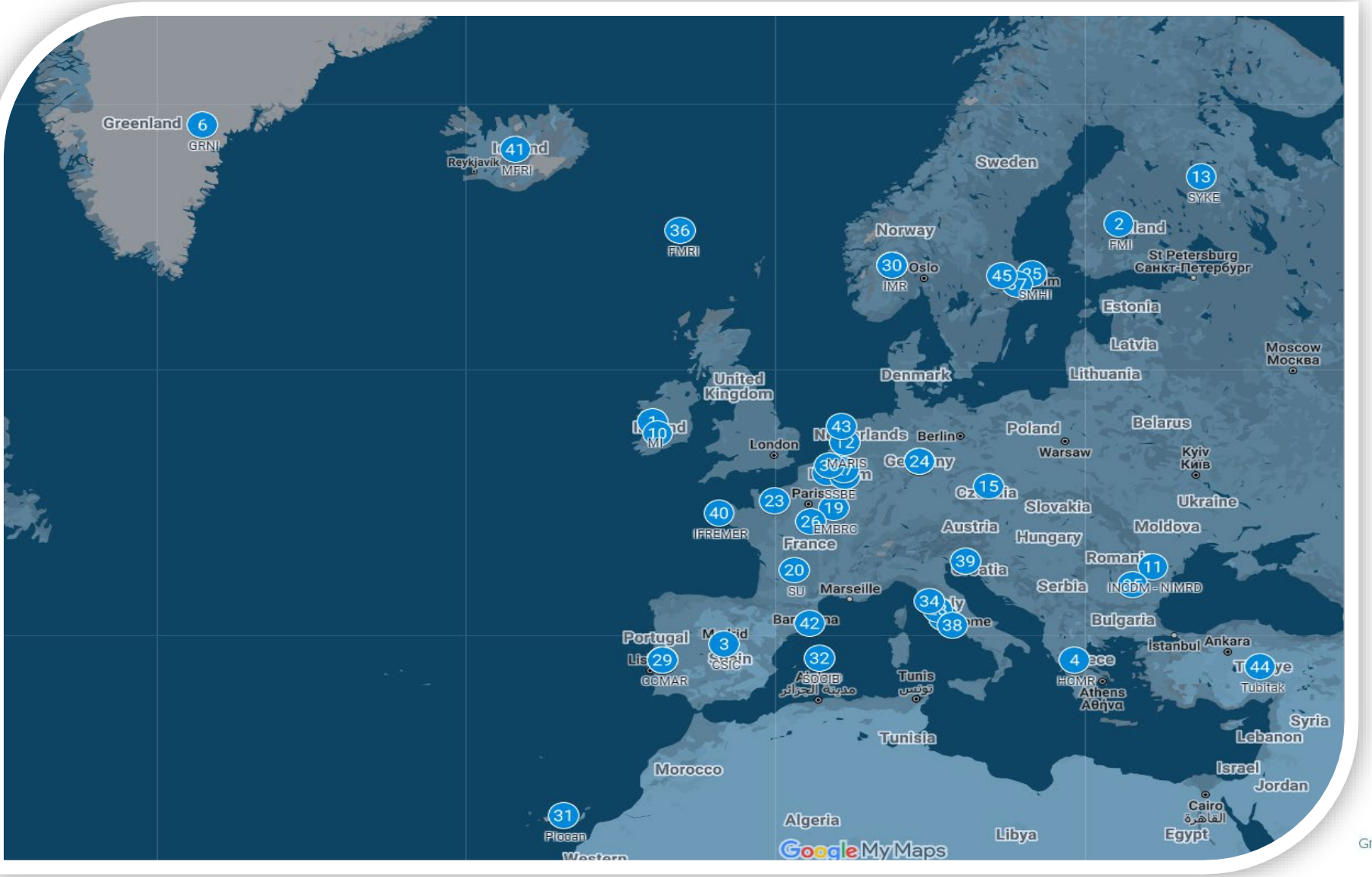

‘Integrating Research Infrastructures ~ Connecting Scientists ~ Enabling Transnational Access’

“For healthy and sustainable marine and freshwater ecosystems”

VISIT

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FOLLOW US

TRANSNATIONAL ACCESS TO INTEGRATED RESEARCH INFRASTRUCTURE

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