DANUBIUS-RI

International Centre for Advanced Studies on River-Sea Systems

The DANUBIUS-RI Offer

Funded by the European Union (HORIZON-INFRA-2021-DEV-02) under grant agreement No 101079778.

About Us

Rivers, estuaries, deltas and coastal seas connect over three quarters of the Earth's land surface with the ocean. This connection is essential for humankind, providing key ecosystem services for food, water and transport. However, these connections are increasingly threatened, impacted by global changes that affect entire River-Sea Systems worldwide. Urgent action is needed to align how we use these River-Sea systems, and how we protect them for the future.

DANUBIUS-RI is designed to enable information service development, and help communities access the needed knowledge. Through the DANUBIUS-RI Hub, you can explore River-Sea systems using our pan-European network of thematic nodes, supersites for testing, e-Learning and Technology Transfer resources, and our data centre. Working with us, we bring the right people to you, enabling your efforts to tackle issues such as landscape fragmentation, river regulation and damming, water and sediment abstraction, eutrophication and pollution, the loss of biodiversity and the spread of invasive species. Our goal is to equip communities with the information services and knowledge, to help them counter the effects of climate change, and turn the tide on unsustainable use of their River-Sea Systems.

DANUBIUS-RI Research Priorities

Water Quantity
Understand and quantify water stores and flows across River-Sea continua for sustainable water resource management and mitigate against extreme events.

Sediment Balance
Understand and quantify sediment dynamics in source-to-sink systems, to support sustainable sediment management.

Nutrients and Pollutants
Understand and quantify the independent and combined effects of nutrients and pollutants (in both water and sediments) at River-Sea System scales, to establish the critical thresholds needed for tracking progress towards good status.

Climate Change
Support data collection and the development of innovative methods/tools to assess the ongoing impacts of Climate Change, and improve adaptation measures within and across River-Sea Systems.

Extreme Events
Understand and quantify extreme event occurrence and impact severity on River-Sea Systems, for floods and droughts, to support cost-effective nature-based solution development, disaster mitigation, and management.

Protecting and Restoring Ecosystems and Biodiversity
Understand and quantify how changing River-Sea Systems affect future ecosystem service provision, and their sustainability.

Understand the relationship between biodiversity and connectivity across River-Sea Systems and its response to multiple stressors.

Digital twin
Co-design, co-develop and build elements of high resolution, multi-dimensional digital representations of River-Sea Systems, that stakeholders need from the Europe's Digital Twin endeavors.

DANUBIUS-RI is made for...

Scientists

- Use top facilities and data that enables forefront research.
- Produce first class publications for leading journals.
- Get funds for river-sea system related research projects.
- Get trained as a multi-disciplinary, multi-skilled next generation scientist or practitioner qualified to address the complexities of River-Sea Systems.
- Gain the scientific knowledge, technical excellence and transferable skills necessary to pursue a successful career in academia, industry, or the policy sector.

Policy makers/managers

- Get more knowledge about how river-sea systems function.
- Get operational perspective to improve processes.
- Improve management and use of River-Sea Systems.
- Get more cost-effective knowledge development.

Entrepreneurs

- Transfer the scientific outcomes in technologies and products.
- Test, improve and/or demonstrate River-Sea System related commercial technologies and products
- Get funded for applied research and innovation projects where testing and improving River-Sea System related commercial technologies and products.
- Gain the scientific knowledge, technical excellence and transferable skills necessary to pursue a successful career as an entrepreneur.

Next generation of researchers

Training services and capacity building through the e-Learning Office including:

- Courses and summer school programmes.
- E-learning programmes for postgraduate students.
- Plans for Master and Doctorate research projects jointly supervised by DANUBIUS-RI Partners.
- Ad-hoc training courses for administrators or third parties in sustainable management.
- Virtual meeting point for academia, administration and industry.

DANUBIUS-RI Services

1. Digital and Non-Digital Data: We offer access to metadata, data and samples produced or collected by DANUBIUS-RI, either online for digital formats, or physical for samples such as sediment cores.

2. Tools, Methods and Expert Support: We provide access to facilities and equipment, specific methods and tools, and provide expert support for analysts.

3. Study and Measurements: We undertake analyses, and take measurements with you, or on your behalf. This can include physical, chemical, biological, biogeochemical, ecotoxicological, hydromorphological, sedimentological, and bathymetric sampling and analyses.

4. Diagnostic and Impact: We perform modelling and impact assessment analyses with you, or on your behalf, that harness data from previous or expected results (diagnostic) or with forecasts (from models).

5. Solution Development: We partner with you, or connect you with the right partners with wide-ranging scientific expertise to develop solutions for your specific challenges in River-Sea Systems.

6. Tests, Audit, Validation and Certification: We validate and quality assure observations, analyses and modelling outputs, and provide DANUBIUS Commons accreditation and Accredited Service Providers certification services.

7. Training: We design, develop and deliver co-designed trainings and courses to companies, innovators and authorities in the four areas of expertise (Observation, Analysis, Modelling, and Impact), and partner with you to organize bespoke conferences and workshops to address River-Sea System challenges.

DANUBIUS-RI Connections

River-Sea Systems are connected to other parts of the Earth system, such as land, open ocean, atmosphere, biosphere and the geosphere. DANUBIUS-RI is connected to other research infrastructures, programmes and initiatives to explore and exploit synergies, include different research perspectives, share infrastructures and avoid duplication.

Global

International initiatives
WMO, GCOS, WWAP, UNESCO, UNEP and the United Nations Ocean Decade initiatives) as well as other networks such as International Union for Conservation of Nature and Wetlands International.

International river basin and regional seas commissions
International Commission for the Protection of the Rhine (ICPR), International Commission for the Protection of the Danube River (ICPDR), Black Sea Commission, Inter-Mediterranean Commission and OSPAR Commission for the North-East Atlantic.

National / Local

Funded Projects and collaborations
Regional Authorities, Regional Environmental Protection Agencies, Universities, Basin District Authorities and Civil Protection.

European Regional

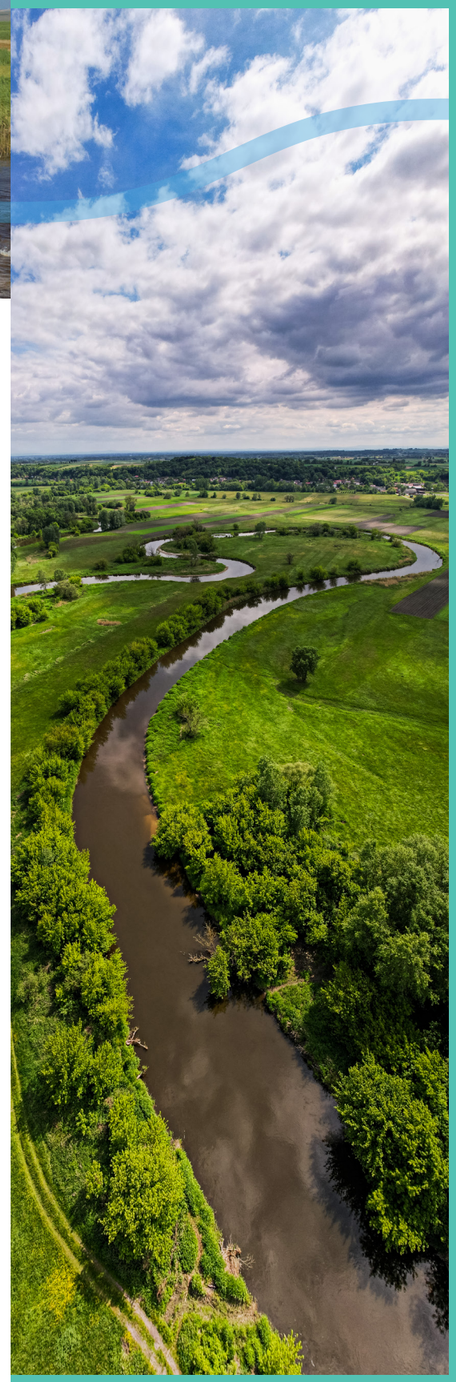
Research projects
H2020, HORIZON, LIFE, Interreg, COST (e.g. DOORS, BRIDGE, LandSeaLot, InnovaMare; I-Storms; PortoDiMare; ChangeWeCare; HATCH; WaterCare, STREAM).

EU Programmes and Initiatives
Copernicus programme EUMETSAT, SeaDataNet, EMODnet.

Partnerships
Sustainable Blue Economy Partnership, Water4all.

ENVRI / ESFRI
EMSO ERIC, EURO ARGO ERIC, LifeWatch ERIC, eLTER, ANAEE ERIC, JERICO, EPOS ERIC, EMBRC ERIC, ICOS ERIC, AQUACOSM, ACTRIS ERIC, IAGOS.

Joint Programming Initiatives
JPI Water, JPI Ocean and JPI Climate.



Next Steps...

In October 2022 DANUBIUS-RI started its Implementation Phase www.danubius-ip.eu which aims to expand the DANUBIUS-RI community, enhancing its standing in the wider European and International environmental RI landscape. The next steps planned are to:

Enhance new collaborations to all levels, from local to global, defining an action plan with RI and EU initiatives, finding synergies and building partnerships to co-create specific services.

Join us!

www.danubius-ip.eu

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