



"Dunarea de Jos" University of Galati

The REXDAN Research

Infrastructure

**Prof. dr. eng. Puiu-Lucian Georgescu,
Rector of the University**

Galati, 07.08 2022



Destination :

➤ Recherche:
10 researcher;



➤ Conference / training
30 passagers (one day);



- Total length: maximum 44 m;
- total width: maximum 10.5 m;
- draft: maximum 1.80 m;
- Overall height: according to the restrictions on the E80;
route between Passau-Sulina (about 7.4m) , Trip 2000 Km;
- ME and DG stage 5 type engine, limited pollution norm.

➤ Crew: 5 people on board.



Galați, 07.08 2022

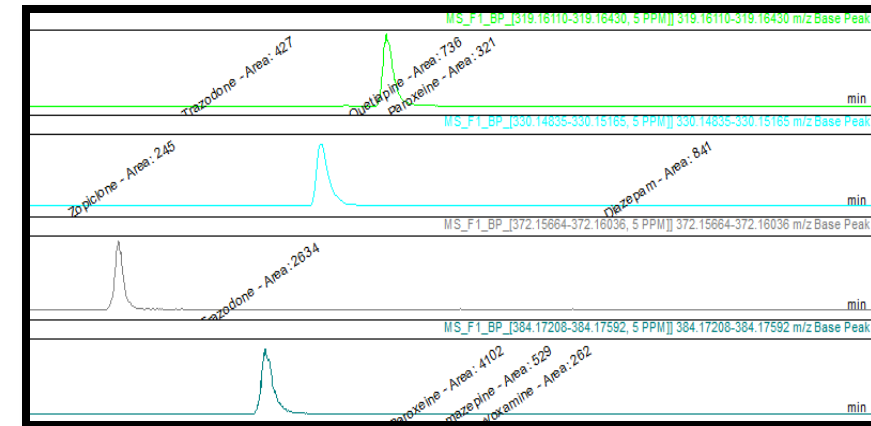
REXDAN Research Infrastructure



The Chromatography Laboratory

GC MS laboratory- GC Trace 1310 coupled to TSQ 9000 VPI Mass Spectrometer - Thermo Fisher Scientific and Thermal Desorption System - Unity-xr

Portable GC/MS: rapid **in situ** screening of chemicals environmental volatiles and semivolatiles substances.

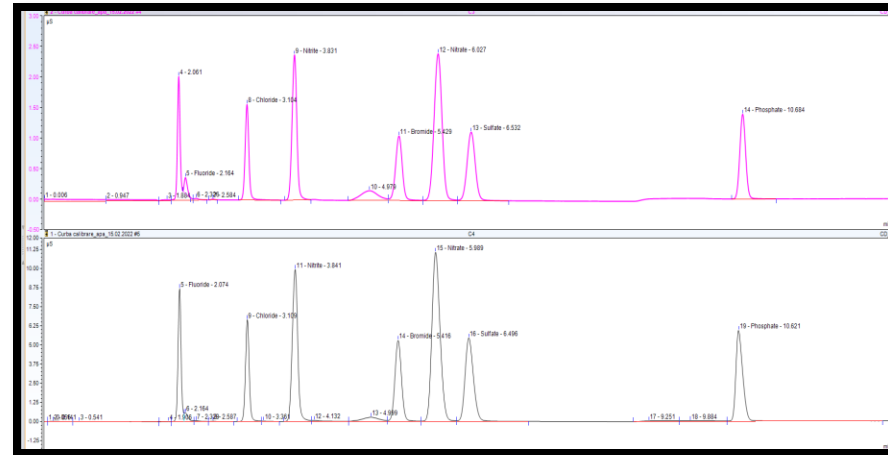


Toxicity of
VOCs

- cancer in human beings;
- neurological disorders;
- respiratory tract problems;
- global warming;
- disturbance of fauna and flora communities;
- disruption of food chain;

High resolution LC-MS/MS -Vanquish Flex UHPLC Systems coupled to Orbitrap Exploris 120 Mass Spectrometer - Thermo Fisher Scientific

Ion chromatograph - IC Dionex ICS-6000 Thermo Fisher Scientific



Toxicity of non-volatile organic pollutants

- Changed aquatic population sizes (especially extinctions);
- Estrogens - feminization of male fish; reduction of fertility;
- Affect fish behaviour;
- DNA damage;
- Bioaccumulation and trophic transfer.

Inorganic ion toxicity

- Eutrophication;
- Respiratory tissue hypoxia;
- Blocking oxygen transport to the cells;
- Disturbing the natural balance of aquatic ecosystems;



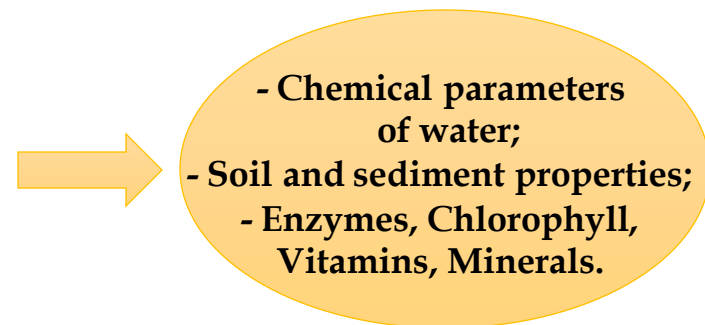
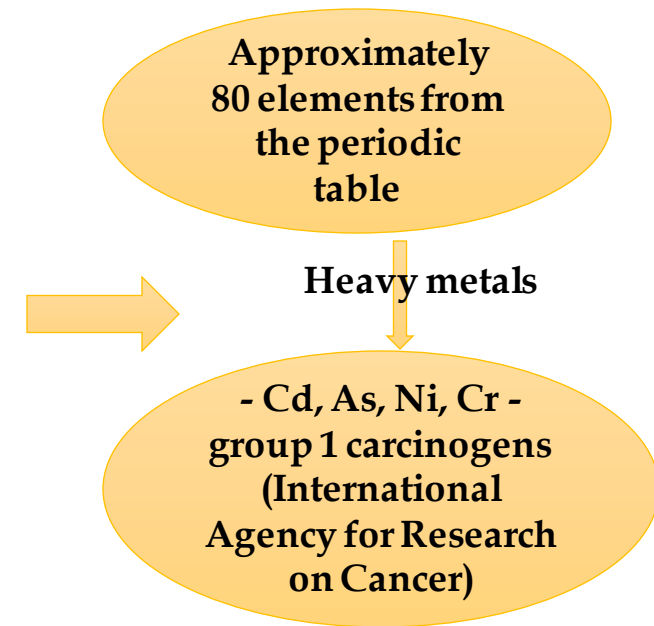
The Spectrometry Laboratory



ICP-MS with speciation
Nexion 2000C, PerkinElmer



UV-Vis-NIR laboratory
spectrophotometer, Cary 5000, Agilent





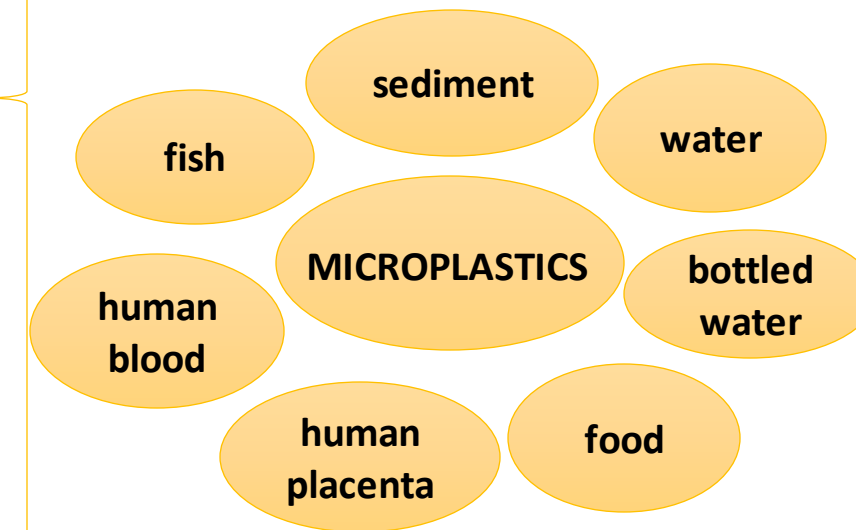
Spectrum 3 Laboratory FT-IR Spectrometer with Spotlight 400 Microscope, PerkinElmer

MICROPLASTICS

identification

characterization

quantification



Galați, 07.08 2022

The Aquatic Ecology Laboratory

water quality monitoring and assessment activities

HOW IS MADE?!

WHY?!

Danube survey
How is made?!

Physico-chemical
(parameters)

- restores water quality instantly
- lack of image on the evolution of water quality

correlations

Biological
bioindicators

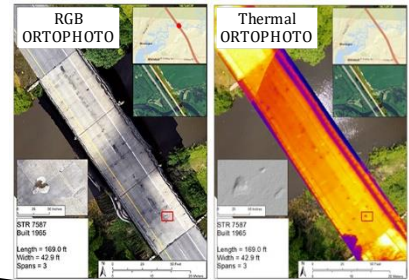
- shows evolution of water quality over time through tolerance scores
- long term procedure of laboratory determination



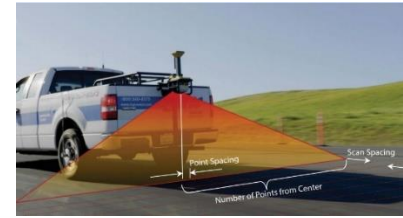
The Bathymetry, Hydrology and Topometry



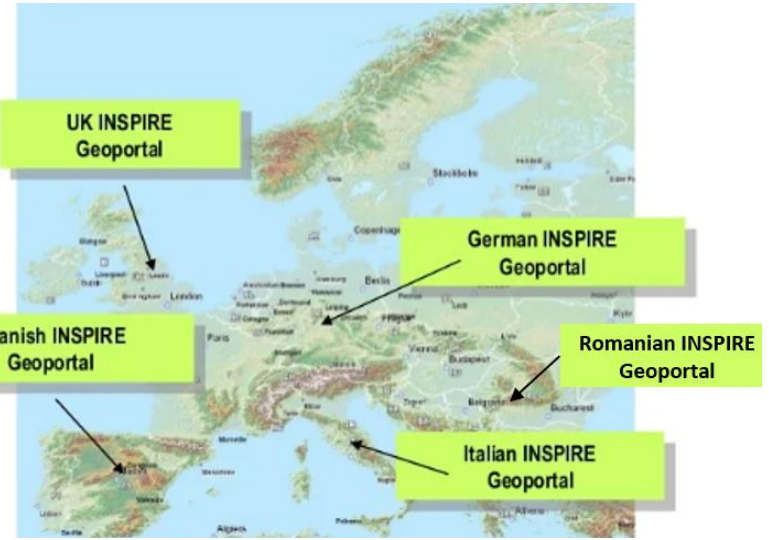
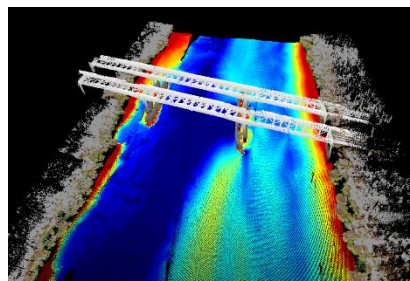
UAV PHOTOGRAMMETRY



LAND SURVEYING



UNDERWATER SURVEYING





2000km Danube monitoring



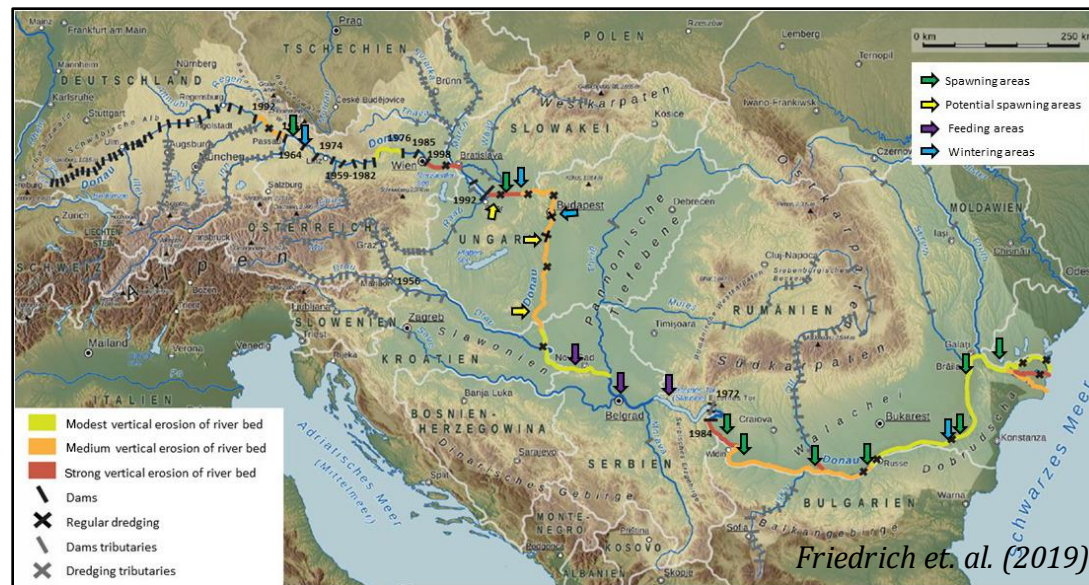
Rivers & tributaries surveying



Channels bathymetry



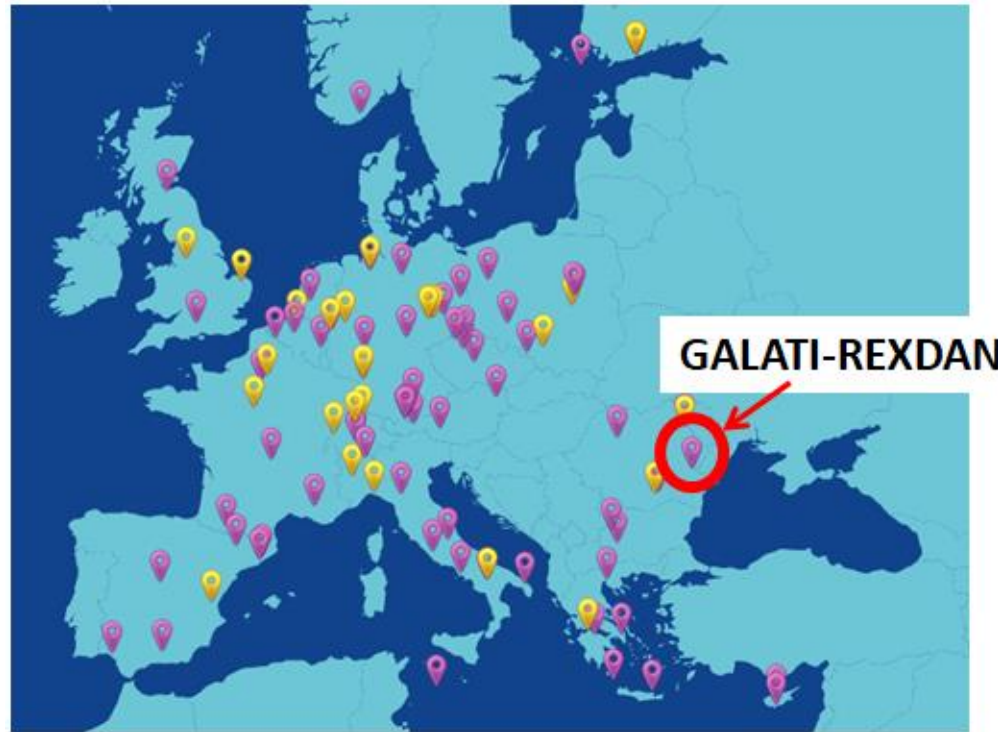
Lake applications



The Climate Change Observation Laboratory

ACTRIS & CLOUDNET, through REXDAN RI, now we are full members!

REMOTE SENSING CLOUD STATION





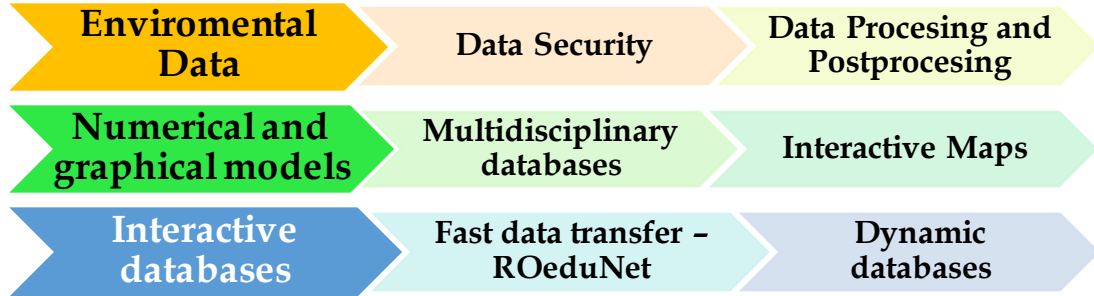
European Space Agency

Collaborations with ESA

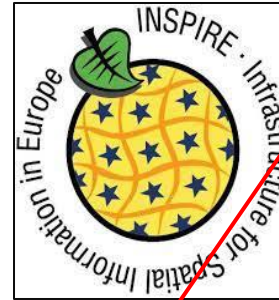
- Copernicus Sentinel-5 Precursor satellite, TROPOMI - TROPospheric Monitoring Instrument validation (**past and actual collaborations: AROMAT, AROMAPEX, RAMOS**).
- COCCON - Collaborative Carbon Column Observing Network (membership after acquisition of an EM27 FTIR Spectrometer).



The IT Laboratory

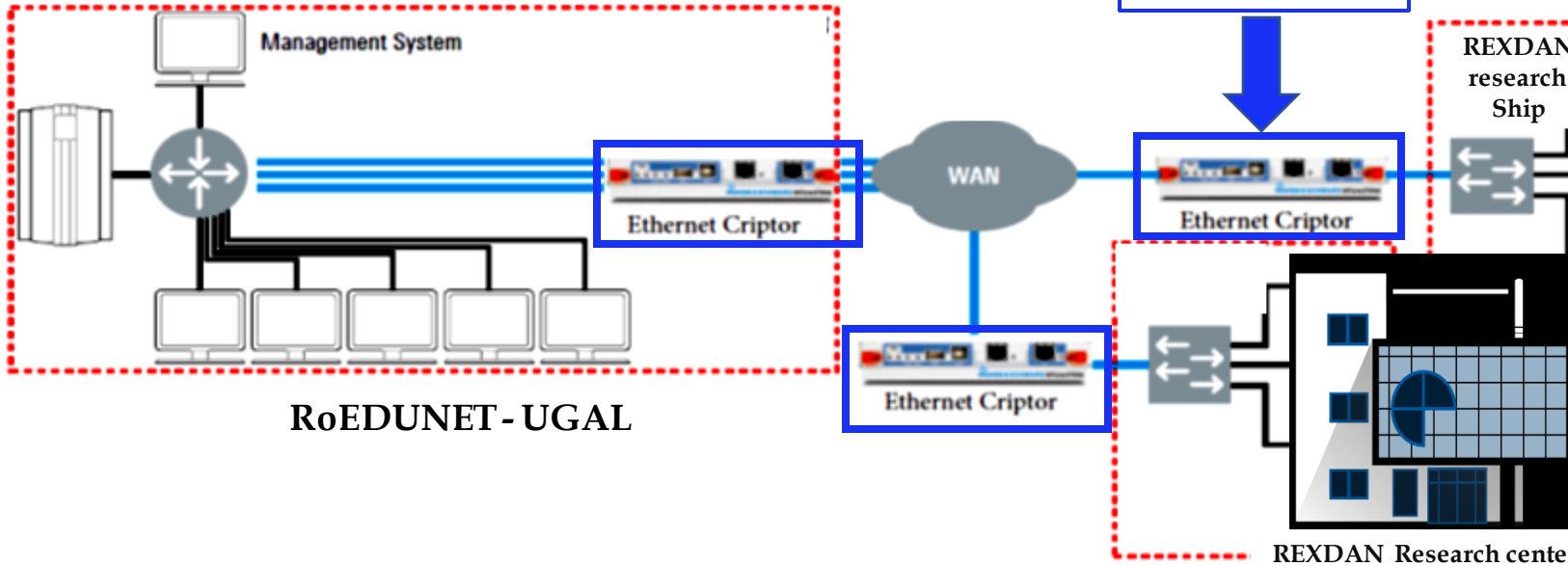


AS



Main objective of REXDAN research infrastructure Danube Basin

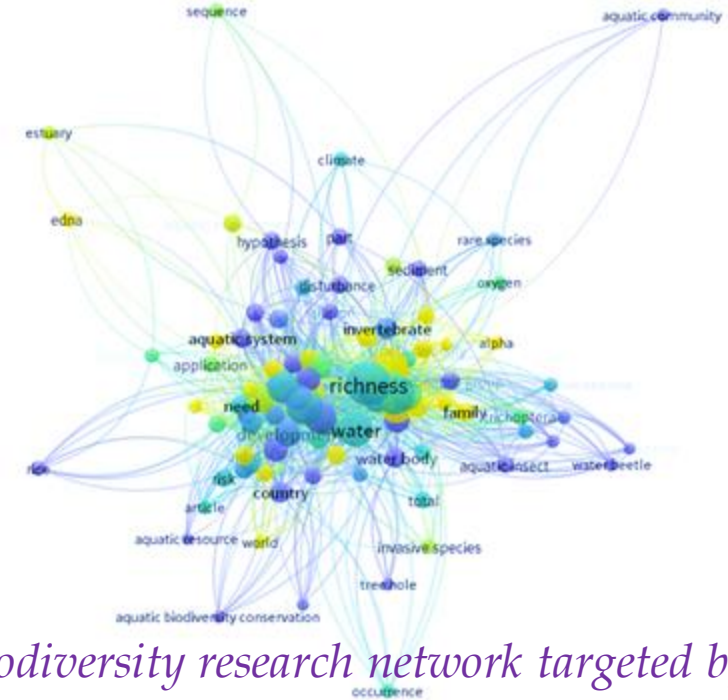
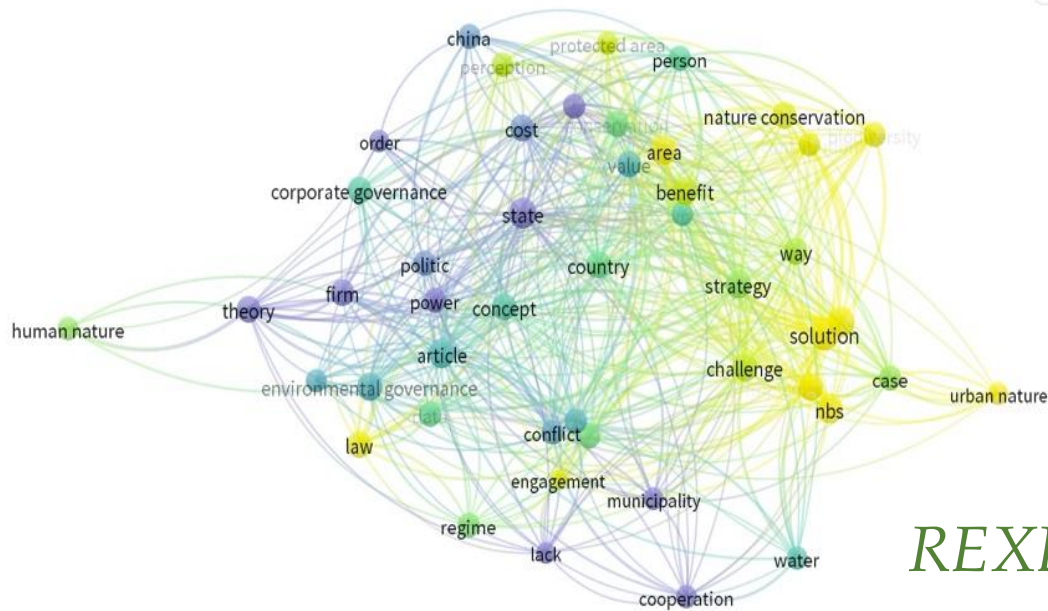
Data Security



REXDAN research Ship

Programme for Environment and Climate Action (LIFE)

*REXDAN targeted actions for Nature and
Biodiversity Topic*



Aquatic biodiversity research network targeted by REXDAN

REXDAN targeted actions for Nature Governance

Nature Governance research network targeted by REXDAN

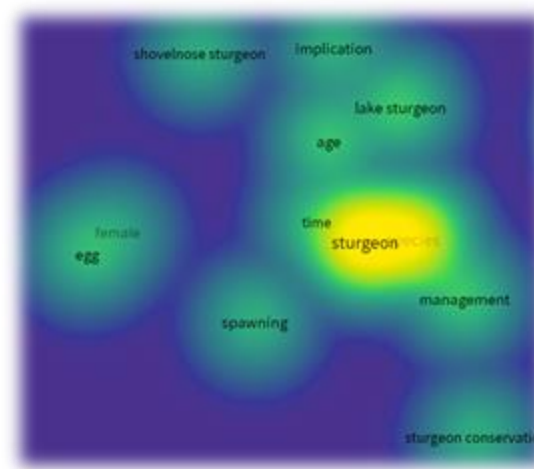
Programme: Horizon Europe Framework



REXDAN targeted actions for HORIZON MISS - Mission Ocean, seas and water

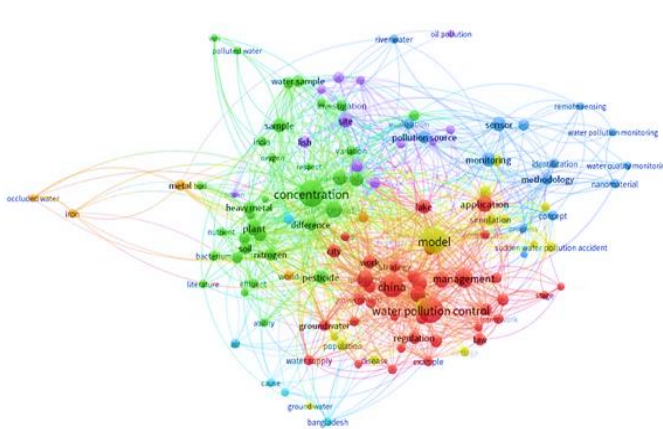


Danube River restoration and ecosystem connectivity research network targeted by REXDAN

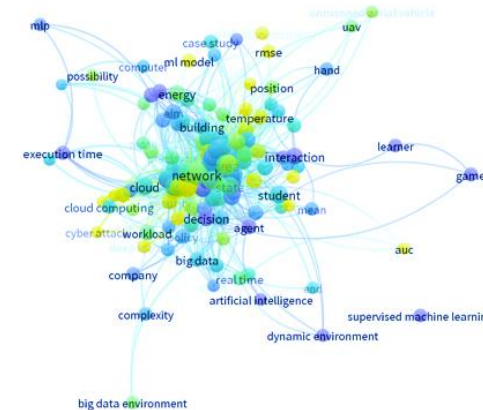


Danube sturgeons' conservation research network targeted by REXDAN

REXDAN targeted actions for HORIZON BIODIV - Biodiversity and ecosystem services



Aquatic ecosystems stressors research network targeted by REXDAN



Aquatic ecosystems modeling research network targeted by REXDAN

