

## Report for the Transformation Lab in Brest – April 2022

# TRANSFORMATION LAB: WORKSHOP ON TRANSDISCIPLINARY COOPERATION FOR SOCIO-ECOSYSTEMS RESILIENCE

Coastal areas are subject to many climatic and anthropogenic pressures: coastal erosion, rising sea-level, water pollution, changes in biodiversity, urbanization and the development of tourism are a few examples. In order to cope with these pressures and find sustainable solutions, it is necessary to include both researchers from different scientific fields, and various societal actors (citizens, fishermen, local authorities, non-governmental organizations, etc.) to better understand these changes and adapt practices, at different spatial scales and temporalities. It is essential that non-scientists appropriate this knowledge because they are actors in their territory and key elements for sustainable changes.

In this regard, the Workpackage 4 of reSEArch-EU aims to foster interactions between researchers and civil society. This is part of a democratization of knowledge approach, so that local stakeholders and researchers collaborate on common objectives, for the resilience of coastal areas.

This challenge is tackled in the Task 4.2 of the research-EU project that aims to “**Enhance transdisciplinary cooperation by pilot projects**” to promote stakeholders’ engagement at every SEA-EU university. The pilot activities are adjusted to each local or regional format. Emphasis is given to pilot actions that aspire to federate stakeholders and scientific researchers for a sustainable future of the socio-ecosystems. It is in this context that the first **Transformation Lab** took place in Brest, from 26 to 28 April 2022.

Based on the concept of Living Labs<sup>1</sup>, this 3-days workshop was an opportunity for 13 researchers from all partner universities to discover the [Zone Atelier Brest Iroise](#) (ZABrI). The ZABrI is part of the [Zones Ateliers](#) (ZA), a vast network of interdisciplinary research on the environment and anthroposystems in relation to societal issues of national

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<sup>1</sup> Definition from the [European Network of Living Labs](#) : « Living Labs (LLs) are defined as user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings.

LLs are both practice-driven organisations that facilitate and foster open, collaborative innovation, as well as real-life environments or arenas where both open innovation and user innovation processes can be studied and subject to experiments and where new solutions are developed.

LLs operate as intermediaries among citizens, research organisations, companies, cities and regions for joint value co-creation, rapid prototyping or validation to scale up innovation and businesses »

interest. The ZA network is coordinated by the French [National Centre for Scientific Research](#)'s Institute of Ecology and Environment and is a member of the [International Long Term Ecological Research network](#) and the [Long-Term Ecosystem, critical zone and socio-ecological Research network](#).

The ZAs study more precisely the interactions between a variety of environments and all those who occupy and exploit it. Understanding these interactions requires a multidisciplinary approach, in order to respond to specific issues concerning the area, that can be developed in cooperation with the managers involved.

The ZABri aims to improve knowledge of the functioning and evolution of coastal socio-ecological systems in a changing environment, within a perspective of integrated management, by favoring an interdisciplinary and intersectoral approach along the land-sea continuum.

Understanding these processes requires taking into consideration knowledge from a multitude of disciplines, from long-term observations on various spatial and temporal scales, and putting into place initiatives and tools to promote knowledge sharing. Because these issues have a significant social dimension, the project also includes conditions for the transfer of knowledge to non-scientists as well as for bringing together relevant knowledge from other sectors of society and making it available. Stakeholder partnerships are involved at all stages of the research process, e.g. by contributing to decision support.



*First day presentations.*

The Transformation Lab consisted of one day during which each researcher involved got to introduce their research topic and works, followed by two days on the field. It enabled brainstorming on socio-ecological problems typical for the land-sea interface and

developing ideas for tackling these challenges. Participants discussed similarities and variations regarding specific land-sea interfaces and regarding how they each collaborate with stakeholders.

The workshop began with welcome speeches from Tristan Montier, Vice President for Research and Innovation at UBO, followed by Yves-Marie Paulet, Vice President for the Sea at UBO, and Frédéric Jean, Head of [The European University Institute Of The Sea](#). Olivier Ragueneau, Project manager for the Institute of Ecology and Environment (CNRS-INEE), in charge of the Zones Ateliers Network (RZA), presented the [Zone Atelier network](#) to which belong the ZABrI. Then, Pierre Stephan introduced the ZABrI, its research themes, members and organisation. Finally, Christian WAGNER-AHLFS, from the University of Kiel and Workpackage Leader introduced the The Living Lab “Eckernförde Bay 2030”.

The rest of the presentations for this first day were made by : Nicolas LE DANTEC (In charge of developing a coastal risk observatory in Brittany; IUEM), Pauline GALEA (Associate Professor, Department of Geosciences; University of Malta), Ruben P. BORG (Structural & Materials Engineer and Academic; University of Malta), Aline BLANCHET-AURIGNY (Researcher at the Coastal Benthic Ecology Laboratory; Ifremer), Hanna ŁADKOWSKA (Project Manager from the Department of Experimental Ecology of Marine Organisms at the Institute of Oceanography; University of Gdansk), Wojciech POKORA (Assistant Professor in the Department of Plant Physiology and Biotechnology; University of Gdansk), Mélanie RAIMONET (Researcher in Hydro-Biogeochemistry and Ecology along the land-sea continuum; IUEM), Marita BRČIĆ KULJIŠ (Associate Professor at the University of Split Center of excellence for school management and effectiveness; University of Split), Irene DELGADO (Professor of Coastal Geomorphology; University of Cadiz).

Recordings of these presentations are available on the research-EU website.

On the second day, participants had the opportunity to make several on-site visits. The first stop was at the Pointe de Dinan, where they met with Sophie Coat, Regional Nature Reserve facilitator of the [Réserve Géologique de Crozon](#). They discussed the work between the Reserve and the scientists to study the coastal erosion, in particular thanks to the installation of sensors which allow to better understand the morphological changes and the erosion processes affecting the site. Once the device is installed, the Reserve takes readings and then transmits them to the scientists, who then analyse the data. This exchange of information helps the Reserve to use the most suitable management solution with respect to the preservation of biodiversity.



*Presentation of the actions carried out between scientists and the Regional Nature Reserve at the Pointe de Dinan where morphological changes and erosion processes are surveyed to help the Reserve to use the most suitable management solution with respect to the preservation of biodiversity.*

The day continued with a visit to the farm “Le Parc” in Rosnoën, which is located near the Aulne River. This farm is an example of the work carried out in collaboration with researchers, managers of the Aulne watershed and several farmers to reduce the impact of farming practices on coastal water pollution. Through runoff, rainwater carries fecal bacteria from farmed animals into the Aulne estuary where aquaculture activities are impacted. The objective of the "Land to Sea" project was to set up natural rainwater filtration systems near farm buildings. The effectiveness of these actions is evaluated through scientific monitoring.



*Presentation of the project "from the land to the sea" at the farm "Le Parc" by the managers of the watershed of the Aulne, farmers and scientists who monitor the quality of estuarine waters.*

Lunch was taken on the top of a meander of the Aulne river, offering a panorama on the landscape of the Aulne watershed.

After lunch, a third visit was made at the Tinduff hatchery which is a maritime cooperative for the production and commercialization of scallop spat (*Pecten maximus* and *Chlamys varia*). It was created in 1983 with the aim of restocking the Bay of Brest after the scallop stocks decreased drastically due to the mechanization of fishing and extremely cold winter in 1962-63. The Tinduff hatchery took inspiration from the different methods used in the world for the reproduction of scallops, and by working together with scientists and professionals. The hatchery also works closely with the other fisheries committees, which buy spat to re-implant them in their areas. It highlights the sustainable management of scallop stocks. Each year, nearly 10 million scallop spats are produced, including 3 million seeded in the Bay of Brest. Depending on the year, the seeded shells can represent from 30 to 60% of the shells fished in the Bay of Brest. The seeded shells thus have a dual role: they represent an important part of the fishery and participate in the reproduction of the entire deposit. For several years, the proliferation of toxic micro-algae has threatened this activity and scientists are working to better understand the mechanisms responsible to ensure the sustainability of these fisheries in the Bay of Brest.



*Visit at the Tinduff hatchery by the Transformation Lab workshop participants*

The first field day ended with the presentation of the conservation actions of the natural environments of the Bay of Brest by Agathe Larzillière, Regional Nature Park facilitator of the Armorique regional protected area. The Armorique regional protected area (PNRA) was the 2nd regional nature park created in France and covers 125,000 hectares. The PNRA offers a variety of landscapes, alternating between maritime, terrestrial, and mountain landscapes. Involved in the Natura 2000 network, the PNRA has 7 classified sites in its perimeter, including the Aulne watershed. Within the framework of its missions, the PNRA carries out activities to conserve, preserve and restore coastal and marine biodiversity.

On the second field day was dedicated to the visit of the Iroise Marine Natural Park by boat with Philippe Le Niliot, scientific director of the park. Throughout the morning, numerous groups of mammals and marine birds were seen around the islands and islets, underlining the high marine biodiversity of the Iroise Sea. The actions carried out between the Park and the scientists of the ZABrI to better understand this biodiversity and to define the appropriate management strategies were detailed by Philippe Le Niliot. One of the main objectives of the park is to reconcile the exploitation of resources (fishing and seaweed collection) and conservation objectives.



*Departure by boat of the Transformation Lab workshop participants for a visit of the Iroise Sea, with Philippe Le Niliot, scientific director of the park.*

The final session was a questionnaire and served to exchange previous experiences of transdisciplinarity of the different SEA-EU partners, based on concrete examples. It helped to brainstorm on potential stakeholders to cooperate with and to identify the needs that motivate researchers to work with stakeholders. It also helped to identify the obstacles that can appear when working with stakeholders. Finally, the participants discussed various projects involving stakeholders, some of which were successful and some which faced challenges.

To ensure the anonymity of individual responses to the questionnaire, a series of word clouds were constructed from the questionnaire items. The results underline that transdisciplinarity requires time and sustainable funding to co-construct sustainable scientific projects with stakeholders, based on trust and mutual understanding. The involvement of scientists also appears to be a key element for the success of transdisciplinary approaches.

The reSEArch-EU project planned 2 Transformation Lab. The Transformation Lab in Brest was the first organized, the second workshop will take place next year in Kiel. The first Transformation Lab engaged between 20 and 13 participants in an intensive program focused on the concepts of transdisciplinarity and collaboration between stakeholders and researchers for a sustainable future for the socio-ecosystems. Various projects which bring together researchers and stakeholders were presented and, thanks to field visits, participants could exchange face-to-face with local ZABri stakeholders and discussed personal experiences.

## Agenda

### Tuesday 26<sup>th</sup> April

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- 8:45** Welcome participants
- 9:00** Welcome speeches
- 9:30** Presentation of the Zones Atelier network – **Olivier RAGUENEAU** (IUEM)
- 9:45** Introduction to the ZABri – **Pierre STEPHAN** (IUEM)
- 10:00** The Living Lab “Eckernförde Bay 2030” – **Christian WAGNER-AHLFS** (University of Kiel)
- 10:30** Coffee break
- 11:00** Theme 1: “Coastal vulnerability” – **Alain HENAFF** and **Nicolas LE DANTEC** (IUEM)
- 11:30** “The Tsunami Last Mile Project in Malta – a successful exercise in awareness and emergency response” – **Pauline GALEA** (University of Malta)
- 11:45** “Resilience of coastal infrastructure: materials and structural engineering, smart sensor network systems and structural health monitoring” – **Ruben P. BORG** (University of Malta)
- 12:00** Lunch break
- 14:00** Theme 3: “Sustainability between restoration, conservation, exploitation and uses” – **Aline BLANCHET-AURIGNY** (Ifremer)
- 14:30** “Unlocking the Blue Growth Potential – Stakeholders Engagement in Boosting Education and Business Capacity for an Innovative Aquaculture” – **Hanna ŁADKOWSKA** (University of Gdansk)
- 14:45** “Initiatives at the science-society interface” – **Wojciech POKORA** (University of Gdansk)
- 15:00** Theme 2: “Water Quality and Biodiversity along the Land-sea Continuum” – **Mélanie RAIMONET** (IUEM)
- 15:30** Coffee break
- 16:00** “SHOUT – Social Sciences and Humanities in intersectoral OUTreach for better education and sustainable innovations” – **Marita BRČIĆ KULJIŠ** (University of Split)
- 16:30** “Coasts for Kids – a transdisciplinary science communication effort” – **Irene DELGADO** (University of Cadiz)
- 17:00** End of the day



## Wednesday 27<sup>th</sup> April

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- 8:00** Meeting point at main train station
- 9:00** Observation of the coastline in the Crozon peninsula – *Meeting with **Sophie COAT**, Regional Nature Reserve facilitator*
- 11:30** The Aulne watershed: a river under close surveillance – *Meeting with **Nathalie REY**, EPAGA director*
- 12:30** Lunch break
- 14:00** The Tinduff hatchery, a sustainable management of fisheries resources – *Meeting with **Florian BRETON**, head of the Tinduff hatchery*
- 15:00** Conservation, preservation and restoration of biodiversity and coastal environments in the PNRA – *Meeting with **Agathe LARZILLIERE**, PNRA project officer*
- 16:30** Scientific dissemination and mediation at Océanopolis marinarium – *Meeting with **Céline LIRET**, science director*
- 17:30** End of the day

## Thursday 28<sup>th</sup> April

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- 8:15** Meeting point at main train station
- 9:00** Sea trip in the Molène archipelago: conservation of biodiversity and sustainability of human activities – *Visit commented by **Philippe LE NILIOT**, PNMI assistant director*
- 11:00** Museum of the Island Environment: dissemination of scientific results about cultural and natural heritage
- 12:30** Lunch break
- 14:00** Back to Le Conquet
- 15:30** Group activities to prepare a good practice guide for transdisciplinarity
- 17:00** Back to Brest / End of the day

Thursday 28 April 2022

### Questionnaire

The objective of this questionnaire was to identify some experiences of transdisciplinarity (research in connection with the stakeholders) of the different SEA-EU partners, based on concrete examples that you have experienced or know of at your university. The answers to the different questions were summarized in the form of word clouds.

#### Questions:

- 1- Make a list of some of the some stakeholders you are used to working with. Define the degree of integration of the different stakeholders. It can be associations, institutions, citizens, professionals, children, etc.



- 2- What are **the needs** that motivate you to work with these stakeholders?



3- What are the **main obstacles** in working with stakeholders?



4- What **lessons** did you learn from experiences with stakeholders that did not work?



5- Can you present a case study of a project with stakeholders that is exemplary and emblematic? What are the **reasons** for this success? Explain why.

