

# Improving synergies between rural and coastal areas to tackle the water quality issues: the COASTAL project

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**COASTAL**  
Collaborative Land-Sea  
Integration Platform

Abstract #286



## The Project

By combining local knowledge and scientific expertise in a co-creation process, the COASTAL project engages actors and stakeholders at all levels to improve coastal-rural interdependence and collaboration by identifying problems and setting up evidence-based business roadmaps and policy solutions, focusing on economic growth, marine spatial planning, and environmental protection, including inland water quality.

## Methodology

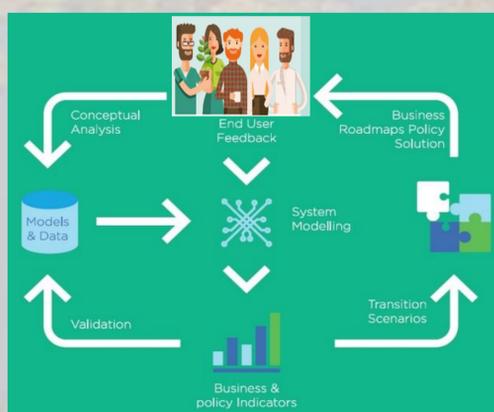
- 1 Multi-actor analysis
- 2 System thinking
- 3 Graphical System Dynamics model

1-Local actors and experts participate in **collaborative workshops** to analyze problems, the underlying causes, propose and discuss solutions, and validate and interpret the impacts of simulated business and policy decisions.

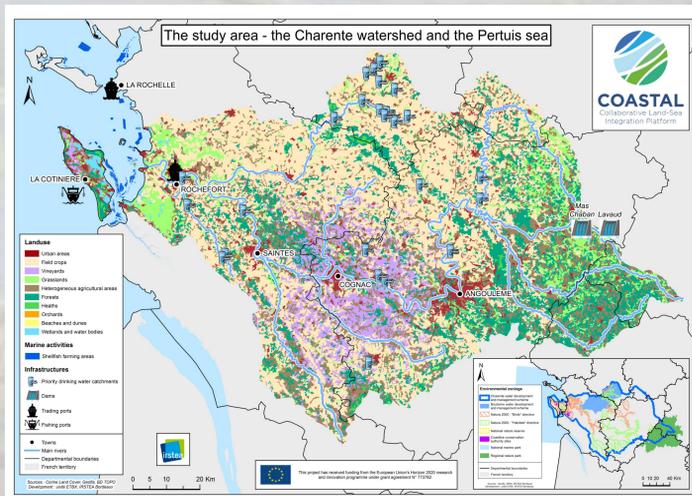
2-**Qualitative and quantitative techniques** are combined in this co-creation process supported by graphical tools (Vensim, Mental Modeler) to gain in-depth understanding of the systemic transitions underlying the land-sea interactions.

3-These systemic transitions are synthesized and analysed with **system dynamic models** using Vensim to produce multiple transition scenarios for key Business and Policy indicators.

4-From these practical business roadmaps and policy solutions are derived, which are easily updated in the models used to support the analyses.



## The Charente river basin and Pertuis sea Case study



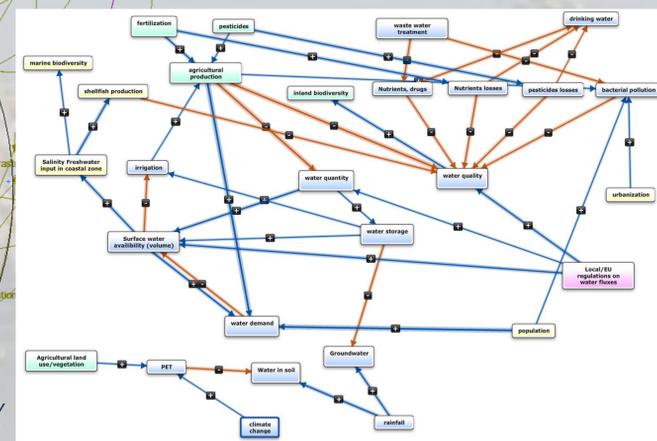
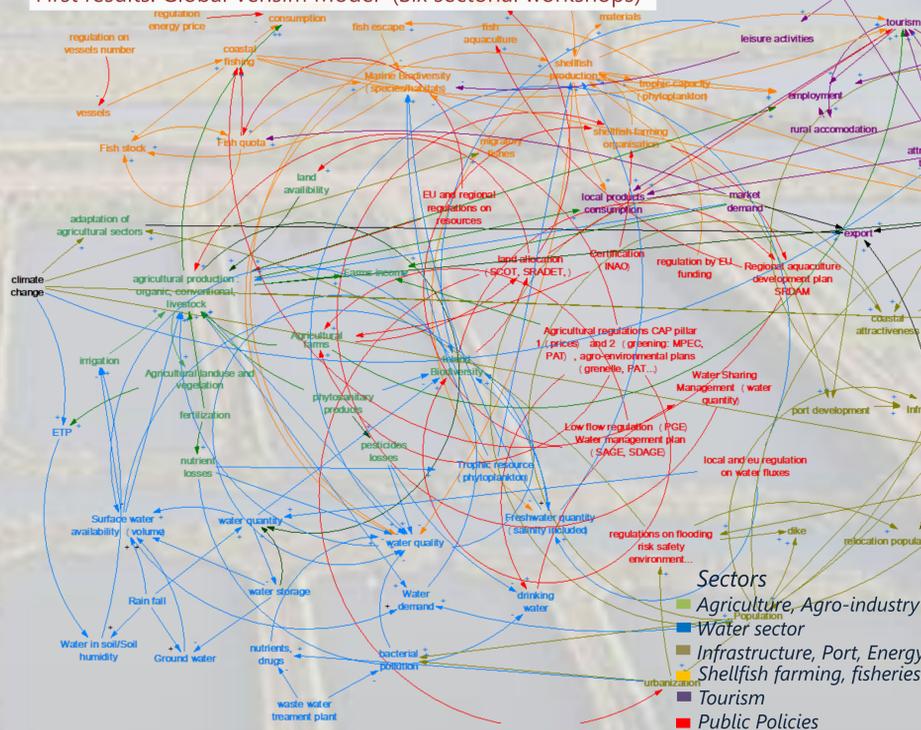
**Description** The territory of the Charente river basin is characterized by a strong agricultural activity (which depends on the water resource in its upstream part) and significant shellfish and tourist activities (depending on the quality of the water) in its downstream part. The availability and quality of the water resource constitute for that reason a major stake for development of this territory. Port infrastructures and marine energies also offer real opportunities for the joint economic development of the coastal and rural areas.

**Ambition** To strengthen policies for a sustainable development of the upstream and downstream parts of the basin and the coastal zone. Through an integrated approach, to coordinate opportunities for economic development of coastal and rural areas while preserving the environment and in particular the water resource.



MAL Inter-sectorial Workshops

## First results: Global Vensim Model (Six sectorial workshops)



Qualifying the links between variables using Mental Modeler (Water sector)

## Outputs of MAL Charente for Water sector

### Problems & challenges

- ✓ Increase of population in coastal areas and high water demand particularly in summer
- ✓ Water quality (Nitrate, pesticides, salinity of estuarine waters)
- ✓ Irrigated systems in the river basin and lack of water in spring and summer
- ✓ Shellfish farming and coastal industries overlooked in decision making for water management,
- ✓ Need of better management of water resources for economic development both in the coast and inland areas

### Opportunities for regional development

- ✓ Adaptation of farming industries (diversity of crops and systems, more sustainable/organic farming, better use of water...)
- ✓ Creation and management of water storage (farmers organisations)
- ✓ Adaptation of the water sector to climate changes and to increasing population: review of priorities in water uses, design of new policies to support economic activities

### Obstacles

- ✓ New water storage projects lead to serious conflicts (between farmers and NGOs...)
- ✓ Sectorial policies (inland/marine) need more integration
- ✓ Environmental : effects of climate change, decreasing water resources, biodiversity (invasive species)

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Project homepage [www.h2020-coastal.eu](http://www.h2020-coastal.eu)  
Knowledge Exchange Platform COASTAL [www.coastal-xchange.eu](http://www.coastal-xchange.eu)  
[@h2020-coastal](https://twitter.com/h2020-coastal) [@coastal\\_eu](https://www.linkedin.com/company/coastal_eu)

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Case studies

## Scientific partners

## Multi Actor partners

