

# The Emergence of Seaweed Cultivation in the Thau Lagoon: Implications for Climate-Resilient Aquaculture



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## AFFILIATIONS

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## CHALLENGE DEFINITION

Seaweed cultivation is increasingly seen as a **sustainable solution** that can support food security, climate action, and marine protection.

The **Thau Lagoon**, the largest coastal lagoon in France's Occitanie region, is a highly productive but fragile socio-ecological system, combining protected marine habitats with intensive oyster and mussel farming.

**Climate change and growing human pressures** are placing the lagoon under increasing stress, threatening the **future of traditional shellfish aquaculture**. In response, the SFC commissioned this study to assess whether **seaweed cultivation** could represent a **viable, climate-resilient pathway** for the Thau Lagoon. The research examines opportunities and constraints, stakeholder interest, and training needs to inform future development and support sustainable blue growth.



## METHODOLOGY

### Mixed-methods, transdisciplinary approach:

- Semi-structured interviews with aquaculture professionals, researchers, NGO's
- Non-participant observation at a regional aquaculture conference
- Geospatial analysis: Species distribution modelling (ArcGIS MaxEnt)
- Thematic coding: Interview & observation data

Framework: IIED Climate Resilience Framework across 4 dimensions (ecological, economic, social, practical)



## RECOMMENDATIONS

### Work with existing practices

- Position seaweed as complementary to shellfish farming, not a replacement.
- Use existing infrastructure and practices where possible.

### Make learning local and visible

- Prioritise small-scale local trials.
- Enable peer-to-peer learning between farmers.

### Use careful, honest communication

- Avoid climate-solution narratives that outpace reality.
- Be clear about uncertainty and trade-offs.

### Use scenarios to explore futures together

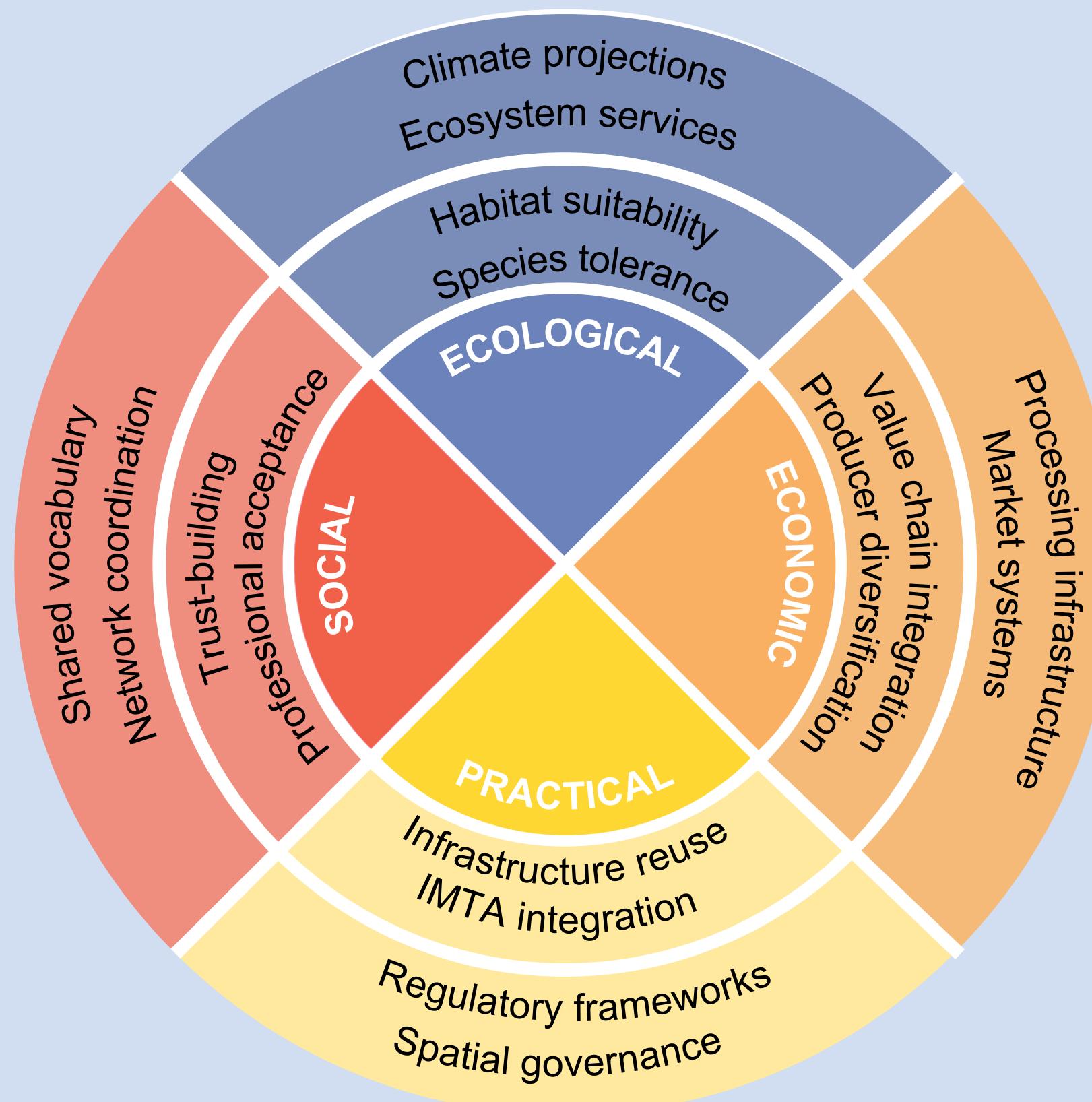
- A lack of shared vision limits coordination.
- Create space to discuss risks without immediate commitment.
- Support dialogue across fragmented actor groups.



① Oyster tables in the Thau Lagoon

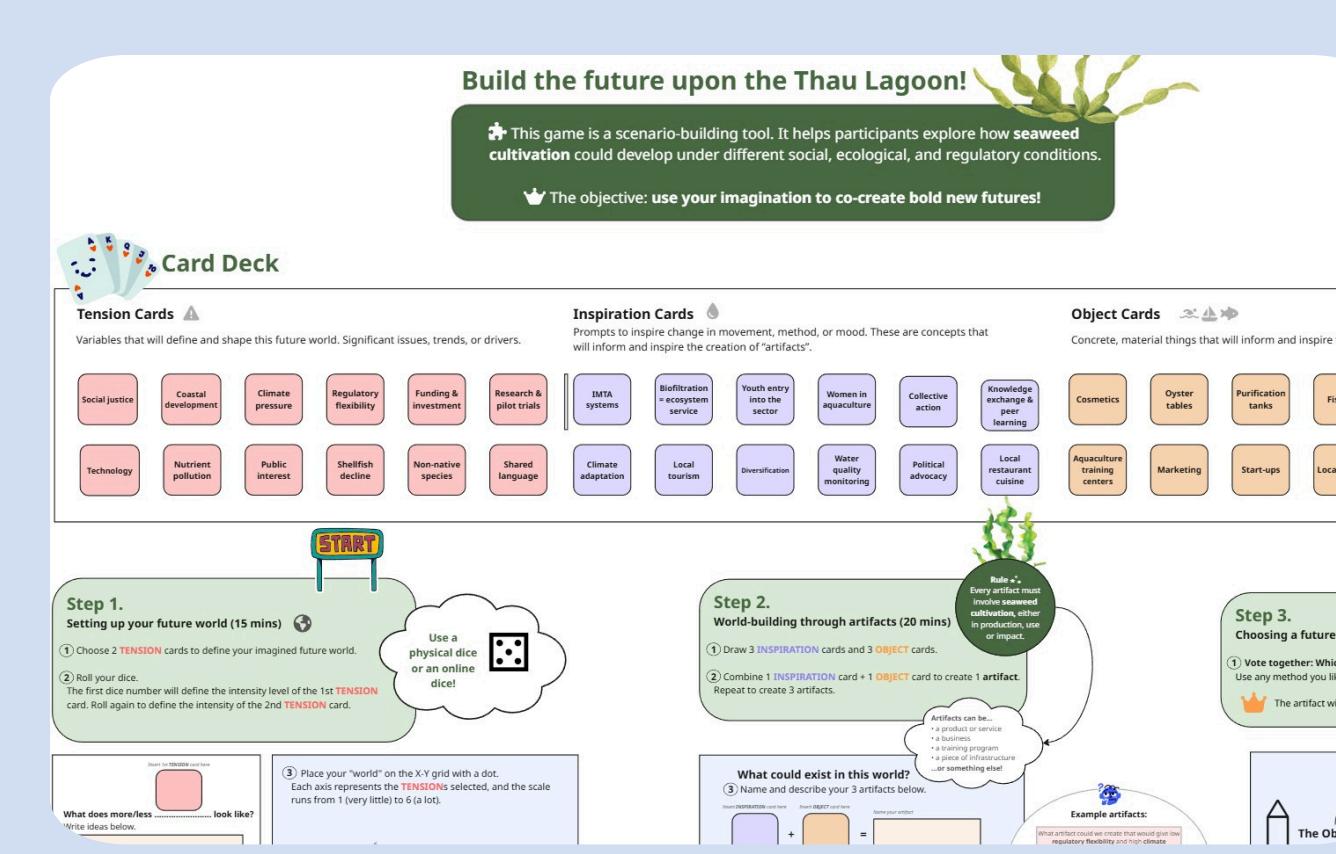
## FINDINGS

Findings reveal **seaweed cultivation holds significant potential but faces regulatory uncertainty and fragmented coordination**. Ecological modelling shows **Ulva lactuca** is suitable for cultivation in the Gulf of Lion through the mid-century. Economic viability requires **vertical integration and diversification**, while social acceptance depends on demonstration and peer learning. To facilitate dialogue and inspiration among local stakeholders, findings were transformed into an ArcGIS StoryMap and an interactive scenario-building game.



## PRODUCTS

The **interactive** products aim to address gaps in shared understanding and fragmented coordination between actors in the aquaculture sector.



Future Scenario-Building Game



StoryMap



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