

From circular economy to social innovation: ecosystem governance and marine by-products valorisation in Sicily

Thursday, 12 March 2026 15:00 (10 minutes)

In the Sicilian context, blue circular economy and social innovation are developing within the same territory, but their integration is still partial and not yet fully consolidated. Within the broader framework of EU strategies on the circular economy, the European Green Deal and zero-waste objectives, marine biomass valorisation has emerged as a regional pathway toward resource efficiency. The activation of traceability protocols for onboard and onshore biomass, the creation of shared aggregation hubs to stabilise fragmented and seasonal flows, and the experimentation with small-scale pilots partnerships require new coordination mechanisms among fishers' cooperatives, processing firms, universities, local authorities and emerging bio-based enterprises. These arrangements reshape material flows as well as decision-making routines, data governance structures and risk-sharing mechanisms.

This study examines how business innovation in marine by-product valorisation may scale into social innovation within the Sicilian blue bioeconomy ecosystem. An integrated case-based approach combines stakeholder interviews, structured questionnaires across processing hubs, institutional document analysis, and material flow evidence supported by life cycle assessment insights. Data from facilities processing anchovy, tuna, swordfish, and shrimp show substantial interspecies variability and a systematic lack of quantification of biomass generated during at-sea processing, weakening traceability and limiting economic planning.

Findings indicate that informational and coordination gaps—more than technological barriers—constrain circular transition. While business innovation generates spillovers, systemic transformation occurs only when governance routines are stabilised and collaboration becomes institutionally embedded.

The Sicilian case demonstrates that durable circular transitions require the institutionalisation of ecosystem-level coordination, ensuring that collaborative structures persist independently of individual leadership and actor turnover.

Primary authors: MARCHAN GONZALEZ, Michelle Magriet (University of Palermo); PERGOLIZZI, Valerio (University of Palermo)

Co-authors: MANUGUERRA, Simona (University of Palermo); CURCURACI, Eleonora (University of Palermo); Prof. OTTAVIANI AALMO, Giovanna (Norwegian Institute of Bioeconomy Research (NIBIO))

Presenters: MARCHAN GONZALEZ, Michelle Magriet (University of Palermo); PERGOLIZZI, Valerio (University of Palermo)

Session Classification: Sustainable Bioeconomy & Nature Based Solutions

Track Classification: General sessions: Sustainable Bioeconomy & Nature Based Solutions