



**Bio-based** revitalisation  
of local communities

**Workshop “BlueRev engagement of stakeholders to co-create new solutions for blue bioeconomy: the Sicilian case study”.**



Funded by  
the European Union

## INITIATIVES-NETWORKS

Cluster “Blue Italian Growth” (CTN-BIG)

WestMed initiative

Mediterranean blue economy stakeholder platform

Europ-direct Trapani Sicilia



Università  
degli Studi  
di Palermo



## INSTITUTIONS-GOVERNMENT

Dipartimento della Pesca Mediterranea, Regione Sicilia

Dipartimento della attività produttive, Regione Sicilia- Strategia S3 Sicilia

Dipartimento della formazione, Regione Sicilia- Strategia S3 Sicilia

## ENTERPRISES

Beauty Call Srl

Blu Ocean Soc. Coop

Bio&tec Soc. Coop

Siciliana Fish

Medipesca

MCV psca

Castiglione srl

OP pesca TRAPANI

OP avannotteria

## RESEARCH

European society for Marine Biotechnology (ESMB)  
CNR-IAS

AGCI AGR.IT.AL.  
FLAG trapanese

University of Palermo,dept DISTEM, master marine biology  
University of Palermo,dept SAF, international master mediterranean food science and technology  
Consorzio Universitario Prov Trapani, Istituto di Biologia Marina



## INTERNATIONAL PROJECTS



Biotechnologie marine vecteur d'innovation & qualité



Sécurité et qualité des produits aquacoles: le développement d'une voie commune tuniso-sicilienne



Méthodologies Durables pour la Réhabilitation et la Valorisation du Litoral Cotier



Le développement durable dans la production énergétique dans le territoire



Culture du bâti de qualité: Recherche, Innovation et Entreprise pour la Durabilité" (CUBATI)

## TRAINING ACTIVITIES



Erasmus+



ARISTOTLE UNIVERSITY OF THESSALONIKI



VNIVERSITAT D VALÈNCIA

# Co-creation workshops

Introduction to the vision and strategy co-creation workshop



**22 June 2023**  
University of Palermo, Polo Universitario di Trapani (Trapani)

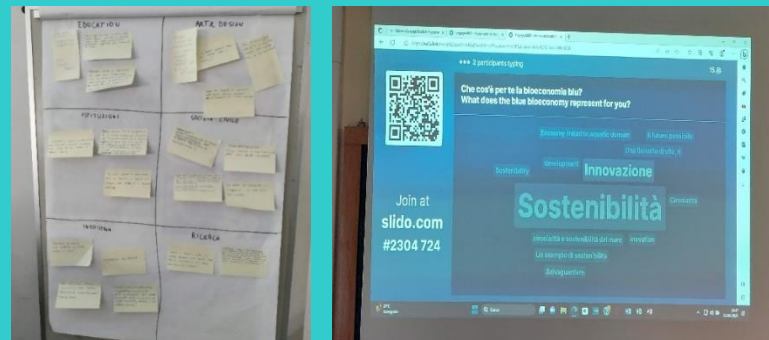
In person - 2 days  
n. 72 participants



Intervention of facilitators from the quadruple helix

Co-creative open discussion

Collection of ideas for new visions and strategies



Live pool questions & answers by SLIDO



# Co-creation workshops: **ASSESSING GOVERNANCE IN THE ITALIAN PILOT CASE UNIPA – Ri.Se**

Innovative  
governance models



Presentation  
stakeholders and  
introduction to the  
innovative  
governance co-  
creation workshop

**15 December 2023**  
Regione Siciliana Dipartimento Delle  
Attività Produttive  
(Palermo)

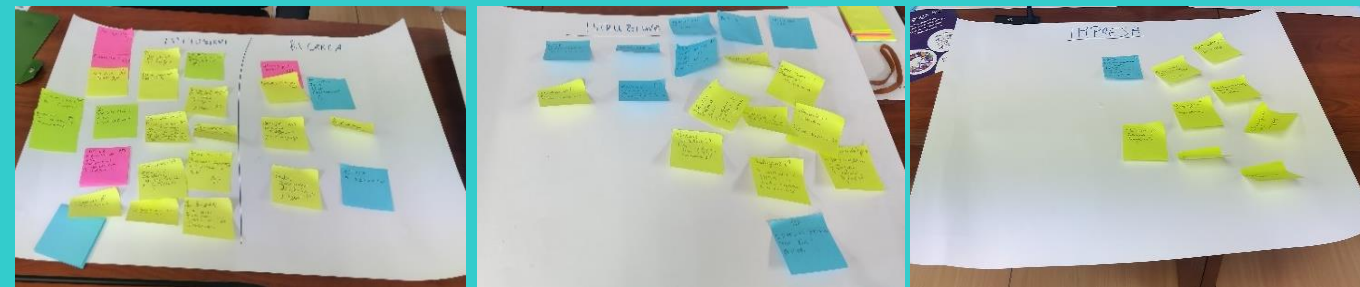


Open discussion

Hybrid - 3 hours  
n. 13 participants

To promote better connections and interactions among the different domains of public sector, private sector and knowledge (research and education):

- **Realization of a Living Lab**
- **Drafting of a Road map**
- **Realization of a Community of Practice**



Co-creation  
activity

- What are currently the main barriers to benefiting from innovations related to by-catch in Sicily?
  - Is anything lacking for innovation to take place in the space?
- How do the actors and organizations collaborate and/or exchange knowledge in the region?
  - What is functioning well, and what could work better (or is missing) in the coordination and collaboration among actors in Sicily?
- What is needed to enhance or upscale activity around the by-catch in Sicily?
  - Are there sufficient regional structures (e.g. funding, facilitation, matchmaking, infrastructure etc.) in place to support valorisation of the side streams?
- What should not be changed? (i.e., what is currently working well in Sicily?)

16 Participants

**FOR THE FISHERY SECTOR:** President of the sicilian association of fishery cooperatives AGCI pesca Sicilia).

**FOR THE INSTITUTION:** representative of the Sicilian Region: department of productive activities

**FOR THE INDUSTRIAL SECTOR:** representative of the sicilian office of confederation of industries (Confindustria Sicilia)

**FOR THE RESEARCH SECTOR:** Referent of National Center for future biodiversity

**FOR THE EDUCATION SECTOR:** Representative of the regional office of secondary school.

**1) What are currently the main barriers to benefiting from innovations related to by-catch in Sicily?**

- **Is anything lacking for innovation to take place in the space?**

**Fishery:** *Lack of a real and concrete perception that the circular economy in general and the use of fish waste are a resource and an opportunity should be part of the production cycle.*

*there is a lack of an institutional forum for such dialogue and coordination of activities, and no one from the private side actually puts themselves forward in this role.*

*Lack of wastes end-users (biorefineries) and of knowledge system or network of end-users of waste*

**Public Institution :** in Sicily there is a lack of willingness on the part of businesses to collaborate and exchange the information needed to train operators.

**Industry:** *Lack of centralization, methodology, solution for collection, inventory, dedicated space and professional figures for stocking, management of by-products*

**Research:** *high level of knowledge and TRL for valorization of by-products in academia, but lack of accelerators, , no spaces for transfer, needs spinoff.*

- 1) How do the actors and organizations collaborate and/or exchange knowledge in the region?
  - a. What is functioning well, and what could work better (or is missing) in the coordination and collaboration among actors in Sicily?

**Fishery:** *There is a lack of dialogue between the production sector and scientific research and between these two components and regional planning.*

*Lack of a concrete perception that the circular economy in general and the use of fish waste are a resource and an opportunity and should be part of the production cycle. Lack of a uniform level of knowledge on the legal aspects of waste management and lack of direct facilitation for companies to reuse it (paying to dispose fish wastes is much more easy)*

**Private sector (industry):** Governances often lack people with the right commitment. Dissemination of results, collaboration Institutions, business and research. Need for training and information (transversal).

**Education and training :** gap: funds for schools. School drop-out (demographic decline). Investing in communication.

**Research :** starting from scientific evidence (scientific rigour) to feed into decision-making processes and the structure of governance. The main gaps are Science policy nexus (any decision should be based on rigorous expertise) and evidence-based decision making.



1) What is needed to enhance or upscale activity around the by-catch in Sicily?

- a. Are there sufficient regional structures (e.g. funding, facilitation, matchmaking, infrastructure etc.) in place to support valorisation of the side streams?

**Fishery:** *In view of the low propensity for 'business networks', the only spaces that can be used are the OO.PP.(organization of fishery producers), for primary production and the trade associations for the remainder of the sector.*

*Sicily needs physical places where new products can be developed, opportunities for contact between research and production (such as living labs).*

*There has been and there will be with the next programming a large availability of funds for innovation for the processing and aquaculture sector, much less for the harvesting sector. Only in some cases are Sicilian universities able to support innovation in the sector by transferring useful skills but we don't have occasion to accelerate the transfer of the knowledge.*

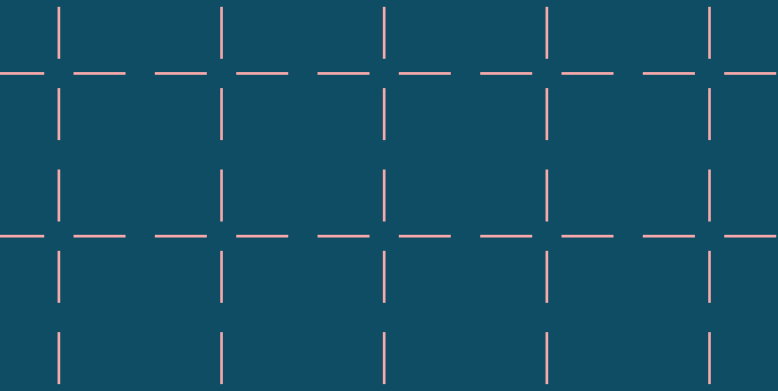
**Public Institution:** *Enhancement and strengthening of smart specialisation skills and knowledge transfer. Research and technology infrastructure projects. - Gaps: language gap, motivational gap of young people and young entrepreneurs, solutions: reformulation of competences. exchange of good practice information between all actors in order to train young people and practitioners themselves*

**Education:** *Promote advanced vocational training courses (curricula creation)*

**1) What should not be changed? (i.e., what is currently working well in Sicily?)**

*Local production granted about high added value, high level of quality of the value-chain, authenticity. This can be used as driver to promote blue value chains*

# Life Cycle Assessment of Sicilian tuna products



## Living Lab

❖ Co-designing new circular marine biobased productions and good practices in support of regional development paths for sustainable fishery, utilization and consumption

Demonstrative activity with fishermen organization, local authorities and master students



Meeting with regional authority, Italian maritime authority organization of recreational fishery and civil society





## Framework for co-creation of business plans for the blue bio-based industry

Task	Description	Supporting questions
<b>1. What kind of products can be produced from side operation and bio-based industry? (this provides data for Q9)</b>	Start by defining the problem you're trying to solve.	What could be the potential market for a new bio-product? What is the market demand for blue bio-based products? What are the challenges and opportunities in the industry? What are the gaps in the current value chain?
<b>2. Define the value proposition. (this leads to Q7)</b>	Once you have a clear understanding of the problem, define your value proposition.	What is the unique value you're offering to the market? How does your solution address the identified gaps and challenges in the industry?
<b>3. Identify the target market. (potential for internationalization)</b>	Continue by identifying the target market.	Who are the customers you're targeting? What are their needs and preferences? What are their pain points and what benefits can your solution offer? are there international markets/customers?
<b>4. Develop revenue streams</b>	Once you have identified your target market and unique value proposition, develop revenue streams.	How will you monetize your solution? Will you charge for products or services, or both? Will you use a subscription model or a pay-per-use model?
<b>5. Define the cost structure</b>	It is important to understand the costs associated with developing and delivering your solution.	What are the fixed and variable costs? How much will it cost to develop and produce your product or service?
<b>6. Identify key partners (business</b>	No business can operate in a vacuum.	Who are your suppliers, distributors, and strategic partners? What kind of

5 enterprises

**BLU OCEAN**– Seafood processing and marketing

**LANZA SEAFOOD**– Crustacean fishing and marketing  
(red, purple shrimps and lobster)

**M.C.V PESCA SRL**– Mazara del Vallo (TP): Fisheries and  
Aquaculture

**MEDIPESCA**– Processing and marketing Mediterranean  
fish species – Mazara del Vallo

**SICILIANA FISH**- Mazara del Vallo Red Shrimp and Fish Products  
Sale

POTENTIAL FOR NEW BIOBASED  
PRODUCTION BUSINESS MODEL  
DEVELOPMENT



shrimp powder obtained by drying and grinding the carapace. The other product is "colatura di gambero rosso"



The product named "Abisso" made from Mazara red shrimp powder (dried and grinded heads). Parts of soup fish that cannot be processed, minced to make a cream to be dissolved in condiments.



**Bio-based** revitalisation  
of local communities

**Blue resources and circular economy pathways as a solution to improve social and economic sustainability.**  
**Training directed to increase small-scale establishments in the bioeconomy.**

**26<sup>TH</sup> June 2024**



Funded by  
the European Union

# BlueRev

Blue resources and circular economy pathways as a solution to improve social and economic sustainability.

**Bio-based** revitalisation  
of local communities

Training directed to increase small-scale establishments in the bioeconomy.

26<sup>TH</sup> June 2024





## 2 Paper published

Valorization of the Invasive Blue Crabs (*Callinectes sapidus*) in the Mediterranean: Nutritional Value, Bioactive Compounds and Sustainable By-Products Utilization

by Rosaria Arena <sup>1</sup>ORCID, Giuseppe Renda <sup>1</sup>, Giovanna Ottaviani Aalmo <sup>2</sup>ORCID, Frédéric Debeaufort <sup>3,4</sup>ORCID, Concetta Maria Messina <sup>1,\*</sup>ORCID and Andrea Santulli <sup>1</sup>. <https://www.mdpi.com/1660-3397/22/9/430>

In Vitro Potential of Antioxidant Extracts from *Gracilaria gracilis* Cultivated in Integrated Multi-Trophic Aquaculture (IMTA) for Marine Biobased Sector

by Simona Manuguerra <sup>1,†</sup>ORCID, Rosaria Arena <sup>1</sup>ORCID, Eleonora Curcuraci <sup>1,†</sup>ORCID, Giuseppe Renda <sup>1,2</sup>, Maxime Rannou <sup>1,3</sup>, Claire Hellio <sup>3</sup>ORCID, Concetta Maria Messina <sup>1,\*</sup>ORCID and Andrea Santulli