



Deliverable 5.3

Results from Regional Co-creation Workshops/Transnational Bootcamps



Grant Agreement number	101060703
Project title	BlueBioClusters–Supporting European coastal regions in their transition to a sustainable blue bioeconomy
Deliverable title	Results from Regional Co-Creation Workshops/Transnational Bootcamp
Deliverable number	5.3
Deliverable version	Version
Contractual date of delivery	31.05.2025 (30)
Actual date of delivery	31.05.2025
Document status	Final
Document version	1.0
Online access	Yes
Diffusion	Public
Nature of deliverable	Report
Work Package	5
Partner responsible	Innovatum Science Park
Contributing Partners	ALL
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Abstract	This report summarizes a series of co-creation workshops and transnational bootcamps (2023–2025) across the BBC project regions, which accelerated blue bioeconomy development through stakeholder-driven collaboration. The report outlines how by identifying common challenges and leveraging regional strengths, the activities enabled practical, locally relevant solutions to support a more sustainable and innovative blue bioeconomy in the project regions.
Keywords	BlueBioClusters, blue bioeconomy, bootcamp, mentorship, co-creation, startups, SMEs

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Acronyms

AKR	ASSOCIATION KLAIPEDA REGION
BBA	BLUEBIO ALLIANCE
BBC	BlueBioClusters
BioPark	TARTU BIOPARK
D	Deliverable
DBC	DE BLAUWE CLUSTER
EU	European Union
GDPR	General Data Protection Regulation
INNO	INNOVATUM
IOC	ICELAND OCEAN CLUSTER
IP	Intellectual Property
KDMP	Knowledge and Data Management Plan
KU	KLAIPEDA UNIVERSITY
LEGASEA	BLUE LEGASEA
MVP	Minimum Viable Products
PMBA	POLE MER BRETAGNE ATLANTIQUE
PU	Public
R&D	Research & Development
SAMS	THE SCOTTISH ASSOCIATION FOR MARINE SCIENCE
SME	Small & Medium Enterprises
SUBNet	SUBMARINER Network for Blue Growth EEIG
T	Task
TRL	Technology Readiness Level
UTartu	UNIVERSITY OF TARTU
WP	Work package
BBC	Blue Bio Clusters
SME	Small Medium Enterprise
B2B	Business to Business
BBM	Blue Bio Match

Executive Summary

Between 2023 and 2025, a series of four transnational bootcamps and thirty-one regional co-creation workshops were held to support startups and SMEs in the blue bioeconomy by fostering collaboration, innovation, and tailored business support. Grounded in prior research and regional needs analysis from earlier work packages, these activities brought together diverse stakeholders from entrepreneurs and researchers to policymakers and support actors to address key challenges such as fragmented infrastructure, regulatory gaps, lack of financing and limited market visibility. Outcomes include new collaborative networks (e.g. Blue Bio Match and Community of Practices), joint strategies for all blue bio value chains, improved access to investors, and contributions to policy and R&D agendas. The process demonstrated that regionally anchored, cross-sector co-creation can effectively build trust, spark innovation, and strengthen the blue bioeconomy across Europe's coastal regions.

Introduction

This report presents the outcomes of a series of transnational bootcamps and co-creation workshops held as part of a broader effort to strengthen the capabilities of startups and SMEs in the blue bioeconomy in the regions. These activities were designed based on earlier research, mapping, and interviews and insights gathered within the project (WP 2, 4, 5) and focused on addressing the key challenges faced by entrepreneurs and stakeholders across the different regions and blue bio value chains.

The aim was to support these businesses and entrepreneurs by creating opportunities for collaboration, knowledge exchange, and tailored business support through mentorship. Through a series of transnational bootcamps and regional co-creation workshops, participants worked together to define pressing challenges, explore potential solutions, and connect with others across the value chains and in the regions. These activities were facilitated by project partners and included input from experts to help frame the issues and provide various stakeholder perspectives in the process.

The most promising ideas emerging from the workshops were given the opportunity to take part in regional bootcamps designed to help selected startups further develop their solutions and business models by providing access to experts, peer-to-peer networking, pitch sessions, and expert mentoring.

This report outlines how the transnational bootcamps and co-creation workshops were shaped around specific regional themes and business development needs, who was involved, and the key results and outcomes that emerged from these activities.

1.0 Transnational Blue Bio Bootcamps: Supporting Startups and SMEs

As part of the defined process in the BlueBioClusters WP5, a comprehensive study was conducted to identify the key challenges faced by startups and SMEs operating in the blue bioeconomy across all the participating partner regions (D5.2). Based on the identified challenges, project partners designed and delivered a series of targeted support activities in the form of three cross-border Blue Bio Bootcamps and one final wrap-up Transnational Bootcamp. The first three Blue Bio Bootcamps involved a structured multilateral cooperation between regional clusters, followed by one joint final Transnational Bootcamp.

The first three Blue Bio Bootcamps were tailored to specific Baltic, Northern, and Atlantic basin regions to address geographically and contextually relevant challenges. This approach enabled the inclusion of startups and SMEs facing similar conditions locally, while also promoting collaboration and knowledge exchange across borders.

The first three bootcamps were structured as one-day, high-impact events, delivered through a mix of physical and hybrid formats. This setup allowed participants to connect locally while also engaging in transnational dialogue and collaboration online.

- The Baltic Bootcamp was hosted in Riga, Latvia, and included all project partners. It also brought together startups from Estonia and Lithuania.
- The Northern Bootcamp featured in-person sessions in Sweden, Norway, and Iceland, complemented by hybrid elements to expand the exchanges.
- The Atlantic Bootcamp included both physical and hybrid sessions in Portugal, France, and Belgium, facilitating cross-border engagement and access to diverse regional blue value chains.

Bootcamps for Blue Bioeconomy Entrepreneurs

Each Blue Bio Bootcamp was designed as an intensive, hands-on learning experience tailored to early-stage entrepreneurs, start-ups, and SMEs operating in the blue bioeconomy. These bootcamps offered a unique mix of expert-led training, collaborative sessions, and real-world pitching opportunities, all aimed at accelerating the participants' business development and increasing their readiness for investment and market scaling.

Structured Learning and Interactive Sessions

Participants benefited from a well-rounded programme structure that included:

- **Expert-led Sessions and Workshops:** Covering a broad range of topics such as business modelling, market analysis, funding strategies and value proposition development.

- **Pitch Training:** Dedicated pitch sessions where participants practised delivering presentations of their business concepts.
- **Group Discussions:** Facilitated peer-to-peer learning sessions and thematic group work encouraged knowledge exchange, collaborative problem-solving, and building a supportive entrepreneur community.
- **Mentorship and Networking:** Opportunities for one-on-one mentoring with experienced industry experts, investors, and business advisors, as well as structured group interactions to broaden participants' networks.

Bootcamp Structure and Agendas

Each bootcamp followed a similar core structure while adapting its agenda to local needs and thematic focus areas. Attached are the agendas for three bootcamps. (Annex I –Blue Bio Bootcamp Agendas)

Follow-up Mentorship

During the first three bootcamps, each participating startup and SME took part in a one-to-one interview to identify their specific technical and business development challenges. These assessments served as the foundation for subsequent activities, including selection and matchmaking for mentorship.

Participating startups and SMEs—selected based on their challenges and regional relevance of their blue bioeconomy solutions—received tailored support after the Bootcamps to address barriers such as market access, business development, financing, and technology innovation. This process laid the groundwork for a structured, one-to-one paid mentorship scheme as part of WP5. Regional partners facilitated matchmaking by identifying suitable mentors from the [Blue Bio Match](#) (BBM) platform and the wider Blue Bio Clusters network, ensuring alignment between the startup's needs and the mentor's expertise (more detailed information about the tailored mentorship can be found in D5.4 Startup SME Support Package).

The Blue Bio Bootcamps served not only as practical support platforms but also as catalysts for regional cooperation and sustainable innovation in the blue bioeconomy.

Table 1 provides an overview of the bootcamps, including their dates, locations, partners involved and participant numbers.

Table 1: Transnational Blue Bio Bootcamps

Transnational Bootcamps	Location and partners	# Participants (SME, Startup, mentors and experts/investors)
Blue Bio Bootcamp #1 Baltic 24 th April 2024	All partners involved at Bootcamp in Latvia (Riga)	24

Blue Bio Bootcamp #2 Northern 29 th May 2024	Iceland (Reykjavík), Sweden (Gothenburg), Norway (Ålesund)	34
Blue Bio Bootcamp #3 Atlantic 2 nd July 2024	France (Brest), Belgium (Ostend), Portugal (Peniche)	31
Final Transnational Bootcamp 9 th April 2025	All partners involved and regions (Online)	45

TOTAL # PARTICIPANTS: 134

A key success factor in this process was the strong cross-collaboration among BBC project partners during the bootcamps.



Figure 1: Blue Bio Bootcamp #1 – Baltic participants and BBC partners together in Riga, Latvia, 24th April 2024

This collaboration enabled interregional and cross-border mentorships, where mentors from one region or country could support startups from another. By moving beyond strictly local or national matchmaking, the network of accessible expertise was significantly expanded—providing startups with broader, more relevant support and reinforcing the transnational character of the initiative.

As the final stage of the Blue Bio Bootcamps and mentoring program, the joint Transnational Bootcamp on 9 April 2025 brought together entrepreneurs, mentors, industry experts, and investors from across all the BlueBioClusters countries and regions. The online event highlighted the transformative role of mentorship in addressing business challenges and accelerating innovation in the blue bioeconomy. Participants shared best practices, success stories, and insights through dynamic discussions, startup pitches, and feedback sessions with investors. The bootcamp resulted in valuable matchmaking, new cross-border contacts, and concrete inspiration for the next generation of blue entrepreneurs, as well as an expanded local and international network of startups, mentors and investors that could continue to connect on the BBM platform.

2.0 Context and objectives of the co-creation workshops

A transition towards a more bio-based economy involves harnessing the potential of marine and coastal resources in a responsible and regenerative way and developing innovative solutions. To tackle regional challenges identified in D5.2 and discover and develop promising solutions, new forms of collaboration, problem-solving, and stakeholder engagement were used.

The co-creation approach, as described and highlighted in WP5, guided partners in each project region in organising a series of co-creation workshops that brought together local actors, civil society, policymakers, researchers, entrepreneurs, and industry representatives. These workshops facilitated meaningful dialogue, knowledge exchange, and the development of solutions and collaborations that were directly aligned with local and regional needs and opportunities. As a result, outcomes that emerged were not only viable for the community but also socially and economically relevant for that area.

Each co-creation workshop specifically addressed key challenges and explored solutions for the region's coastal communities transitioning to a bio-based economy. The Value Chain Facilitation Tool, developed under WP2 (D2.2), also supported guiding the dialogue in many cases and enabled partners to engage their stakeholders in specific blue bio value chains. The co-creation workshop results contributed to building a more resilient, innovation-driven platform for coastal communities, where sustainability and economic growth are interconnected.

Additionally, any ideas or solutions generated by startups, SMEs, or other stakeholders during the workshops were invited to participate in the Transnational Blue Bio Bootcamps, where they could receive tailored support to further develop their solutions. These initiatives have not only fostered innovation but have also paved the way for the practical implementation of new ideas, ensuring lasting impact in the regions' transition to a bio-based economy.

Table 2 provides an overview of regions, partners and respective challenge areas addressed by the co-creation workshops.

Table 2: Overview of Co-creation Workshops

Partner/Country	Blue Bio Value Chain	Challenges addressed in co-creation workshops
Innovatum Science Park (INNO) SWEDEN	All value chains	- Increasing the consumption of seafood in Sweden - a co-creation workshop together with Blue Food Center for future of seafood.

		<ul style="list-style-type: none"> - Increasing collaboration in a fragmented seafood value chain through a B2B seafood network. - How to access financing and investment for blue bio startups and SMEs.
Iceland Ocean Cluster (IOC) ICELAND	All value chains	<ul style="list-style-type: none"> - Value creation from aquaculture sludge (Stage 1 + Stage 2). - Data collection and knowledge gaps in the oceans around Iceland. - Funding and collaboration opportunities in Iceland to scale blue solutions.
ÅKP - Blue Legasea NORWAY	All value chains	<ul style="list-style-type: none"> - Vessel to Market, business opportunities in processing and technology requirements. - Commercialization of marine side streams ex. Pet food - Identify and create better understanding of utilization of marine side-streams at Gjøvsund harbor.
DeBlauwe Cluster (DBC) BELGIUM	All value chains	<ul style="list-style-type: none"> - Investigate the possibility of blue bio-based raw material for different Flemish industries. - Planning maripark or multiuse of marine space for different blue economy activities.
BLUEBIO ALLIANCE (BBA) PORTUGAL	All value chains	<ul style="list-style-type: none"> - Co-creation of a Blue Vision for the value chains in Peniche through Value Chain Inter-facilitation Tool (developed under BBC project). - Maximize the economic value of value chains related to fish and macroalgae by exploring new products, technologies and services in a sustainable and circular approach. (Step 1) - Development of projects to support transformation in each value chain fish and macroalgae (Step 2)
Pôle Mer Bretagne Atlantique (PMBA) FRANCE	All value chains	<ul style="list-style-type: none"> - Identifying challenges and potential solution for development of aquaculture in relation to technology, regulatory, sustainability. - How can bioresources fuel innovation in pharmaceuticals, nutraceuticals, cosmetics and functional foods. - Side-streams valorisation in blue bio value chains.

Scottish Association for Marine Science (SAMS) SCOTLAND	All value chains	<ul style="list-style-type: none"> - How can we create conscientious markets out of marine ecosystem services (oyster aquaculture). - Social valuation of ecosystems services of low trophic aquaculture (2 workshops). - Tackling licensing and market challenges for low trophic industry within and beyond Scotland.
Klaipeda University (KU) Association Klaipeda Region (KA) LITHUANIA	All value chains	<ul style="list-style-type: none"> - Lithuanian startup ecosystem landscape, addressing challenges and hinders for blue bio startups/SMEs. - Communicating science effectively to society using art. - Marine and coastal research – improving science to business to governance communication.
University of Tartu (UT) ESTONIA	All value chains	<ul style="list-style-type: none"> - How can we increase participation in blue bio initiatives in Saaremaa. - Regenerative ocean farming challenges and opportunities for local blue bio businesses (also for governmental representatives). - Financing for local blue bio value chains to support development.
Tartu Biotechnology Park (BP) ESTONIA		(on-going)

2.1 Co-creation Workshops: Pilot Workshop

Iceland & Sweden

On May 26, 2023, Innovatum Science Park and Iceland Ocean Cluster (IOC) hosted a co-creation workshop in Iceland, “Full Utilisation of Marine Bioresources”, as a pilot initiative to test and develop a framework and methods for co-creation. This session served as a starting point to inspire other project partners in designing their own workshops within the broader project. The focus was on increasing valorisation and utilisation of side-streams from aquatic biomass processing, particularly in fisheries.

Workshop Framework and Approach

The workshop was structured around two core phases:

1. **Ideation along the value chain** to generate ideas for increasing utilisation of side-streams.

2. **SWOT analysis** of proposed solutions to evaluate their feasibility and potential impact.



Figure 2 Pilot Co-creation workshop - Iceland Ocean Cluster house in Reykjavik, May 2023

The aim of this pilot was to explore technology needs, identify opportunities for new business models, and assess areas where research expertise could contribute to improved side-stream utilization.

Participants and Expertise

A diverse set of stakeholders brought a broad range of expertise:

- **Sweden:** Innovatum, RISE, Swedish Agriculture Agency, branch organization Svensk Vattenbruk och Sjömat, and members of the National Network for Aquaculture, all representing primary producers working with macroalgae, herring, and blue mussels.
- **Iceland:** IOC, MATIS, startups, SMEs, and investors, with expertise in whitefish (ocean + RAS systems), mussels, and macroalgae.

This multidisciplinary mix ensured a strong foundation for both knowledge sharing and future collaboration.

Key Challenges Identified:

- Limited cross-sector integration and knowledge transfer between different aquatic biomass producers.
- Gaps in infrastructure and technology for side-stream processing.
- Need for sustainable and scalable business models.
- Difficulty connecting innovation actors with early-stage producers and markets.

Outcomes

The pilot workshop proved highly valuable:

- Participants were actively engaged, and the method sparked productive dialogue.
- The “**100% fish**” **concept** from Iceland was particularly inspiring for Swedish participants, offering a clear model of circular thinking and high valorisation that could be adapted to other contexts.
- Several matchmaking opportunities were identified between Icelandic and Swedish participants, forming the basis for future collaborative innovation.
- The workshop format, with its structured ideation and analysis, was seen as a promising blueprint for other project partners to use and adapt.

This pilot laid the groundwork for a replicable co-creation approach tailored to blue bio value chains and demonstrated how collaborative formats can bridge transnational and sectoral boundaries to unlock new value from marine side-streams resources.

2.2 Co-Creation Workshops: Regional Results

The co-creation workshops brought together diverse actors from research, business, public institutions, and civil society to collaboratively identify challenges, explore solutions, and build new partnerships. (*Annex 2 – Stakeholders Involved in Co-creation*). To capture the wide range of insights and outcomes in a structured and accessible way, the workshop results have been organised under five thematic headings per country: **Challenge and Solution Pairing, Identified Opportunities, Sector Potential, Next Steps and Strategic Follow-up, Strengthened Collaboration.**

Each heading serves a distinct purpose: *Challenge–Solution Pairing* helps clarify the key barriers discussed and the solutions explored; *Identified Opportunities* focuses on new insights and openings that emerged for innovation or policy development; *Sector Potential* highlights how the outcomes connect to wider blue bioeconomy growth and transformation; *Next Steps and Strategic Follow-up* outlines concrete actions planned or initiated; and *Strengthened Collaboration* emphasises new connections, partnerships, or coordination mechanisms formed. Together, these categories provide a structured overview that both captures individual country and partners’ workshop results and supports a holistic understanding of the momentum and impact generated across the regions.

Sweden

Co-creation workshops addressing key challenges in the seafood sector, with a focus on increasing seafood consumption and strengthening collaboration across the value

chain to drive better outcomes for businesses. The workshops also explored financial tools and access to both public and private funding opportunities from different organizations tailored to different stages of business development.

1. Challenge-Solution Pairing

Key challenges were identified and paired with actionable ideas:

- Consumer neophobia, known as the fear of trying new foods, was highlighted as a barrier to seafood consumption. Solutions discussed included integrating seafood into familiar product formats (e.g., burgers, balls, mince) and creating new narratives to shift perceptions away from traditional “fishy” associations.
- The fragmented seafood sector in Sweden lacks a unified voice across the value chain. Participants proposed the creation of a collaborative business network, tentatively named the Sweden Ocean Cluster (based on the model of the Iceland Ocean Cluster), to strengthen trust and innovation.
- Public procurement, particularly in school lunches, was discussed as a potential channel for introducing innovative seafood products, though a lack of municipal representation at the event was noted as a limitation.
- To address financial barriers, startups were invited to engage directly with financiers and the session facilitated understanding of financing tools and sparked matchmaking opportunities between companies and financial institutions.



Figure 3: Co-creation Workshop in Gothenburg, Sweden – inspiration from Iceland Ocean Cluster and start of “Sweden Ocean Cluster” October 4th 2024.

2. Identified Opportunities

- Creating value chain networks over the entire value chain can foster cross-sector collaboration and innovation.
- Better storytelling and consumer-centred marketing can overcome barriers like neophobia and expand the market for seafood products.

- Public sector procurement can serve as a strategic lever to promote sustainable and innovative seafood consumption, particularly in institutional settings like schools and elderly care facilities.
- Financing opportunities exist, and there is potential to improve synergy between financing actors to better support startup and SME development with complementary startup and scale-up financing solutions.

3. Sector Potential

- The seafood sector holds untapped potential for economic growth and innovation, but greater integration across the value chain is needed.
- A Swedish seafood cluster, focusing on B2B and modelled after successful international examples like Iceland, could significantly accelerate sector-wide innovation and business development.
- Consumers are open to seafood if it is introduced through more familiar formats and compelling narratives.
- There is room to improve the coordination of financing instruments and increase understanding of what tools are available for businesses at different stages.

4. Next Steps and Strategic Follow-up

- To further develop the concept of the Sweden Ocean Cluster and build a collaborative roadmap meetings are planned during 2025.
- Future workshops should ensure the involvement of municipal representatives and marketing experts to strengthen public sector integration and outreach.
- Continued dialogue among financiers is encouraged to explore co-investment and complementary funding models, with a roundtable discussion in September 2025.
- Efforts should be made to document and share best practices from similar international cluster initiatives (e.g., Iceland Ocean Cluster).
- A national seafood campaign is planned to launch under the Blue Food Center in late 2025

5. Strengthened Collaboration

The workshop, specifically on financing, sparked meaningful cross-sector dialogue and enabled companies, startups, and financiers to connect. A roundtable discussion among various financiers who support blue bio companies was suggested to find better synergies among the various financing tools, knowing that a startup will need different forms of financing for the startup vs. scale-up phases. Participants from the seafood cluster workshop expressed strong interest in continuing discussions and formalizing a national seafood business cluster to improve collaboration, drive innovation, and build sector resilience – Sweden Ocean Cluster. The co-creation format helped break silos and demonstrated a clear willingness to work collectively toward shared goals.

Iceland

The co-creation workshops focused on the sustainable use of aquaculture sludge and advancing Iceland's role in the emerging blue bioeconomy. It brought together stakeholders from aquaculture, agriculture, policy, and research to co-develop a shared understanding of barriers, solutions, and cross-sector opportunities.

1. Challenge-Solution Pairing

- Regulatory clarity: Participants emphasized the need for clearer national and EU regulations regarding the use of aquaculture sludge as a blue bioresource. Joint discussions with legal experts and the Icelandic Matis team from the EU project AccelWater improved shared understanding of current frameworks.
- Lack of incentives for uptake: Aquaculture companies typically make decisions based on cost and ease, not environmental benefit. The solution proposed was to develop a strong business case for sludge valorisation technologies—an effort that led to a new national project application, coordinated by the Iceland Ocean Cluster.
- Fragmented infrastructure and data gaps: The group identified infrastructure fragmentation and insufficient ocean data as major barriers. Proposed solutions included cross-sectoral technology sharing, co-development of infrastructure, and testing of new autonomous, lightweight sensor systems to collect missing environmental data.

2. Identified Opportunities

- Stronger cross-sector collaboration emerged as a consistent theme, particularly between aquaculture and agriculture, where participants explored the potential of using sludge as fertilizer.
- Creating marketable products from aquaculture sludge could contribute to a circular blue bioeconomy, reduce waste, and increase sector profitability.
- Investing in ocean data collection and sensor innovation could unlock growth in emerging sectors like seaweed farming, currently hindered by regulatory uncertainty.
- Broader stakeholder inclusion, including data providers, farmers, and regulators, can enhance trust and mutual understanding in future co-creation efforts.

3. Sector Potential

- Iceland is well-positioned to lead in marine innovation, given its infrastructure and entrepreneurial ecosystem. However, interdisciplinary collaboration, policy support, and improved public awareness are needed to realize this potential.
- Valorising aquaculture sludge could form part of a high-impact circular model, advancing sustainability and creating new economic opportunities.

- Coordinated research and innovation across borders can support shared environmental goals and generate actionable insights faster and more affordably.

4. Next Steps and Strategic Follow-up

- A follow-up co-creation workshop linked to the Blue Bioeconomy CoVE will further develop the market and business case for aquaculture sludge-derived products.
- Outcomes will be integrated into Blue Vision workshop, which aims to articulate a shared future vision for Iceland's blue economy.
- Stakeholders will explore new funding avenues, policy dialogues, and pilot projects to address regulatory and data barriers.
- Testing and deployment of autonomous sensor technologies will be pursued to gather the missing time series data critical to informed marine spatial planning.

5. Strengthened Collaboration

These workshops strengthened ties between aquaculture, agriculture, technology providers, and policymakers. The inclusion of stakeholders across sectors fostered constructive dialogue, mutual learning, and increased interest in collaborative innovation. New project partnerships and follow-up activities are set to deepen this engagement, placing Iceland at the forefront of a sustainable and innovative blue bioeconomy.

Norway

The co-creation workshops held in Ålesund and Giske Municipality, with a focus on improving value creation and sustainability in marine harvesting and processing of fish, emphasized value chain insight, resource efficiency, and opportunities for improved cooperation across sectors.

1. Challenge-Solution Pairing

- Participants addressed key challenges in the marine value chain and identified several actionable solutions.
- Enhancing market understanding, particularly customer demands and the commercial potential of side-stream raw materials new products ex. pet food.
- Improving cross-sector cooperation to enable efficient use of resources across the entire value chain.
- Focusing on raw material utilization towards higher-quality products that support efficient production and lower operational costs.
- Increasing awareness and collaboration between sea and land-based actors, especially involving vessel crews in value chain discussions.
- Supporting initiatives like the From Vessel to Market programme to promote full-chain insight and identify underused opportunities.

2. Identified Opportunities

The workshops highlighted several opportunities for sector development:

- Utilizing more of the marine by-products that are currently discarded at sea (e.g., guts, unwanted heads).
- Expanding knowledge of market potential for less-exploited species and by-products.
- Strengthening logistics for landing and transporting marine by-products to new product value chains.
- Encouraging experience sharing between stakeholders to optimize every link in the value chain.
- Building interest in alternative uses and value-added processing of residual raw materials such as liver, roe, and heads.

3. Sector Potential

Participants recognized the economic and environmental potential in improved utilization of marine resources:

- Most vessels have sufficient freezing capacity to bring by-products to shore, but the current low market value does not support investment in onboard handling or processing equipment.
- One example vessel has implemented ensilage techniques to manage all by-products efficiently, pointing to scalable models.
- There is a willingness among fishers to bring more by-products ashore if supported by proper infrastructure and incentives.
- Unlocking this potential depends on both market development and cost-effective logistics/with examples specifically for pet food.

4. Next Steps and Strategic Follow-up

- Expand value chain training and knowledge-sharing platforms, especially including crew and sea-based operators.
- Conduct market research and awareness-raising around the potential uses and values of marine by-products.
- Improve infrastructure and landing logistics to support the profitable recovery of residual materials.
- Identify and support pilot projects that test new business models or technological solutions for by-product utilization.
- Network of companies and stakeholders with an interest in a common market approach for Norwegian-based pet-food products is established, and will apply for further funding from Innovation Norway

5. Strengthened Collaboration

The workshops reinforced the importance of mutual dependency across the marine value chain, emphasizing that collaboration must be extended to vessel crews and other frontline actors. Participants agreed that a more open flow of information and

shared insights can lead to more sustainable and profitable outcomes for all stakeholders. The Gjørund Hamn workshop provided critical insights that reinforce its strategic potential as a circular hub, aligning with the goals outlined in the "Grønt Industriløft" report for Møre og Romsdal. These insights serve as valuable input for regional policy-making and support informed decisions on infrastructure, innovation, and investment.

Belgium

The co-creation workshop series produced important reflections and potential directions for developing the blue bio sector in Belgium, particularly through a broader ecosystem and multi-use lens.

1. Challenge-Solution Pairing

Participants identified both challenges and opportunities linked to integrating blue bio value chains into a wider offshore context. Proposed solutions and ideas included:

- Promoting blue bio as a positive contributor to other offshore activities (e.g. coastal protection, offshore renewable energy) through a multi-use format.
- Applying the ecosystem approach to offshore planning, with recognition that such an approach brings mutual benefits.
- Organizing a new workshop focused on taking the next steps at the European level, to align Belgian efforts with broader EU strategies.
- Repurposing existing infrastructure for blue bio uses, such as developing a "maripark".



Figure 4: Co-creation Workshop Flanders: "Installing a Maripark" – May 23rd 2023

2. Identified Opportunities

- Several new opportunities emerged from the discussions:
- Building a broader support base for the ecosystem approach by engaging actors from various offshore sectors.

- Exploring interactions between Blue Bio producers and end-user industries (e.g. cosmetics) to stimulate cross-sector value chains.
- Fostering more research into the health and functional benefits of blue bio compounds and their potential valorisation in multiple sectors.

3. Sector Potential

Participants noted both the breadth and limits of the current blue bio landscape:

- The Flemish blue bio sector is still relatively small and lacks visibility among investors.
- An intensive workshop day demonstrated the wide range of water organisms with applications relevant to the green transition.
- However, the absence of investor perspectives may signal that blue bio is not yet considered an attractive investment area in Flanders.

4. Next Steps and Strategic Follow-up

- Plan and host a follow-up workshop at the European level to define actionable steps toward embedding the ecosystem approach in policy.
- Encourage more targeted outreach to investors and offshore stakeholders to increase awareness and relevance of blue bio in broader development agendas.
- Facilitate deeper exploration of infrastructure reuse and regulatory clarity to accelerate project implementation.

5. Strengthened Collaboration

The workshops encouraged participants to step outside their traditional silos and adopt a broader, ecosystem-based perspective. This shift in mindset helped participants envision collaborative roles and shared responsibilities, an essential starting point for ecosystem-level innovation.

Portugal

The co-creation workshops in Peniche (3 in total) brought together stakeholders across sectors to collaboratively address regional challenges and opportunities in the blue bioeconomy, with a strong focus on the fish and macroalgae value chains. Using the Value Chain Facilitation Tool to guide the discussions, the workshop series emphasized matchmaking, multi-helix engagement, and the development of a common regional strategy to strengthen sustainable marine innovation and resource use.

1. Challenge-Solution Pairing

The workshop series identified and addressed critical barriers:

- Environmental and social challenges such as marine pollution, algae waste (e.g., from Gelidium processing), bioremediation needs, and poverty in the local population were acknowledged as key obstacles.
- Fragmentation across sectors and resistance to change were addressed through collaborative ideation and matchmaking activities that encouraged shared responsibility and innovation.
- A dual strategy was proposed to tackle challenges in both value chains:
 - o Fish: A certification and traceability scheme (“Fish from Peniche”) to ensure sustainable and quality practices throughout the value chain.
 - o Macroalgae: A valorisation project for byproducts from regional seaweed blooms to reduce waste and support circular economy initiatives.

2. Identified Opportunities

The region can strategically position itself by combining efforts across the fish and macroalgae sectors as two of its strongest bioresource areas.

Strong potential for new collaborative projects emerged, especially in:

- Developing certification schemes that enhance product value and consumer trust.
- Exploring bioproducts from algae waste, with commercial and environmental value.
- Regional matchmaking and network-building enabled stronger ties between academia, industry, civil society, and local authorities.

3. Sector Potential

- Fish value chain: Recognized for its cultural and economic importance to Peniche, but in need of sustainability branding, investment in quality recognition, and better waste management practices.
- Macroalgae value chain: Offers underexploited opportunities through the valorisation of blooms and industrial byproducts (e.g., from agar-agar production), particularly with regard to bioremediation, bioplastics, and circular economy applications.
- Both sectors hold joint potential in supporting biotechnological innovation, improved environmental outcomes, and new employment opportunities.

4. Next Steps and Strategic Follow-up

- Two key project ideas were identified and will move forward to the feasibility and partnership development phases:
 - o “Fish from Peniche” certification project to enhance traceability and market value.

- Macroalgae valorisation project focusing on transforming blooms and waste into high-value applications.
- A regional common strategy will be developed to align these efforts and mobilize long-term funding, culminating in two roadmaps for the region.

Further matchmaking sessions and stakeholder engagement will support the transition from ideation to implementation, ensuring cross-sector collaboration is maintained.

A final event is planned for 30 June 2025 to present the results and roadmaps.



Figure 5: Co-creation Workshop & Value Chain Facilitation Tool, Peniche, Portugal, 12 December 2024

5. Strengthened Collaboration

The workshops facilitated the development of a shared regional vision, bridging gaps between the fish and macroalgae sectors and creating tangible project pathways. By involving all five helix actors (industry, research, policy, civil society, and the environment), the events established a stronger foundation for multi-actor collaboration, trust-building, and inclusive growth in Peniche's blue economy.

France

The co-creation workshops hosted in Lorient, Nantes and Concarneau highlighted the importance of collaboration, circular practices, and innovation in marine biotechnology and aquaculture.

1. Challenge-Solution Pairing

Participants addressed the strategic but challenged status of aquaculture in the region by proposing practical solutions, including:

- Strengthening networking hubs that connect academia, industry, and institutions (e.g., Campus Mondial de la Mer, Blue Valley®, CEVA, Station Biologique de Roscoff).

- Promoting circular aquaculture systems like Integrated Multi-Trophic Aquaculture (IMTA), combining shellfish and algae.
- Advancing biodegradable marine materials, such as seaweed-based films and bioplastics.
- Supporting carbon capture and ecosystem service modelling, focusing on algae's role in climate mitigation.
- Enhancing technology transfer pipelines through initiatives like Pôle Mer Bretagne Atlantique and Biotech Santé Bretagne.

2. Identified Opportunities

The workshops uncovered significant development opportunities:

- Expanding offshore and coastal seaweed cultivation using improved mooring and anchoring systems.
- Developing photobioreactors tailored to microalgae species (e.g., *Tetraselmis*, *Isochrysis*).
- Improving selective breeding for native algae species to enhance yield and bioactive compound production.
- Investing in sustainable harvesting and post-harvest processing technologies that preserve the bioactivity of marine compounds.
- Leveraging B2B networking to spark collaboration among startups, SMEs (e.g., Olmix, Abyss Ingredients, Polaris), research institutions, and investors.

3. Sector Potential

The potential of blue bioresources for health and biotech innovation is substantial, including:

- Preventive and therapeutic applications such as antioxidants, anti-inflammatories, and anti-infectives.
- Cosmeceuticals for skin protection and anti-aging benefits.
- Biomaterials, including marine collagen, gelatin, chitosan, and chitin.
- Bioactive compounds from macroalgae (e.g., fucoidans, laminarins, phlorotannins) and microalgae (e.g., carotenoids, omega-3s).
- Marine fungi and endophytes producing novel cytotoxic and anticancer molecules.

4. Next Steps and Strategic Follow-up

- Foster regional and cross-sector collaborations through structured matchmaking and innovation platforms.
- Scale up pilot technologies and infrastructure for the cultivation and processing of algae.
- Promote further valorisation research into marine compounds for health, biomaterials, and sustainability-focused products.

- Continue supporting tech transfer and regulatory navigation to bridge the gap between research and commercialisation.

5. Strengthened Collaboration

The workshops reinforced the value of integrated regional innovation ecosystems, where support organisations, research centres, and businesses work together. Initiatives like CEVA and Blue Valley serve as critical nodes for collaboration, while strong engagement from startups and SMEs reflects a growing entrepreneurial interest in marine biotechnology.

Scotland

The co-creation workshops held in Oban and Lochgoilhead had a focus on both governance and social community impacts, as well as aligning ecosystem services with regional and local development.

1. Challenge–Solution Pairing

Across four interconnected workshops exploring conscientious markets for marine ecosystem services from oyster aquaculture, ecosystem services of low trophic aquaculture (twice), and licensing and market barriers in and beyond Scotland, a consistent set of challenges emerged. These included:

- A lack of standardised methods to measure ecosystem service provision over time.
- Limited legislative support.
- Unclear financial expectations from investors.
- Insufficient transparency in monitoring and evaluation practices.
- Producers often do not use ecosystem services terminology or valuation strategies, especially for cultural and less tangible benefits.

Potential solutions discussed include the co-development of governance frameworks, benefit-sharing mechanisms, and science-based standards that enable conscientious market development.

2. Identified Opportunities

- Stakeholder feedback from the workshops revealed strong public support for aquaculture initiatives that deliver environmental and community benefits.
- Seaweed farming was especially well-received when connected to restoration or sustainability goals, although confusion remains between wild harvesting and farming practices.
- There is potential to develop markets that align ecosystem services with local values, public expectations, and regional development strategies.

- Clear communication and storytelling around topics such as restoration, biodiversity, and local job creation can strengthen public and investor engagement.

3. Sector Potential

- Low-trophic aquaculture—particularly oysters and seaweed—offer significant ecosystem service benefits, including water purification, habitat creation, and carbon capture.
- These benefits are currently undervalued and not effectively communicated to stakeholders or the public.
- Most producers do not monitor biodiversity changes or incorporate ecosystem service frameworks into their operations.
- Realising this potential requires aligning environmental monitoring with commercial strategies.
- A shared understanding of how ecosystem services contribute to both ecological value and business resilience is key to unlocking broader benefits.

4. Next Steps and Strategic Follow-up

Key actions identified across the four workshops include:

- Developing and testing practical metrics for ecosystem service valuation and monitoring.
- Increasing producer awareness and capacity to communicate ecosystem benefits.
- Clarifying regulatory pathways and engaging policymakers to support conscientious markets.
- Distinguishing between farmed and wild products in public messaging.
- Launching pilot projects that embed benefit-sharing and community involvement, offering scalable models.

5. Strengthened Collaboration

The workshops highlighted the importance of cross-sector collaboration between science, industry, policy, and local communities. Producers, researchers, and governance actors must co-create mechanisms for transparent monitoring and equitable value distribution. Such partnerships are essential to build trust, ensure legitimacy of ecosystem service claims, and support the emergence of new, conscientious market models that reflect both environmental and social sustainability goals.

Lithuania

Two interconnected challenges were addressed in the co-creation workshops:

1. Challenge–Solution Pairing

- Communicating science to society to stimulate interest in blue biotechnology research.
- Bringing together scientists and artists to co-create impactful expressions of scientific insights, making topics like water quality, climate change, and blue biotechnology more relatable to the public. Structural gaps in Lithuania’s national innovation support for blue bioeconomy actors.

2. Identified Opportunities

- A notable match was formed between a blue biotechnology scientist and a French media artist based in the countryside. Together, scientists and artists co-create impactful expressions of scientific insights, making topics like water quality, climate change, and blue biotechnology more relatable to the public. Science & Art Collaboration - Emotional storytelling and immersive art installations are powerful tools for public engagement. A shared understanding emerged that scientists need artists to translate research into accessible narratives for societal impact.
- Startup and SME Ecosystem Needs: Blue bio startups in Lithuania are underrepresented nationally.
- Gaps in support, visibility, and alignment with national smart specialisation strategies (S3), which currently do not include blue bioeconomy, were identified.

The Klaipėda region’s biotech specialisation is strong in blue biotechnologies, yet under-acknowledged in funding and training opportunities.

Conference as a Platform:

The 16th Practical Conference (organized by the Marine Research Institute of Klaipėda University) brought visibility to these issues and began to bridge gaps between regional actors and national institutions.

The event's success has ensured a follow-up: the 17th Conference was held on May 14–16, 2025, focusing again on the marine environment, blue bioeconomy, smart maritime industry, and sea-society interactions.

3. Sector Potential

- Klaipėda’s Marine Research Institute is seen as a national leader in marine science, focused on applied research for regional economic and environmental impact.
- The Baltic Sea’s vulnerability and centrality to Klaipėda’s identity enhance the region’s relevance as a demonstration site for marine innovation, public engagement, and interregional learning.

- Dialogue between blue biotechnology scientists and innovation agencies revealed a need for better regional representation in national innovation priorities, enabling a fairer distribution of resources and development opportunities.

4. Next Steps and Strategic Follow-up

Art & Science Collaboration:

- Build on successful matches and expand the Art and Science Symposium as a formal feature of the Baltic Triennial.
- Establish long-term partnerships between marine researchers and artists from across the Baltic and Nordic countries.

Startup Support and Ecosystem Building:

- Improve dialogue between Vilnius-based institutions and Klaipėda region actors.
- Encourage Innovation Agency Lithuania to launch blue bio-specific calls, training, and communication efforts.
- Update national market analysis frameworks to better reflect the potential of blue bio sectors outside the capital region.

Conference and Dialogue Continuation:

- Sustain and deepen conversations during the 17th Practical Conference in 2025.
- Promote stronger integration between scientific, regulatory, and innovation communities.

5. Strengthened Collaboration

The activities demonstrated a growing willingness among stakeholders to work across traditional boundaries between science and art, policy and region, research and entrepreneurship. A shared interest in collaborative problem-solving was evident, particularly around:

- Regulatory understanding for blue bio applications.
- National visibility and representation for the Klaipėda region.
- Using creative tools for communicating complex scientific challenges.
- Building a more inclusive, regionally aware innovation system.

The events and workshops laid the groundwork for a longer-term transformation in how Lithuania and its Baltic neighbours can innovate, communicate, and grow the blue bioeconomy together.

Estonia

A series of co-creation workshops focused on and around the Saaremaa region resulted in several concrete outcomes and strategic directions aimed at advancing the blue bioeconomy sector in the region:

1. Challenge-Solution Pairing

Each identified challenge was matched with potential solutions during group discussions. Proposed actions included:

- Strengthening cooperation between scientific research and business.
- Organizing product development competitions and hackathons.
- Proposing the creation of a dedicated "Marine Ministry."
- Launching pilot projects to test new approaches and innovations.

2. Identified Opportunities

The workshops highlighted several promising opportunities:

- Reducing water eutrophication and improving overall environmental quality.
- Stimulating employment and regional development, particularly in non-urban areas.
- Attracting investment to coastal and rural regions.
- Promoting environmentally controlled and sustainable economic activities.
- Increasing the availability of healthy, locally produced food in line with EU sustainability goals.

3. Sector Potential

Participants emphasized the sector's untapped potential, characterized by:

- Low competition and significant room for market development.
- Opportunities for innovation in value-added marine products.
- Economic and public health benefits.
- Potential to influence public policy through awareness-raising and science-based assessments.

4. Next Steps and Strategic Follow-up

- Workshop outcomes presented to ministry representatives in June 2024.
- Initiate the process to resolve bureaucratic obstacles related to nutrient load reduction in the open Baltic Sea.
- Continue efforts to simplify regulations for small-scale regenerative ocean farming.

5. Strengthened Collaboration

The workshops contributed to the establishment of a stronger and more connected collaborative network, which is essential for driving future development in the sector in the region of Saaremaa.

3.0 Summary of Results

Between 2023 and 2025, a coordinated series of co-creation workshops and transnational bootcamps were organised across the BBC project regions to tackle challenges and accelerate the development of the blue bioeconomy. They served as a dynamic arena for driving innovation, strengthening business development, and fostering collaboration.

These activities brought together a diverse range of stakeholder groups including researchers, startups, SMEs, policymakers, financiers and support actors demonstrating the value of interdisciplinary collaboration and stakeholder-driven approaches.

The workshops helped to identify common challenges, such as fragmented infrastructure, regulatory and data gaps, market and public awareness, and the need for greater national support for emerging sectors like blue biotechnology. By tailoring engagement to regional strengths, whether in marine research, cultural innovation or entrepreneurship, participants involved in the co-creation workshops were able to unlock new opportunities and co-develop practical, locally-based solutions that had regional connections.

A few concrete outcomes include:

- Sweden: The creation of new collaborative networks, for example the establishment of the Sweden Ocean Cluster to strengthen coordination among seafood actors on the west coast.
- Portugal: A Blue Vision with joint strategies for fish and macroalgae value chains, including the initiation of two regional projects in Peniche.
- Lithuania: Enhanced collaboration between scientists, artists, and society, and greater collaboration to build up the blue bio startup ecosystem.
- Scotland: Progress in defining standards and governance requirements for emerging ecosystem services markets, with a focus on fairness and benefit-sharing.

All partners and regions had increased cross-sector matchmaking and direct connections established between startups/SMEs and investors through targeted events (e.g. Bootcamps, the Nordic Seafood Summit), helping to identify business development support actors, experts and improve access to business support and financing.

In parallel, the bootcamps and workshops contributed to areas such as dialogue on policy and governance. A pathway towards greater European level engagement was outlined in Lithuania and Estonia, with initial steps taken to simplify regulatory frameworks for regenerative aquaculture and to address policy bottlenecks related to nutrient management in the Baltic Sea.

In terms of knowledge and R&D, collaboration with Icelandic partners shed light on innovation needs related to aquaculture sludge valorisation and marine monitoring, including the development of lightweight, autonomous sensors. A shared understanding of blue R&D priorities has also begun to emerge, particularly among smaller countries with limited research capacity, to support both innovation and policy coherence.

The structured, interactive nature of bootcamps enabled rapid capacity-building and early-stage business support, while co-creation workshops facilitated trust-building and collaboration across the blue bio value chains.

Together, these formats generated a range of synergy effects by widening networks and breaking down traditional silos. They helped identify shared challenges and opportunities that no single actor could tackle alone, fostering a broader systems understanding in the partner regions. By encouraging open dialogue and cross-sector perspectives, they enabled the emergence of more holistic, grounded, and innovative ideas and solutions that can be implemented on the local level.

Overall, these activities demonstrated that co-creation, when anchored in regional contexts and supported by cross-sectoral cooperation, can build trust, catalyse innovation and generate concrete pathways for sustainable development. The strong engagement and commitment to continued collaboration among participants confirmed the potential of this approach to strengthen the blue bioeconomy across Europe's coastal regions.

Annexes

- I. Blue Bio Bootcamps – Agendas
- II. Co-creation Workshop Results and Analysis – list of workshops (Excel)
- III. List of Stakeholder groups involved in Bootcamps and Co-creation Workshops

Annex I

Blue Bio Bootcamp #1, #2, #3* Agendas

(**Bootcamp #3* Agenda based on Belgian time zone – Portugal and France participation hybrid)



Welcome to the 1st Blue Bio Bootcamp

Wednesday 24th April 2024 | 10:00 - 17:00
H2O6 4 Durbes Street, Riga, LV-1048

Programme

WELCOME

09:30 - 10:00

Coffee and Tea: Doors are open, but the official program will not start until 10:00.

10:00 - 10:30

Opening activity

Introduction to the Bootcamp and to the Blue Bio Clusters project

SESSION #1 - Spotlight on Regional Challenges for Blue Bio Startups/SMEs

10:30 - 11:30

BBC project insights: Regional challenges and hinders for Startups and SMEs in Lithuania and Estonia

Regional Insights: Lithuania's startup ecosystem landscape: challenges & opportunities for Biotech startups/SMEs

Dr. Karolina Trakšelytė-Rupšienė, LT Innovation Agency

Startup Storytelling: Each participating startup describes their journey in 5 minutes

BREAK

11:30 - 11:45

SESSION #2 - Meet your Bootcamp Coaches over Lunch!

11:45 - 13:00

Participants are paired with a Bootcamp coach and prepare for a "lunch date". After this, enjoy some lunch and begin match-making support while enjoying their lunch (A light lunch is provided with drink, coffee/tea).

LUNCH BREAK



Programme

SESSION #3 - Business Development Tools for Startups & SMEs

13:00 - 14:00

Building cooperations and partnerships: tapping into EU networks for aquaculture

Maya Mittel, SEAMARK project, SUBMARINER Network for Blue Growth

Finding financial support: investment and risk capital in the Baltics

Jahid Sakhi, Fielder Capital (Riga)

BREAK

14:00 - 14:10

SESSION #4 - Communicating your Value Proposition

14:10 - 15:00

"The primary goal of a pitch deck isn't to close a deal. Rather, it's to convince someone, whether it's an investor or a client, to continue the conversation with you about your business."

Workshop - the power of a pitch deck: Create your own pitch deck with the support of your Bootcamp coach and other experts, and based on a template from a successful blue bio accelerator in the EU.

SESSION #5 - Feedback from peers & coaches

15:15 - 16:00

"Feedback is an integral part of the pitch development process. It provides a range of perspectives, insights, and critiques that can improve the clarity, flow, and efficacy of your deck"

Collecting Feedback: each startup will have the chance to present their pitch deck and receive valuable feedback and insights from the group to continue development of their pitch deck.

BREAK & MINGLE

16:00 - 16:30

FINAL WRAP-UP & NEXT STEPS

16:30 - 17:00

Reflections, take-aways and Mentor Match-making: Bootcamp participants will have a chance to discover BlueBioMatch, a platform dedicated to supporting match-making with mentors, and will be informed on the next steps and the Mentorship module.

CLOSING



Welcome to the 2nd Blue Bio Bootcamp

Wednesday 29th May 2024

Locations (Hybrid)

Alesund (Norway) | Reykjavik (Iceland) | Gothenburg (Sweden)

Start time

Alesund, Gothenburg: 11:00am-5pm CET

Reykjavik: 9am-3pm GMT

TRANSNATIONAL SESSION STARTS

Programme

SESSION #1 - Transnational / Online

11:00 - 11:30 CET

Topic: Perspectives on the blue bioeconomy startup challenges and the support landscape from 3 BBC partners

Speakers:

- Alexandra Leeper, Iceland Ocean Cluster (IC) – Head of Research and Innovation
- Sonja Andrén, Innovatum Science Park (SE) - Innovation Leader Blue Bioeconomy
- Wenche Uksnøy, ÅKP NCE Legasea (NO) – Cluster Leader

Topic: Regional startup-stories – challenges faced and overcome!

Speakers:

- Frode Blålid, NUAS Technology
- Ragnar Atli Tómasson, Nordic Wasabei

Startup exchange - break-out rooms

11:30 - 12:10 CET

Topic: What are the challenges you face in your startup/SME? Do you identify with the challenges of others in your sector area? What have you done to address these challenges?



- Blue Technology supplier
- Blue Biotechnology startup/scaleup
- Product development / making products from blue biomass (food, feed, materials)

Participants will be placed into break-out rooms for a transnational exchange based on the sector area they are working. Facilitators will be present in each breakout room to guide the exchange

Programme

SESSION #2 (in your region) – 1 to 1 Interviews with Bootcamp “coach/mentor” - meet-up – networking – lunch **12:15 - 14:30 CET**

Bootcamp participants are paired with a Bootcamp “coach/mentor” for a 1-to-1 discussion. Participants will be interviewed based on a BBC template to get a deeper understanding of the specific challenges they face and begin match-making support while having a snack/lunch.

You can choose to combine the session with a lunch/snack break and mingle or network among startups

SESSION #3 - Transnational / Online **14:30 - 15:30 CET**

Topic: Business development tools and tips for startups and scale-ups

Theme 1. Building a value chain and scaling your business or technology - what kind of challenges exist and what tools are useful in moving past them? Ex. Diversifying your product line, finding the right market niche and setting the right strategy.

Speakers:

- Vígfús Rúnarsson, Marketing Director - Primex (IS)
- Peter Tønning-Olsen, Business developer/ÅKP (NO)



Programme

Theme 2. Financing in the blue bioeconomy - what investors are looking for and how to avoid the most common mistakes a startup makes. Can EU projects provide a means of financial support to blue bioeconomy startups/SMEs?

Speakers:

- Debbie Lygonis, Investment Manager, Innovatum Science Park (SWE)
- Maya Mittel, Project Manager at Submariner – SEAMark (DE)

Theme 3. New blue business models emerging in the blue bioeconomy based on cooperation and partnership.

Speakers:

- Samuel Amant, Co-founder and CEO of KOASTAL (SE)

Q & A (10 minutes)

TRANSNATIONAL SESSION ENDS

SESSION #4 - Workshops (In your region, you choose! - (1 hour)

Example: Communicating your value proposition! - the power of a pitch deck

“The primary goal of a pitch deck isn’t to close a deal. Rather, it’s to convince someone, whether it’s an investor or a client, to continue the conversation with you about your business.”

This workshop session is focused on developing your pitch deck with the support of your Bootcamp coach and other experts.

Example: Financing your business! - choosing the right financial strategy

This workshop session is focused on providing insights and tips for you who are building a financial strategy for your startup and scaleup.

Programme

SESSION #5 (OPTIONAL) - Test your value proposition with peers (peer- to peer training)

"Feedback is an integral part of the pitch development process. It provides a range of perspectives, insights, and critiques that can improve the clarity, flow, and efficacy of your deck."

In this session each startup will have the chance to present their pitch deck and receive valuable feedback and insights from the group to continue development of their pitch deck.

Final wrap-up, next steps and mentorship (regional)

Reflection, take-aways and Mentor Matchmaking through BlueBioMatch (BBM).

Focus will be on Bootcamp participants getting familiar with the BBM platform for matchmaking with mentors and next steps in.

BOOTCAMP CLOSES

Welcome to the 3rd Blue Bio Bootcamp

Tuesday 2nd July 2024 | 09:45 - 17:00
Marifish.Inc, Kaai 800, Wandelaarkaai 7, 8400 Oostende

Programme

WELCOME

09:45 - 10:00

Coffee and Tea

10:00 - 10:30

Opening activity: Supporting Businesses to Develop Bio-Based Value Chains in Coastal Regions

Introduction to the Bootcamp and to the Blue Bio Clusters project
Jurgen Adriaen, Project Manager, Blauwe Cluster

SESSION #1 [ONLINE] - Spotlight on Regional Challenges for Blue Bio Startups/SMEs

10:30 - 11:30

BBC project insights: Regional challenges and hinders for Startups and SMEs in Portugal, France and Belgium

Jurgen Adriaen, Project Manager, Blauwe Cluster
Mariana Paupério, Senior Project Manager, BlueBio Alliance
Juliana Carvajal, Pôle Mer Bretagne Atlantique, Head of the European Affairs

Opportunities for Business Development: Investment trends in the Blue Bioeconomy & International incubator for Blue Bioeconomy business models

Dr. Alexandra Leeper, Chief Executive Officer, Iceland Ocean Cluster
Evy De Bruyker, Community Manager Marifish.Inc

SESSION #2 [BREAK OUT ROOMS] - Startup Exchange

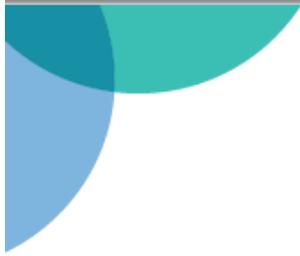
11:30 - 12:00

Participants are paired across regions for a transnational exchange based on the sector area they are working in. The following questions will be discussed:

What are the challenges you face in your startup/SME? Do you identify with the challenges of others in your sector area? What have you done to address the following challenges?

- Blue Technology supplier
- Blue Biotechnology startup/scaleup
- Product development: making products from blue biomass (food, feed, materials)

Facilitators will be present in each room to guide the exchange.



Programme

11:45 - 12:00

Funding Opportunities: Private investors (venture capital, business angels) & Public funding at European level

Adam de Sola Pool, Private Investor

12:00 - 12:15

Wrap-up Transnational Exchange

LUNCH BREAK

12:00 - 13:00

SESSION #3 - Workshop presentation on Pitching and Investment

13:00 - 14:00

Workshop - the power of a pitch deck: Elevate your pitch deck with the support of Marifish.inc, and learn all there is to know about investments from Lita.co.

SESSION #4 - 1:1 Mentoring

14:00 - 15:00

Get answers and support by Lita.co and Marifish.inc.

SESSION #5 - Visit Marifish.inc facilities

15:00 - 15:30

SESSION #6 [ONLINE] - Business Pitches

15:30 - 16:30

Startups from each region will get the chance to present their 3-minute pitch, and receive a quick 2-minute feedback from experts.

FINAL Q&A AND NEXT STEPS

16:30 - 17:00

Bootcamp participants will get the chance to ask questions and will be informed on the next steps and the Mentorship module.

CLOSING DRINKS

Annex II.

Co-creation Workshop Results and Analysis – list of workshops (Excel)



WP 5 - Blue Bio Start-up and SME Support

5.6.1 CoCreation Workshops - RESULTS



Workshop #	Region	Organisers	Subsector	Challenge or Theme identified	Business Development Needs addressed	Stakeholders impacted by the challenge/theme	Experts participating with knowledge of challenge/ theme area	Workshop Date	Location	Co-creation Methodology or tools used	Description of results: ex. collaborations, match-making, joint solutions	Reflections/ Observations from the workshop (evaluation)	Notes
Pilot	Arlund + Sweden	Innovation & Incubated Ocean Cluster	Fisheries	Increasing participation and utilization of Side-streams from aquatic biomass processing	Technology needs, new business models, research expertise	Researchers, Primary producers SWE (mainly fish), DOC (water for ocean+RAS, mussel, macroalgae)	INNO: RISE, Innovation, SVDC, Vessels, Aquatic Signatures, Heliport, DOC, Water for Ocean+RAS, Startups, Investors	26.05.2023	KOC Iceland	Identification and SWOT	Identify for solutions along the value chain followed by SWOT analysis of possible methods for increasing utilization and matching into potential contacts for future collaborations.	Participants were active in the discussion and the transfer of knowledge for the 100% fish concentration energy valuable for the Swedish participants.	
1	Mission Areas - Nordic & BOREAS	AU BIC partners	Blue Bio value chains	Finding the opportunities for developing blue bio value chains through transnational examples	Understanding the value chain for different biomasses	Primary producers, coastal communities, food producers	Mission Areas - Transnational exchange	25.11.2023	Göteborg, Sweden	Value Chain Visual Facilitation Tool	Each group had the chance to test the tool as part of a transnational exchange based on the 6 different biomass boards. The discussion brought insights into the challenges and opportunities of each participating country and from a range of perspectives - policy, industry, academia, and NGOs. Contacts were made between group participants and ideas shared for possible collaborations.	The tool provided a structured way of discussing blue bio value chains from various country and participant perspectives. It guided the discussion well and proved to be a support in developing collaborations.	
2	Belgium	DBC	Offshore marine activities	How can we increase Ecosystem services awareness and stimulate Ecosystem approach	Valorization of ecosystem services and management of fin economic activities	Researchers, fisheries, mussel producers, offshore windenergy	IMDC, ANCADIS, KRS, Hordex, Bova Enviro, RBC, Moritz consulting, University Ghent, Ghent University, Ghent University, VUZ	01.02.2024	Ottend, Belgium	Presentations and interactive panel-discussion	*Biorbio can play a positive role for other offshore activities if they are implemented in a multiscale format and the Ecosystem approach rewards this *new workshop on how to take the steps on European level	Biorbio in Belgium offshore is too small so for this workshop we had to reach out to other offshore activities (coastal protection, Offshore renewable energy...) to create enough debate and support base for the set up of Ecosystem approach in Belgium.	see resume
3	Belgium	DBC	Blue bio value chain	Can we provide Blue bio raw materials for different biomass industries?	Biomass needs, identification of compounds, start up support	Aquaculture, Fisheries, Textile, Chemistry, Pharmacy, Agriculture	Centexiel, MEDIVA, Cabistat, Borebonad, Florides Circular, Innovatum, KTN, Authorities	29.02.2024	Ottend, Belgium	Presentations and interactive panel-discussion	*More support for research on Blue Bio compound and valorization in different sectors (prooving the real benefits/biom of blue bio compounds) *Possible interactions between companies (producing and cosmetic industry)	*Interactive day with a lot of pitches, but it did show the breadth spectrum of water organism to be used in different application needed for the transition *Missing the direct investors view (cancelled their presence) and others were not interested, maybe indicating Flemish Biorbio is not (yet) on the investment list.	see resume
4	Sweden	INNO	Blue bio value chain	How can we increase consumption of seafood in Sweden - a co-creation workshop together with Blue Food Center for future seafood	Market demand, consumer behaviours, communication	Producers of seafood, schools, Food production, certification organisations, researchers	Göteborg University, Marine Stewardship Council, RSE, Mussefäbriken AB, Promop AB, Innovatum, KTN, Authorities	16.04.2024	Göteborg, Sweden	Coating in test and building narratives for the future within the seafood value chain	Seafood preferences are influenced by neophobia, the fear of trying something new. One researcher presented her findings and highlights how the seafood sector needs to be more open to new products and ingredients. For example, research evidence did show how certain seafood ingredients could be integrated into food products that are not associated with seafood such as "burgers" or "balls" or "meat" as a way of reducing neophobia. There is a challenge with breaking consumers "associations" to seafood as ex. "meats jelly" or "tastes fishy". A new narrative needs to be found. Crossing over between sector actors provided a good indication of what narrative exists at each point in the value chain and how these could be developed and combined to increase the consumption of seafood.	A good first step in getting all actors to understand the values of seafood and the possibilities and the hurdles that we are facing. The workshop was very productive and we can build on this. We need to focus on better utilize public sector procurement for schools integrate new seafood products in school lunch programs, and the importance of municipalities to include other aspects into the procurement process that are not short-term economical. However, we were missing municipal representatives and marketing experts in the discussion.	see resume
5	Norway	IMP, NCE Blue Ecosystems	Blue Bio Value Chains - Fisheries	Professional program over several gatherings with a focus on value chain, processing, technology and market requirements. The Vessel to Market programme has been carried out previously with great success. The gathering was held 14 - 15.02.2024. As part of the program, an Ideas Lab was conducted on day 2. The goal of the Ideas Lab was to explore together what new business opportunities may lie in the value chain.	Business opportunities	Fishermen, fishing vessel owners, fish processors, market	Senior AUP personnel, Consultants	15.02.2024	Alesund, Norway	Presentations and min-workshop	Most of the learning points were within the categories Market (value and alternative utilization of residual raw materials, insight into customer demand in the market) and Cooperation (profitable and useful to the entire value chain). Across the categories, the utilization of raw materials was dominant, with the aim of higher quality, efficient production, lower costs, and meeting market demand.	Knowledge of the value chain is important to meet customer expectations, as well as to continue to operate profitably and sustainably. The marine value chain describes how the flow of raw products and services are created, from raw materials to customer delivery. Experience sharing and communication across the value chain are central to understanding and improving the entire flow. If we share more, everyone can benefit. Today, far too much money is spent, in sea because we do not make maximum use of marine raw materials. The aim of the From Vessel to Market programme is to give the catch chain insight into what is happening in the value chain on land. All links in the value chain have the greatest insight into their own link, and the programme has the potential to identify new opportunities - for, and benefit from, the entire value chain. The value chain is mutually dependent on each other, but the entire collaboration and communication do not currently involve crew on board.	



13	Estonia	Urtaru	Blue bio value chain (muscle, seaweed)	Discussions on regenerative ocean farming focused on current challenges and opportunities with local blue bio business representatives.	Identified obstacles include low awareness of aquaculture in both the public sector and society, a lack of government recognition of the sector's viability, and outdated legislation. Permit processes are slow and uncertain, while support for the sector are lacking. Water quality issues and low salinity limits species cultivation. Aquaculture remains a niche sector, and societal consumption habits differ.	Blue bioeconomy business representatives	Urtaru, local blue bio businesses	20.05.2024	Kõivaste, Saaremaa, Estonia	Discussion, scoring results for muscle, seaweed (for muskellunge) forming (individual work + group discussion).	Identified opportunities include reducing water eutrophication and improving environmental quality, enhancing employment and regional development, attracting investments outside urban centers, and promoting new, environmentally controlled economic activities. These align with EU goals and can make healthy local food more accessible. The sector offers economic and public health benefits, with potential for focused driver efforts and science-based incentives to justify government support. It is time to focus on market development and innovation in value-added products. Next steps include presenting the outcomes of this meeting to ministry representatives in June 2024 for further discussion. Additionally, resolving the bureaucratic deadlock related to nutrient load reduction in the open Baltic Sea is critical, and the process for changes needs to be initiated as soon as possible.	Organized together with Coastal Blue and AlgaPharmas projects. 17 participants.
14	Estonia	Urtaru	Blue bio value chain (muscle, seaweed)	Discussions on regenerative ocean farming focused on current challenges and opportunities with governmental representatives.	The needs of businesses in regenerative ocean farming were communicated.	blue bioeconomy business representatives (policymakers)	policy makers (government)	19.06.2024	Tallinn, Estonia	Urtaru presenting results of business meeting with governmental representatives on 20.05.2024. Discussion.	Contact has been established with the goal of simplifying regulations for small-scale regenerative ocean farming.	Well received, attended by Ministry of Climate, Ministry of Regional Affairs and Agriculture, and Environmental Board, 7 participants. Organized together with Coastal Blue and AlgaPharmas projects.
15	Estonia	Urtaru	Blue bio value chains	Local blue bio value chain supporting the development	Invited expert to talk about different financing opportunities. Agree on blue vision. Give input to business development strategy.	blue bio businesses	Saaremaa municipality, local blue bio businesses	06.07.2023	Kõivaste, Saaremaa, Estonia	Urtaru presenting results; Environmental Investment Board introducing financing opportunities for blue bio; discussion. Agreeing on blue vision (creating the joint vision).	Stronger collaborative network.	17 participants. Organized together with BlueBio.
16	Lithuania	ICI	Blue Bio value chains	Lithuanian startups Ecosystem landscape: challenges & leaders for Blue Bio startups/SMEs	Strengthened connections between actors within national innovation ecosystem	Academia (researchers), startups, Innovation support agency	BBC Partners from EU and ISA	20.06.2024	Klaipėda, Lithuania	Presentations, discussion	PPF Presentation	
17	Lithuania	ICI	Blue Bio value chains	Science communication	Effective knowledge transfer to the society using various forms of art	Academia (researchers) and professional artists	BBC Partners from EU and ISA	03.09.2024	Klaipėda, Lithuania	Discussion	PPF Presentation	
18	Lithuania	ICI	Blue Bio value chains	Marine and coastal research	Science to business to governance communication	Academia (professors and students), government institutions	Academia and business	16.05.2024	Drevenai, Lithuania	Presentations, discussions	PPF Presentation	
17	Iceland	ICC	Blue Bio Value Chains	Value creation from aquaculture sludge (Stage 1)	A business case that makes economic sense for the aquaculture sector. Finding use case for the sludge that can create value for Icelandic bioeconomy	Industry (landbased and sea aquaculture), energy institutes, research and innovation, farmers and SMEs (crop solutions), environmental authority, agriculture industry stakeholder, municipality.	All stakeholders listed were represented (except for the strong presence of landbased aquaculture, and research/innovation).	08.06.2023	Iceland Ocean Cluster, Iceland	Expert presentations for context and challenging issues identified by IMOT of potential solutions in breakout groups and then summary of key points.	Strong cross-sector collaboration, clearer understanding of the barriers to solution uptake and the need for regulatory changes, shared understanding of requirements for the implementation of this workshop. We also brought in national and EU level. To maximize the impact of this workshop we also brought in Icelandic team of Matis from the EU Project Acqui Water that is looking at the LCA of sludge and water from aquaculture.	Aquaculture companies need a strong business proposition to uptake technology to treat the sludge - otherwise decisions are made based on what is easiest and cheapest, not on what is most environmentally sustainable. This workshop led to a new project application led by Iceland Ocean Cluster (national funding body bringing together research, industry, and the blue biomass to work on product development and innovating from this sector) and led for a follow up co-organizing from this project to BBC partners to address the business case for sludge secondary products to address the major outcome of this first workshop.
18	Iceland	ICC	Blue Bio Value Chains	Value creation from aquaculture sludge (Stage 2)	A sludge product that is of interest to the Icelandic food producer and horticulture market and makes economic sense for the landbased aquaculture sector	Landbased aquaculture, horticulture, agriculture, forestry and landmanagement, research, innovation and technology providers (drying and downstream processing).	Leads of this workshop are Icelandic Ocean Cluster (innovation), Matis (Research) and Geo Sino (innovation) from jointly represented stakeholders from both aquaculture and horticulture particularly represented.	06.03.2025	Iceland Ocean Cluster, Iceland	Discussions in breakout rooms	Participants discussed the specific challenges they face in their respective areas. These conversations included both pain points and possible solutions, some of which were recognized and shared across sectors. This created a sense of mutual understanding and opened up the possibility of sharing technologies.	During the breakout session, which brought together stakeholders from both aquaculture and horticulture sectors, a number of insightful conversations took place. Participants were encouraged to reflect on and respond to differing perspectives, fostering constructive dialogue. A shared concern that emerged across stakeholder groups was the fragmented state of infrastructure. This issue was identified as a major barrier to the effective utilization of sludge, contributing to both inefficiencies and increased costs.



19	Iceland	IOC	Blue bio value chains	Data collection and knowledge gaps in the oceans around Iceland	More data measuring and types to empower blue economy development around Iceland	Technology providers (esp. sensors, big data, software), research institutes, startups with interests in the ocean space.	Policy/academic experts and Overseas speakers: Oceanic Ocean Robotics (Oceanic sensor technology), Blue (biological marine research endeavor), Transition Labs (Large scale lab for future solutions Iceland, and Iceland Ocean Cluster - support across all stakeholders) (large)	21.08.2024	Iceland Ocean Cluster, Iceland	Round and open discussion	Highlight of the challenge and opportunities for gathering better and more extensive data on the ocean space both around Iceland and internationally - the importance of such information for existing Icelandic blue bioeconomy and especially for emerging blue bioeconomy of seaweed farming - which has been held back from legal framework technologies that are autonomous, lighter weight and smaller with smaller sensor can help and even opportunity to test new sensors to gather more data.	There are some major timeseries data gaps for some of the ocean space around Iceland, and more data is needed to support the development of new bioeconomy sectors and to best inform marine policy and environmental protection for the future.
20	Iceland	IOC	Blue bio value chains (research needs)	Iceland is small and funding is limited. Best to highlight blue bioeconomy that are most profitable to do well and at scale	Research need to inform business - where should blue research and development focus in Iceland.	Research and innovation primarily with startups in industry	Innovation companies, university and research organisations.	24.01.2025	Iceland Ocean Cluster, Iceland	Facilitated workshop	This co-creation activity was added follow our most recent COP in Nov 2024 that highlighted opportunity to collaboratively determine blue research and development priorities and enhance collaboration and will be woven in to a blue vision workshop to explore what the future of blue economy could look like for Iceland	The Blue Vision Workshop highlighted Iceland's strong position to learn from other blue bioeconomy sectors, ecosystem, infrastructure, and research capabilities. Participants expressed enthusiasm for increased collaboration, but also noted persistent challenges, including fragmented efforts, limited funding, and low public awareness. The workshop concluded with a call to action and concrete policy support emerged as critical themes for accelerating progress.
21	Scotland	SAMS	Blue bio value chain (ecosystem services)	Ecosystem services of low trophic aquaculture	What values do citizens place on marine space and seaweed farms in terms of ecosystem services?	Aquaculture, policy and marine management, local communities	Local community members	01.11.2024	Lochgilhead, Scotland	Discussion guided by prompts on cards	Many people unaware of nearby seaweed farming. Majorly liked the idea, although confusion over wild harvest and farming seaweed, as well as growing it for restoration of seaweed farms, exact locations, and distribution of profits as well as job creation - public wants the benefits to come to the local community.	Many members of the public had concerns that stem from their previous bad experiences with either English aquaculture or offshore wind. They seem cautious toward marine space, but many expressed that growing seaweed is preferable to other more damaging alternatives, and they hope it will replace those, not come in on top of those.
22	Scotland	SAMS	Blue bio value chain (ecosystem services)	Ecosystem services of low trophic aquaculture	What values do citizens place on marine space and seaweed farms in terms of ecosystem services?	Aquaculture, policy and marine management, low, finance, local communities	Local community members, local authority representative	09.11.2024	Lochgilhead, Scotland	Discussion guided by prompts on cards	see above	see above
23	Scotland	SAMS	Blue bio value chains (ecosystem services of low trophic aquaculture)	Envisioning and mapping present and future value chains for the industry in and beyond Scotland	To bring marine by-products ashore, fishing vessels must prioritize freezer capacity on board. This may require investment in new equipment such as onboard freezing, or new production equipment such as fishmeal and oil factories. It requires changes in crew arrangements.	Regional decision makers, vessel owners, processing facilities	Several industry representatives, farmers, researchers, regulators		SBA, Oban, Scotland	Discussion guided by prompts	Producers don't really use the ecosystem service terminology or approach in their practice - stakeholders do the conversation for the public sector, let alone the cultural ones. Few even mention biodiversity changes on their seaweed farms.	The ecosystem service approach and its valuation has been touted as a way to get investment flowing into seaweed farming and other low trophic aquaculture, but we see no instances of it on the ground.
24	Norway	ADP, ACE Blue Clusters	Blue bio value chains (value chains)	Identify and create better understanding of marine by-products related to Gjørdal Harbor.	Challenges there should be a landing marine by-products as parts and freezers. Processing marine by-products requires (new) physical processes and (new) technology. This can create jobs for many and generate local value.	Regional decision makers, vessel owners, processing facilities	Local community members, local authority representative, private fishing vessel companies	15.04.2024	Giske municipality	Presentations, discussions	Findings related to the activity at Gjørdal Harbor: The ocean-going fleet mostly have sufficient freezing capacity on board to transport marine by-products to land. Among the fishing companies surveyed, there is one vessel that has on-board and takes care of all marine by-products. Blue fish heads, eighth heads, liver, and one are largely preserved by all vessels. The remaining marine by-products, such as guts and unwanted heads, are ground and pumped overboard at sea. There is a lack of landing logistics for marine by-products. The price of marine by-products is too low to justify investments in equipment on board, to use the freezing capacity to bring it ashore, and to mobilize crew in the factory. Knowledge about markets for marine by-products is limited. There are increasing interests to learn more about new species. There are willingness and interest in bringing marine by-products ashore.	Several companies succeeded in making contacts with their previous bad experiences with either English aquaculture or offshore wind. They seem cautious toward marine space, but many expressed that growing seaweed is preferable to other more damaging alternatives, and they hope it will replace those, not come in on top of those.
25	Sweden	Innovatum	Blue Bio Value Chain - Seafood value chain	Financing and investment to blue startups and SMEs	Access to financing and investment is a challenge for startups and SMEs looking to grow and scale their operations. There are some financing options available, but they are not communicated well and it's not clear how they can best be used to meet the needs of the company.	Startups and SMEs in the seafood value chain.	Investors, Financers, Authorities, Credit/Low companies, Business support actors, Regional County representatives	24.01.2025	Gothenburg, Sweden	Round and open discussion with match-making	The co-creation activity was part of a larger event Nordic Seafood Summit where all of the coastal and inland regions in the north were showcased during 2 days. The side event we created was a chance to invite startups and SMEs looking for financing to come a listen to a panel of experts in financing solutions and gain a better understanding of which financial tools are available, which ones are missing or need to be further developed and in relation to different phases of development and growth in a business. The financiers were also part of a discussion regarding some of the findings from the event. The first part of the session was to find match-making between companies and financiers.	Several companies succeeded in making contacts with their previous bad experiences with either English aquaculture or offshore wind. They seem cautious toward marine space, but many expressed that growing seaweed is preferable to other more damaging alternatives, and they hope it will replace those, not come in on top of those.



46	France	PMBA	Blue value chains (Aquaculture)	Potential of the aquaculture in the region and challenges identified	Identified challenges for the sustainable development in the region, different aspects were approached, technology, environmental, economic and social	Startups and SMEs, business support companies and regional organisations	MBA, entrepreneurs and regional fisheries and shellfish council	20.02.2024	Lorient, France	Use of the BBC value chain tool, to define the value chains, presentations, discussions	Networking between the companies and support organisation such as, central hubs connecting academic, scientific, economic, and institutional stakeholders on marine sciences and technologies (Campus Mondial de la Mer, Blue Valley) and research centers (Station Biologique de Roscoff, University of Western Brittany). We all agreed on the relevance of a sustainability and Circular Economy for the sector. -Circular economy, -Sustainable marine materials. Tech for seaweed-based films and bioplastics. -Carbon capture and ecosystem services modeling. Highlighting algae's role in carbon sequestration.	The aquaculture is a key pillar of the regional blue economy—facing several technological, environmental, and socio-economic challenges, despite its strategic importance and development potential. Brittany is a European leader in aquaculture (seaweed) cultivation. -Offshore and coastal seaweed farms with improved anchor/mooring technology. -Photobioreactors optimized for microalgae species like Tetraselmis and Isochrysis. -Breeding and domestication of native algae species for higher yield, disease resistance, and bioactive compound content. -Smart harvesting equipments for wild seaweed beds with minimal ecosystem disturbance. -Drying, stabilization, and preservation technologies to maintain bioactivity post-harvest.	
27	France	PMBA	Blue value chains (Blue bioresources & health)	Blue bioresources can fuel innovations in pharmaceuticals, nutraceuticals, cosmetics, and functional foods	Definition of the market segment and cosmetics, its potential for the blue economy. How can we produce a blue bioresource that is compatible with the health and well-being market?	Mostly companies (SMEs, startups, larger corporations), as well as, research center, business support organisations	Legal and regulatory experts, investors, FREMER, CEVA, pilots of innovative companies in the field	30.11.2023	Montes, France	Round tables, presentations and discussions	Networking (Round meetings), identification of potential collaboration between research centers and companies, as well as, investors and companies. CEVA (Centre d'Etude et de Valorisation des Algues) and Blue Valley initiatives are key innovation enablers. -Identification of potential collaborations between research centers and companies. -Development of marine compounds into market-ready health products. Tech transfer support from Pôle Mer Bretagne Atlantique and Bioréact Santé Bretagne ensures pipeline continuity from lab to clinic	The potential of blue bioresources for health is multifaceted and high-impact, especially in: -Preventive health (e.g., antioxidants, omega-3) -Therapeutic health (e.g., anti-inflammatory, anti-tumor, and antiviral properties) -Cosmeceuticals (e.g., anti-aging, UV protection) -Biomedicals (e.g., collagen, chitosan) -Macrolides (Sweetened): Bioactive compounds: fucoidans, laminarins, oligosaccharides (from brown algae) have anti-inflammatory, anti-tumor, and antiviral properties. Polyphenols (e.g., phlorotannins) show antioxidant and neuroprotective effects. -Algal pigments: Carotenoids (astaxanthin, fucoxanthin), omega-3 fatty acids (EPA/DHA), and vitamins. -Mycoprotein-like amino acids (MAAs): UV-protective and antioxidant agents. -Other bioresources: Marine collagen and gelatin, anti-bacterial compounds, as Chitosan and chitin, Cytochrome and anticancer molecule from marine fungi and endophytes	
28	France	PMBA	Co-products valorisation in blue value chains	Sustainable use of by-products from marine and aquatic biomass	Policy push towards bioeconomy and circular economy focus: -Circular economy models: valorisation, incentives for circular economy models. -Opportunity: Investigating gaps between science, innovation, and policy uptake in our coastal regions.	Industries on blue bioresources (SMEs, startups, public institutions, public markets and clusters)	Scientific experts, industrial actors, Clusters blue bioresources, Regulatory constraints	13.11.2024	Concarneau, France	Round tables and discussions in small groups	The co-reaction activity was part of a larger event Forum blue cluster where all of the operators with different profiles shared their experience and perspectives on the subject of valorisation of by-products from marine and aquaculture. -Conversion of Marine Co-products. Circular Economy in Aquaculture. Novel Marine Biomaterials and Policy and Market Integration of Marine Co-product Valorisation.	Aquaculture in Brittany produces significant organic waste, such as uneaten feed, fish mortalities, and sludge. Valorising these by-products is crucial for reducing environmental impact. There is a key to define the valorisation pathways, such as, produce biogas or biofertilisers, use aquaculture by-products to produce insect meal for feed, also organic fertilisers or soil conditioners. Some potential new value chains have been identified, marine biomass residues—the fish skins, shells, and digestive organs are used to produce collagen, chitosan, and hyaluronic. Chitosan (from crustacean shells) for bioplastics and biomedical uses; collagen and gelatin from fish skins/bones for biomedical scaffolds and food packaging and algae cellulose and polysaccharides (e.g., alginate, carrageenan) for biocompatible films. The next steps, even with technological advances, the integration of marine co-product valorisation into the market remains a challenge. -Governmental policy, lack of infrastructure, and low market awareness.	
29	France	PMBA	Fisheries	Brittany is one of France's most important maritime regions, accounting for a significant share of the national fisheries and aquaculture production. However, there are some challenges on economic viability and profitability and labour shortages and demographic pressures	Identification of Challenges and development impact on the sector due to the low market prices for local products. -Increase of operating costs and lack of blue skills (reduction in people working in the sector).	Fishermen, fish processors and regional public organisations	Regional Committee for Maritime Fisheries and Marine Aquaculture in Brittany, Joint Syndicate for the Development of Aquaculture and Fishing in Brittany de la Mer	20.08.2024	Lorient, France	Open discussions with a panel of regional stakeholders on the topic	The discussion allowed the definition of 2 major challenges in the development of the sector. Actors shared their own experiences and expertise to try to set joint solutions to tackle the challenges in the future and be able to share the conclusions for policies recommendations and public regional organisations to boost the regional economic development.	Fisheries sector is key in the development of the region, however, some key challenges have been identified. On the economic viability and profitability, for example with the fuel costs account for up to 30% of operational expenses for some vessels. -Governmental policy, lack of infrastructure, and low market awareness. (e.g., war in Ukraine that have spiked energy prices, leading to decreased fishing days or temporary fleet tie-ups. The price instability and global competition. The Brittany fishing fleet, especially its small-scale coastal segment, is facing a critical workforce crisis. Fishing is no longer seen as an attractive or viable profession for young people, and many veteran fishers are reaching retirement without successors.	
30	France	PMBA	Local fisheries	The current roadmap for local fisheries is not well structured and has not followed the Global market evolution	Restructuring the roadmap for local fisheries by the definition of business models and external/internal aspects that should be considered	Local fishermen, public regional economic development agencies	Techoparc Quimper-Cornouaille, Pôle Mer Bretagne Atlantique	28.01.2023	Quimper, France	Open discussions with a panel of regional stakeholders on the topic	Definition of the local fisheries roadmap for the Saint-Guennolé part that should be involved in the restructuring of the local roadmap. Some first potential solutions started to be drafted for the local authorities.		



31 France	PAIS	Blue value chain (microalgae)	Microalgae's potential as highly biodiverse resource and target markets	Isolation of blue bioresources potential and fit with the more relevant target market	Microalgae producers, researchers and regional authorities	Alpicat, Université catholique de Fougères, GEPA, ISOMER, Fermeur, Thalassomics, US2R, External resources that have contributed to the project: Agence Nationale de la Pêche, Comité Français de Aquaculture & EMALGUE Working Group, Algatune, Algo raven, Solutions4 Co, Haldenaparc.	21.10.2024	Saint Nazaire, France	Use of the BIC value chain facilitation tool, to define the market segments and markets	Definition of potential uses: extraction of high-value molecules, Omega 3 fatty acids, pigments (e.g., astaxanthin, phycoerythrin), antioxidants, polysaccharides, and proteins; use of wastewater as CO ₂ emissions as nutrient source for microalgae cultivation (carbon capture, nitrogen/phosphorus recovery); production of biofertilizers, biochar, and other products; development of circular economy models (e.g., waste-to-value, water recycling); integration with existing industrial processes (e.g., wine, beer, food processing); identification of market segments and target markets; development of business models and revenue streams; identification of key stakeholders and partners; development of a communication and marketing strategy; identification of funding opportunities, especially under the framework of ecological transition. Energy and materials applications, though less mature, are being supported through strategic innovation programs. The project aims to create a circular economy model and regional ecosystem that integrate microalgae production with other sectors and contribute to the overall economic and social development of microalgae in these regions in France.	Definition of potential uses: extraction of high-value molecules, Omega 3 fatty acids, pigments (e.g., astaxanthin, phycoerythrin), antioxidants, polysaccharides, and proteins; use of wastewater as CO ₂ emissions as nutrient source for microalgae cultivation (carbon capture, nitrogen/phosphorus recovery); production of biofertilizers, biochar, and other products; development of circular economy models (e.g., waste-to-value, water recycling); integration with existing industrial processes (e.g., wine, beer, food processing); identification of market segments and target markets; development of business models and revenue streams; identification of key stakeholders and partners; development of a communication and marketing strategy; identification of funding opportunities, especially under the framework of ecological transition. Energy and materials applications, though less mature, are being supported through strategic innovation programs. The project aims to create a circular economy model and regional ecosystem that integrate microalgae production with other sectors and contribute to the overall economic and social development of microalgae in these regions in France.
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