

THE SUBMARINER NETWORK:
A FACILITATOR FOR
SUSTAINABLE & INNOVATIVE
BLUE GROWTH COOPERATION
IN / FOR THE BALTIC SEA REGION

FARNET Baltic Conference



Angela Schultz-Zehden
Managing Director

SUB MARINER

Since its founding in 2014, the SUBMARINER Network family has been continuously growing. It currently has 24 network members, representing all Baltic Sea Region countries. The network includes both public and private sector organisations, and reaches out to many more actors both within and beyond our project partnerships.

ROADMAP 2013



THE IDEA 2010

The project SUBMARINER (2010–2013) assessed, for the first time, the potential for innovative and sustainable uses of Baltic marine resources. It developed the idea for the network.

COMPENDIUM 2012



NETWORK 2014

Foundation of the SUBMARINER Network for Blue Growth EEIG

2017 SUBNET CONFERENCE DECLARATION

The 2nd SUBMARINER Conference 'Better off Blue', hosted in Berlin on 27th-28th September 2017, marks another milestone.



2016 ROADMAP STATUS REPORT

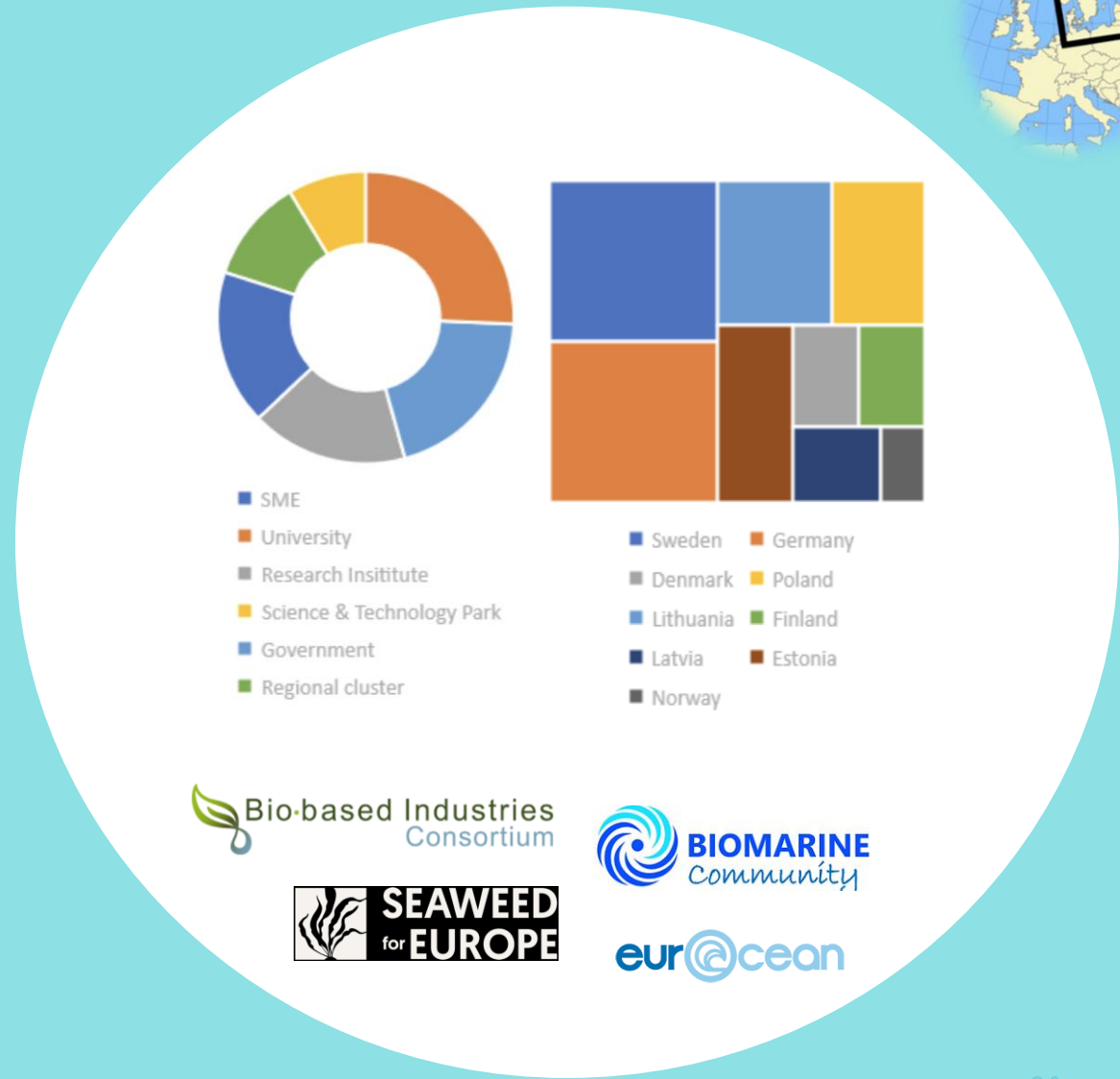


The Baltic Sea Region – a biobased innovation showcase

SUBMARINER NETWORK MEMBERS



Innovation, Bioeconomy,
Spatial Planning, Nutri, Tourism,
Culture, Energy, Ship



Macroalgae
harvesting and
cultivation



Mussel
Cultivation



Reed / Beach
Cast



Marine Cultural
Heritage



Blue Bio-
technology



Marine
Litter



Sustainable Fish
Aquaculture



Combinations
with Offshore
Wind Parks



Strategic Action Fields

Actors &
Match-Making



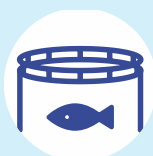
Data &
Tools



Sub-regional
activities



Access to
Pilot sites
& facilities



Training &
Capacity Raising



Technology
Development
& Transfer



Finance &
Funding



Regulation &
Licensing



Awareness
& Marketing



Vision 2030



A smart Baltic
Sea Region –
making use of
blue-green
combined
solutions



Maintaining
the Baltic
Sea Region's
natural
capital



Marine
resources as
part of
the BSR
sustainable
energy and
biomass
portfolio

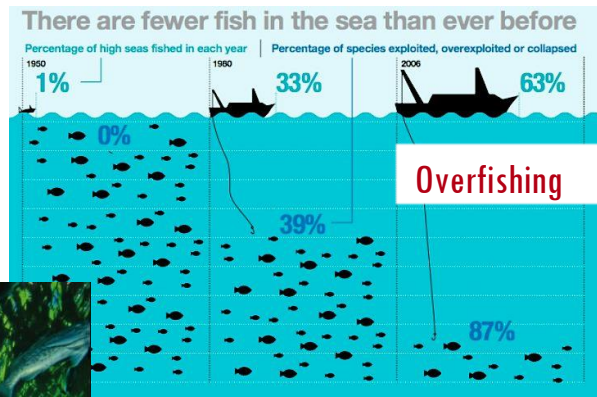


Improve
human well-
being via
new marine
products



The Baltic Sea
Region – a
biobased
innovation
showcase

Our ambitions



A PERSONAL NETWORK FULL OF TRUST (AND FUN)



Bottom up with dedicated secretariat

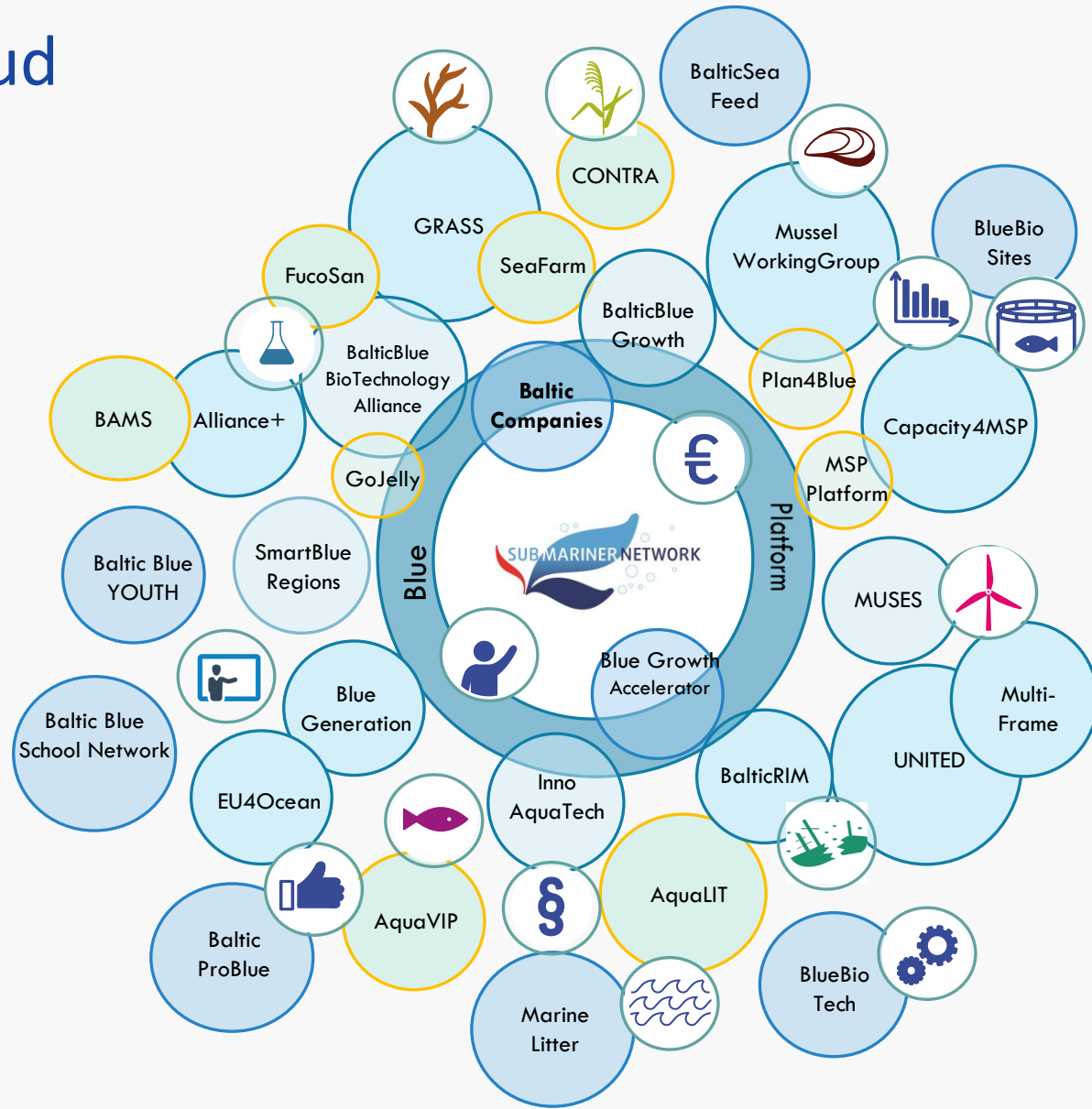
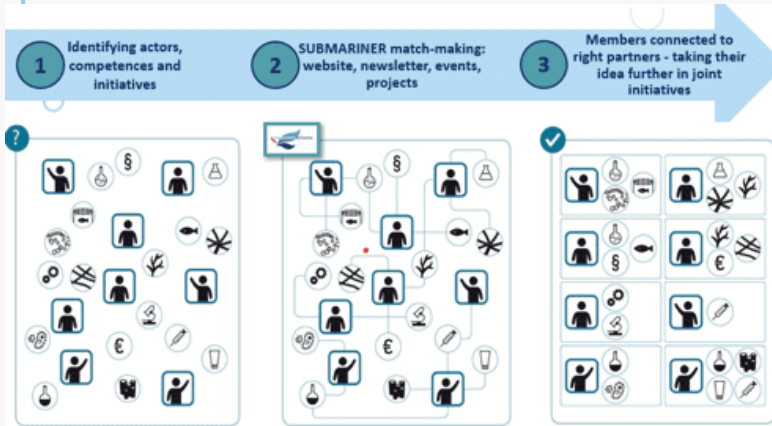
Side by side with research & policy initiatives

Blue & diverse – regional & global – mutual interest

Regular pitching & matchmaking events

Workshops & project development / implementation

SUBMARINER Project Cloud



€ 300.000 membership fees
 20 transnational projects
 € 41 million total
 € 30 million Baltic
 150 partners

Supported by Secretariat ...

Services to Members:

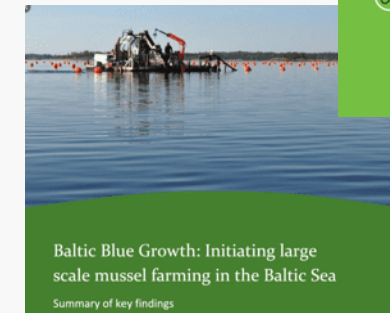
- Promotion of members' competences
- Funding Opportunities; Match-Making
- Network meetings; Project Development
- Access to searchable stakeholder database

Communication/Dissemination:

- Blue Platform Repository
- Social Media – Conferences
- Position & policy papers
- 3000 Actors mapped

Expert Advice & Coaching:

- Accelerator, Company Corner, Start-ups
- Research – Company – Policy



Better off Blue

Baltic Blue Bioeconomy Event Series

Throughout 2021

<https://submariner-network.eu/better-off-blue-2021>

'Better Off Blue' is organised as a collaborative effort between:



Better off Blue

Event #4

8-9 April 2021

Baltic Macroalgae Conference

The GRASS Final Conference

The Baltic Blue Bioeconomy Online Series




Better off Blue

Event #2

18 March 2021

Launch of the Baltic Sustainable Aquaculture Working Group

The Baltic Blue Bioeconomy Online Series




Better off Blue

Event #6

20 April 2021

Technology for the Baltic Blue Bioeconomy

The Baltic Blue Bioeconomy Online Series




Better off Blue

Event #3

24-25 March 2021

Better Off Blue Business Match-making event

The Alliance+ Final Conference

The Baltic Blue Bioeconomy Online Series




Better off Blue

Event #7

4 May 2021

Baltic Marine Litter

The Baltic Blue Bioeconomy Online Series




INFOPORTAL ON BALTIC BLUE BIOECONOMY

<https://www.submariner-network.eu>

- News, opinions
- Reports, data, guidelines, tools, training material, projects, links
- Good Practices
- Events, Workshops, Training, Study tours, Summer Schools
- Who is who
- Closed section for members

Mussels

Blue Biotechnology

Aquaculture

Macro-Algae

Maritime Spatial Planning

Multi-Use

Marine Litter

Maritime Cultural Heritage

Information hub on Aquaculture

EUMOFA Monthly Highlights May 2020 (including two market studies on seafood consumption)

Meet the Baltic Sea Aquaculture Community

- BioCon Valley
- University of Gdansk
- Klaipeda Science and Technology Park
- Klaipeda University
- Danish Technology Institute
- Women in Aquaculture: Dr. Yvonne Roessner

Finance and Legislation

- Blue Platform Aquaculture Legislation Position Paper (May 2020)
- EU Baltic Sea Region Strategy
- Helsinki Declaration on Competitive and Sustainable Aquaculture in the Baltic Region
- HELCOM Recommendation 25/4 on limiting the pollution from fish farms to the Baltic Sea
- AquaBest Recommendations for Regulatory Improvements
- Marine Strategy Framework Directive
- Guidance on sustainable aquaculture activities in the context of the Natura 2000 Network
- Towards a Blue Revolution: Capitalizing private investments in sustainable aquaculture production systems

Projects

- InnoAquaTech
- AQUA-LIT
- AquaCross
- SUBMARINER
- AQUAFIMA
- AQUABEST
- AQUASPACE
- FLAVOPHAGE
- CLEANAQ
- AquaVIP
- WasciaBi

Data and Tools

- InnoAquaTech Decision Support Tool
- Web tool: analyses of aquaculture technologies and local adaptations (InnoAquaTech)
- Economic feasibility tool (for fish farming (AquaBest))
- AquaLinks Tool (AquaBest)
- AquaBest Recommendations
- Tools and methods supporting EAA: finding the gap towards an environmental Cost Benefit Analysis (AquaCross)
- AquaSpace Tool to support MSP
- The Fish Site - website

Selected reports and websites

- Spatial planning guidelines for Baltic Sea Region aquaculture (AquaBest)
- SUBMARINER Network Compendium Aquaculture Chapter
- Factsheet on Decision Support Tools (InnoAquaTech)

Good Practice Collection



Blue Lobster App: Digital Marketplace to buy and sell low impact and fair seafood



Kerteminde: Denmark's first open-water mussel farm



Havhøst

Havhøst – Danish for “Ocean Harvest” – is the largest member organisation gathered around regenerative ocean cultivation in Denmark. Through events and activities, the organisation encourages the use of the blue areas in and around cities for



Berlin Farm: Urban Farming meets Aquaponics



Gårdsfisk : Sustainable aquaculture joins agriculture

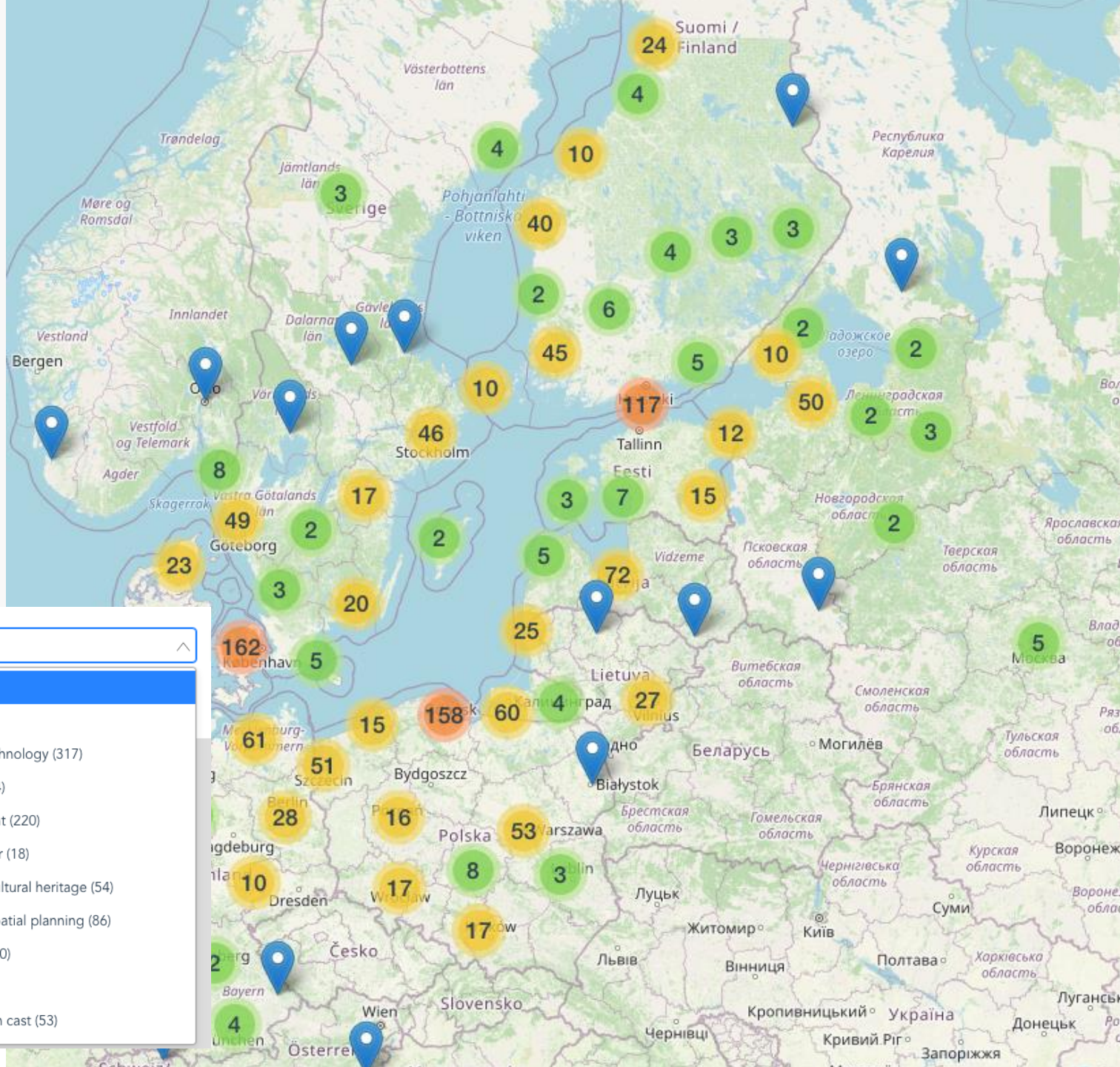
<https://submariner-network.eu/good-practices-from-the-baltic-blue-bioeconomy>

Actors mapping

39 members, 260
partner organizations

3000 actors throughout
BSR, 1700 institutions

approx. **650 companies**
in blue bioeconomy
linked via SUBMARINER



Application	Topic
All (1642)	All (1642)
Anti fouling systems (13)	Algae (229)
Bioremediation (45)	Blue biotechnology (317)
Cosmetics (73)	Energy (204)
Energy (118)	Environment (220)
Farming harvesting (210)	Marine litter (18)
Feed (81)	Maritime cultural heritage (54)
Fertilizer (30)	Maritime spatial planning (86)
Food (307)	Mussels (120)
Health care (80)	Other (443)
Nutra & pharmaceuticals (76)	Reed/beach cast (53)

SUBMARINER Accelerator



55+ active mentors and service providers from BSR and beyond

30 alumni cases, 1 returning, 9 active cases

60% find partners, reach higher TRL, accelerate product development

2 pitching / match-making events per year in BSR

monthly Mentors' forum meetings, also with invited guests

8 investors regulars in our events



A catalogue of about 150 products and services based on BSR resources and developed by BSR companies

What?

For whom?

Companies in the Blue Bioeconomy ; our funders ; potentially end consumers



COMPANY CATALOGUE

Showcasing products and services of the Blue Bioeconomy developed by blue companies in the Baltic Sea region

Where?

- 1) On our website (as a "company corner")
- 2) Pdf or even paper version

Why?

To provide easy access to understanding the Blue Bioeconomy landscape & its good practices already in place in the Baltic Sea region

To reinforce our ambition to be the first information and service point for all actors interested in the Blue Bioeconomy in the BSR & beyond

PRODUCT EXAMPLE

Berrichi: the secret benefits of algae in natural cosmetics

Marine resources involved: Baltic red algae



Based on one product example, this template offers possible content on how to present products in the catalogue.



Berrichi is an Estonian brand of natural cosmetics that produces algae-based facial creams using a special resource from the Baltic Sea region - its red algae.

The opportunity: Applying the power of algae to skincare products

The idea for Berrichi originates from Berit Joosep from Estonia. Berit struggled with skin problems, had allergies and suffered from dry skin and inflammations. This forced her to look for natural alternatives to over-the-counter skin care products.

The Estonian entrepreneur then discovered the power of algae during a trip to Asia where they have been at the heart of Asian beauty traditions for centuries given their strong moisturizing, smoothing and anti-aging effects.

Berit Joosep believes that "clean and natural is the best for the skin". And the Baltic Sea has untapped potential for natural products. She has therefore undertaken research to develop a marketable product based on Baltic red algae.

Product:
facial creams made of
Baltic red algae

Topic involved:
algae

Product family:
cosmetics

The product: Facial creams made from Baltic red algae

Red algae growing in the Baltic Sea are the special feature of facial creams in the Estonian cosmetics line Berrichi. Berit's passion for natural skin care and algae brought her together with scientists of Tallinn University in Estonia – the power of red algae turned into a first cream in 2017.

The ingredients have been studied and tested, and their effectiveness is scientifically proven. They awaken the body's natural ability to regenerate and heal – nourishing, restoring and moisturizing the skin deeply. The main key component of the products, furcellaran, is a strong antioxidant extracted from the Baltic red algae and comes from Estonian local company Est-Agar.

Their first facial cream was followed in 2018 by five more facial moisturizers, a hand cream and corresponding nutritional supplements. Berrichi natural products are available via the company's online store (<https://www.berrichi.ee/>).

The company: Furcella OÜ

Berrichi brand is manufactured by Furcella OÜ located in Tallinn, Estonia, and led by Janno Jossep, Berit's husband. Initially, the entrepreneurial couple cooperated with chemists from Tallinn University. Two years of scientific research and testing for Berrichi products provided proven evidence, that furcellaran has a powerful anti-aging and deep moisturising effect.

Then the "blue detective", Mariann Nõlvak from Tartu Biotechnology Park, spotted them and invited Furcella to join the ALLIANCE and its mentoring programme for start-ups. The ALLIANCE helped Furcella and made direct connections to new suppliers of material for the cosmetics, such as organic oils and the vitamin Retinol A. The suppliers based in Germany fulfilled Furcella's high expectations concerning sustainable production and now help to keep production going.

Current status/future prospects:

As a next step, they are trying to find a "blue" solution for the packaging of their algae-based natural creams, for example tubes or boxes produced from algae.



Location: Estonia

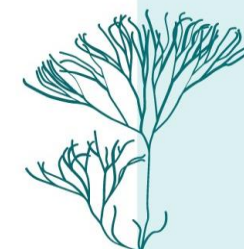
Creation date: 2015

Type of company:
Product manufacturing

Company website:
<https://www.berrichi.ee/>

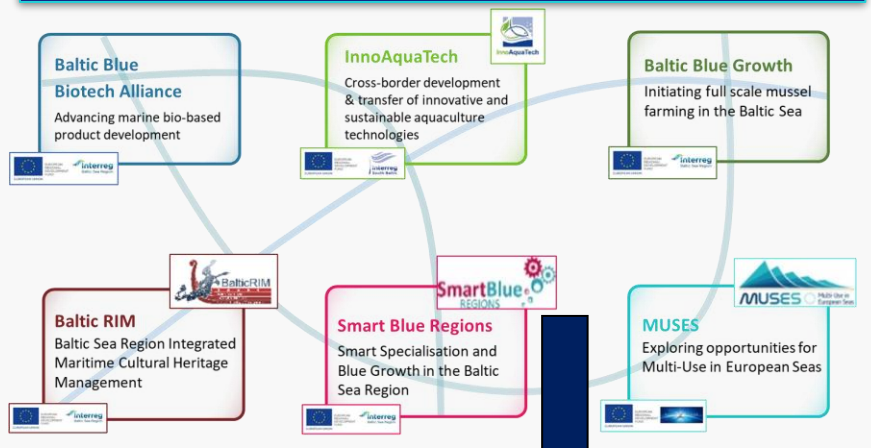
Social media activity:
Instagram, Facebook

Contact information:
Email: hello@berrichi.ee
Phone: +372 5186 655

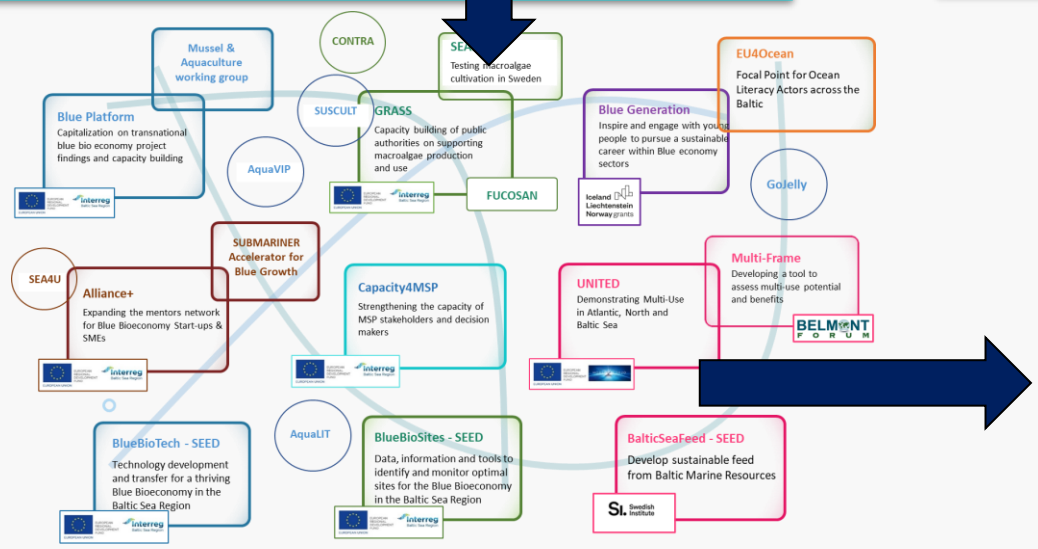


From projects to working group & vice versa

Completed projects (2014-2019)



Current projects (2019-2021)



Permanent Working Groups

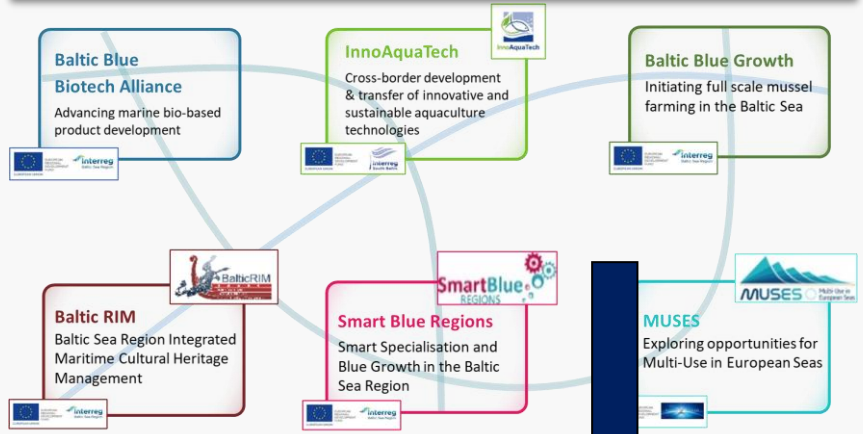
Low Tropic: Mussel and Algae

Blue Growth Accelerator

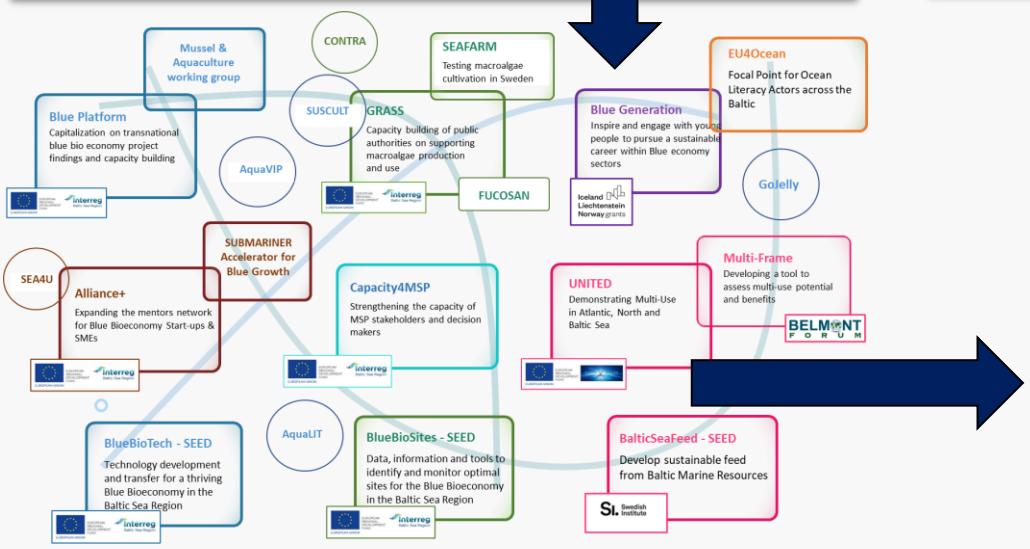
EU4 Ocean Literacy Platform

From projects to working group & vice versa

Completed projects (2014-2019)



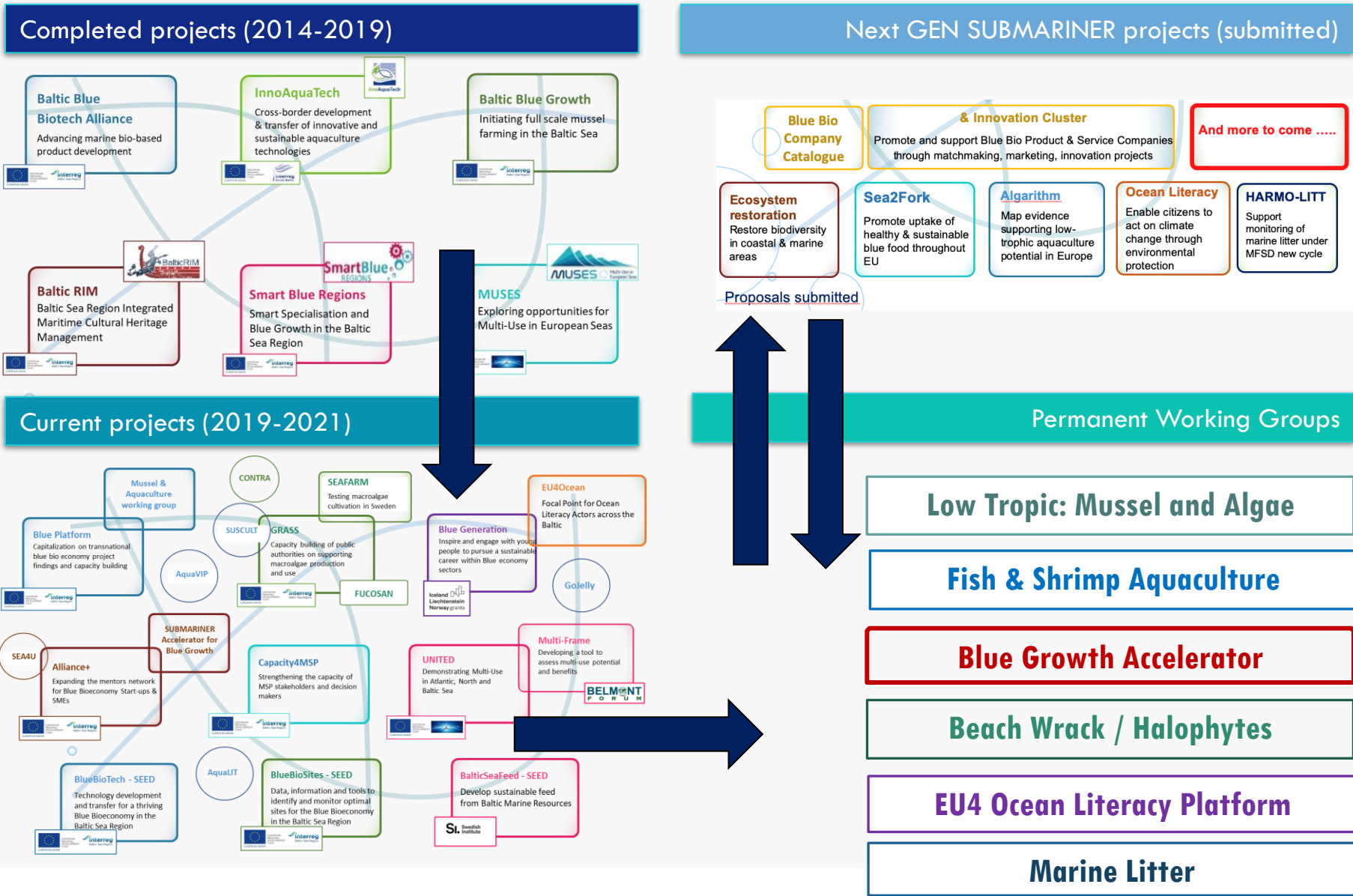
Current projects (2019-2021)



Permanent Working Groups

- Low Tropic: Mussel and Algae
- Fish & Shrimp Aquaculture
- Blue Growth Accelerator
- Beach Wrack / Halophytes
- EU4 Ocean Literacy Platform
- Marine Litter

From projects to working group & vice versa



Mussel Cultivation Policy Brief

With new technology much better results

Much less difference between mussels in high or low salinity areas:

- Total amount of mussel meat
- Nutrient content almost same

No oxygen depletion noted

Mussel meal good raw material

POSSIBLE APPLICATIONS OF MUSSEL CULTIVATION

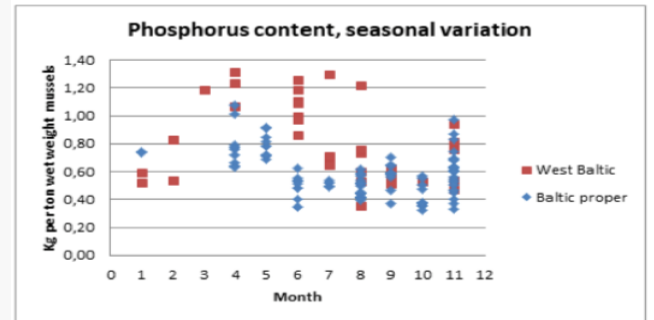
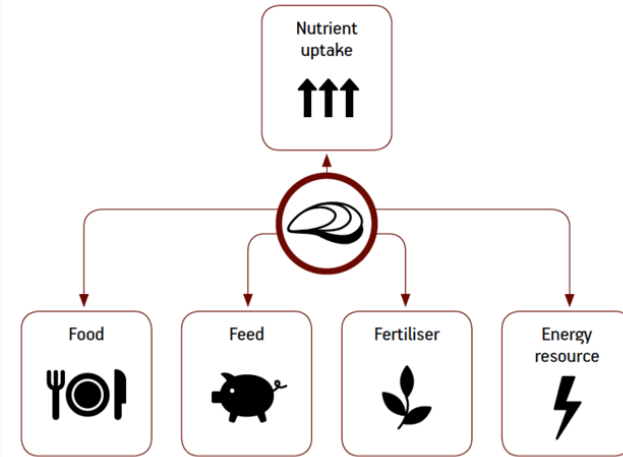


Figure 2. Phosphorus content, seasonal variation.

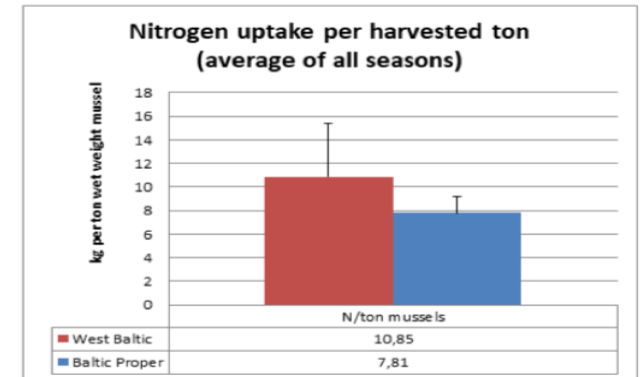


Figure 4. Nitrogen uptake per harvested ton.

Area	Salinity	Meat dry matter %	% Soft tissue	Soft tissue fat %	N (% soft tissue dry weight)	P (% soft tissue dry weight)
Western Baltic	High	15.1 a	58 a	9.5 a	9.5 a	1.41 a
Central Baltic	Moderate	14.2 a	52 b	10.3 a	10.3 a	1.48 a
Eastern Baltic	Low	13.7 a	41 c	9.7 a	9.7 a	1.33 a

MEMBERS OF THE WG



Mussels



Join the Mussels Working Group



Kalmar kommun



Linnæus University



Coastal Research & Management



LÄNSSTYRELSEN ÖSTERGÖTLAND



Mussel Cultivation Policy Brief

With new technology much better results

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Ministerial Declaration, Our Baltic 28th Sept 2020:
We will promote ecologically sustainable sea-based measures, such as mussel farming...

Area	Salinity	Yield (kg/ha)	Meat yield (%)	Soft tissue fat %	N (% soft tissue dry weight)	P (% soft tissue dry weight)
Western Baltic	High	12.2 a	58 a	9.5 a	9.5 a	1.41 a
Central Baltic	Moderate	14.2 a	52 b	10.3 a	10.3 a	1.48 a
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POSSIBLE APPLICATIONS OF MUSSEL CULTIVATION

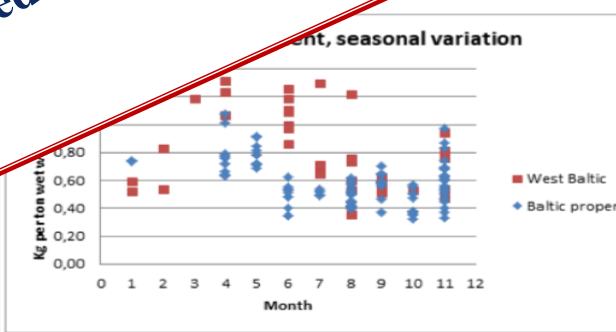
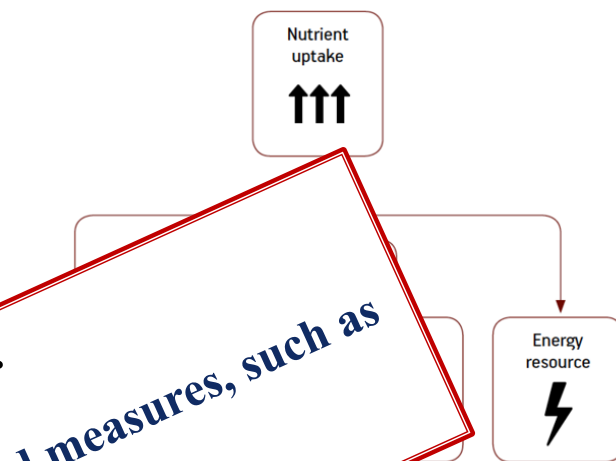


Figure 2. Phosphorus content, seasonal variation.

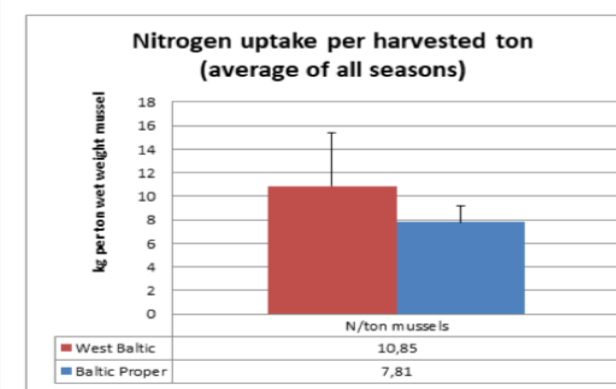


Figure 4. Nitrogen uptake per harvested ton.

What do we promote concretely ?



- **Low trophic aquaculture: algae & mussel cultivations**
Novel food and feed ✨ nutrient uptake ✨ regional protein resources
- **Sustainable forms of fish aquaculture**
Recirculating Aquaculture Systems ✨ IMTA ✨ Offshore Aquaculture
- **Valorization of ,waste‘**
Use of fish side streams ✨ use of underutilized species ✨ beach cast
- **Fishing for Litter ...** incentives for fishermen
- Improved Identification and **Monitoring of Optimal Sites**
- **Multi-Use / additional income fields**
Offshore wind & fishery .. & mariculture .. & tourism .. & nursery
Pescatourism .. fishery & environmental awareness
- **Improved communication between Baltic producers and consumers**
Transparency of product value chains
Convenient regional products for the modern consumer

SUBMARINER Roadmap 2021 - 2030

Overcome **regulatory barriers**: inter-ministerial working group



Actions towards improved **consumer uptake of Blue Food**

Company Corner & Services

New ways of funding the blue bio economy: investors, retailers, water improvement funds, etc.

Valorization of Waste



New Products & Services

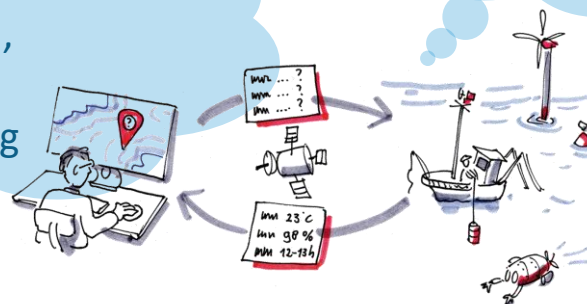
Education, capacity building, creative workshops for blue economy skills

Large scale demonstration sites

Digitalisation monitoring & information

Feed from Baltic Marine Resources: Macro- microalgae, mussels

Technology Development: biomass production, harvesting, drying, processing, upscaling



Thank

YOU

Angela Schultz-Zehden

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