




Demonstrating mussel farming in the Baltic Sea - Baltic Blue Growth

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www.balticbluegrowth.eu

 #BalticBlueGrowth

Members of the SUBMARINER Network

the hub
for promoting
a sustainable
marine (bio)
economy in the
Baltic Sea Region
and beyond



Member of:



Full
members

Associate
members

Flagship of:



SUBMARINER projects

2015–2019

Baltic Blue Biotechnology Alliance



Advancing marine bio-based product development

1 3 4 5 6

InnoAquaTech



Cross-border development & transfer of innovative and sustainable aquaculture technologies

1 4 5 6

Baltic Blue Growth



Initiating full scale mussel farming in the Baltic Sea

1 2 3 4 5 6

Baltic RIM



Baltic Sea Region Integrated Maritime Cultural Heritage Management

1 3 5

Smart Blue Regions



Smart Specialisation and Blue Growth in the Baltic Sea Region

1 2 3 4 5 6

MUSES



Exploring the opportunities for Multi-Use in European Seas, including the scope for innovation and Blue Growth potential

1 2 3 4

2018–

Blue Platform



Capitalization on transnational blue bioeconomy project findings and capacity building

1 2 4 5 6

GRASS



Capacity building of public authorities on supporting macroalgae production and use

1 3 4 5

Blue Generation

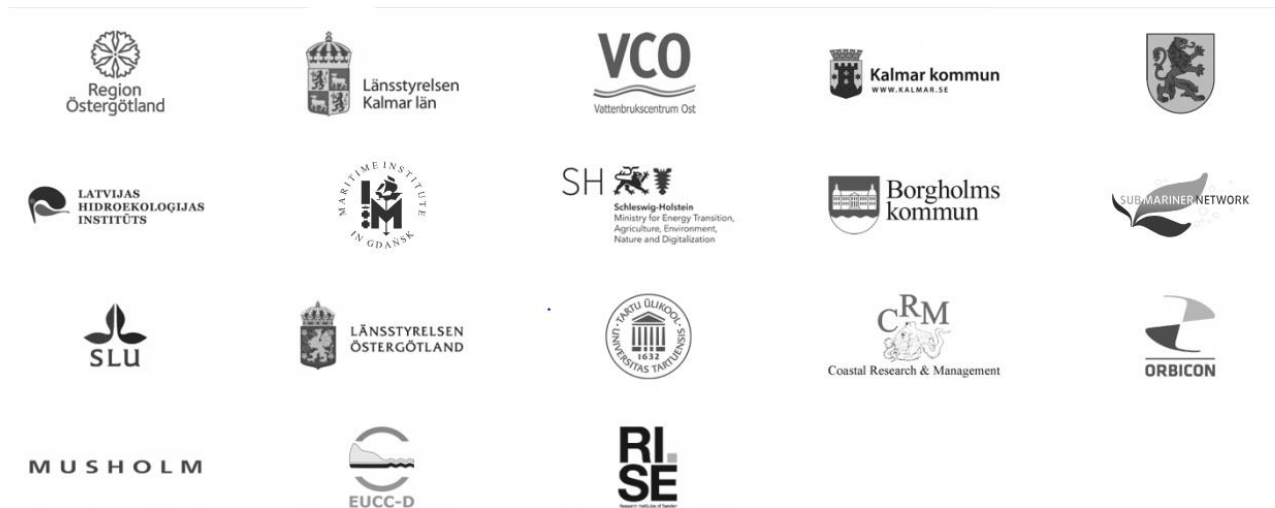


Inspire and engage with young people to pursue a sustainable career within Blue economy sectors

2 3 4

#BalticBlueGrowth basic facts





- May 2016 – April 2019
- € 4.7 million
- Lead Partner  Region Östergötland
- 18 project partners (SE, DK, DE, EE, PL, LV)




Objective

- 🐚 showcase that it is **possible to install and operate blue mussel farms in the Baltic Proper.**
- 🐚 These are not only created for research purposes, but are financially viable with a main purpose to take up nutrients from the Baltic Sea – either as a stand-alone measure to counteract eutrophication, or combined with a business for the feed industry.

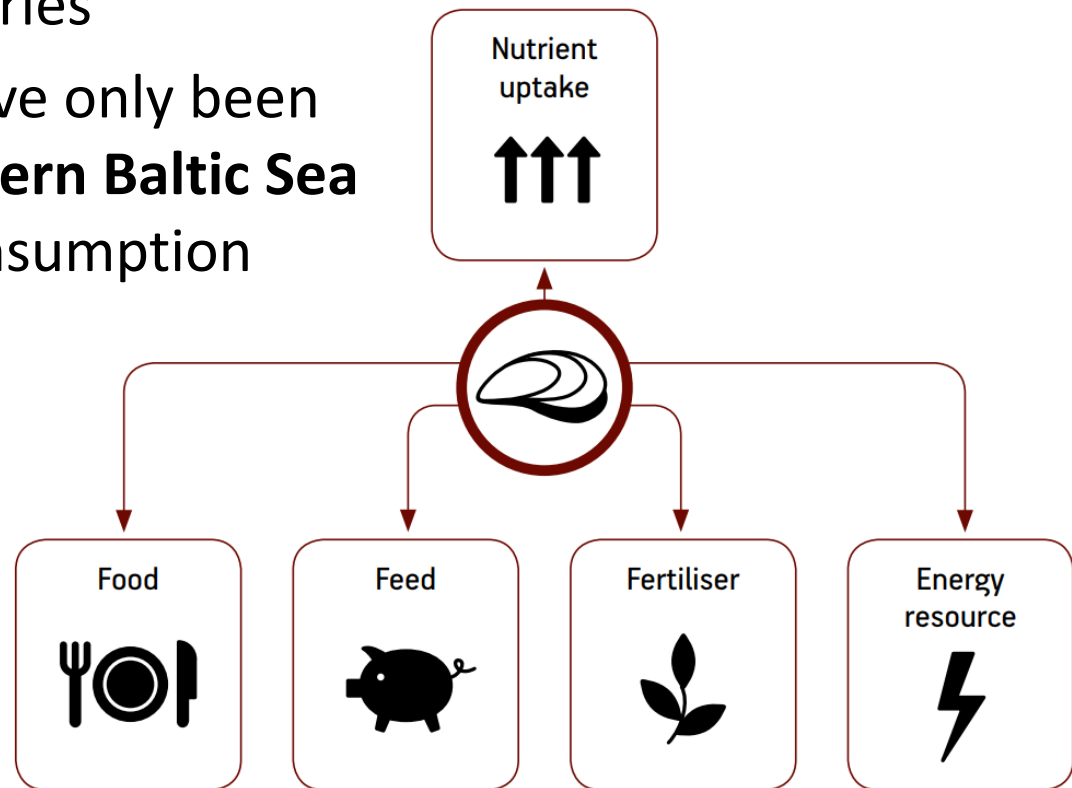
BBG Outputs

-  3 fully operational large-scale mussel farms in the Baltic proper
-  manuals for mussel farming incl. technical aspects
-  models (incl. maps) and a functional decision-support tool based on environmental data collated from 6 mussel farms
-  A status report on legislation issues for mussel farming for Germany
-  harmonized methodology in Maritime Spatial Planning and
-  possible payments for ecosystem services (ES).

-  Factsheets and policy briefs for communicating environmental and socio-economic benefits, risks and opportunities of mussel farming in the BSR.
-  21 regional workshops and stakeholder meetings for raising awareness and building capacities in mussel production technology, business development, environmental and ecologic benefits and risks and regulatory framework.
-  A vibrant online mussel community structuring the mussel innovation ecosystem.
-  An actors map with entries from the entire mussel innovation ecosystem in the BSR.

Introduction to mussel farming

- Blue mussels are farmed and enjoyed as fresh seafood in many European countries
- Until now, mussels have only been cultivated in the **Western Baltic Sea Region** for human consumption
- In **Eastern Baltic Sea** farms are set up to find out whether mussels can be farmed for other purposes, e.g. animal feed, catch crops



Baltic Blue Growth pilot farms

St. Anna archipelago (SE)
from 0,5 ha farm → 75
tonnes harvest

Vormsi island (EE)
40m² test units, in
addition to a
commercial farm

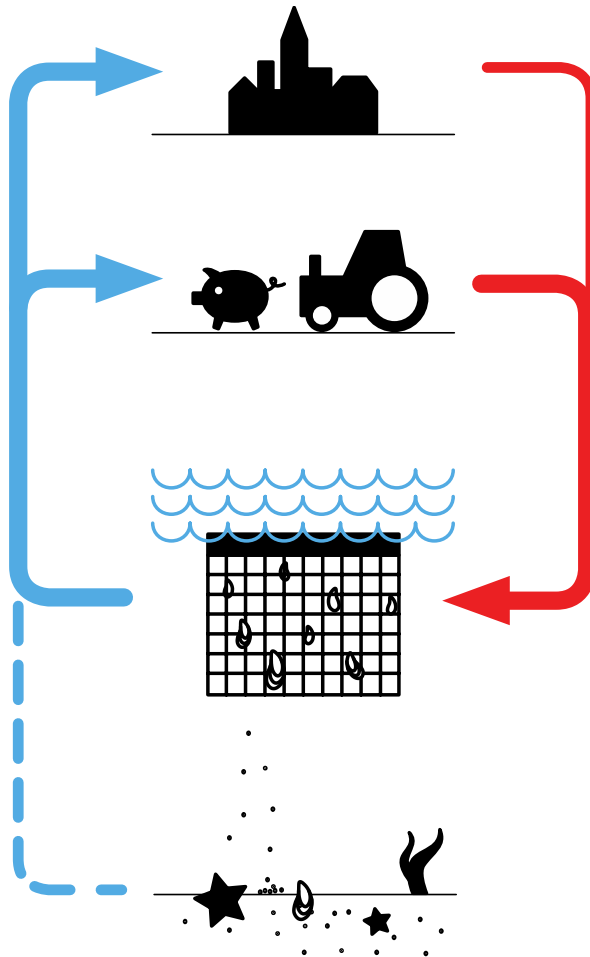
Kalmarsund (SE)
from 1 ha submerged farm
→ 11 tonnes harvest
(Vastervik)

Coast of Kurzeme (LV)
Testing a submerged farm
on 1 ha

Musholm (DK)
Testing different
farming techniques on
1 ha → 13 tonnes
harvest

Kiel Bay (DE)
from 0,32 ha test units
→ 5 tonnes harvest
(in addition to a
commercial farm)

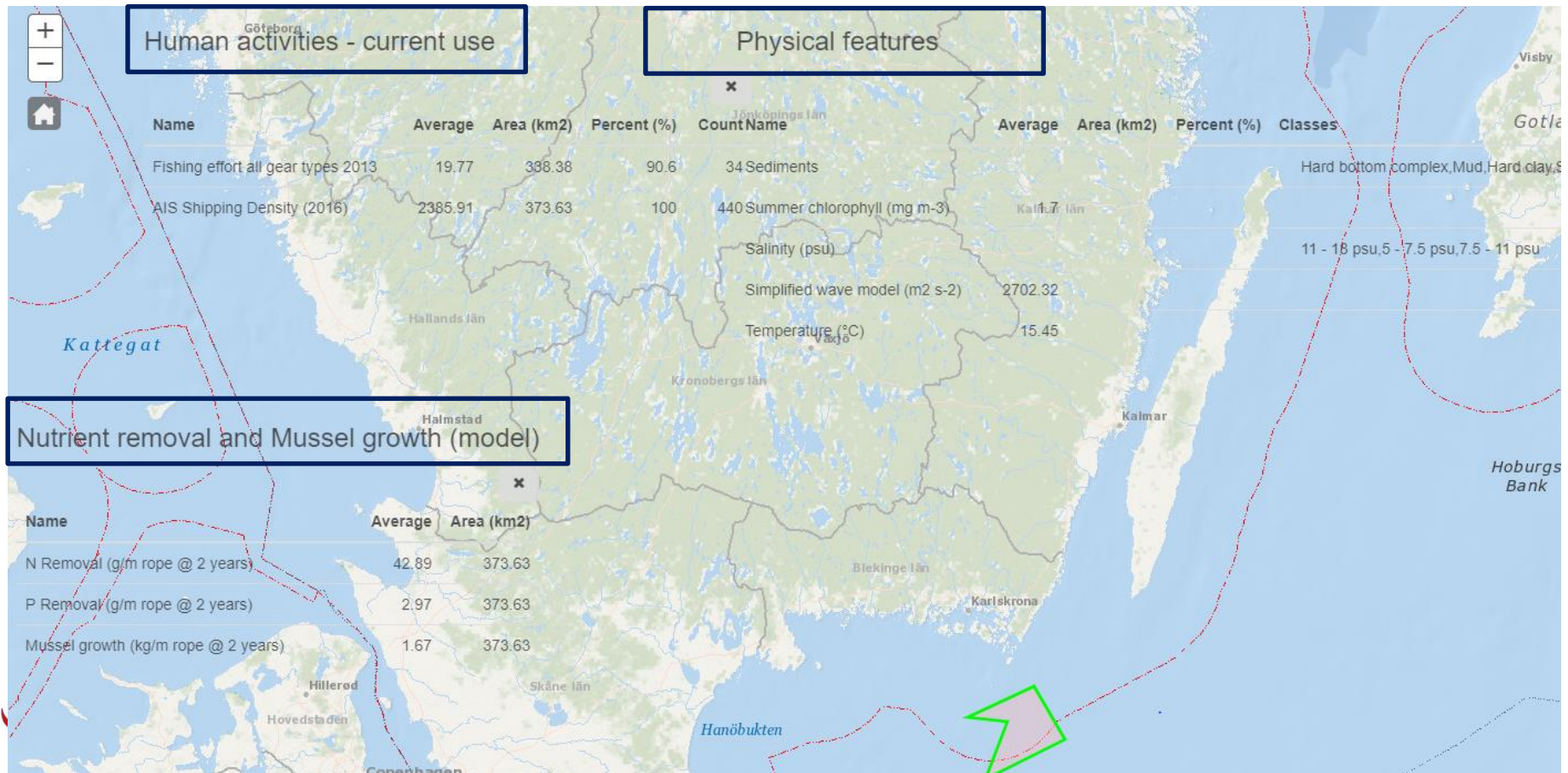
Opportunity: Mussels for closing the nutrient loop



- 🍆 “Closing the nutrient loop” by recycling nutrients through mussel farming
- 🍆 Farming mussels can improve the Baltic Sea water quality by
 - reducing eutrophication
 - increase transparency and
 - improve water hygiene

Plan your farm: Modelled mussel potential and nutrient removal, other uses

- Mussel farming in the Baltic Sea can remove significant amounts of N & P
- Operational Decision Support System (ODSS): <http://www.sea.ee/bbg-odss/Map/MapMain>








Opportunity: new blue growth opportunities for the feed industry?

- 🐚 Baltic mussels often too small and fragile for human consumption
- 🐚 Successful trials of producing mussel meal as animal feed
 - New possibilities: mussels as organic substrate for black soldier larvae as protein source in fish feed



New Website (coming up!)

-  FAQs about mussel farming
-  Meet the mussel community
-  Factsheets on benefits risks and opportunities of mussel farming from environmental, technical, political and socio-economic perspective
-  Actors mapping, not just BBG farms
-  Featured tools, DSS, knowledge reports, recommendations

Meet the BBG mussel community online

🐚 Jens Körge, politician, Kalmar municipality, SE

🐚 Urmas Pau, mussel farmer, Vormsi, EE

🐚 Dr. Tim Staufenberg, mussel & seaweed farmer, Kiel DE



Take home messages from Baltic mussels

#BalticBlueGrowth

Mussels grow naturally in the Baltic sea without extra feed or fertiliser

- Although growth rates are different

Production methods have now been adapted to local conditions

Mussel cultivation impacts are close to zero

Mussels provide important ecosystem services:

- Increase water transparency
- Decrease nutrient content in the water, if in particles

Provided ecosystem services (ES) can be monetized and paid by ES payment schemes

Mussel farming is driving blue growth, by providing private business opportunities based on

- Mussels are suitable for fish feed, but not yet feasible and for human consumption
- positive impacts on tourism, contribution to circular economy and job creation

Baltic Blue Growth partners

Mussel producers, public authorities, policy makers, research institutions and interest groupings from six Baltic Sea Region countries:



MUSHOLM



+ 20 associated organisations

BBG Ripples: submitted BBG extension application

- 🐚 18 months (June 2019 – Dec 2020); 480k€ budget
- 🐚 support mussel farming developments by
 - disseminating the BBG outputs
 - develop new tools and strategies promoting business development and regional development
 - set up a knowledge-intensive permanent transnational professional Working Group on mussel farming under SUBMARINER Network EEIG

BBG Ripples project partners:

Musholm (DK)

SUBMARINER Network for Blue Growth EEIG (DE)

University of Tartu (ES)

LP: Region Östergötland (SE)

Coastal research and Management GbR (DE)

Maritime Institute in Gdansk (PL)

Latvian Institute of Aquatic Ecology (LV)

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