


Baltic Blue Growth

Baltic Blue Growth – Initiating full scale mussel farming in the Baltic Sea

www.balticbluegrowth.eu

 #BalticBlueGrowth

Basic facts

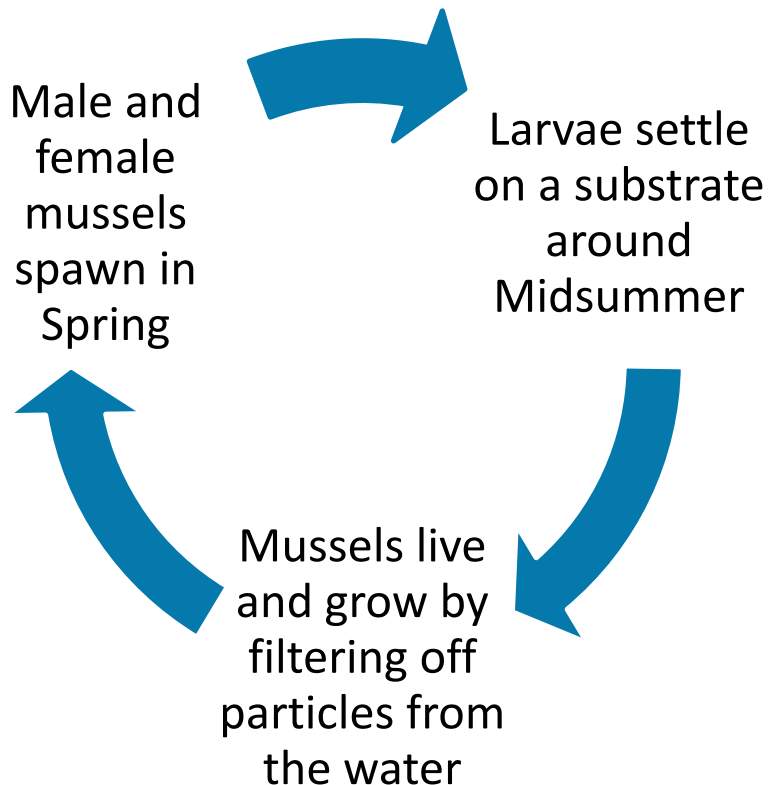
- 🐚 Duration: May 2016 – March 2019
- 🐚 Total budget: € 4.7 million
- 🐚 Co-financed by Interreg Baltic Sea Region
- 🐚 Lead Partner: Region Östergötland, Sweden
- 🐚 18 project partners + 20 associated organisations
- 🐚 Flagship under Policy Area "Nutri" of the EU Strategy for the Baltic Sea Region
- 🐚 A SUBMARINER Network project






Baltic Blue Growth



Blue mussel farming in the Baltic Sea



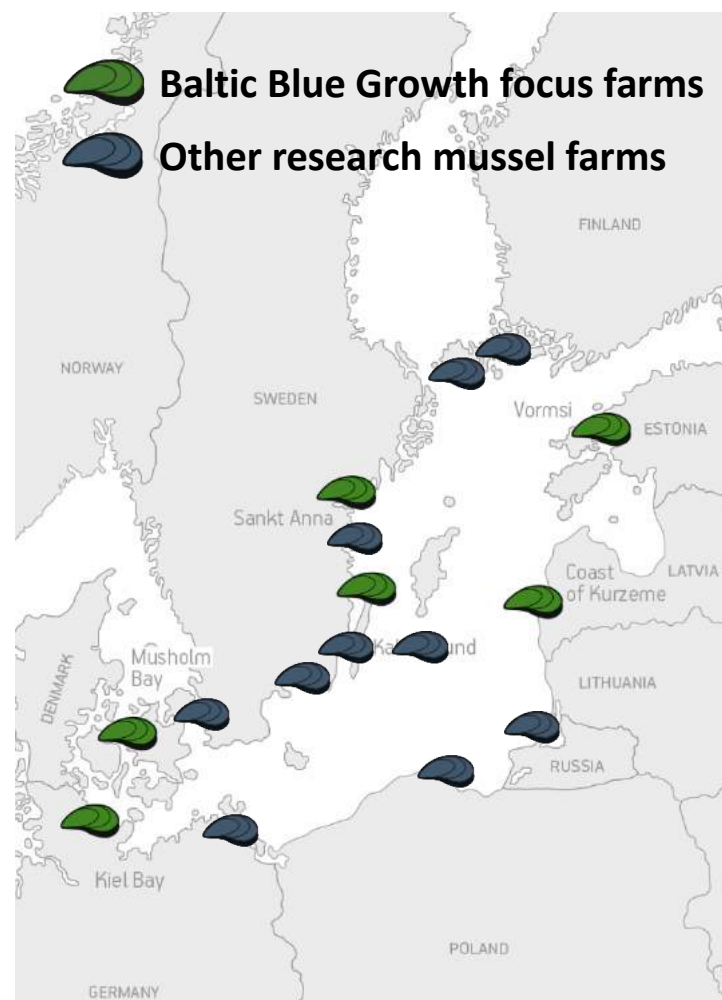
-  To “farm mussels” means to offer the substrate, typically ropes or nets
-  Size and growth rate depend on factors like salinity, temperature and food supply
-  Blue mussels in the Baltic Sea are usually harvested 1,5 – 3 years after they settle

Mussel farming experience in the Baltic Sea




Research projects assessing mussel farming in the Baltic Sea:

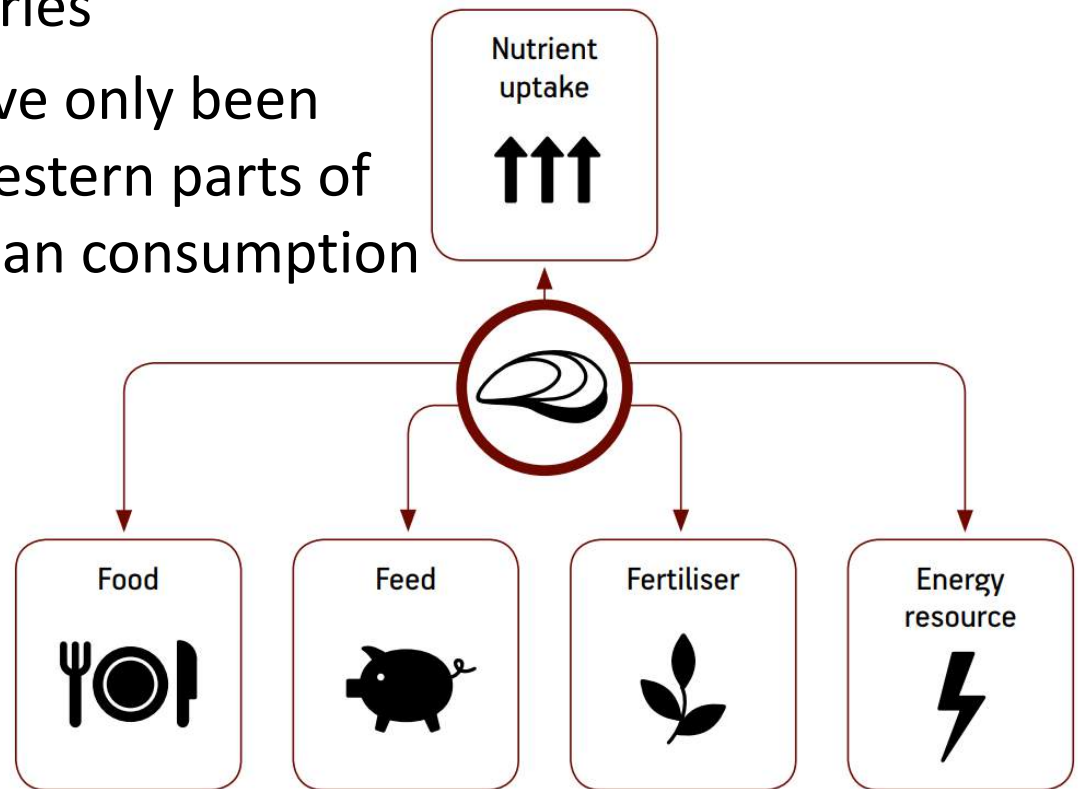
Baltic 2020	2009 – 2012
Submariner project	2010 – 2013
Aquabest	2011 – 2014
Baltic Ecomussel	2012 – 2014
Bucefalos	2012 – 2015
BONUS OPTIMUS	2017 – 2020
MuMiPro	2017 – 2020
Several other projects with focus on aquaculture or spatial planning	

Baltic Blue Growth will contribute to the step from research to full scale

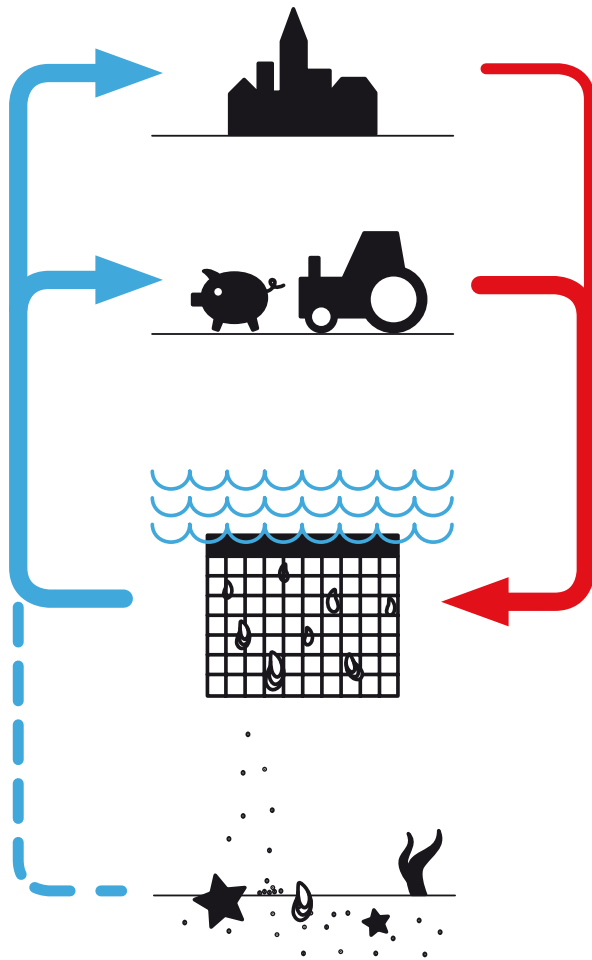




Introduction to mussel farming

-  Blue mussels are farmed and enjoyed as fresh seafood in many European countries
-  Until now, mussels have only been cultivated on in the western parts of the Baltic Sea for human consumption
-  Farms are set up in eastern Baltic Sea to find out if mussels can be farmed for other purposes, f.ex. animal feed






Background: closing the nutrient loop



-  Concept of “closing the nutrient loop” by recycling nutrients through mussel farming
-  Farming mussels can improve the Baltic Sea water quality by reducing eutrophication

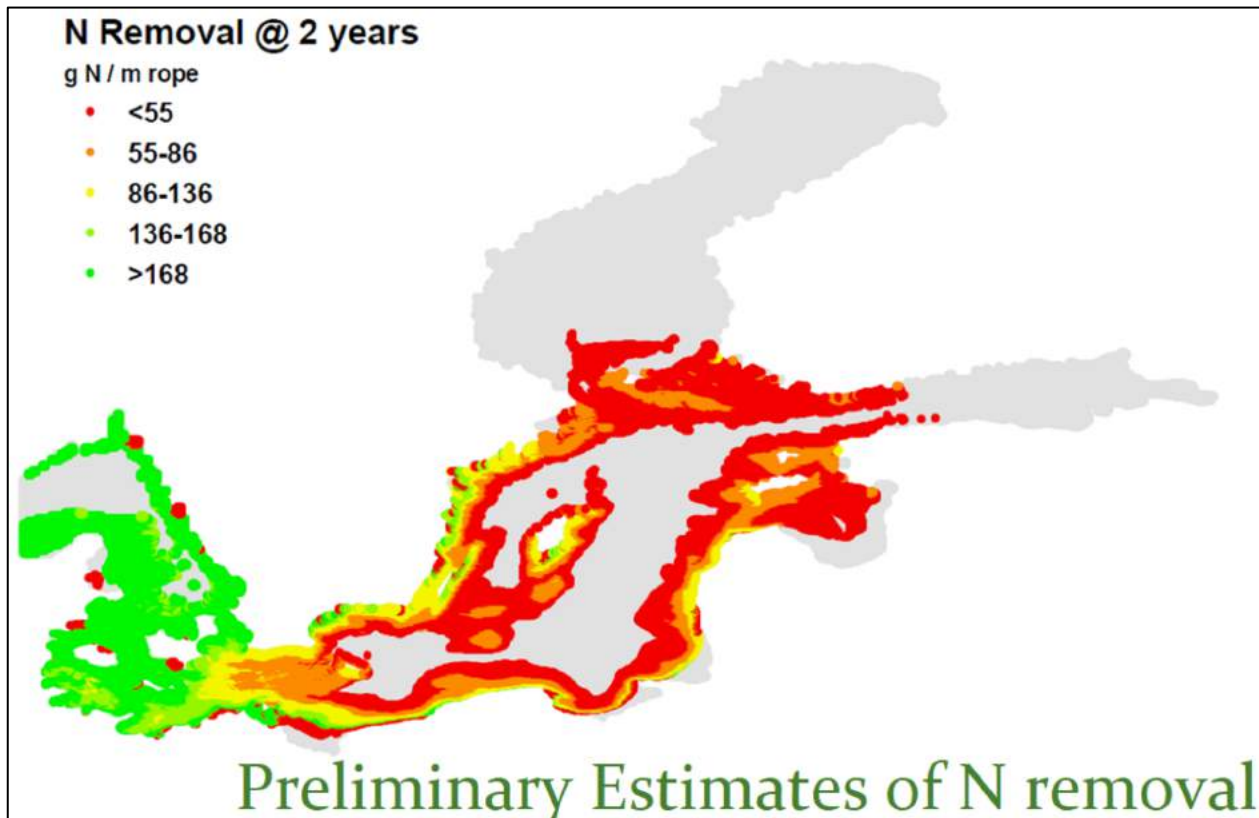
Background: finding a cost-effective mix of nutrient reduction measures

-  Cheapest and easiest measures (low-hanging fruits) have already been implemented
-  Hence, costs for traditional measures to achieve more reduction will increase dramatically
-  Including mussel farming in the mix could decrease the total cost by up to 11%

Measure in the Baltic Sea Region	Reported N removal costs in €/kg N	Reported P removal costs in €/kg P
Mussel farming without sales	10 – 64	150 – 900
Agricultural measures	0 – 150	0 – 10200
Livestock reductions	6 – 842	112 - 5895
Wastewater treatment upgrades	11 – 136	39 – 600
Wetlands	2 – 93	396 – 1518

Background: modelled nutrient removal by farmed mussels

- 🐚 Mussel farming in the Baltic Sea can remove significant amounts of nitrogen and also phosphorus
- 🐚 Mussel farming could account for 2-3% of the Swedish nutrient reduction



Background: new blue growth opportunities for the feed industry?

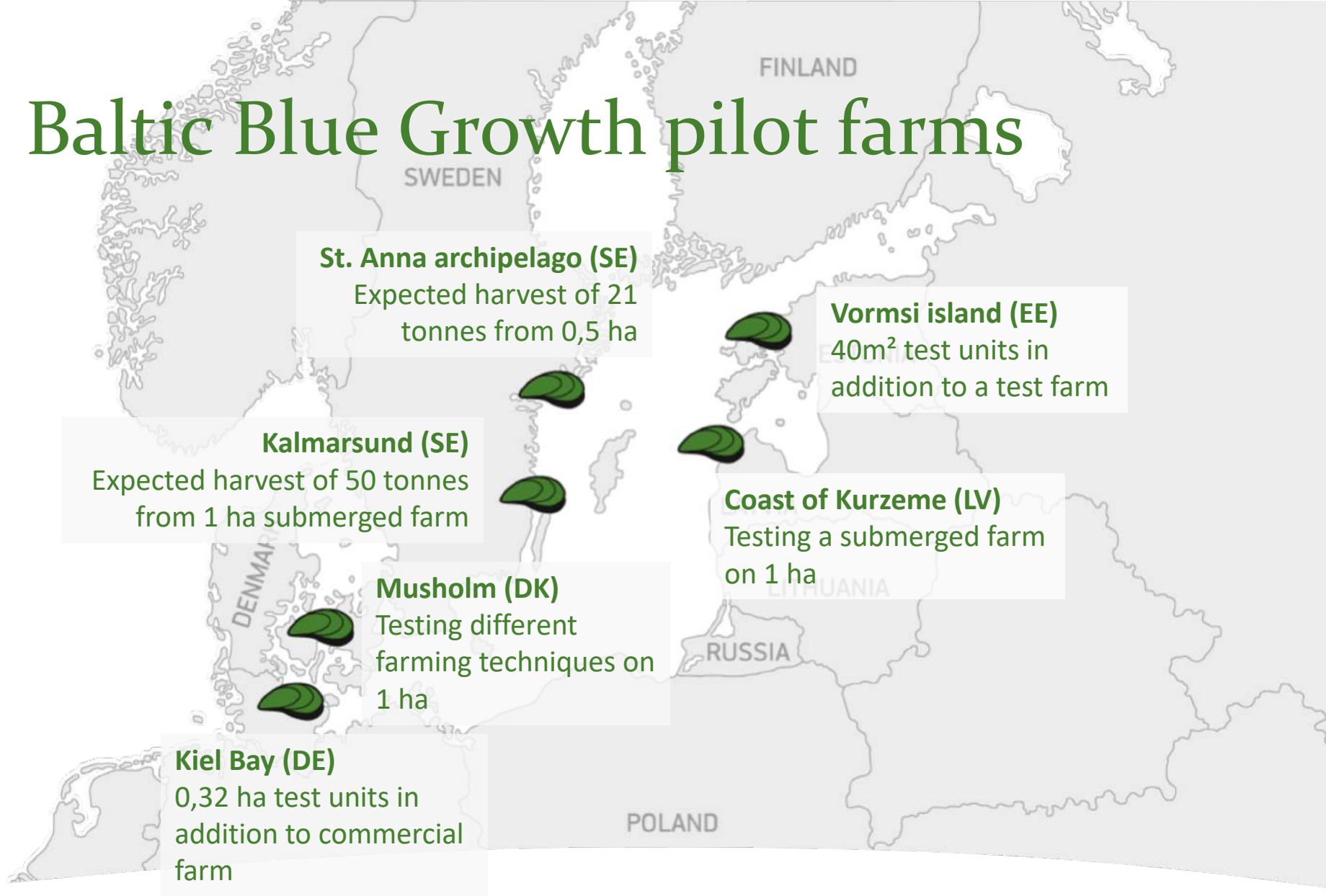
- 🐚 Baltic mussels often too small and fragile for human consumption
- 🐚 Successful trials of producing mussel meal as animal feed
- 🐚 New possibilities: mussels as organic substrate for insects larvae as protein source in animal feed



Objective




Advance mussel farming in the Baltic Sea from experimental to full scale to improve the water quality and create blue growth in the feed industry

Baltic Blue Growth pilot farms











Produced outputs and current status

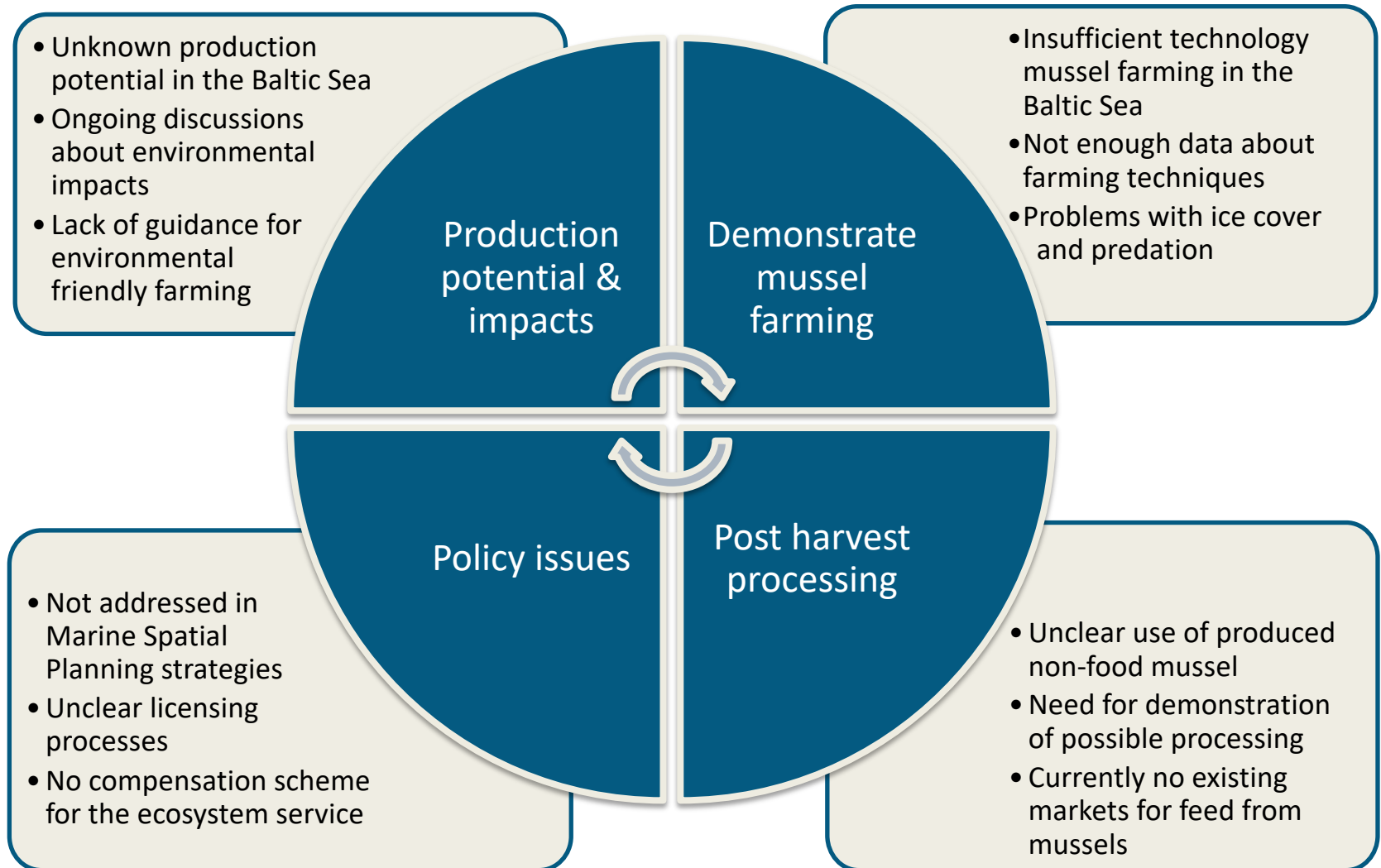
Finished tasks:

-  Pilot version of an Operational Decision Support System (ODSS) available
-  Review of available mussel production equipment
-  All focus mussel farms in the Baltic Sea established

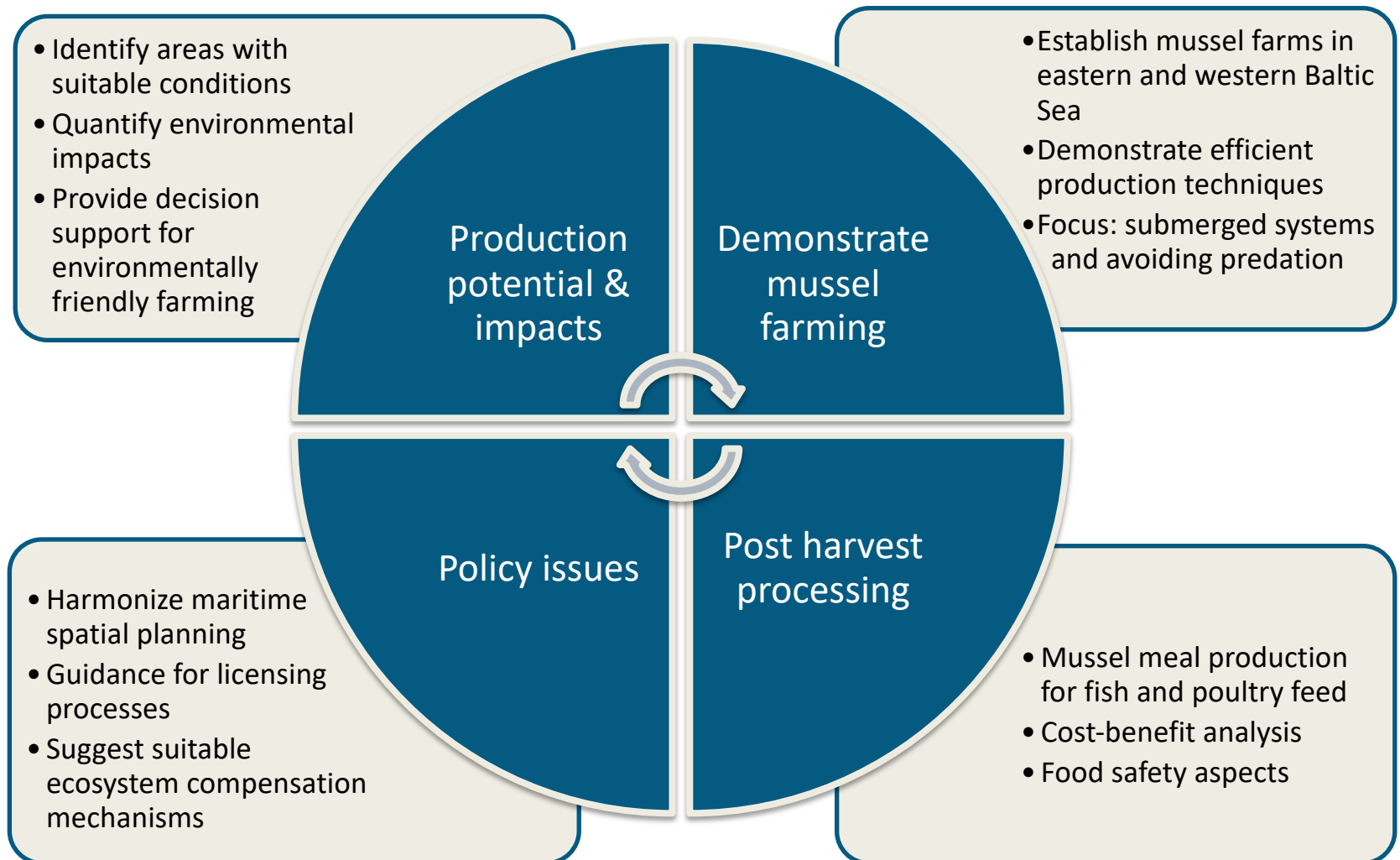
Ongoing tasks:

-  Optimising mussel production
-  Developing systems for submerged mussel farms
-  Monitoring the effects of mussel farming on water quality
-  Developing technology for postharvest processing
-  Assessing the value of mussel and larvae meal as animal feed
-  Developing relevant business models
-  Promoting business opportunities
-  Studies on relevant policies

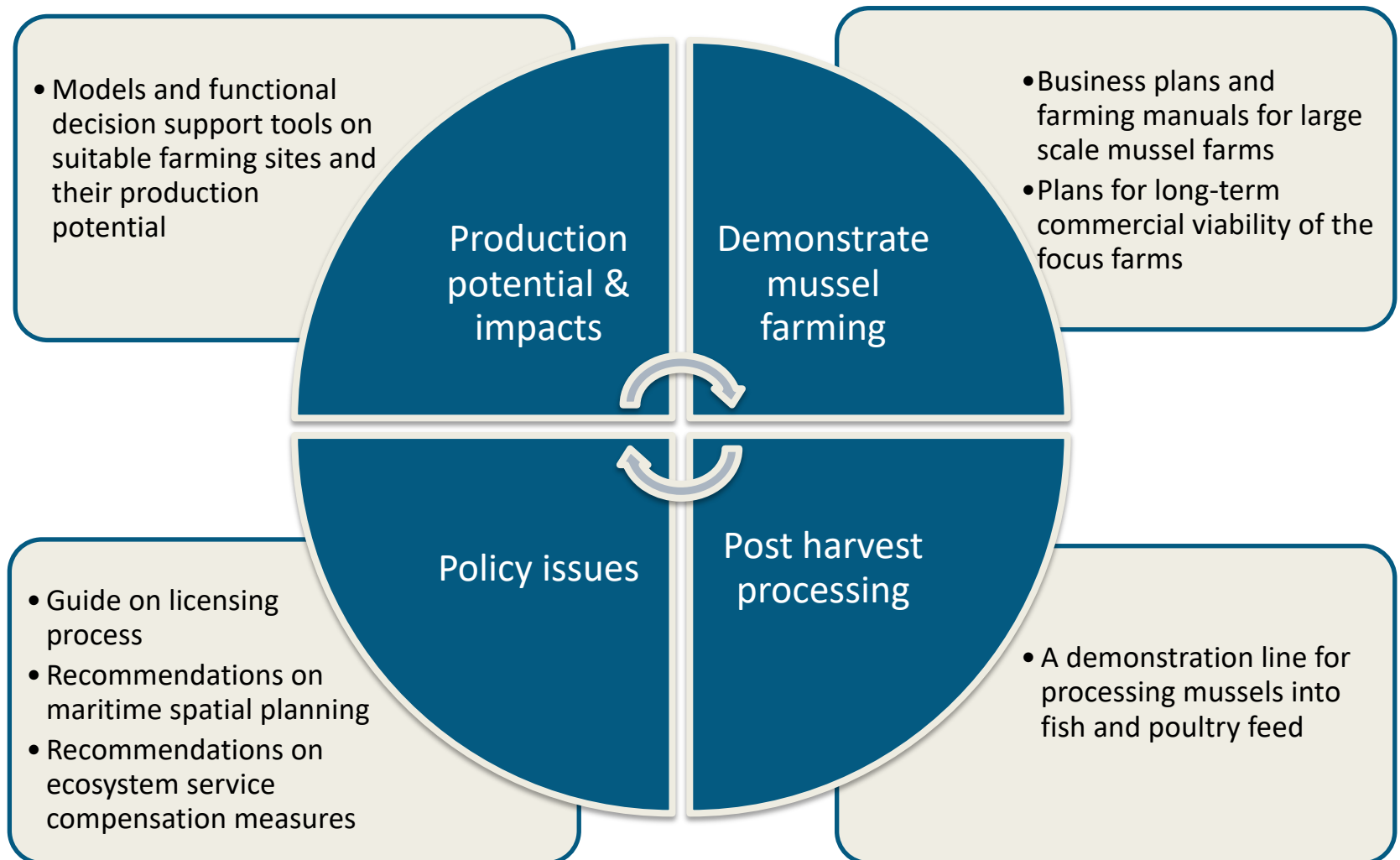
Mussel farming challenges



Project structure and activities



Expected outputs



Expected outputs



Take home messages from Baltic mussels

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Mussels grow naturally in the Baltic sea without extra feed or fertiliser and can be combined with other types of aquaculture (e.g. IMTA)

Production methods have now been adapted to local conditions

Environmental impacts of mussel cultivation are close to zero

Mussels provide important ecosystem services by increasing water transparency and decreasing nutrient content in the water

Provided environmental services can be monetized 0,1 €/kg mussel (from 2 €/ kg N) and be partly paid by compensation schemes

Mussel farming does NOT collide with or substitute any attempts to reduce nutrient influx from land

Mussel farming is driving blue growth by providing private business opportunities as:

- Mussels are suitable for feed and 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:



+ 20 associated organisations

Contact

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