

BLÅ BIOMASSE A/S

Sustainable and circular usage of blue biomass in developing new products



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Grøn innovation siden 1866





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SUSTAINABLE BIOMASS AND MARINE WATER CLEANING



SUSTAINABLE BIOMASS

Researchers from DTU Aqua have indicated that the biological potential for production of mussels may be up to 300,000 t a year in Denmark



MARINE WATER CLEANING

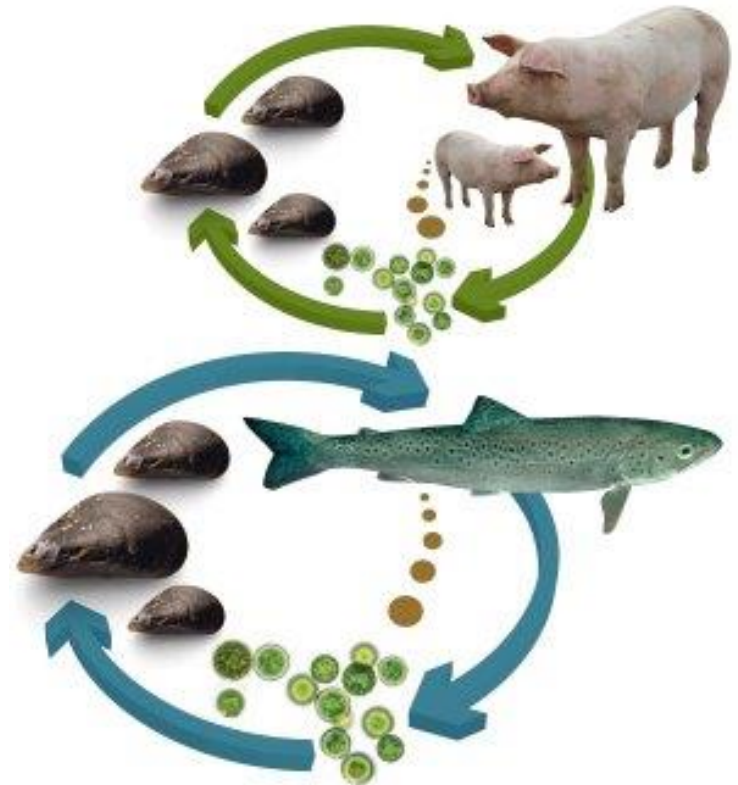
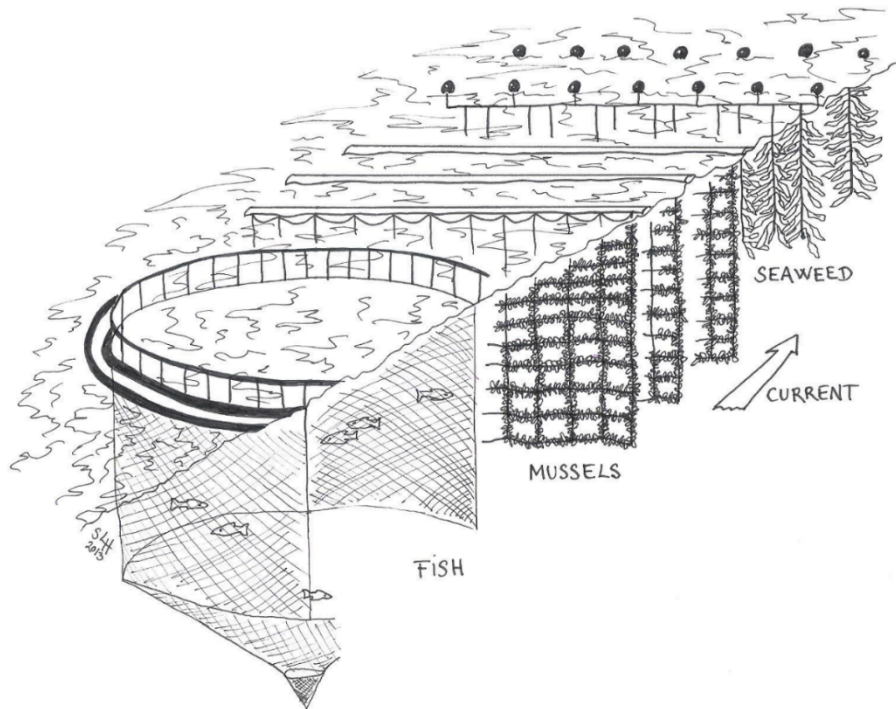
- Filtrate the water and eat small particles (pump 5-7 litres of water an hour through their bodies)
- Remove nutrients (ex. Nitrogen N and phosphorus P)
- Increase water transparency



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MUSSEL FARMING CAN CREATE SUSTAINABLE GROWTH IN AGRICULTURE AND AQUACULTURE



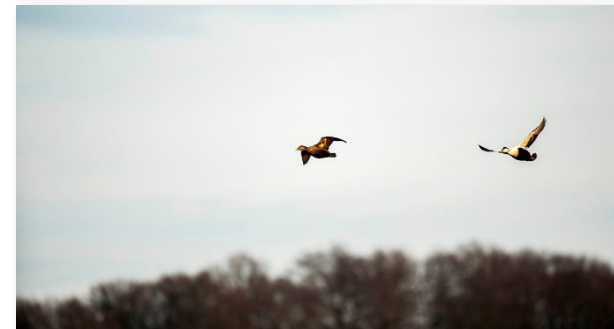


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DEVELOPMENT OF MUSSEL FARMING AND PRODUCTION OF MUSSELMEAL

- Hedeselskabet have invested 7 mio. DKK since 2011 in development of industrial production of mussels.
- Blå Biomasse A/S was established in May 2016 as a joint venture between Hedeselskabet and local participants with experience in farming mussels.
- The owners see great opportunities in development of sustainable and circular usage of the potential within the marine environment in Denmark.





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INDUSTRIAL MUSSELPRODUCTION





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FULL USAGE OF THE BIOMASS

Mussel farming

breeding via Smart Farms (new technology)



Advantages:

- Automatized processes with innovative technology that reduces labour expenses and permit harvesting of mussels multiple times a year, and thereby utilizing the full production potential.
- Farmed mussels have a higher percentage of meat than bottommussels

All mussels are sold or utilized

Consumption
DK/export

Mussels < 4,5 cm
for feed production

Musselmeal

Mussels < 4,5 cm

Mussels are processed and
dried to a meal



Fertilizer

The portion not used for
musselmeal, can be used
as a fertilizing product



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PROCESSING METHODS

- Skrewpressing and drying
- Hydrolysis by enzymes or heat
- Impuls cooking
- Insects





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NEW AND INNOVATIVE CHAIN OF VALUES ESTABLISHED AROUND SEVERAL DANISH COMPANIES

MUSSEL FARMING

BLÅ BIOMASSE A/S

MUSSELMEAL

TRIPLE999
FISH MEAL FACTORY

SALMON FODDER

BIOMAR

SALMON FARMING

LERØY SEAFOOD,
NORWAY



Blå Biomasse A/S

- Breeding of 50,000 t mussels by 2022
- Cost effective processing of the biomass



Triple999 Fiskemel-fabrik

- Protein-fraction steamed/dried to musselmeal



Biomar

- Formulation of fodder product for salmon containing up to 10% musselmeal



Lerøy Seafood

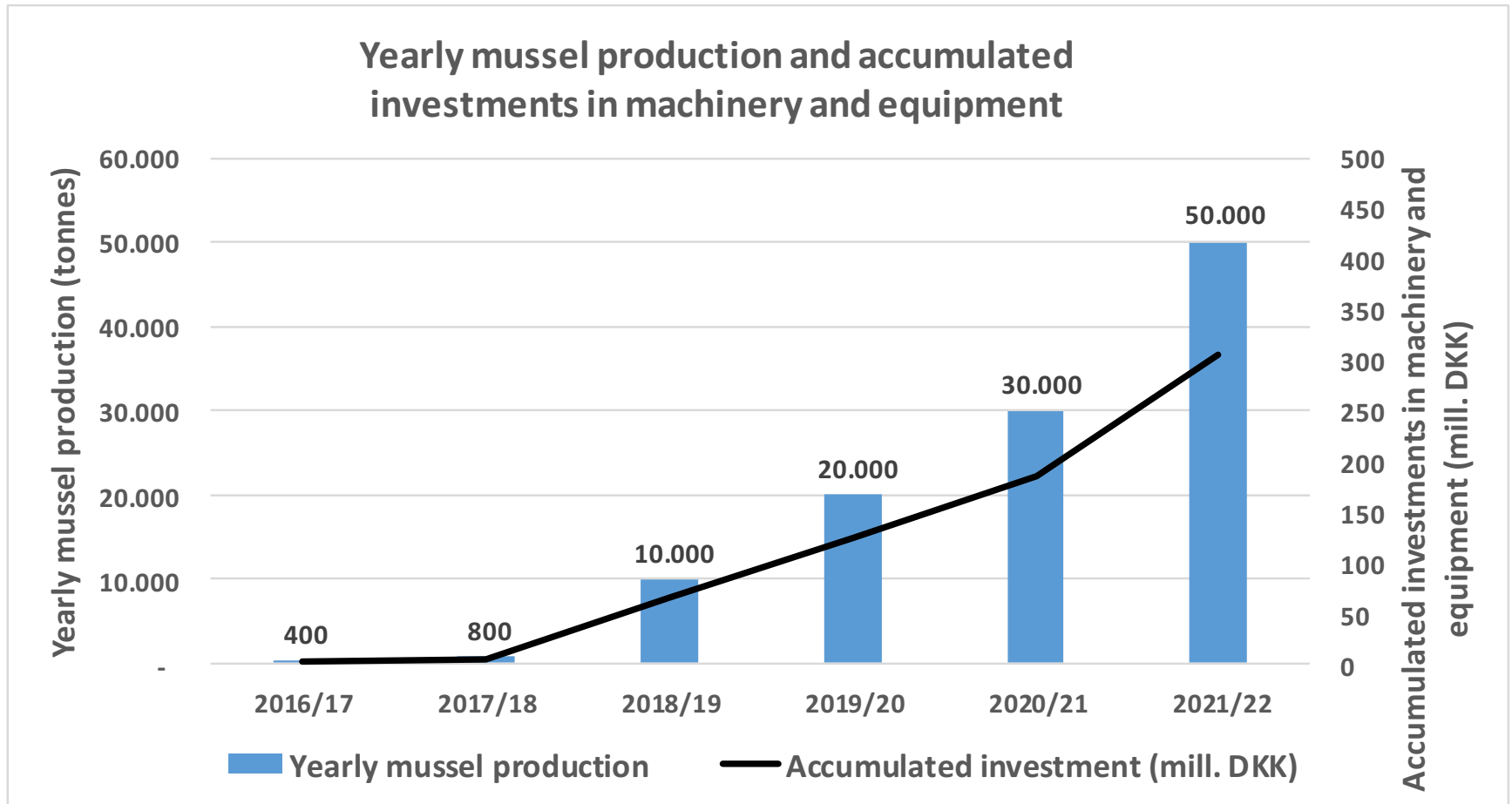
- The growth and welfare of atlantic salmon are documented as a result of musselmeal in the salmon's fodder.



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FARMING OF 50,000 TONNES OF MUSSELS REQUIRE INVESTMENTS IN MACHINERY AND EQUIPMENT OF APPROX. 300 MILL. DKK





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CHALLENGES AND AREAS OF DEVELOPMENT

Chain of values:

- Optimization of mussel production including harvest strategy
- Optimization of logistics
- Demonstration and optimization of processing.
- Modelling of maximum sustainable mussel farming in specific areas
- Development of fertilization product from the shells – growth experiment with farmers and forestry business
- Feeding experiment in regards to estimating the performance of the product

Environmentally:

- Documenting the influence of bed conditions during mussel farming in in regards to clarity and plancton dynamics.
- Recording removed Nitrogen (N) and Phosphorus (P)





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FARMING OF 50,000 TONNES OF MUSSELS HAS GREAT SOCIETAL VALUE

- The compensating effect of mussel farming can form part of the fulfilment of goals in the NATIONAL STRATEGIES FOR BIOECONOMI AND DEVELOPMENT OF NUTRIENT-CATCH SYSTEMS ACCORDING TO WFD
 - The project will have a positive effect on the aquatic environment and is expected to remove a minimum of 500 t nitrogen (N) and 40 t phosphorus (P) each year from 2022 and on.
 - The welfare-economical cost of removal of nitrogen (N) has been estimated at 70-90 DKK per kilo nitrogen. This means that a yearly removal of 500 t nitrogen has a societal value of 35-45 mio DKK





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FARMING OF 50,000 TONNES OF MUSSELS HAS GREAT SOCIETAL VALUE

- Financially and environmentally effective means to cleaning the Danish coastal areas.
- Sustainable growth in aquaculture (bill L111)
 - Blå Biomasse A/S has already established cooperation with Danish marine farms, seeing as they need a market for the mussels produced.
- Job creation in the areas.
 - The project can create approx. 300 new jobs



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THE PROJECT FULFILLS THE RECOMMENDATIONS OF VARIOUS PANELS AND RESEARCHERS

Juni 2016

Det Nationale Bioøkonomipanel

Marine Virkemidler

Beskrivelse af virkemidlernes effekter og status for vidensgrundlag



Anbefalinger vedrørende værdikæder baseret på blå biomasse, med særligt fokus på værdikæder baseret på muslinger og tang



THANK YOU FOR YOUR ATTENTION

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