DELIVERABLE 6.8

Report on the communication campaign for submerged mussel farming in Denmark

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1. INTRODUCTION

Mussel production in Denmark, as in other countries, is often surrounded by misconceptions related to its perceived environmental impact, the way it takes up space at sea, and the way it alters the sea view from land. Effective communication allows these issues to be explained clearly. This reduces misinformation and helps people develop a more accurate understanding of how modern, sustainable mussel production works.

Good communication builds trust. When people understand where their seafood comes from and how mussel farms operate, they are more likely to trust producers and support the industry. Transparency about farming practices, environmental management, and climate impact reinforces this trust and encourages a positive relationship between mussel producers and the public.

Raising awareness through communication also supports more sustainable behaviour. Consumers who are well-informed about sustainability can make responsible seafood choices, and they are more likely to support certified products and innovative farming technologies. At the community level, communication strengthens engagement. Because mussel production often takes place near coastal communities, informing and involving local residents can aid in addressing concerns, reducing conflict, and promoting cooperation.

Finally, communication can encourage environmental stewardship by explaining how production in SMARTfarms can contribute to conservation efforts, such as supporting biodiversity under the farms or deploying small mussels on the seabed as biogenic reefs.

Thus, effective communication is a central tool in increasing awareness, improving understanding, and promoting responsible participation in the future of mussel production.

Objective of this task in the Work Package 6:

Development of communication material to increase social awareness about submerged mussel farming in Denmark and the interaction between environment and mussel farming, among other issues.

The communication in this project focuses on three themes related to submerged mussel farming:

- The development of the submerged production platform.
- Mussel farming as a tool to improve water quality and biodiversity.
- Impact of mussel farming on the ecosystem and coexistence with other users of the area.

1.1 Background

The background for the Danish communication campaign objective, which was added to the project in the project's first amendment in November 2023, is the public debate which has prevailed for several years/decades regarding the production and harvesting of mussels in Danish waters.

In response to this debate, it was decided to develop different communication products that can bring into focus mussel production and the people behind the mussel companies, and which can additionally shed a light on blue mussels as an important tool in ecosystem services.

1.2 Communication formats

1.2.1 Podcast

The podcast, which is in Danish, consists of two episodes. The first episode is an introduction to submerged mussel farming in Denmark. The format of the episode is a reportage, which introduces the Baltic MUPPETS project and Wittrup Seafood. It also introduces some of the conflicts connected to mussel production in Denmark.

The second episode presents different angles on mussel farming in three interviews: the researchers' angle, the NGO Green Association, and the Climate Foundation in Skive.

The purpose and expected effect of this podcast
The podcast will primarily address local citizens, local politicians, officials, tourists, and especially those interested in the profession.

The purpose is to create a positive story about mussel production in Danish waters. This story communicates a company's intentions with farming mussels as well as the experiences and skills that this company put into the operation when they invest both their head and heart in the production The podcast recounts how there are living people behind the production with visions, responsibility, ambitions, and drive, and who have the aim of running an economically sustainable company, but who are also passionate about making a difference environmentally and thereby contributing to green transition and climate-friendly food production.

Part 1 is primarily a reportage and a personal story about Rasmus and Stig Wittrup, who founded the company Wittrup Seafood.

Part 2 addresses the advantages and disadvantages associated with mussel production in Danish waters. This episode also sheds light on some of the public misconceptions and misunderstandings that have arisen around Danish mussel production.

1.2.2 Wittrup Seafood's campaign

Wittrup Seafood's mussel production in SMARTfarms takes place in Limfjorden (the Liim Fiord) near Hvalpsund in Northern Denmark. Hvalpsund harbour is characterised by considerable activity related to mussel production. There are large vessels, concrete blocks, buoys, etc. In addition, Hvalpsund is connected by ferry to Sundsøre. This means that there is a fair amount of local and tourist traffic through the harbour.

Wittrup Seafood owns a building with large façade surfaces that will be used for four large posters meant to attract attention and, through QR codes, direct locals and tourists to a website where mussel production is presented in text and images.

2. PODCAST

2.1 Organisation

The overall title of the podcast is: **Mussel farming in Danish waters.**

It consists of two episodes which are described below, and the storyboards of the two podcast episodes can be found in Appendix 1. The theme of the podcast is mussel production in the water column. Mussel farming can be understood as a regenerative food production. It can improve water quality, promote biodiversity, and at the same time, it is a food with a very low climate impact. But mussel farming also gives rise to several critical voices and local resistance. This relates in particular to the visual impression, restrictions on navigation, and the local nutrient impact on the seabed immediately below the farms, which raises concerns about oxygen depletion.

2.1.1 Episode 1: Meet the mussel producers

In the first episode, two interviews are carried out. Rasmus and Stig Wittrup (the owners of Wittrup Seafood) were interviewed in their factory in Horsens. The mussel farmer Torben was

interviewed on a mussel boat on an early October morning. This gave us a good opportunity to get some real sound from the boat and from seagulls.

Figure 1. Mette Aaskov Knudsen interviewing mussel farmer Torben on the boat an early October morning.

2.1.2 Episode 2: Pros and cons in mussel farming

The second episode consists of three different interviews.

The first interview is with Professor Marie Maar who has been researching blue mussels and their impact on the ecosystem in Denmark's coastal waters.

The second interview is with Henning Mørk Pedersen from The Danish Society for Nature Conservation. This organisation has been critical of mussel farming, particularly of mussel dredging.

The third and final interview is with Thine Hahnbak from the Climate Foundation in Skive. They have initiated meetings between stakeholders and facilitated dialogues on mussel farming, and they are searching for future solutions for the local and public acceptance of mussel farming.

2.2 Recording and mixing

Equipment used for recording:

- Beyer dynamic DT-770 Pro dynamic studio headphones.
- Zoom H6 Black recorder.
- EV RE50B, dynamic interview microphone.

All interviews and recordings were conducted by Mette Aaskov Knudsen / Blue Research. All audio files are saved.

Audio files and sound images for the two episodes of 17 and 33 minutes, respectively, were edited and mixed by contact sound technician Marco Diallo (About — MARCO DIALLO) in collaboration with Mette.

2.3 Launch on LinkedIn and statistics from Spotify

2.3.1 The Launch

The podcast was launched on the 29th of June 2025 on Spotify, which is a music and podcast platform free of charge.

We used Spotify for Creators to set up links and episode text.

Muslingeopdræt i danske farvande | Podcast on Spotify

The podcast was advertised on LinkedIn, using Blue Research's LinkedIn profile, where the poster in Figure 2 was used with a link via QR code.

Figure 2. Poster used on social media for advertising the podcast.

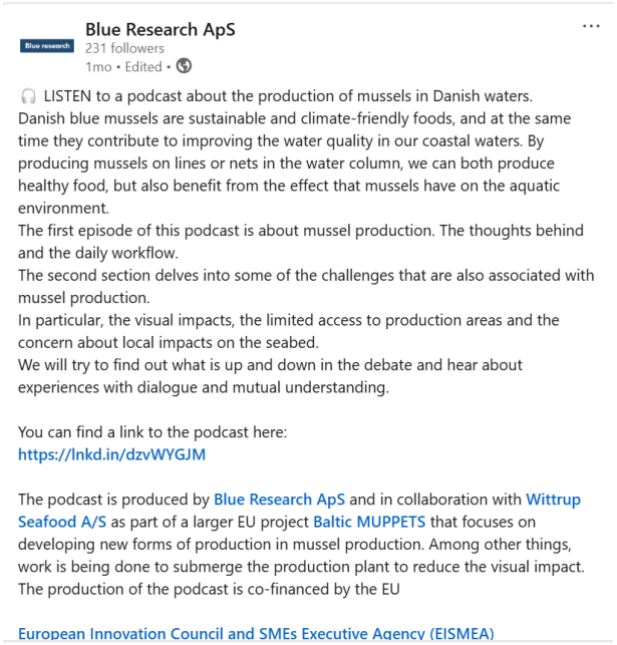

Figure 3. Screenshot of the post on LinkedIn.

In addition to the advertising from Blue Research of the podcast, several organisations and people in their network have mentioned the podcast in newsletters and linking posts on social media.

2.3.2 Statistics

On Spotify for Creators, it is possible to find statistics for the podcast episodes.

These statistics span a time frame from the launch in June to 11th November 2025.

The episodes have been heard 60 times, with a playback time of 10 hours.

The statistics do not contain any information on whether the listeners have listened to the whole episode or stopped halfway through the episodes.

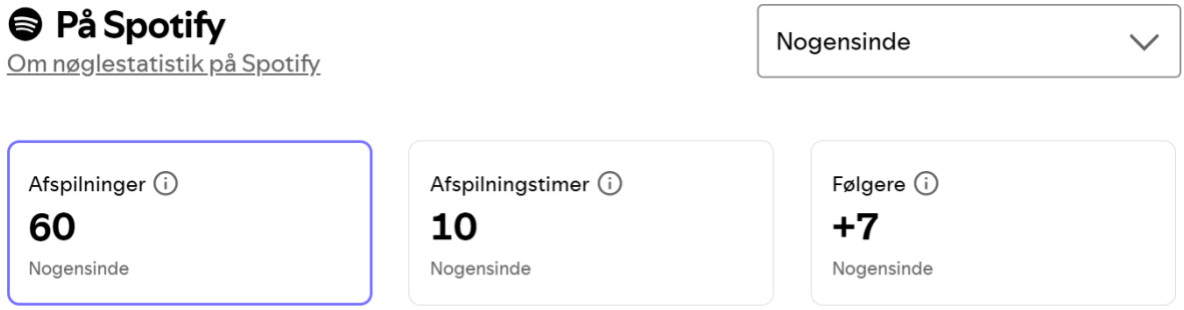

Figure 4. shows the number of playbacks, playback hours and followers of the two episodes.

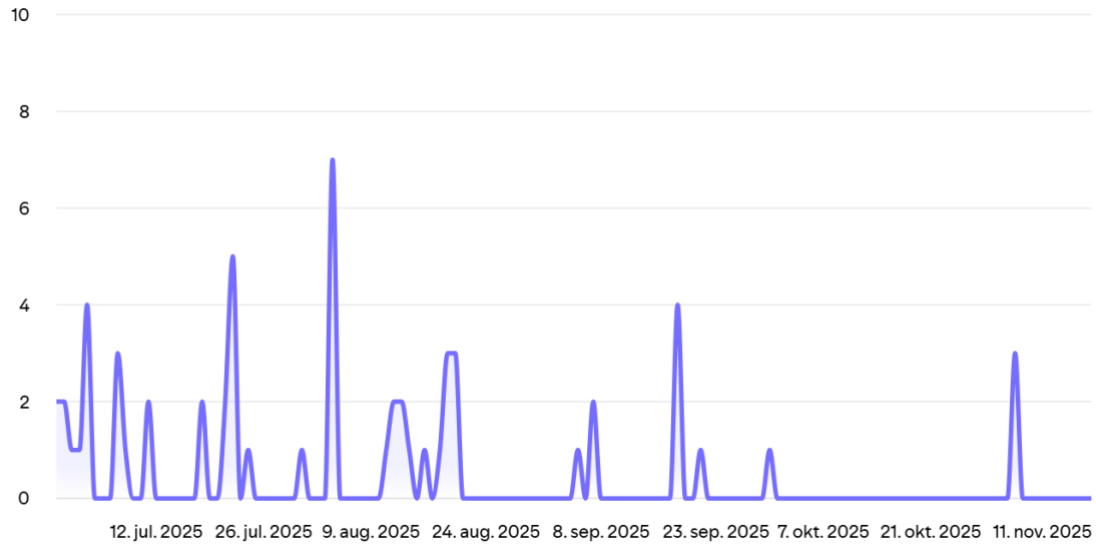

Figure 5. Timeline for the playbacks of the two episodes.

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3. POSTERS AND HOMEPAGE FOR WITTRUP SEAFOOD

3.1 The four poster themes

Figure 6. Mock–up of the four posters places on the façade of the harbour building.

Figure 7. The four themes: The mussel farm, the people behind, the bioblocks and the climate friendly mussel recipes.

The four posters will be of A0 size (84.1x118.9 cm), and produced in weather resistant materials.

Each poster will have a visible QR-code leading to a homepage: www.wittrup-seafood.dk.

The Baltic MUPPETS logo and the “co-funded by the EU”-logo will be placed at the bottom of the posters, according to the I3 and EU visibility guidelines.

The posters will be produced in early spring 2026. This is the time of year when the number of tourists and locals visiting the harbour is at its highest.

3.2 Wittrup Seafood´s Homepage

On the homepage (www.wittrup-seafood.dk), an option will be created in the top menu bar:

KNOWLEDGE ABOUT BLUE MUSSELS (Danish: 'Viden om blåmuslinger')

Here, three new options will be created:

- The biology of blue mussels / Mussel farming
- Blue mussels as a healthy and climate-friendly food
- Mussel farming creates life

These lead to subpages, where information on blue mussels is shared.

The text will be supported by images and figures as seen in Figure 8-9.

The full text in the homepage translated to English can be found in Appendix 2.

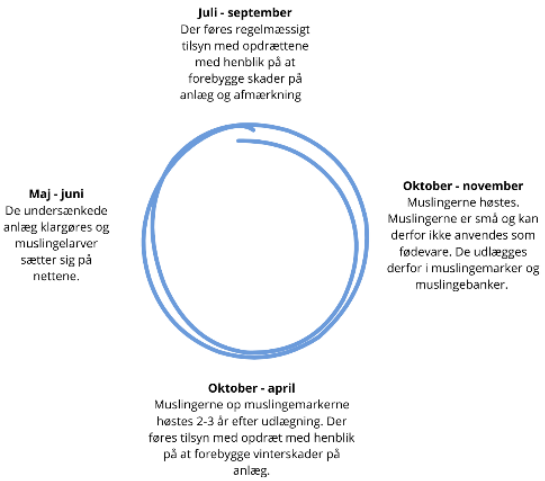

Figure 8. Annual cycle in production.

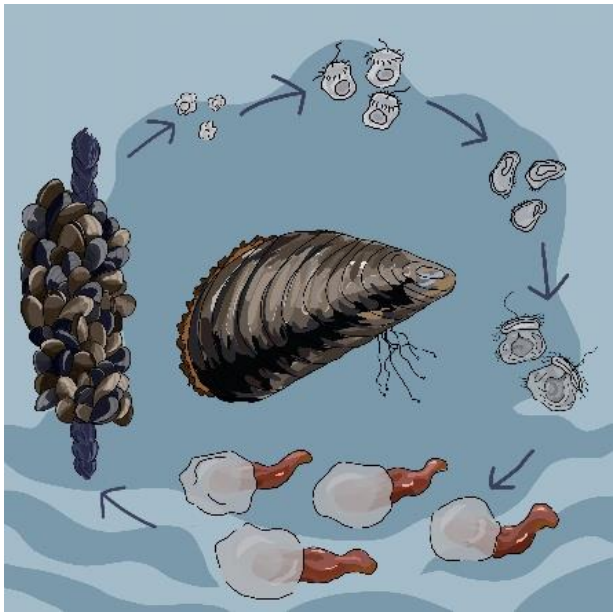

Figure 9. Life cycle of the blue mussel (Alma Wittrup).

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APPENDIX 1: STORYBOARD FOR THE PODCAST EPISODES

EPISODE 1

INTRO:

welcome to the podcast about mussel production. What is this podcast about?

Intro about blue mussels and their role in the marine ecosystem. The extent of mussel production in Denmark.

Wittrup Seafood is one of Denmark's largest mussel producers. They would like to develop their production method as a Smartfarm, submerged production. This is a part of a larger EU project Baltic MUPPETS.

What is the Baltic MUPPETS project, and what is the goal of this project (seen through Wittrup's eyes)?

Reportage format:

Where are we – Hvalpsund. Small port town at Risgårde bank in the Limfjord. To the south lies Skive town and Skive fjord. To the north lie Fur and Livø. There is a small ferry service between Hvalpsund and Sundsøre.

OUT ON A BOAT: We are now aboard one of their work boats.

We leave the quay and now sail out onto the Limfjord just west of Hvalpsund

(sound of motorboat and seagulls screeching)

AT THE FACTORY:

Cut to Rasmus and Stig.

Presentation of the two brothers and their company.

Questions:

How did it all start? What was your ambition when you started? What and where do you come from? (job, previous experiences, etc.)

OUT ON A BOAT: We have now reached the facility.

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What is the task today and how is it being approached? How does a submerged facility differ from traditional mussel facilities?

What does a yearly cycle look like for those of you who work with mussel production? On the boat / On land?

What are your workflows compared to before? (Submerged versus non-submerged) Advantages and disadvantages in workflow. Need for new development of technology and methods.

AT THE FACTORY:

Why are you involved in mussel production?

What is limiting the growth of your company?

Why do you want to develop your production equipment to be a SMARTfarm / submerged production method?

Do you think that a new form of production can be used in the marketing of mussels as a sustainable food resource?

What social value creation would you like to contribute to (healthy foods, low CO_2 footprint, gentle exploitation, marine nature restoration)?

OUT ON THE BOAT:

We are now finishing the day's work and heading to port. What is it like to work in mussel production? Seasonal work - physically hard - exposed to the opinions of others?

What is your experience of your surroundings' opinions on your work in mussel production?

AT THE FACTORY:

What experiences and lessons have you gained with this form of production (submerged cultivation method)?

What kind of future do you see as mussel producers?

Do you see any new business areas where there is unresolved potential?

In the best of all worlds, what will your business look like in five years?

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END:

Advertisement for the next podcast, which will be about:

- The local understanding and misunderstanding of mussel production and the influence of the marine environment.
- Mussel farms and outdoor activities at sea. For and against (Denmark's Nature Conservation Association/Henning Mørk Pedersen).
- Professional input on the importance of mussels for a cleaner marine environment (Aarhus University/Marie Maar).
- Skive Climate Fund and their work with local understanding and acceptance (Thine Hahnbak).

EPISODE 2

Introduction: In the last episode of this short series about mussels in Danish waters, we met the mussel producers. The people who make a living by producing food in the sea.

In this episode, we will dive into some of the conflicts that have arisen in connection to mussel production.

We will meet:

- Aarhus University / Professor Marie Maar.
- Denmark's Nature Conservation Association / Chief Advisor Henning Mørk Pedersen.
- Skive Fonden / Consultant Thine Hahnbak.
- Wittrup Seafood / CEO Rasmus Wittrup.

We start by meeting Professor Marie Maar from AU who has spent several years researching modelling marine ecosystems and how mussel farming can have an impact on the marine environment.

QUESTIONS FOR MARIE:

Why is it interesting to look at how the production of blue mussels can contribute to restoring the environment in our inland Danish waters?

You are an expert in the effects of mussels on the ecosystem. What is your background?

What does your research indicate? How effective are mussels at restoring the local environment?

What is the significance of the location of mussel farms and the density of mussels for the effect?

Where will we have the best effect from cultivating mussels if we only consider mussels as a means of improving the condition of marine areas?

What could be the possible negative effects of mussel production?

What attitudes towards mussel production and your research do you encounter?

How do you view the future of using mussels in the water column as a way of improving the condition of our coastal waters?

When you follow or participate in the debate surrounding mussel farming, do you think that there are arguments missing, or arguments that appear to have too little weight, or conversely, that there are arguments that should be given less weight?

Some of the green organisations in Denmark have been critical of mussel production.

QUESTIONS FOR HENNING:

We have asked Henning Mørk Pedersen from Denmark's Nature Conservation Association about the challenges he sees with the current production in the inland Danish waters and what solutions to these challenges could be. (Local eutrophication, outdoor life, visibility, etc.)

The discussion will focus on production in the water column, as it is the subject of the Baltic MUPPETS project.

Mussel farming can be considered regenerative food production. It can improve water quality, promote biodiversity, and at the same time, it is a food with a very low climate impact.

In this context, what is DN's overall position on mussel farming in the water column in Danish waters?

Where would it be most optimal in your perspective to grow mussels in the water column?

What is DN's point of view on the use of mussel production as a marine tool?

In a future production system, work is being done to submerge mussel farms so that they become less visible in the landscape (water). What is DN's position on this?

One of the major challenges in Danish marine management is that many fjords and coastal waters are affected by large discharges of nutrients. This must be implemented before good ecological status can be achieved. Even if reductions are made from land, it will take time before the full effect is achieved, mostly likely decades. In connection with the green tripartite deal, local water councils will be established, where DN will be represented. How does DN see the possibility of using marine instruments in the work of the water councils to improve water quality in our waters?

If we are to use mussel production to improve water quality and at the same time produce food with a low climate footprint, where does DN believe that this production is best planned in relation to other factors: other nature, visual effects, opportunities for outdoor life?

In Skive Fjord and in the waters around Hvalpsund, there are currently a number of mussel producers who grow mussels on line systems or SMARTfarm systems, which we heard about in the first episode.

Skive Fjord is part of the southwestern Limfjord. The Skive Climate Foundation has been established here.

The Skive Climate Foundation has on several occasions taken the initiative for dialogue meetings specifically about mussel production in Skive Fjord and the outer banks.

Thine speaks about the opportunities and solutions she sees in the use of dialogue to create mutual understanding of perspectives and for future acceptance of a multifunctional use of the inland Danish waters.

QUESTIONS TO THINE:

What is the Skive Climate Foundation and what are you working on at the Skive Climate Foundation?

What is the Skive Climate Foundation working on in relation to blue biomass and marine nature restoration?

What attitudes towards blue biomass and mussel production do you encounter among the local population?

Do you notice differences in attitudes depending on whether the questions raised are about economy, environment, and/or recreational interests?

What initiatives have you launched in this regard?

What have been the result of these initiatives?

How do you imagine that multifunctional use of our fjord and sea areas can be resolved? (Multifunctional as understood as multi-faceted use of the same areas.)

What do you think is the future of mussel production in the inland Danish waters in a 5-year perspective?

What do you think will be the future possibilities for solutions that create symbioses rather than conflicts?

Baltic MUPPETS

APPENDIX 2: TRANSLATION OF TEXT ON HOMEPAGE

The Biology of the Blue Mussel

The biology and significance of the blue mussel (images of blue mussels. Outside view showing shape and byssus threads. Inside view showing mantle, gills, foot, etc.)

The blue mussel (Mytilus edulis) is a mollusk commonly found in Danish waters. It feeds by filtering microplankton from the water through its gills. During the first 3-4 weeks of its life, the mussel exists as a free-swimming larva, after which it attaches to a solid surface using byssus threads. A blue mussel can live for 7-8 years and reach a size of approximately 10 cm. The blue mussel is dioecious and has a high reproductive potential, with a single female capable of releasing up to 12 million eggs. The mussel grows quickly and can form dense beds with up to 12,000 individuals per m². An adult mussel can filter up to 200 liters of water per day, so mussel farming in the water column and beds on the seabed can have a significant impact on the surrounding ecosystem.

Blue mussels contribute to the removal of nutrients and result in clearer water, which promotes the spread of eelgrass and macroalgae. They also serve as a habitat for a range of species and are therefore called an 'engineer species.' The mussels' feces create nutrient-rich mud that supports benthic organisms, but which can also pose challenges with nutrients directly beneath the aquaculture area.

Mussel Farming

(Various images of SMARTfarm)

Blue mussels can be cultivated in several different ways, depending on location, climate, and the purpose of the production. One of the most common methods is the use of longlines. Here, a main line is supported at the surface by buoys, which can be adjusted depending on the weight of the mussels.

Lines are attached to the main lines, which can be bands, twisted ropes, or ladders. These can be either continuous or short units. In the autumn, the blue mussels are sorted and placed in so-called ‘socks’ to ensure uniform high quality.

An alternative method is cultivation on nets suspended under floating or submerged pipes. This method is more automated and requires less manual labor, but on the other hand involves higher capital investments. To prevent damage from ice and to reduce visual impact, the facility can be submerged using concrete blocks.

Wittrup Seafood is in the process of establishing a submerged facility as part of an EU project, Baltic MUPPETS, with the aim of reducing visual impact and addressing challenges

related to ice formation.

A third method is bottom cultivation. Young blue mussels are placed on the seabed, where they grow more slowly due to the lower degree of water exchange and consequently decreased flow of food. These mussels are harvested with scrapers, and the method can affect the seabed and the associated ecosystem. The blue mussels produced are more thick-shelled and can withstand longer transport across Europe.

Annual cycle in mussel production

(Image showing the annual cycle)

The cleansing effect of blue mussels

When a mussel is fully grown, it can filter about 200 liters of water per day, and a mussel bed can thus filter enormous amounts of water. In this way, they can have a significant impact on the ecosystem of which they are part.

This is why blue mussels are taken into account when trying to improve the water quality in Danish waters. One of the biggest challenges for the sea around Denmark is pollution from agricultural nutrients. These nutrients can lead to algal blooms, which ultimately can result in oxygen depletion and fish death. If there are large numbers of blue mussels, they can counteract the algal blooms by eating the algae and thereby removing nutrients from the water. If the blue mussels are then harvested, nutrients can be effectively removed from the ecosystem, and pollution from agriculture can be counteracted.

The use of mussel farms to clean our waters is, however, not entirely without problems, partly because about one-third of the nutrients they absorb are excreted and settle to the bottom as feces, which can potentially damage the seabed environment. Blue mussels are an ‘engineer species,’ because they create habitats for a range of other species. In mussel beds, there is often higher biodiversity, as the mussels provide hiding places for fish and other species. For example, it has been shown that there is often a relatively high density of eels in mussel farms or mussel beds. The surfaces of the mussels also create habitats for species that need a solid surface to attach to. Under the mussel bed, a nutrient-rich mud forms from the mussels’ feces. This mud serves as a habitat for organisms that are adapted to life under these conditions.

The shell formation of mussels binds CO_2. Production of mussels, where the shells are used in construction or otherwise stored, will remove CO_2 and thereby contribute to Denmark's goals for reducing greenhouse gases.

Mussels as climate-friendly food

Mussels are a healthy, affordable, and climate-friendly food. They contain omega-3 fatty

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acids, iron, and protein, and are often referred to as the "steak of the sea." Dietary guidelines recommend 350 g of fish per week, and mussels are an excellent choice in meeting this goal.

Blue mussels are rich in nutrients, including omega-3 fatty acids, which are good for the brain, and iron, which benefits blood production – a natural vitamin pill. Therefore, blue mussels are an good alternative to beef and pork.

Mussels emit only about 100 g of CO_2 per kg of produced mussels – compared to beef, which emits about 13.9 kg of CO_2 per kg. This makes mussels one of the most sustainable and climate-friendly animal protein sources – and generally also in comparison to fruits and vegetables.

Certification

(Image of the blue MSC label)

Wittrup Seafood have been MSC-certified since 2012. The MSC label ensures that production is sustainable and traceable throughout the entire supply chain. The Marine Stewardship Council (MSC) is an independent international ecolabel for environmentally friendly and sustainable fishing. MSC actively works to ensure a healthy marine environment. All MSC-certified products can be traced all the way through the supply chain back to an MSC-certified fishery. This way, you can be sure that your mussels are produced sustainably and with respect for the marine environment when you choose the blue MSC label.

Bioblocks create life

As part of the EU project Baltic MUPPETS, Wittrup Seafood works on the development of special concrete blocks, which will be installed in a submerged system with 60 pipes and nets 3.15 meters deep.

These blocks will serve as artificial reefs, which in Danish waters can create new life on otherwise soft seabeds. They act as a solid substrate and habitat for algae, molluscs, crustaceans, and fish, helping to increase biodiversity. The reefs provide shelter and breeding grounds, creating an ecosystem that is valuable both ecologically and economically. 3,500 bioblocks weighing 250 kg each are used per system.

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