

Interreg Baltic Sea Region

Mid-term evaluation of Programme impact

Case Study Report

BALTIC BLUE GROWTH



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1 Executive Summary

Impact on Target Groups by BALTIC BLUE GROWTH

SO	Target Group	Processes where Target Groups are involved	Learning Experiences /Use of Project products and results	Specific Impacts on the Institutional Capacities of target groups	Dimension of institutional capacity
2.4	Potential mussel farmers and investors, fish farmers, consumers of mussel products, Researchers working on mussel farming and related environmental and ecosystem impacts in research institutions, universities and environmental agencies, technology providers.	<p>1) Establishment of pilot mussel farms: review of available mussel production equipment, optimising and monitoring mussel production, developing systems for submerged mussel farms, monitoring the effects of mussel farming on water quality.</p> <p>2) Developing technology for postharvest processing: assessing the value of mussel and larvae meal as animal feed.</p> <p>3) Developing relevant business models.</p> <p>4) Promoting business opportunities</p>	<p>1) Research results, environmental monitoring and benchmarking on Mussel/fish (and algae) farming, use of best practice for mussel production, including cultivation methods, available technology, best equipment and knowledge on different practice suitable for the Baltic Sea environmental conditions through the collection of data and experiences from the pilot farms.</p> <p>2) Use of research on post-harvest processing in order to develop viable business solutions and mussel products (animal feed etc.).</p>	Increased capacity of mussel farmers to run successful, commercially viable business focusing on enhanced competence and knowledge about environmental impact, technical conditions, economic data, fodder industry, legislation and maritime and spatial planning.	Enhanced institutionalised knowledge and competence; More efficient use of human and technical resources; Increased capability to work in transnational environment
2.4	Regional, national and international authorities responsible for maritime spatial planning	<p>1) Studies on relevant policies</p> <p>2) Development of an Operational Decision Support System (ODSS) (a geoportal where all relevant environmental data related to the mussel farming and the mussel farming). The web based ODSS will provide opportunity to discuss the potential management decisions with the key stakeholders and to have the necessary feedback and thereby facilitating dialogue between mussel farmers and other stakeholders about socio-economic and environmental benefits and consequences of Baltic Sea mussel</p>	<p>1) Developing capacities and methodologies on how to find optimal sites, coordinating interests with other sea users and allocate areas for mussel farming within maritime spatial plans.</p> <p>2) Contribute to create an efficient legal framework regarding MSP regarding responsibilities between different authorities, administrative routines regarding permits, supervision etc. which needs to be clarified.</p>	Enhance the knowledge and competence regarding the environmental considerations related to Baltic Sea mussel farming in maritime spatial planning.	Enhanced institutionalised knowledge and competence; Improved governance structures and organisational set-up; Increased capability to work in transnational environment

SO	Target Group	Processes where Target Groups are involved	Learning Experiences /Use of Project products and results	Specific Impacts on the Institutional Capacities of target groups	Dimension of institutional capacity
		<p>farming.</p> <p>3) Meetings and Proposals to harmonize maritime spatial planning</p> <p>4) Guidance for licensing processes.</p>			
2.4	<p>National and regional/local public authorities including financial bodies responsible for environmental protection, regulatory authorities responsible for environmental protection, policymakers in regional, national and international bodies responsible for marine environment.</p>	<p>1) Studies and maps of potential mussel farm areas in the BSR.</p> <p>2) Joint development of instruments, such as a simple “closing the nutrient loop” assessment tool for determining mussel farm impacts on nutrient budgets and application of the FARM (Farm Aquaculture Resource Management application) to existing mussel farms. The activities generate answers about environmental assessment of farm related eutrophication effects including potential mitigation options.</p> <p>3) Proposal of suitable ecosystem compensation mechanisms</p>	<p>1) Improved knowledge and capacities on how to make use of the coastal areas in a sustainable way through mussel farming;</p> <p>2) Increased knowledge on environmental impact, technical conditions, fodder industry, legislation and license issues, an access to support tool enabling the development environmental risks management solutions, and economic data for their daily use.</p>	<p>Enhance the capacity among policymakers and public authorities on common methodologies for planning farms including maritime and spatial planning, economic, legal and socioeconomic aspects.</p>	<p>Enhanced institutionalised knowledge and competence;</p> <p>Improved governance structures and organisational set-up;</p> <p>Increased capability to work in transnational environment</p>

2 Project description

One of the most serious challenges the Baltic Sea is facing is eutrophication, the enrichment of ecosystems by chemical nutrients. The objective of the project BALTIC BLUE GROWTH (BBG) is to remove nutrients from the Baltic Sea Region by farming and harvesting blue mussels. This may be a stand-alone measure to counteract eutrophication, but can also become a business model for the feed industry and be used in symbiosis with fish farms, by that offering new business opportunities for blue growth in coastal areas.

The project is co-funded by Interreg Baltic Sea Region under Priority 2 and Specific Objective 2.4 'Blue Growth', pursuing the objective of enhancing capacity of public authorities, enterprises, and NGOs in the Programme area to implement measures to advance sustainable business opportunities for blue growth. The project has a total budget of EUR 4.65 million. It started in May 2016 and will end in April 2019.

Previous projects have shown that mussel farming in the Baltic Sea is feasible and beneficial to the environment. The project aims to advance mussel farming in the Baltic Sea from experimental to full scale. The project will follow four focus farms and two test farms where environmental, legal, commercial and maritime spatial planning (MSP) issues are clarified. The main outputs of the project will be:

- Four operational mussel farms, which contribute to business plans and manuals for mussel farmers in general and Plans for long-term commercial viability
- Models and functional decision support tools based on environmental data collated from mussel farms
- Analysis of legislation issues for mussel farming and Guide on licensing process
- Recommendations for a harmonised methodology in Maritime Spatial Planning and possible nutrient ecosystem compensation measures.
- A pilot scale production chain (post-harvest processing) for mussel meal for animal feed.

The 18 project partners cover the essential target groups needed for such a wide range of interest and competence areas including mussel farmers, authorities, related associations, research organisations and commercial partners. There are 20 associated partners, all contributing in valuable ways to the project; important networks, research institutions with long mussel farm experience with similar conditions (Canada), as BSR mussel farmers, feed industry representatives, authorities, associations for fish farmers etc.

The outputs will be used by maritime spatial planners, potential mussel farmers and investors, fish farmers, technology providers, the coastal population, international organisations and strategies, regulatory authorities, policymakers, national and international bodies responsible for marine environment.

The project is a EUSBSR flagship under Policy Area NUTRI and is part of the portfolio of projects of the EUSBSR flagship SUBMARINER network in the Baltic Sea Region. At the same time, the SUBMARINER network for Blue Growth is a project partner in the Baltic Blue Growth project.

3 Expected results, outputs and activities

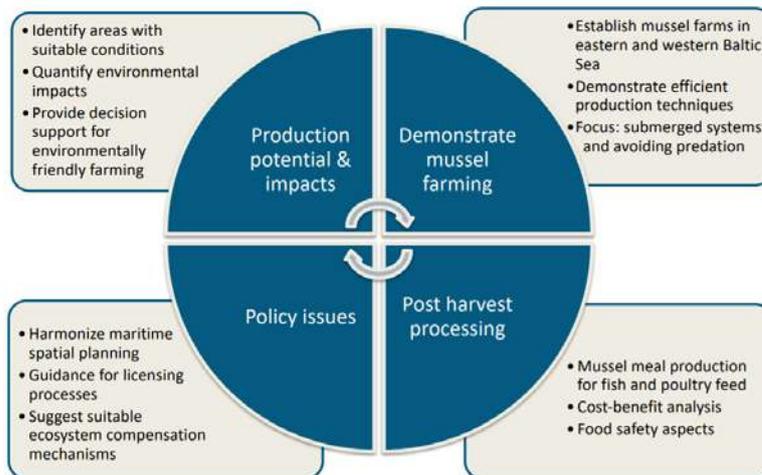
BBG contributes to blue growth by providing new business models for the feed industry, which can use mussel meal as an ingredient in animal feed, replacing e.g. imported fish and soybean meal. To pave the way for full-scale mussel farming, the project will clarify environmental, legal and regulatory aspects of mussel farming. Baltic Blue Growth aims to proceed from pilot stage to real business cases and build up an awareness and capacity concerning blue growth and mussel farming among the private and public sectors.

Expected project results and outputs*

Expected Project Results
The project will contribute to increased knowledge on Mussel/fish (and algae) farming by site-specific reports on best practice for mussel production, including cultivation methods, available technology, best equipment and knowledge on different practice suitable for the Baltic Sea environmental conditions through the collection of data and experiences from the pilot farms. The project will produce models and reports on environmental impact, technical conditions, fodder industry, legislation and license issues, an access to support tool enabling the development environmental risks management solutions, and economic data for their daily use.
Authorities responsible for maritime spatial planning will benefit from and use in their daily work, the factsheet number 1; a summarise of environmental considerations related to Baltic Sea mussel farming that will be developed in the project. Also factsheet number 3; describing a decision support system designed to facilitate dialogue between mussel farmers and authorities responsible for MSP. These factsheets will provide important input to the planning process in the coastal areas on how to make use of the coastal areas in a sustainable way and how to allocate marine space for mussel farms. It will also create a joint approach between the countries in the Baltic Sea Region on mussel-farming in neighbouring areas.
Policy makers, national and regional public authorities including financial bodies responsible for environmental protection – harmonized methodology on how to find optimal sites, coordinating interests with other sea users and allocate areas for mussel farming within maritime spatial plans. This plan will be developed for everyday use. The project will produce a guide on licensing process for Baltic Sea mussel farming for daily practice. The manual will be applicable throughout the Baltic Sea region and a good source of reference for other EU marine countries. Recommendations on best possible incentives for compensations measures with high transnational value for the Baltic Sea region also in regard to other possible similar nutrient removal methods using marine aquaculture and also for other maritime areas in the EU.
Expected Documented Learning Experience
Six test farm for mussels. Four of the farms are already established farms in the Baltic and two of them will be established during 2015-2016. All farms have different preconditions due to environmental factors, legal issues, MSP, the owner’s interest etc. In common for all six is that no real market has ever existed due to the size of the mussels and prices on the market. These farms will be issued for not just environmental sampling and analysis, but also analysis out of a commercial perspective. By interviews and regional meetings, information and knowledge from the farmers will be collated and feed into comprehensive mussel farming guidelines and business plans.
Legislation issues have to provide a clear step-by-step procedure for mussel farmers on all legal aspects related to start and development of mussel farming in Baltic Sea countries, especially licensing. Mussel farmers, national and regional authorities responsible for MSP and for environmental legislation will be involved into clarification of legislative procedures. An inventory on existing EU law will be produced in order to assess the possibility of applying compensation measures, on financial aspects, for the ‘ecosystem services’ provided by the mussels.
“Closing the loop” will be a useful tool for dialogue about the impacts of mussel farms on nutrient budgets. The model will be generic to provide relevant information about nutrients and contaminants in a wide range of farm conditions. Parallel to the model, an environmental risk management decision support tool will be implemented for future environmental conditions together with guidelines for farmers when dealing with environmental risk management. Target groups are spatial planners, international organizations (HELCOM), authorities approving new farms, national and international bodies responsible for the marine environment.
Expected Other Outputs
No. of local/regional public authorities/institutions involved: 7
No. of enterprises receiving support: 3
No. of enterprises receiving non-financial support: 10
No. of enterprises cooperating with research institutions: 3
No. of documented newly developed market products and services: 1

*as defined in the Application Form Sections 3.8, 5.1 and 5.2.

The activities of the project include the elaboration of reports and studies, as well as project and stakeholder meetings. Activities take place in the following four areas of work in BBG:



The involved mussel farmers have been invited to project meetings, workshops and other regional meetings. They have also been given other opportunities, especially while participating in field work for BBG sampling purposes, to exchange knowledge and information with researchers and consultants that are experts in their field. Moreover, the draft compilation of state of the art in

the MSP in the Baltic Sea region has been prepared.

The above described activities have already enhanced the capacity of mussel farmers to run successful businesses, provided that the acquired knowledge is put to use in continued dialogue with concerned authorities and other stakeholders.

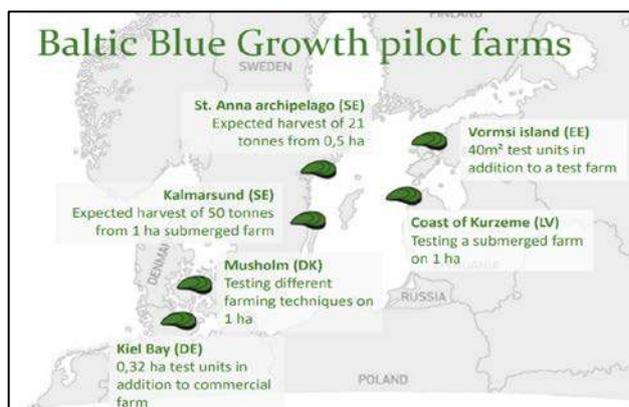
Apart from a general Powerpoint presentation about the project 'Introduction to Baltic Blue Growth', the project has produced the following publications:

- 2 Factsheets on Mussel Farms and Environmental Monitoring
- Reports:
 - Substrate Test at Musholm
 - Farming of blue mussels (*Mytilus edulis trossulus*) in the Baltic Sea, a review of pilot studies from 2007-2016
 - Feed market potential.
- Videos:
 - Harvest of the Kiel Marine Farm.
 - Mussel farm off the coast of Kurzeme, Latvia.

4 Project partnership

The Baltic Blue Growth partnership consists of 18 partners including mussel producers, public authorities, policy makers, research institutions and network organisations from six Baltic Sea Region countries. There are 20 associated partners, such as important networks, research institutions with long mussel farm experience, as BSR mussel farmers, feed industry representatives, authorities, associations for fish farmers. The project partnership reflects the complex multi-level public and private governance that is needed to work on new business opportunities that depend on maritime spatial planning and environmental protection.

There are three private, for profit partners in the project. They are essential for the project as they connect the public authorities to the stakeholders that can further develop experimental mussel farms and products and possibly exploit new business opportunities. One of the private partners mentioned in an interview¹ that administrative procedure of the Interreg BSR Programme is at an acceptable level, without too much administrative burden. However, it is difficult for a private company to participate with an important role, as there are



restrictions to funding (that might be interpreted as generation of benefit/income). So, in any case for a for-profit company, the participation in an Interreg project cannot generate profit and has to be co-funded with its own resources – however, the indirect value for the company through the project has to be clear and tangible for them.

A stronger focus on the development of business opportunities for mussel products would have required the involvement of more private companies, in particular of one or more large companies or a larger technology provider². This might be now the focus of a spin-off project.

Regional and Local Public Authorities	Region Östergötland (SE)	The County Administrative Board of Kalmar (SE)	Kalmar municipality (SE)
	Kurzeme Planning Region (LV)	County Administrative Board of Östergötland (SE)	Borgholm municipality (SE)
Research Organisations	Latvian Institute of Aquatic Ecology (LIAE) (LV)	Maritime Institute in Gdańsk (PL)	Swedish University of Agricultural Sciences (SLU) (SE)
	University of Tartu (EE)	Swedish Institute of Agricultural and Environmental Engineering (JTI) (SE)	
Private, for –profit	Coastal Research & Management GbR (DE)	Orbicon Ltd. (DK)	Musholm Inc. (DK)
Other	East Regional Aquaculture Centre (ERAC / VCO) (SE) is a non-profit organisation aiming to facilitate the transfer of information between research and industry	Ministry for Energy Transition, Agriculture, Environment, Nature and Digitalization (MELUND) Schleswig-Holstein (DE) as sectoral agency	SUBMARINER Network for Blue Growth (Baltic Sea Region network organisation, EUSBSR Flagship, based in DE)
	EUCC – The Coastal Union Germany (EUCC-D) (DE)		

¹ Based on information from interviews with project partners.

² Based on information from interviews with project partners.

It has to be noted that, for example, one private partner was not aware before on the Baltic Sea Region programme but was made aware by a national business intermediary organisation (multiplier), indicating that the rules and requirements have been simplified.³

5 Contribution of the project to the EUSBSR

The project is a EUSBSR flagship under Policy Area NUTRI and is part of the portfolio of projects of the EUSBSR flagship SUBMARINER network in the Baltic Sea Region. At the same time, the SUBMARINER network for Blue Growth is a project partner in the Baltic Blue Growth project.

There is a strong and fruitful relationship between the project, the SUBMARINER network and the Policy Area NUTRI (mainly, through the PAC NUTRI and the project manager)⁴. This relationship is maintained with regular meetings and an exchange of information. There is also a joint organisation and (co-)participation in events and dissemination activities that are relevant for PA NUTRI, SUBMARINER and the Baltic Blue Growth project. Visibility and access to wider networks, mainly of public policy-makers is, therefore, enhanced.

The benefits of being part of SUBMARINER and being linked to PA NUTRI are mainly affecting public project partners, and among them, mostly the partners at national and regional level, less the local authorities. This is mainly due to the fact, that local authorities focus first on their local area and, secondly, on contacts to relevant partners in their country or in other countries. However, they have no interest and no capacities to be involved in larger transnational networks on a long-term basis. Regional, but in particular, national authorities have the resources and also the interest to participate regularly in transnational networks and projects. Thus, they benefit from more stable framework conditions that are guaranteed by a network such as SUBMARINER.

Private partners, according to the interviews, seem not be aware about the relevance and role of the BBG project in the SUBMARINER network or the PA NUTRI, even if they are interested in transnational collaboration and relevant contacts with other stakeholders.

³ Based on information from interviews with project partners.

⁴ Based on information from interviews with project partners.

6 Communication and outreach to target groups

The project communication officer is in charge of the communication activities (e.g. website, factsheets, publications), but depends on the project partners for content to be communicated. The project communication is based on a practical approach to communication and relies on the project partner and on the overarching SUBMARINER network to reach out to the final stakeholders. The project partner EUCC is responsible for a more in-depth contact to final target groups.

The main stakeholders represent the mussel farming value chain, i.e. technology providers, mussel farmers, licensing authorities, fodder industries and fish.

Target Groups
WP2: Spatial planners, potential mussel farmers, international organizations (e.g. HELCOM), regulatory authorities responsible for approving new farms as well as national and international bodies with responsibility for the marine environment. Main end-users and beneficiaries of the tool are first of all practitioners involved into the mussel farming within the Baltic Sea Region.
WP3: Mussel- and fish farmers, technology providers, the potential future mussel farm operator and the authorities in charge for fishery & agriculture, but also investors, coastal population, policymakers & authorities including financial bodies responsible for environmental protection, nutrient mitigation, aquaculture & maritime spatial planners (MSP).
WP 4: Mussel farmers, fishermen, animal-feed producers, chicken-producers, end consumers, policy makers are all targeted for information from this work. I.e. the main target groups are a) animal-feed producers for those who want to find an alternative to imported protein feed ingredients b) chicken- and fish producers, especially for those who want to reduce the utilization of fish meal and soya protein in feed. The quality of the final products, fish- and broiler-meat and the egg quality will interest the end consumer and the National Food Administrations.
WP 5: Spatial planners, environmental and regional authorities (e.g. environmental boards, planning regions), potential investors in the Baltic Sea area to increase their knowledge on mussel farming issues and thus also enhance institutional capacity.

Source: Application Form Section 4

The outreach to stakeholders is organised through 'Regional mussel coordination groups'. The coordination groups consist of all stakeholders being involved in and affected by the establishment of mussel farms, in particular potential operators of the farm, authorities in charge of environmental legislation, MSP, fisheries, agriculture, regional development and representatives of the feed industry and mussel experts (e.g. researchers, consultants, technology providers). These regional groups meet on a regular basis, at least 4 times throughout the project, and provide a forum for a constructive cross-dialogue between BBG and its main target groups.

The project is well aware that they have to identify and communicate with decision makers in their fields. That is why they produce several deliverables, such as short factsheets on certain topics, to inform policy-makers on relevant issues.

The project is active in producing dissemination material such as Powerpoint presentations, FAQs and Videos. This helps to introduce the new field of mussel farming to the different target groups. Through the high number of associated partners, the projects reaches out also to other regions and even non-EU countries (e.g. Canada).

7 Impact on target groups

The project has a manifold impact on the different target groups. One of the purposes of the project is to bring stakeholders together and provide a forum for dialogue and joint development of tools, instruments and recommendations. Therefore, not only the different target groups benefit from the project but also the whole value chain of mussel production in the BSR.

The project benefits from the wide diversity of stakeholders, bringing together public decision-makers and private stakeholders, looking for business opportunities. However, this diversity is also a challenge for the project in the sense that research institutions find limitations compared to 'usual R&D projects' and private for-profit partners feel that rhythm and ambition is limited by the public partners and 'a lot of talking and less doing'. It is possible that this project will produce several spin-off projects, e.g. one for transnational research and development (HORIZON, ERA-NET), one for business development (e.g. in BONUS or COSME), and another INTERREG project for further learning in public authorities. In this sense, the project can be considered as of high added value, both for public and for private target groups.

As regards institutional capacity, the project tries to enhance:

- capacity of mussel farmers to run successful, commercially viable business focusing on enhanced competence and knowledge about environmental impact, technical conditions, economic data, fodder industry, legislation and maritime and spatial planning.
- knowledge and competence regarding the environmental considerations related to Baltic Sea mussel farming in maritime spatial planning.
- capacity among policymakers and public authorities on common methodologies for planning farms including maritime and spatial planning, economic, legal and socioeconomic aspects.

The project has an impact on the following dimensions of institutional capacities:

Dimensions of Institutional Learning induced by the Project			
Enhanced institutionalised knowledge and competence	Impact on the availability of knowledge about blue growth opportunities in novel fields	Impact on the availability of mechanisms for knowledge transfer	Impact on the utilization of knowledge about blue growth opportunities in novel fields
Improved governance structures and organisational set-up	Impact on the availability of organizational structures		Impact on the utilization of organizational structures
Increased capability to work in transnational environment	Impact on the available competences to work transnationally	Impact on the frequency of transnational contacts	Impact on the intensity of transnational contacts

Source: Application Form Section 3.8

Given the project activities so far, capacity building has been particularly noticeable in the area of the pilot mussel farms, and there, in the fields of environmental impact, fodder production processes,

fodder legislation and MSP. In particular, the following processes that induced learning are worth mentioning:

- 1) A “Feed task force” has been created to facilitate the mussel farmers’ access to feed-related industry knowledge and contacts with large corporations further down the mussel-feed value chain, such as TrippelNine (fish meal) and BioMar (fish feed).
- 2) Environmental specialists have worked together with the mussel farmers to design and implement a monitoring scheme for important environmental parameters, resulting in increased awareness of potential environmental issues (such as increased sedimentation below farms) and solutions to avoid negative environmental impacts.
- 3) Mussel farmers have been made aware of the different country-specific MSP processes that are ongoing. BBG farmers are now aware that they need to take active part in the MSP process to ensure that areas suitable for mussel farming are planned for.
- 4) Existing ideas and concepts of methodological approach on how to include mussels famers in MSP has been identified in desk research and taking into account the experience gained within the BBG mussel farming activities, e.g. preliminary list of environmental criteria (salinity, temperature, currents, suspension etc.) for selection of the best possible location of mussel farms in the Baltic Sea; compilation of an overview of methodologies / methods for the determination of the mussel farms; overview of existing practices on integrating existing and planned mussel in MSPs);
- 5) A common methodology, covering aspects of MSP, legislation, environmental impact and socio-economic factors, is being developed. Data from farming activities, environmental monitoring, computer modelling and desk research is used in this process. In addition to these activities, contacts with authorities/policy makers have been initiated and meetings for information exchange organised.

Three examples of inducing the use of project outputs for learning and capacity-building by final target groups are presented below:

The **Swedish** BBG partners (mussel farmers, county boards and municipalities) met with representatives of the Swedish Board of Agriculture and the Swedish national veterinary institute to discuss permit processes for implementation of mussel farms and mussel processing for feed. The meeting had two major outcomes. Mussel farmers gained insight in the legal aspects of handling mussels (as animal by-products), and a joint strategy for the process towards a feed-grade mussel production was developed.

A similar meeting, also to discuss legal aspects, was organised in **Latvia**, at the Ministry of Environmental Protection and Regional Development. Participants were from the abovementioned Ministry but also the Ministry of Agriculture. It was concluded that Latvian laws and regulations provide the possibility of starting commercial mussel farming; however, until there has been a first precedent neither the cost of preparatory work nor the time needed for preparing and receiving the necessary documentation is known.

As part of the Baltic Blue Growth project, a stakeholder workshop on the draft of the newly developed Guide for Licensing took place on 26th of April in Eckernförde, **Germany**. The aim of the workshop was to examine how to optimize the licensing process for a shellfish farm, as improving the regulatory environment is a prerequisite for improving the potential of the aquaculture sector. The participants, representatives of the authorities from Schleswig-Holstein, discussed how the approval process can be simplified by simplifying planning and ensuring the best possible cooperation between the licensing authorities.

On the basis of a fictitious mussel farm application, the participants discussed the previous approval process and discussed whether there is room for improvement. On the one hand, it is not possible to simplify or shorten the procedure without undermining the regulatory goals. On the other hand, everyone agreed that efficient cooperation between the various authorities plays an important role.

An advantage in any case is the early involvement of the responsible authorities. It would also be conceivable to set up an online platform with all the relevant documents and information that would make the internal exchange of information between authorities and companies more transparent.

The results of the workshop will be incorporated in the finalization of the Guide for Licensing, which will be published as part of the BBG project.

8 Annex

List of Interviews conducted for the Case Study Research

Name	Organisation	Role in Project	Contact data (email or phone)	Date of interview
Lena Tasse	Region Östergötland	Project Manager	+46 101 036 946 lena.tasse@regionostergotland.se	1 st June 2018
Susanna Minnhagen	Kalmar Municipality	Project Partner	phone: +46 480 450172 email: susanna.minnhagen@kalmar.se	1 st June 2018
Annika Steele	SUBMARINER Network for Blue Growth EEIG	Communication Officer	+49 30 832 1417 46 as@submariner-network.eu	11 th June 2018
Per Dolmer	ORBICON	Target Group representative	phone: +45 2134 7781 email: pdol@orbicon.dk	20 th June 2018

List of revised documents

- Project Application Form
- Project Progress Reports
- Project Website: <https://www.submariner-network.eu/projects/balticbluegrowth>
- Powerpoint Presentation by the project: “Baltic Blue Growth – Initiating full scale mussel farming in the Baltic Sea”
- Factsheets by the Project on Mussel Farms and Environmental Monitoring