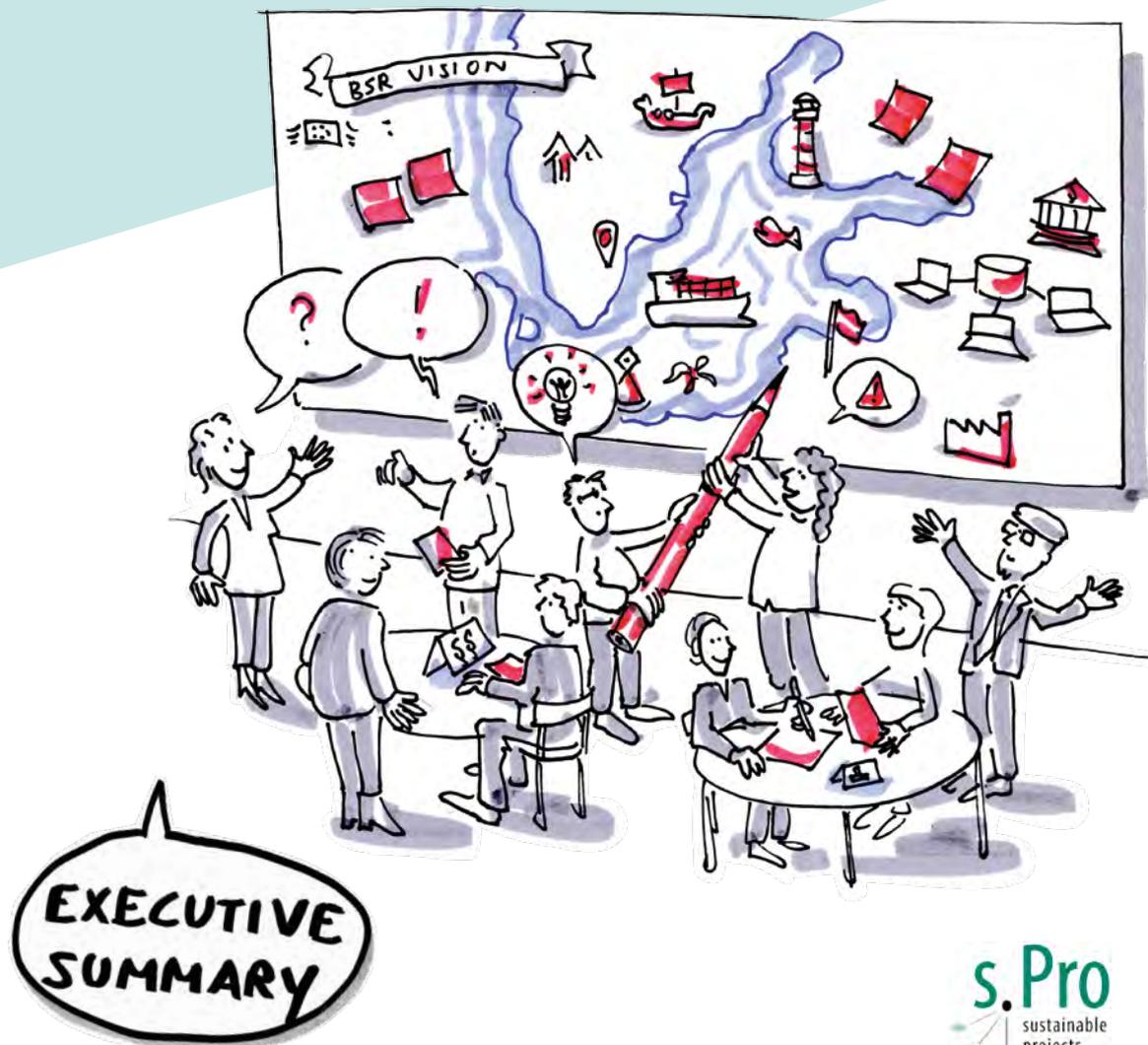


TOWARDS AN IMPLEMENTATION STRATEGY FOR THE SUSTAINABLE BLUE GROWTH AGENDA FOR THE BALTIC SEA REGION



EXECUTIVE SUMMARY

The Sustainable Blue Growth Agenda for the Baltic Sea Region, adopted by the European Commission in 2014, highlights the extraordinary potential for developing the maritime economy in the Baltic Sea Region (BSR).

This report, "Towards an implementation strategy for the Sustainable Blue Growth Agenda for the Baltic Sea Region," presents the results of a systematic stakeholder dialogue in the region. Initiated by the European Commission in September 2016, the aim of the dialogue was to identify and discuss in greater depth the processes necessary to realise the Baltic Blue Growth Agenda in the coming years. This dialogue focused on the following mix of high-potential and emerging thematic areas¹:

- **Shipping;**
- **Blue bioeconomy (incl. aquaculture);**
- **Coastal and maritime tourism;**
- **Environmental and monitoring technology.**

The process for the systematic stakeholder dialogue had six steps and included various engagement and outreach formats. 275 blue growth stakeholders participated in the survey, 50 interviews with pivotal stakeholders were carried out and around 120 stakeholders took active part in the workshops.

The report bundles and collates the broad feedback of the BSR blue growth stakeholders' process.

This summary lays out the strategic transformation maps suggested for each of the four thematic areas. They identify the main drivers and challenges for each area, sketch a desirable vision for 2030, point to the necessary strategic fields and recommended strategic actions targeting relevant stakeholders in the BSR.

The report identifies strategic action fields, potential actors and bricks to build on for implementing the Sustainable Blue Growth Agenda for the Baltic Sea Region, which could help public and private decision-making bodies to ensure that appropriate mechanisms and programmes are put in place in the coming years to enable actors to take the steps described under the various strategic action fields.

And last but not least, the report aims to inspire actors in the BSR to take a lead and/or get involved in those strategic action fields where they have most competence and capacity based on their existing innovation eco-systems, strategies and investment plans.

¹The selection does not mean that other thematic areas are considered less important (e.g. ocean energy or fisheries). They may be taken up in future steps.



SHIPPING

The Baltic Blue Growth Agenda showed that out of all maritime sectors, shipping is still by far the greatest generator of gross value added in the region. Core drivers and challenges for the development of the BSR's shipping are

- Digitalisation and high tech: maritime clouds, computer power, smart sensors, big data and automation systems;
- Up-scaling of vessels sizes and cargo volumes per port;
- Governmental actions in favour of autonomous shipping;
- Environmental regulations;
- Oil price developments.

// Possible Demonstration



Projects include: //

- Establishing a joint test bed for autonomous vessels at the BSR level (including their interaction also with conventional vessels);
- Develop a joint port-community system for small and some medium ports, which speeds up logistics and connects the different transport modes in the port and in its hinterland;
- Install high voltage onshore power supply infrastructure in test ports.

Vision for 2030

Digitalisation and green shipping has changed the whole shipping sector across the entire value chain.

Skilled labour is available at all levels due to adapted education.

The majority of ships in the Baltic Sea are e-navigation compatible and have some automated functions.

Shipping and port operations are environmentally sound. CO₂, SO_x and NO_x ship emissions are lower.

A harmonised infrastructure network exists for alternative fuel bunkering and shore-sided electric power supply.

Shipbuilding remains at the current level of economic importance.

Shipyards have completed the retrofitting of existing vessels.

The maritime industry continues to produce high-end, specialised vessels and maritime equipment.

Potential actors include port authorities and port associations, maritime universities and research institutions, ship owners, transport operators and shipyards. The EU Strategy for the Baltic Sea Region (EUSBSR) Policy Area Coordinators (PACs) Ship and Safe, the Helsinki Commission's Maritime Working Group as well as the Baltic Ports Association are central networks of actors to build on for overall coordination. Other starting points include the results and networks of the Sea Traffic Management Validation project and the Maritime Cloud of the EfficienSea2 project.

Strategic action fields

Strengthen e-navigation and pave the way for autonomous shipping:

Join forces and align efforts to create improved internet connectivity and organise concerted action for appropriate regulation at the global level.

Share data across the entire supply chain:

Create a joint system for the collection and sharing of data on cargo from different transport modes.

Develop green solutions:

Develop onshore power supply infrastructure and fuel supply networks (e.g. for liquid natural gas). Assess the suitability of alternative fuels projects targeting the whole transport system.

Create framework conditions for a successful shipbuilding industry:

Support pre-competitive research (e.g. in the field of automation / robotics or the harmonisation of data formats).

Ensure skilled labour:

Develop education and training in new technologies and processes (e.g. digitalisation, new propulsion and logistics systems).

Secure operation of small and medium ports:

Improve conditions for the survival of small and medium ports (e.g. joint port-community system or hinterland transport connection).

BLUE BIOECONOMY

The blue bioeconomy sector (incl. aquaculture) offers significant growth potential in the BSR for producing a variety of marine biobased products and services, maintaining and improving the ecosystem. Fishery is not included in this report. Core drivers and challenges for the development of the BSR's blue bioeconomy are

- Political strategies promoting the blue bioeconomy on various levels;
- The obligation to achieve Good Environmental Status¹ and ongoing challenges caused by eutrophication and pollutants as a driver for innovative measures and technologies;
- Inconsistent and unclear regulatory framework regarding specific blue bioeconomy activities;
- Strong research and development (R&D) capacities and high innovation potential of BSR R&D institutions and small and medium-sized enterprises (SMEs);
- Lack of dedicated and efficient blue bioeconomy business support structures;
- Presence of blue bioeconomy-related BSR-wide networks and platforms;
- Technical advances such as increased efficiency due to marine robotics and modelling techniques.

Potential actors include the EUSBSR PACs Bioeconomy, Nutri and INNO including its umbrella flagship SUBMARINER Network. Current projects, such as the Baltic Blue Biotechnology Alliance and InnoAquaTech are developing new forms of business development support structures.

Vision for 2030

A clear, consistent and harmonised regulatory framework is in place throughout the BSR.

A growing number of marine biobased products and services are available to end-consumer markets.

The BSR is a global knowledge hub for blue biorefinery and circular economy approaches.

Wild biomass (e.g. algae or reed) along the coastline is removed to remediate "eutrophication hotspots" and used in biogas production or as a food or feed ingredient.

Mussel farms provide environmental services such as increased water transparency and nutrient uptake, and supply high-value feed products for agri- and aquaculture.

Commercial macroalgae cultivation is in place in the Baltic Sea for a range of algae-based products produced according to the biorefinery concept.

Blue biotechnology works as an enabler through the whole value chain.

Considerable upscaling of blue biotechnology as an enabling technology for a thriving industry has taken place.

Land-based recirculating aquaculture systems (RAS) have enabled a steep increase in production of farmed fish and other high-value seafood.

Consumers have a positive attitude towards sustainably produced, regional high-quality fish and seafood products.

Strategic action fields

Regulation:

Establish an inter-ministerial, BSR wide working group, which initiates procedures to streamline regulations and ecosystem service payments.

Communication, networks and marketing:

Develop and implement a large-scale professional image, marketing and branding campaign for Baltic Sea blue bioeconomy products and services.

Technology:

Support technology transfer and development for blue biomass harvesting, preservation, cultivation and storage. Provide BSR wide access to a coordinated network of research and up-scaling infrastructures.

Finance and funding:

Provide ongoing public funding to support cross-disciplinary business development advice for blue bioeconomy start-ups. Develop novel public-private partnership financing instruments with long-term commitments.

// Possible Demonstration Projects include: // 

- Novel aquaculture cultivation techniques (e.g. closed containment systems) are tested and adapted to Baltic Sea conditions;
- Systematic business development support: Set up a permanent BSR-wide business support infrastructure supporting blue bioeconomy start-ups and SMEs;
- Piloting ecosystem service payments: Economic measures are tested in pioneer regions.

¹The main goal of the Marine Strategy Framework Directive (MSFD) is to achieve Good Environmental Status of EU marine waters by 2020.

Maritime & coastal TOURISM

Coastal and maritime tourism is a mature and well-developed blue growth area in the BSR. The Baltic Blue Growth Agenda regards coastal tourism as economically very important. Core drivers and challenges for the development of the BSR's coastal and maritime tourism are

- Seasonality of demand calls for diversification of products and services;
- Concentration of tourism in a few centres (e.g. cruise ports or sea-side resorts) necessitates better development of (and connections to) hinterland destinations and new attractions away from city centers;
- Demographic change and new demand patterns require new specific touristic products;
- Digitalisation opens new possibilities for selling and creating touristic products;
- Local stakeholders need to benefit from coastal tourism and not suffer from it;
- Awareness of sustainability and the quality of the experience are becoming more important;
- The BSR is a safe and secure place.

Potential actors include tourism professionals (both public and private), local stakeholders and IT companies. Starting points include the flagship projects of the EUSBSR PAC Tourism.

Vision for 2030

A broader range of visitors (including from non - EU countries) and offers increase business in non-summer months.

Capacity limits of destinations are respected.

Marinas offer an attractive environment year-round.

The tourism sector closely cooperates with local residents.

Remote areas of the BSR are better accessible.

New cross-cutting products and services exist for specific target groups.

A pan-Baltic data portal on maritime tourism with common indicators exists.

Nature tourism offers many package deals in combination with other tourism sectors.

Cruise tourism is the gateway for many international tourists coming to the BSR.

More European senior citizens travel to the BSR.

Local businesses, citizens and authorities drive maritime tourism.

Both the tourism industry as well as the visitors highly value sustainability.

The Good Environmental Status status of the Baltic Sea is an indispensable prerequisite for tourism.

Strategic action fields

Product and service innovation:

Invest in digitalising offers and products. Identify new business models. Improve accessibility. Analyse data.

Coordinating the cooperation of actors and destinations:

Organise the destination management, and engagement and empowerment of local stakeholders. Enhance horizontal cooperation across the BSR. Facilitate cooperation across sectors and value chains.

Marketing and promotion:

Develop innovative marketing concepts (e.g. "clean air tourism campaigns" for non-EU markets). Apply a multitude of promotion tools. Increase visibility. Create common quality standards.

// Possible Demonstration Projects include: //



- Development of new luxury offers: Quality products other than traditional material luxury such as nature (glamping) or authentic maritime heritage experience (becoming a lighthouse keeper for a week);
- An 'UBER' for boats: Facilitate the hiring of private boats to tourists in order to increase accessibility of remote natural areas;
- Heritage Access Card: Up-scaling the Finnish Museum Card to other countries and regions in the BSR.

Environmental and monitoring technology (EMT) is as a lynch pin for obtaining sustainable growth within other maritime functions. Core drivers and challenges for the development of the BSR's EMT are

- EU directives and regulations such as the Marine Strategy Framework Directive, Water Framework Directive, and Maritime Spatial Planning Directive;
- New and combined uses of ocean space and platforms;
- Growth in other maritime economic areas and their environmental and operational monitoring needs;
- Pressure to achieve cost efficiencies, especially regarding public funding;
- Complex knowledge-driven innovation and technologies.

// Possible Demonstration Projects include: //



- Optimal platform design for monitoring technology: Determine requirements for robust and cost-effective equipment (lifecycle cost);
- Develop a Marine Robotics Incubator for the BSR: Science meets industries to develop next generation of marine autonomy;
- Technology demonstrations of regional excellence for supporting the MSFD implementation.

Vision for 2030

EMT is an economically relevant blue growth sector itself.

An integrated knowledge platform for EMT in the BSR supports a sustainable maritime economy exists.

Affordable, robust, standardized technologies and systems enable long-term operations for the user and economies of scales for the producer.

Easy exchange of transnational and sectoral data through standards and agreed communication pathways.

Infrastructure is in place to deal with the demands of big data analytics.

A virtual Baltic Data Centre exists with public and private data available through a flexible open data policy.

Environmental monitoring is carried out on a transnational level by local, private companies in cooperation with public research institutions.

Operational monitoring provides on-demand services according to the different sectoral needs and based on a functioning business model.

The BSR is globally recognized for its monitoring technology expertise (also in harsh environments).

A "BSR Cluster" is setting the technological standards for (parts of) monitoring technology.

Strategic action fields

Make environmental and operational monitoring technologies and services more effective:

Establish a Technology Exchange Platform. Identify sectoral needs and relevant markets. Pilot market analysis.

Foster efficient monitoring technologies and services:

Develop necessary common standards and protocols. Boost adaptive monitoring to complement existing monitoring. Establish test facilities.

Develop export market for BSR environmental and operational monitoring technologies and services:

Invest in technology to be used in harsh environments. Promote "first use" of novel technology. Develop joint export promotion services (e.g. market research). Launch projects in developing countries to open up new markets.

Develop efficient public-private partnerships:

Investigate different models for partnerships. Increase knowledge exchange between young scientists, engineers and SMEs.

Potential actors include technology and system providers as well as research institutes and (transnational) networks. Starting points are a.o. the HELCOM-VASAB MSP Data Group, German Association for Marine Technology, European Marine Observation and Data Network Checkpoint and the Baltic Operational Oceanographic System.

FINDINGS AND THE WAY FORWARD

This stakeholder dialogue process has raised attention and interest in the Baltic Blue Growth Agenda among many stakeholders throughout the BSR. The process has created four positive and realistic visions for where the BSR could be in 13 years time in each of the four selected thematic areas.

Whereas the above four transformation maps show the specific visions and strategic action fields for each thematic area, there are some noteworthy commonalities between them:

- Making cooperation fit for purpose: Develop and conduct tailor-made dialogue formats with the private sector;
- Exporting blue solutions, products and services: What has worked in the BSR is potentially interesting for countries / regions not only within Europe, but also world-wide;
- Market research and marketing: Market intelligence does not exist in many instances and thus market development efforts are needed throughout all thematic areas;
- Financing: Lack of finance is less of an issue than the availability of specific types of financing and related support for unlocking it.

There are also common drivers for all four thematic areas:

- Digitalisation / IT Solutions: Technology solutions are in most cases already there, but throughout the blue economy there is still an insufficient understanding of how to make the best use of these solutions;
- Environmental Challenges: The search for finding adequate solutions represents a major driver for innovation and thus a driver for economic growth itself.

Many stakeholders would like to continue this interactive process as it has been very helpful for them to get to know the overall picture and to see where their role might be in this puzzle.

Suggestions for next steps:

- Disseminate and communicate the results of this process widely among the BSR stakeholders with the aim to ensure that actions are picked up at all levels (from local to EU);

- Make use of innovative communication tools and methods that facilitate the interaction and involvement of stakeholders (e.g. make transformation maps interactive; strategy roadshow);
- Consider the identified actions for the next generation of funding programmes and adjust the funding approach (ensure also longterm strategic network and cluster support in addition to time-limited projects);
- Provide support for developing bankable investment projects out of the identified demonstration projects;
- Work towards alignment and coherence of a multitude of strategies and policies in the field of blue growth under the umbrella of the EUSBSR. Provide resources for target-oriented coordination as well as more focused actions.

The strategic action fields, potential actors and bricks to build on as identified in this report could contribute to frame this process further.

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