

# Interreg South Baltic Cross-Border Cooperation Programme 2021 – 2027

## STRATEGIC ENVIRONMENTAL ASSESSMENT REPORT

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## List of abbreviations

BQR	Biological Quality Ratio
BSAP	Baltic Sea Action Plan
CE	Circular Economy
DNSH	Do No Significant Harm
EAP	Environment Action Programme
EEA	European Environment Agency
EGD	European Green Deal
EIA	Environmental Impact Assessment
EIA Act	The Act of 3 October 2008 on sharing information about the environment and its protection, public participation in environmental protection and environmental impact assessment (Journal of Laws of 2021, item 247, as amended)
EIONET	European Environment Information and Observation Network
ERDF	European Regional Development Fund
EU	European Union
EUSBSR	The European Union Strategy for the Baltic Sea Region
GIS	Geographic Information Systems
HELCOM	Baltic Marine Environment Protection Commission
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature's
MPA	Marine Protected Areas
Natura 2000 area	Special Protection Area for Birds, Special Area of Conservation for Habitats or Sites of Community Interest established to protect wild bird populations or natural habitats or species of Community interest
NUTS	Nomenclature of Territorial Units for Statistics
PO	Policy objective
RCP	Representative Concentration Pathways
SBA	South Baltic Area
SD	Sustainable Development
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SEA	DIRECTIVE 2001/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
Directive	of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment
SWOT	Strengths, Weaknesses, Opportunities, Threats
Taxonomy Regulation	Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WFD	Water Framework Directive
NATO	North Atlantic Treaty Organization
PM	Particulate Matter
VOC	Volatile Organic Compounds
WTO	World Tourism Organization

# 1 The scope of the assessment, the level of detail of the assessments carried out and the methods used to prepare the assessment

## 1.1 Introduction

The Strategic Environmental Assessment Report (hereinafter the SEA Report or Report) concerns the strategic document entitled „Interreg South Baltic Cross-Border Cooperation Programme 2021 – 2027” (hereinafter the "Programme").

The Programme covers 25 NUTS 3 subregions (*subject to change if the area is extended to include the Olsztyn sub-region*), which are part of the territories of five Baltic countries: Denmark, Germany, Lithuania, Poland and Sweden, which defines the cross-border nature of the Programme (Fig. 1-1).

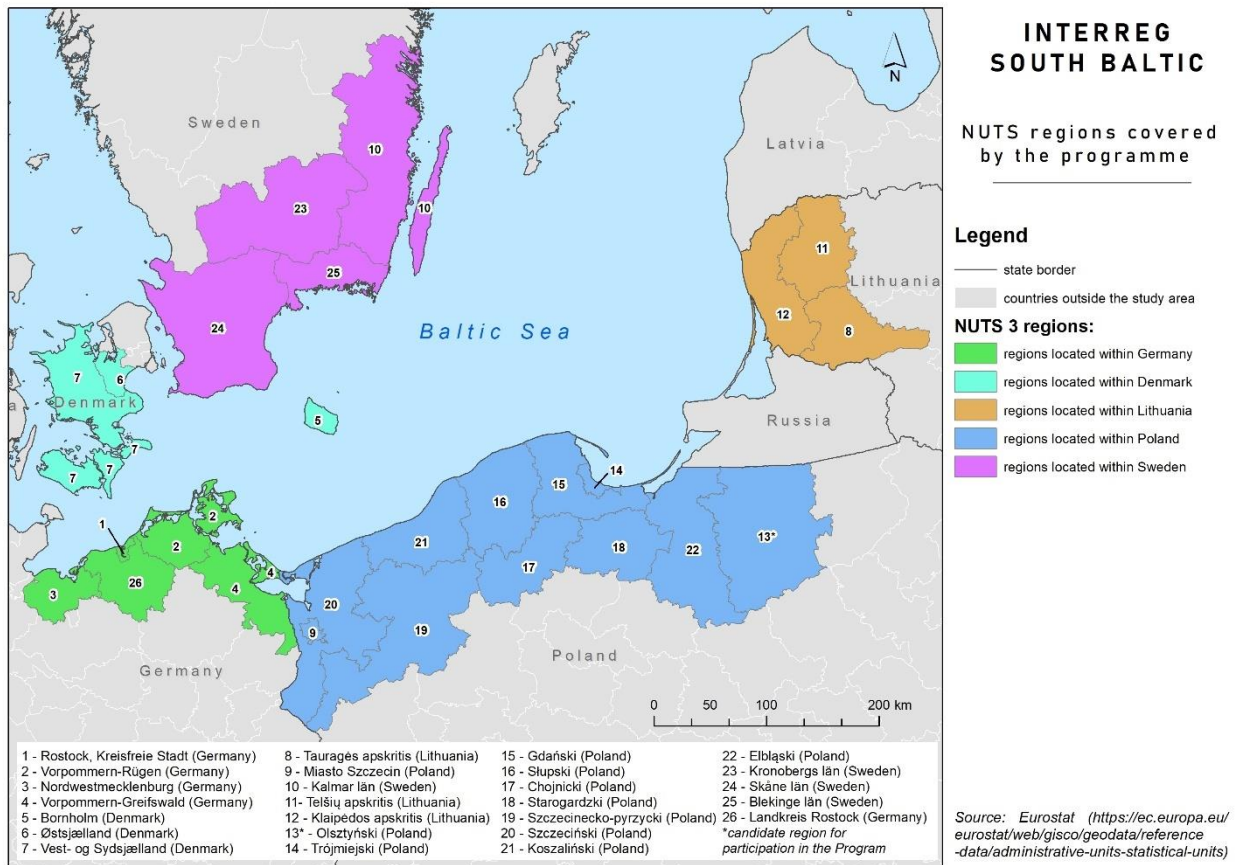


Fig. 1-1 Map of the SBA (source: own work on the basis of EUROSTAT's data)

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The SEA Report is the equivalent of the environmental report referred to in Art. 5 of the EU Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (hereinafter the SEA Directive). The said report, pursuant to Art. 3 of the SEA Directive is required for plans and programmes that can potentially cause significant environmental effects. The procedure under which the environmental impact of implementing a plan or Programme is assessed is called strategic environmental assessment.

The procedure for strategic environmental impact assessment (SEA) is conducted on the basis of Polish regulations. Under Polish law, the requirements of the SEA Directive have been transposed into the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments (i.e. Journal of Laws of 2021, item 247), hereinafter referred to as the EIA Act. The obligation to conduct a strategic environmental impact assessment results directly from Art. 46 sec. 1 point 2 of the EIA Act.

Pursuant to Art. 3 sec. 1 point 14 of the EIA Act, the first stage of the strategic environmental impact assessment is to agree on the scope and level of detail of information required in the environmental impact report - which is commonly referred to as scoping under the SEA Directive. A correctly performed procedure for determining the scope of the Report identifies those environmental and health issues related to the Programme and which should be analyzed in the subsequent stages of the assessment. Hence, scoping is important for the effectiveness of SEA proceedings as it ensures a focus on those issues and impacts that are relevant to the Programme.

Pursuant to the Polish law, the scope of the Assessment is determined by written arrangements with the competent environmental authorities, i.e.:

- General Director of Environmental Protection,
- Chief Sanitary Inspector,
- Competent directors of maritime offices (if the planned implementation of a given document concerns maritime areas).

The Polish law does not provide for the preparation of a separate report on the scope of the assessment (scoping report). On the other hand, the findings and opinions of the above-mentioned environmental protection authorities should be included in the prepared SEA Report.

Due to the specific nature of the Programme and its cross-border nature, the Member States have established the need to prepare a separate report on the scope of the SEA Report as part of

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the SEA procedure (scoping report). This report will be agreed with the National Coordinators of the Member States.

The next stage of the procedure is the preparation of the SEA Report for the Programme. The purpose of the Report is to identify in writing the most likely environmental effects that may be caused by the implementation of the plans included in the analyzed document.

The Report has been prepared in the scope resulting from Art. 51 sec. 2 of the EIA Act, under the conditions referred to in Art. 52 sec. 1 and 2 above of the EIA Act, taking into account the requirements as to the scope expressed by:

- General Director for Environmental Protection (DOOŚ-TSOOŚ.411.20.2021.aba of 07.12.2021)
- Chief Sanitary Inspector (HŚ.NS.530.11.2021.WK of 12.07.2021)
- Director of the Maritime Office in Gdynia (INZ.8103.77.2021.AD of 27.07.2021)
- Director of the Maritime Office in Szczecin (OW.52001.8.20.AZ (2) of 06.07.2021)
- Competent institutions of the Programme Member States

The SEA Report was performed for the 2021 version of the program. During the works, the team of authors focused on these elements of the environment, for which we both assess the document, and performance of projects resulting therefrom, that may have a realistic impact (whether positive or negative).

The table below shows the manner of presenting the adjustment of contents to the requirements of the art. 41 of the Environmental Protection Act and positions of particular bodies, as indicated in art. 57 and art. 58 of the Environmental Protection Act, on scope and level of detailedness of information required in the SEA Report.

*Tab. 1.1 Manner of adjustment of content to the requirements of art. 51 of EIA and positions of proper authorities.*

PLACE OF PRESENTATION OF	CHAPTER
information about the content, main objectives of the designed document and its links with other documents	4, 2
information on the methods used in the preparation of the Report	1.3
proposals for the anticipated methods of analyzing the effects of implementing the provisions of the draft document and the frequency of its implementation	5.3
information on possible cross-border environmental effects	4.6
a summary in a non-specialist language	Appendix 2

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the author's declaration, and if the contractor is the team of authors - managing the team, on the fulfillment of the requirements referred to in Art. 74a paragraph. 2, constituting an appendix to the assessment,	Appendix 3	
the date of preparation of the Report, first name, surname and signature of the author, and in the case when the contractor of the assessment is the team of authors - the name, surname and signature of the team leader as well as the names, surnames and signatures of the members of the team of authors;	6.1	
<b>PLACE OF ANALYSIS AND EVALUATION OF</b>	<b>CHAPTER</b>	
the existing state of the environment and potential changes to this state in the event of failure to implement the designed document	3, 5.4	
the condition of the environment in areas subject to expected significant impact	3	
existing problems of environmental protection significant from the point of view of the implementation of the draft document, in particular regarding areas subject to protection under the Nature Conservation Act of 16 April 2004	3	
environmental protection objectives set at the international, community and national level, relevant to the draft document, and the ways in which these objectives and other environmental problems were taken into account in the development of the document	2.2	
expected significant impacts, including direct, indirect, secondary, cumulative, short-term, medium-term and long-term, permanent and temporary as well as positive and negative impacts, on the objectives and object of protection of the Natura 2000 area and the integrity of this site, and on the environment, in particular:	biodiversity	3.1, 4.1- 4.4
	people (including human health)	3.2, 4.1- 4.4
	animals	3.1, 4.1- 4.4
	plants	3.1, 4.1- 4.4
	water	3.3,3.4, 4.1- 4.4
	air	3.5, 4.1- 4.4
	the surface of the earth	3.9, 4.1- 4.4
	landscape	3.6, 4.1- 4.4
	climate	3.8, 4.1- 4.4
	natural resources	3.9, 4.1- 4.4
	historical monuments	3.7, 4.1- 4.4
material goods	3.2, 4.1- 4.4	
take into account the relationship between these elements of the environment and between the impacts on these elements	4.5	
<b>PLACE OF PRESENTATION OF</b>	<b>CHAPTER</b>	
solutions aimed at preventing, limiting or compensating for negative environmental impacts that may result from the implementation of the draft document, in particular for the purposes and object of protection of the Natura 2000 area and the integrity of this area	5.1, 5.2	
the objectives and geographical scope of the document as well as the objectives and subject of protection of the Natura 2000 area and the integrity of this area - alternative solutions to the solutions contained in the draft document together with the justification for their choice and description of the methods of assessment leading to this choice or explanation of the lack of alternative solutions, including indication of the	5.1, 5.2, 1.4	



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encountered difficulties resulting from technical deficiencies or gaps in modern knowledge	
PLACE WHERE THE SPECIFIC REQUIREMENTS OF THE MEMBER STATES CONCERNED, AS EXPRESSED BY THE NATIONAL COORDINATORS OF DENMARK, SWEDEN, LITHUANIA AND GERMANY, HAVE BEEN TAKEN INTO ACCOUNT	CHAPTER
(Ministry of Enterprise and Innovation - Sweden) Supplementing the list of related documents.	2.2
PLACE WHERE THE ELEMENTS REFERRED TO IN THE AGREEMENT OF THE GENERAL DIRECTOR OF ENVIRONMENTAL PROTECTION WERE TAKEN INTO ACCOUNT	CHAPTER
When referring to the part of the Programme that will concern activities implemented in Poland, it should be noted that the assessment should meet the requirements set out in Art. 51 sec. 2 and art. 52 sec. 1 and 2 of the Environmental Protection Act. It is possible to use different levels of detail of analyzes in the assessment, depending on the method of including individual activities and undertakings in the Programme.	1.1, 1.2
The Report should define the impact of the Programme implementation on the condition and functioning of the areas subject to protection under the Act of 16 April 2004 on nature protection (Journal of Laws of 2020, item 55, as amended; hereinafter: the Nature Conservation Act), in particular for the purposes and object of protection of Natura 2000 areas and the integrity of these areas. When analyzing the impact on the environment, including Natura 2000 areas, it is necessary to indicate not only the very nature of the impacts, but also whether they are significant. Pursuant to Art. 55 sec. 2 of the Environmental Protection Act, the draft document may not be adopted if the strategic environmental impact assessment shows that its implementation may have a significant negative impact on Natura 2000 areas, and all the conditions referred to in Art. 34 of the Nature Conservation Act. Therefore, in the event of such impacts, the issue of meeting the above-mentioned requirements should be examined and described in the assessment. premises.	3.1, 4.1- 4.4
The directions of measures and solutions proposed in the assessment aimed at preventing, limiting or possible environmental compensation of negative environmental impacts that may result from the implementation of the draft document, as well as alternative solutions should be adapted to the specific situations they concern.	5.1, 5.2
When developing the Report, particular attention should be paid to the action, development, demonstration and implementation of green energy solutions in the production, distribution and storage of energy from renewable sources (e.g. wave energy, solar energy, biomass (also for fuels, heating and biogas) , geothermal energy, etc.), while maintaining a balance with environmental protection requirements and regulations (e.g. DRSM) "in terms of the scale of environmental impact, as well as its type and impact on protected areas, including Natura 2000 areas. that the environmental protection requirements are specified by the regulations, and the application of the regulations cannot be selective.	3.1, 5.1, 5.2
If the measures or their effects concern maritime areas, when analyzing the links between the project and other documents, attention should be paid to the provisions of the documents relating to these areas, including spatial development plans and the environmental impact Assessment prepared for them, primarily in the context of the coherence of the objectives.	3.4

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Due to the spatial scope of the draft document, it is necessary to thoroughly analyze and justify the conclusions in the assessment regarding the possible occurrence of cross-border environmental impacts in the area covered by the project and outside it.	4.6
It is also very important to ensure that proceedings with the participation of the public are conducted in a manner that meets the legal requirements in force in all countries participating in the Programme, while treating all involved societies equally.	-
It is recommended to present the location of planned activities on clear maps, against the background of forms of space use and important, including those subject to protection, elements of the environment. The legitimacy of spatial imagery concerns all phenomena identified as important of a spatial nature and the interaction of these phenomena.	throughout all the document
<b>PLACE WHERE THE ELEMENTS REFERRED TO IN THE AGREEMENT OF THE CHIEF SANITARY INSPECTOR WERE TAKEN INTO ACCOUNT</b>	<b>CHAPTER</b>
The environmental impact assessment for the project of the Interreg South Baltic Cross-Border Cooperation Programme 2021 – 2027 should be prepared in accordance with Art. 51 sec. 2 and art. 52 sec. 1 and 2 of the Act of 3 October 2008 on the provision of information about the environment and its protection, public participation in environmental protection and on environmental impact assessments, and include a qualitative and quantitative assessment of the impact of the implementation of the provisions of the Programme on individual components of the environment, and in terms of competences To the Chief Sanitary Inspectorate to give a reliable assessment of the impact on human health, in particular in terms of:	
<ul style="list-style-type: none"> <li>- exposure to noise, vibrations and air pollution,</li> <li>- threats to intakes and sources of water intended for human consumption, taking into account the areas of protection zones of these intakes,</li> <li>- threats to groundwater, in particular the Main Groundwater Reservoirs located throughout the country (you should take into account the orders, prohibitions and restrictions related to the protection of water resources),</li> <li>- threats to bodies of surface water used for recreational purposes, i.e. for the organization of bathing and occasional bathing,</li> <li>- maintaining permissible noise levels in acoustically protected areas, especially in residential areas / human habitats, buildings related to the permanent or temporary stay of children and adolescents (educational units) and recreational and leisure areas,</li> <li>- ensuring appropriate air quality standards.</li> </ul>	1.1, 3.2, 4.1-4.4
The environmental impact assessment should refer to the full version of the draft document and cover all planned activities that may have a significant impact on the environment, both in the implementation and operation phases. If, at a later stage of the works, the draft document is extended with additional provisions, important from the point of view of the adequacy of the strategic environmental impact assessment, should also be taken into account in the assessment.	4.1- 4.4
In addition, in the case of identifying the risk of negative impacts on human health and life related to the implementation of activities provided for in the Program, the environmental impact assessment for the draft Programme should specifically refer to the possible methods of their effective elimination or maximum reduction.	5.1, 5.2
Additionally, pursuant to the wording of Art. 3 sec. 2 of the Act of 3 October 2008 on sharing information about the environment and its protection, public participation in	3.2

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environmental protection and environmental impact assessment, it should be emphasized that whenever the Act mentions environmental impact, it is also understood as for human health.	
THE PLACE WHERE THE ELEMENTS REFERRED TO IN THE ARRANGEMENTS OF THE DIRECTORS OF MARITIME AREAS (MO SZCZECIN AND GDYNIA)	CHAPTER
In addition to the information contained in Art. 51 sec. 2 of the EIA Act, with regard to issues affecting Polish sea areas, referred to in the Act of March 21, 1991 on marine areas of the Republic of Poland and maritime administration, the environmental impact assessment should refer to and take into account the following comments:	
1. The environmental impact assessment should identify, analyze and evaluate the environmental protection objectives set at international, community and national levels relevant to the project and the ways in which these objectives and other environmental concerns were taken into account in the development of the document.	1, 2.2
2. The environmental impact assessment should take into account the protected areas referred to in Art. 6 of the Nature Conservation Act of 16 April 2004 (Journal of Laws of 2021, item 1098), located in marine areas and in the coastal belt, as well as for the purposes of nature protection listed in Art. 2 of the aforementioned act.	3.1
3. The project environmental impact assessment should define the impact of the implementation of the provisions of the project on the marine environment, including the coastal zone and natural values, taking into account the impact on the state of natural habitats, plant and animal species and their habitats for which marine Natura 2000 areas have been designated, as well as on the integrity and coherence of these areas.	3.1, 4.1- 4.4
4. With regard to the activities planned for implementation under the South Baltic Programme 2021-2027 and related to interference with the ecosystem of marine waters, the environmental impact assessment should define possible solutions to prevent and reduce negative environmental impacts that may result from the implementation of the above-mentioned of the project, as well as methods of limiting and combating potential water pollution caused during the implementation of planned activities in sea areas.	5.1, 5.2
5. The environmental impact assessment should evaluate the measures presented in the South Baltic Programme 2021-2027 in relation to prohibitions and restrictions resulting from legal acts in force in protected areas, in particular those resulting from Art. 33 of the Nature Conservation Act. The EIA assessment should also be assessed in the context of indications and recommendations contained in the established and planned protection task plans or protection plans for Natura 2000 areas.	3.1, 4.1- 4.4
the following comments should be addressed and taken into account in the EIA assessment:	
1. The EIA assessment should fully comply with the requirements resulting from Art. 51 sec. 2 of the Environmental Protection Act, subject to the conditions referred to in Art. 52 sec. 1 of the aforementioned act.	1
2. In the EIA assessment, particular attention should be paid to the diagnosis of the condition of the environment in the areas covered by the anticipated significant impact, determination of the expected significant impacts and presentation of solutions aimed at preventing or reducing negative impacts that may result from the implementation of the Programme project.	3, 5.1, 5.2

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3. Take into account the protected areas referred to in Art. 6 of the Nature Conservation Act of 16 April 2004 (Journal of Laws of 2021, item 1098), hereinafter referred to as the "Nature Conservation Act", located in sea areas and in the coastal strip.	3.1
4. In the EIA assessment, the activities presented in the draft Programme should be assessed in relation to prohibitions and restrictions resulting from legal acts in force in protected areas, in particular those resulting from Art. 33 of the Nature Conservation Act. The EIA assessment should also be assessed in the context of indications and recommendations contained in the established and planned protection task plans or protection plans for Natura 2000 areas.	3.1, 4.1- 4.4
5. Determine the impact of the implementation of the provisions of the Programme draft on the marine environment, including the coastal zone and natural values, taking into account the impact on the state of natural habitats, plant and animal species and their habitats for which marine Natura 2000 areas have been designated, as well as on the integrity and coherence of these areas.	3.1, 3.4, 4.1-4.4
6. Present all planned activities that may have a significant impact on the environment. In addition, the analyzes should take into account the impacts related to activities and projects existing, implemented or planned to be implemented in the areas covered by the implementation of the Programme project.	4
7. With regard to the planned measures resulting from the draft Programme, and related to the possible interference with the ecosystem of marine waters, it is necessary to specify: a) their impact on the status of marine waters in the context of the provisions of the Water Framework Directive and the Marine Strategy Directive, and provide the classification of the state of surface and groundwater bodies; b) possible solutions to prevent and reduce negative environmental impacts that may result from the implementation of the above-mentioned document. c) methods of limiting and combating potential water pollution caused by the implementation of planned activities in marine areas.	4, 5.1, 5.2
8. When preparing the axle assessment, it is recommended to keep the chronological system contained in Art. 51 sec. 2 of the Environmental Protection Act.	1.1
9. It should be noted that the EIA assessment should define, analyze and evaluate the environmental protection objectives set at the international, Community and national level - important from the point of view of the draft Programme.	2.2
At the same time, I would like to inform you that in accordance with art. 51 section 2 point 1 letter f of the EIA Act, the EIA assessment must contain the author's declaration, and if its contractor is the team of authors - the team managing the team, on the fulfillment of the requirements referred to in Art. 74a paragraph 2 above Act, constituting an appendix to the assessment.	Appendix 3

### **1.2 The scope of the assessment and the level of detail of the conducted assessments**

The overriding objective of strategic environmental impact assessment is to support sustainable development through the analysis and assessment of key environmental aspects at the earliest stage of designing activities under programming documents at each level of strategic planning.

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The analyzed Programme is characterized by a relatively low level of detail. It does not define any specific investment plans. Moreover, the actual **impact of the Programme will be determined only by which projects will be submitted in the competition procedure.**

These issues are of fundamental importance for the selection of the evaluation model and methodology of the conducted analyzes. In the practice of assessing strategic documents in terms of their possible environmental impact, basically two basic assessment models can be distinguished. The first model, widespread and most frequently used, is modeled on the investment EIA procedure. In this model, each project is assessed separately, the implementation framework of which is determined by the assessment document. The assessment procedure consists of a series of separate assessments for each of the projects and each environmental component. A summary of the impact of these assessments usually provides information on the impact of the entire document. The analysis of alternative solutions in this model is based on location or technology alternatives.

The recommendations are dedicated both to institutions responsible for the implementation of the Programme and directly to entities implementing specific investments. This model, however, works only in the case of documents setting out the framework for the implementation of specific investments, which at the assessment stage have a specific shape and scope, but not yet formalized status. **This model should not be used to evaluate highly generic documents that do not define specific projects.** The application of this approach is possible only when the document covers projects for which basic technical and technological parameters are established and the location is indicated. Otherwise, the performed assessments are based on the distant association of strategic intentions with an undefined shape of infrastructure projects that could result from the implementation of given policies. Firstly, in such a case, the assessments differ in the degree of detail from the document under review, and secondly, they are based on the expert who carries out a given analysis, devoid of any methodical approach.

For this reason, in the assessment of the Programme, it was decided to use the second, much less formalized model. The most important role is played by the identification of the objectives of the document itself, the effects of their implementation and assessment of whether environmental issues are properly included in them and whether they are consistent with the environmental objectives of the related documents - not the assessment of the direct environmental impact of individual investments. In this model, greater emphasis is placed on the decision-making process resulting from the implementation of the document under assessment, and **the recommendations are addressed primarily to the institutions responsible for the implementation of the programme, in the analyzed case mainly to the Managing Authority and National Coordinators from other Member States.** This model works well in the assessment of

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documents that do not set the framework for the implementation of individual projects, but only the framework and directions for the development of various processes in the social, economic, legal or environmental sphere. This model is also less important in the subsequent investment procedure of the environmental impact assessment (although investors in possible reports on the environmental impact of the project should take into account information on the environment resulting from the strategic environmental impact assessment, if the project results from a document for which such a procedure was conducted).

In connection with the above, it was concluded that the purpose of the SEA Report will be to strengthen the environmental aspects in the preparation and adoption of the Programme.

It in particular focuses on the following objectives:

- assessment of the degree of taking into account the principles of sustainable development and the so-called DNSH rules during the development of the Programme design;
- assessment of the interventions proposed in the draft Programme and their combined effects on key environmental problems in the supported area;
- analysis of the impact and contribution of the proposed Programme to the key environmental policy objectives adopted at the European Union level;
- proposing mitigation measures to help avoid, minimize or offset identified potential negative environmental impacts;
- proposing reinforcement measures that will increase the environmental benefits and potentially positive impacts of the programme;
- formulation of project selection criteria which, on the one hand, will allow for the fulfillment of environmental protection requirements during their implementation, and, on the other hand, will allow for the maximization of positive environmental impacts that may result from the implementation of the Programme.

### **1.3 Information on methods applied in developing the SEA Report**

During the course of development of the Report, the following research methods and techniques were applied:

- Analysis of secondary literature (desk research), based on data and programme documentation analysis, related to the subject document. To obtain information on purpose and scope of current Interreg South Baltic Programme (2014-2020) and

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preparatory actions for the Interreg PB Programme 2021-2027, the following documents were used:

- Interreg Programme PB -2020-2020
- Ex-ante analysis of the Interreg South Baltic Cooperation Programme 2014-2020 (including the results of EIA);
- Mid-term evaluation of impact of interventions carried out within the scope of detailed goals of INTERREG Cross--Border Cooperation Programme V-A 2014-2020 Poland - Denmark - Germany - Lithuania - Sweden (South Baltic);
- Annual report on performance of the Interreg South Baltic Programme 2014-2020;
- Social and economic analysis, SWOT analysis and a problem and issue tree of the Interreg South Baltic Cross-Border Cooperation Programme 2021-2027 (October 2020);
- Strategy and priorities for the Interreg Cross-Border Cooperation Programme South Baltic 2021-2027 (February 2021):
- A project of the programme document for the Cross-Border Cooperation Programme Interreg South Baltic 2021-2027 (in progress).

Apart from the above, the following were also analyzed:

- Proper documentation regarding UE policy cohesion (e.g. legislation package for 2021-2027, etc.);
- Proper guidelines released by the EC on SEA, especially: guidelines on implementation of the Directive 2001/42/EC on evaluation of impact of some plans and programmes on the environment; guidelines regarding the ex-ante assessment: guidelines of the EC regarding programmes for 2014-2020 within the scope of application of the SEA Directive in the cohesion policy.
- Analyses of particular cases - "case study" based on evaluating selected investment performed in previous years within the Interreg South Baltic 2014 Cross-Border Cooperation Programme -2020. The focus was on already performed financial undertakings under this program, that correspond to the type of projects that are to be financed in the future.
- Spatial analyses with the use of GIS techniques were carried out on the basis of spatial data collected, to obtain as much information as possible regarding Program's impact. The results obtained were presented in a descriptive manner and on maps, and supplemented with layouts, sketches and summaries in particular subsections of the Report. The analyses were carried out within each component of the environment, as

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defined in art. 51(2)(2E) of the Environmental Protection Act. They served to evaluate the nature, scope and significance of impact and allowed further balance thereof and evaluation of possible accumulated impact based on defined and cohesive criteria.

- Expert analyses, which are the best method to evaluate specific issues regarding a narrow research area. Impact of the Programme on particular elements of environments with support of previously mentioned methods, were evaluated by experts included in the team that develops the Report and served to formulate conclusions and recommendations of the Report.

Due to the wording of Art. 51 sec. 2 of the EIA Act, despite the adoption of the policy assessment method, it was found necessary to refer potential impacts also to the environmental components listed in the Polish Act, i.e. biodiversity, people, animals, plants, water, air, land surface, landscape, climate, natural resources as well as monuments and material goods.

In line with the assumptions of the policy assessment method, it was incorrect to conduct analyzes aimed at identifying direct environmental effects resulting from the implementation of individual specific projects. As mentioned earlier, such an assessment would boil down to insignificant indications regarding the general knowledge about the environmental effects resulting, for example, from the occupation of the area, resource use, impacts or their absence on individual components carried out in isolation from the projects that will actually be the result of the implementation of the project's intentions.

The Programme identifies four Priorities that are to be implemented through the activities assigned to them, as shown in the diagram below.

- Priority I. Innovative South Baltic – enhancing the level of innovation and internationalization of local actors
  - Programme measure 1.1: Digitizing the region
  - Programme measure 1.2: Building connectivity of the region through internationalization
- Priority II. Sustainable South Baltic - promoting sustainable development and blue and green economy
  - Programme measure 2.1: Supporting transition towards green energy
  - Programme measure 2.2: Promoting sustainable use of water
  - Programme measure 2.3: Supporting a circular and more resource efficient development
- Priority III. Attractive South Baltic – activate the tourist and cultural potential of South Baltic Area



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- Programme measure 3.1: Develop sustainable, resilient and innovative tourism
- Priority IV. Active South Baltic – improving cooperation governance
  - Programme measure 4.1: Strengthen the cooperation capacity of actors based within the South Baltic Area (incl. civil society)

As part of the indicated activities, the Programme defines the planned interventions which are a direct indication of what types of projects may be financed under the Programme. In addition, the Programme literally indicates that the planned interventions may include small-scale pilot actions, where justified.

The scope of planned activities and the defined possibilities of implementing pilot actions indicate that the Programme may include "limited interventions" for investments, i.e. activities of "investment nature" that can be supported in order to pilot innovative solutions. It should be emphasized, however, that the limited scale of investment activities means that in the case of specific projects and their pilot activities, the actual impact on the environment can be rationally expected only in the local dimension.

For this reason, in the SEA Report, the assessment in the environmental components is focused on the identification of the significance and possibility of the Program's impact on a given component, in the context of problems identified at the level of subregions (NUTS-3) in a given area. This approach will allow you to avoid writing about issues that are irrelevant from the point of view of the assessment of a given document, and focus on issues that are important.

Pursuant to Art. 51 of the EIA Act, the SEA Report should include the expected significant impacts, including direct, indirect, secondary, cumulative, short-term, medium-term and long-term, permanent and temporary as well as positive and negative impacts, on the objectives and subject of protection of the Natura 2000 area and the integrity of the site, and also for individual components of the environment - in accordance with the definitions provided below:

The nature of the impact:

- direct - impacts resulting from direct interaction between the action planned in the Programme and an element of the environment;
- indirect / secondary - impacts on one of the elements of the environment through impacts on the other or as a consequence of later direct impacts.

Duration of the impact:

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- short-term - related to the implementation stage of a given measure - the so-called transitional effect of transition from one state to another or the effect that occurs at the stage of implementation of individual projects resulting from the Programme (construction stage);
- medium-term - related to the stage of the effect of the action resulting from the Programme or the period in which a given project operates as a result of the Programme implementation;
- long-term - the effect resulting from the implementation of the Programme’s intentions and remaining also after the Programme implementation period - or the effect remaining even after the liquidation of projects resulting from the Programme implementation.

Impact frequency:

- constant - acting in a continuous manner;
- temporary - interacting with breaks or for limited periods of time.

However, the already mentioned fact that the evaluated Programme is characterized by a low level of detail should be taken into account, and what projects will be implemented will only be decided by what projects will be submitted in the competition procedure, or which projects will be indicated for implementation in the non-competition mode. While it is possible to determine the nature of the impact with the division into the expected direct and indirect cumulative impacts, the indication of their duration (short-term, medium-term and long-term) and frequency (permanent and temporary) generally corresponds to the investment stages in strategic environmental impact assessments . For this reason, an attempt to identify them, in the context of the adopted methodology of policy evaluation, would be a distant association of political intentions with an undefined shape of investment activities in projects. Referring to cumulative impacts, in this document, in accordance with the adopted methodology of policy assessment, an analysis of the interaction of various strategic documents will be performed, as presented in Chapter 2. In addition to characterizing the impacts, the significance of the identified impacts has been determined and quantified, with the highest level of impacts being significant within the meaning of the EIA Act. The evaluation criteria are presented in the table below.

Materiality assessment		Definitions of assessment
-3	very important	Potential negative impact related to an irreversible negative effect that requires compensation measures.

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Materiality assessment		Definitions of assessment
	(significant)	
-2	important	Potential negative impact, the scale of which will depend on the method of implementation and which, therefore, may require appropriate actions at the stage of implementation of subsequent documents or the design stage
-1	not very important	Potential negative impact with a negligible and insignificant scale of impact, the possible effects of which for the environment will be insignificant - not requiring obligatory minimizing measures at the stage of implementing the strategic document.
0	none	No or negligible potential impacts have been identified.
1	not very important	Potential positive impact with a negligible scale of impact or the occurrence of which is only potential and its possible effects on the environment will be insignificant
2	important	Potential positive impact that is in line with national trends in activities that may improve the current state of the environment or reduce existing environmental impacts
3	very important (significant)	Potential positive impact, which will be directly felt as a significant improvement of the current state of the environment or which will significantly reduce the current impacts

**1.4 Indication of difficulties come across, resulting from deficiencies in technology or lack of knowledge**

High level of generality of the document, expressed in its framework character, space for improvements in further stages of programming, lack of detailed project criteria and lack of spatial indications led to the fact, that performance of evaluation identifying the environmental outcome resulting from performance of particular projects was unjustified. Thus, the evaluation was carried out in accordance with a model based on evaluation of policies focusing on evaluation of consideration of environmental aspects during the decision-making process and suggestions of conditioning it in a manner that assures respect for fall rules of environmental protection and sustainability. For the methodology assumed, there were no difficulties that would result from deficiencies in technique or lack of knowledge.

## **2 Evaluation of relations of the programme with other documents and environmental and sustainability goals therein**

The analysis of relation of the Programme with the environmental goals, as established on the community and national level, includes the role of the Program, as a programme that determines area of intervention and rules of financial support for near-border region development from EU resources. Due to the fact, that the Programme manages the space for expenditure of EU resources, in the analysis of correlations with the environmental goals, the goals set on the EU level were especially considered. Implementation of the Programme should reinforce, and as a minimum - should not weaken reaching the environmental goals, as set forth in policies and strategies established on the EU level, and resulting directly from the EU cohesion policy established for 2021-2027. At the same time, the Programme should indicate synergy and make it possible to perform the environmental goals resulting from national conditions.

The analysis of compliance with the environmental goals was carried out through the evaluation of compliance (minimum option) and proof of possibility of occurrence of a positive contribution of the Programme in reaching the environmental goals. The evaluation took in consideration also the possibility to implement changes in the Program, the result of which would be better consideration of environmental aspects, and hence a positive contribution in the EU environmental policy.

### **2.1 Documents that set the environmental goals on the EU level and their correlation with the Program**

For the document with a high compliance level, which determines priorities and only exemplary action to perform the goals set, from the point of view of the strategic evaluation of impact on the environment, it is necessary to check the manner in which they correspond to the environmental goals. In such approach, a separate issue is identification of documents significant for the strategic evaluation so that the “objective-led” evaluation allows for critical reference to the set of values, reaching or protection of which constitutes the goals being the evaluation criteria. In the Program, the mentioned goals are understood as an effort to consider the environmental goals, so the “objective-led” evaluation is performed through the research question *“does compliance of the purpose of the Programme with environmental goals occur”* and *do the purpose of the Programme take into consideration significant environmental aspects and will they contribute to reaching the environmental goals?”*

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The programme under evaluation is one of the documents performing the “European territorial cooperation” goal, supported by the European Regional Development Fund and an external instruments of financing. Its assumptions must be compliant with Union legislation, and also must support reaching the goals, as set by the European Union. Bearing in mind, that all areas covered by the Programme are within the European Union, it might be assumed, that national legislation, and the policy, are in compliance with the union requirements. In light of the foregoing it was assumed that for the purpose of evaluation of environmental outcome of implementation of the Programme purpose, the most important are policies as described below:

7. And 8. The General union programme of environmental action (project),  
The European Green Deal  
Regulation on taxonomy.

7. General union programme for environmental action “Good quality of life in consideration of limitations of our planet <sup>1</sup>”, including the time frame up to 2020, set nine priority goals, three of which related to environmental protection, more effective use of resources and transition to a low-emission economy, four of which indicated manners of reaching these assumptions, and the last two were directed at improvement of urbanized areas and global cooperation. It indicated that “the green growth” is the key element on the development path of Europe. Currently, the European Council, in a conclusion regarding union environmental and climate policy for 2021 - 2030 <sup>2</sup> calls for development of another programme of environment protection, stressing an urgent need to build a climate-neutral, eco-friendly and just and social Europe. It indicates that it is necessary to act within the scope of environment and restore the biological diversity, develop a strategy for non-toxic environment and a new plan for closed-circuit economy.

In the project of the 8th union programme of action for environment <sup>3</sup> the role of priorities set by the Green Deal for the EU budget for 2021-2027 was indicated, as well as the need to apply the rule of “do no significant harm” within the scope of all initiatives of the restoration plans for Europe. 8. Union programme for environmental action should accelerate transition to regenerative economy, that is based on an assumption that the resources of the planet should be regenerated (the planet gains more than human takes from it). The regenerative economy, through constant innovation and adaptation to new challenge, should reinforce the resistance of

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<sup>1</sup> <https://ec.europa.eu/environment/pubs/pdf/factsheets/7eap/pl.pdf> (access date: 23.07.2021)

<sup>2</sup> <https://www.consilium.europa.eu/media/40927/st12795-2019.pdf> (access date: 23.07.2021)

<sup>3</sup>COM(2020) 652 final, Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2030 <https://ec.europa.eu/environment/pdf/8EAP/2020/10/8EAP-draft.pdf>

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the planet and protect the well-being of current and future generations. Priorities set in 8.I union environmental action programme (EAP) will cover 6 goals related to the following: (A) greenhouse gas emission and effort towards climactic neutrality, (b) adaption and reinforcement of resistance to climate change, (c) effort towards the regenerative economy model and acceleration of transition to the closed-circuit economy, (d) effort towards environment free of pollution and toxic substances and protection of citizen well-being and health, (e) protection, maintenance and restoration of biological diversity and reinforcement of neutral capital, (f) promotion of sustainability, especially in terms of sustainable production and consumption in the field of energy, industry, buildings and infrastructure, transport and food system.

The union environmental goals were reflected in one of the goals of cohesion policy from the financial perspective 2021-2027, which is effort **for the Europe toward more eco-friendly, emission-free, investing in power sector transformation, in renewable power sources, closed-circuit economy and fighting with climate change.** It is a goal reflecting the currently implemented environmental protection policy, clearly indicating the areas of intervention that should be supported from the EU budget. The aim of EU policy is protection of the natural environment and reduction of hazards to humans and climate and biological diversity.

The European Green Deal <sup>4</sup> is a union's plan for the UE sustainable economy . It involves an action plan that allows for more effective use of resources due to transition to a clean closed-circuit economy and counteracting loss of biological diversity and reduction of pollution. It constitutes an integral part of the EU's strategy towards implementation the UN Agenda for the sustainable development 2030 and goals of sustainability. Implementation of the European Green Deal (hereinafter the EGD) indicates the need to take action in the following departments:

- More ambitious environmental goals for 2030 and 2050,
- Provision of clean, price-appealing and safe energy.
- Mobilization of the industry sector for clean closed-circuit economy.
- Building and renovating in a power and resource saving manner.
- Accelerating transition to sustainable and intelligent mobility,
- From field to the table: creating of just, healthy and eco-friendly food system,
- Protection and renovation of ecosystems and biological diversity,

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<sup>4</sup>A message of the Commission to the European Parliament, European Council, The Council of Economy and Social Commission and Region Commission, The European Green Deal COM (2019) 640 final [EUR-Lex - 52019DC0640 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eur-lex.do?uri=COM_COM_2019_640)

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- Zero emission of pollution for the benefit of non-toxic environment.

According to EGD, the so called “green promise - do no significant harm”, that assumes, that all action and union policies should be combined to support EU in reaching successful and just transformation towards sustainable future . EGD suggests, that all UE initiatives were performed in accordance with this rule, and the rule of sustainability is taken in consideration in all areas of EU policy. Since reaching the assumptions of EGD require significant investments, the Commission proposed transfer of some resources from the union budget for supporting performance of these goals. Key significance for financing the green transformation will also be the private sector, which is related to taxonomy of classification of business activity considered as sustainable. According to EGD, *“framework of corporate order should consider more the sustainable nature of activity: many enterprises are too focused on short-term financial results, instead of long-term sustainability”*. This issue was regulated by the Regulation of the European Parliament and the Council (EU) 2020/852 from June 18, 2020 on establishment of framework for sustainable investments, repealing the regulation (EU) 2019/2088. In art. 9 of the regulation, regarding taxonomy, 6 environmental goals, from the point on view of the community, were pointed out. These are:

- Alleviation of climate change;
- Adaptation to climate change;
- Sustainable use and protection of water and maritime resources;
- Transition to closed-circuit economy;
- Preventing pollution and control thereof;
- Protection and renovation of biodiversity and ecosystems.

The table Links between the 8th EAP, the European Green Deal and the objectives of the Taxonomy Regulation (own elaboration) shows the links between the areas identified as the most important fields of action in the EGD, 8th EAP and the objectives set out in the Taxonomy Regulation. In terms of content, these documents show mutual synergy in setting environmental protection objectives at the EU level.

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*Tab. 2.1 Links between the 8th EAP, the European Green Deal and the objectives of the Taxonomy Regulation (own source)*

<b>8th Environment Action Programme</b>	<b>European Green Deal</b>	<b>Taxonomy Regulation</b>
Adaptation and strengthening resilience to climate change	Ambitious climate objectives for 2030 and 2050	Climate change mitigation Climate change adaptation
Reducing greenhouse gas emissions and striving for climate neutrality	Providing clean, affordable and safe energy	Climate change mitigation Pollution prevention and control
Drive towards a regenerative economy model and accelerate the transition to a circular economy	Mobilizing the industry sector for a clean and circular economy	Sustainable use and protection of water and marine resources Transition to a circular economy Climate change mitigation
Promoting sustainable development, in particular in terms of sustainable production and consumption in the areas of energy, industry, <u>buildings and infrastructure</u> , transport and the food system	Build and renovate in an energy and resource-saving way	Climate change mitigation Pollution prevention and control
Promoting sustainable development, in particular in terms of sustainable production and consumption in the areas of energy, industry, buildings and infrastructure, <u>transport</u> and the food system	Accelerating the transition to sustainable and smart mobility	Climate change mitigation Pollution prevention and control
Promoting sustainable development, in particular in	From farm to fork: creating a fair, healthy and	Protection and restoration of biodiversity and ecosystems



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8th Environment Action Programme	European Green Deal	Taxonomy Regulation
terms of sustainable production and consumption in the areas of energy, industry, buildings and infrastructure, transport <u>and the food system</u>	environmentally friendly food system	Pollution prevention and control
Protection, preservation and restoration of biodiversity and enhancement of natural capital	Biodiversity	Sustainable use and protection of water and marine resources protection and restoration of biodiversity and ecosystems
striving for an environment free from pollution and toxic substances, and protecting the health and well-being of citizens	Zero pollutant emissions for a non-toxic environment	Sustainable use and protection of water and marine resources Pollution prevention and control

Taking into account the above, the horizontal compliance assessment of the Programme was carried out taking into account the EU environmental protection objectives set out in the described documents.

Due to maritime area of intervention in evaluation of environmental goals, also the compliance with the following formulations was analyzed:

- The HELCOM Baltic Sea Action Plan (BSAP)<sup>5</sup>,
- The European Union Strategy for the Baltic Sea Region (EUSBSR)<sup>6</sup>,

The aim of the Baltic Sea Acton Plan HELCOM is reaching clean and stable ecosystem of the Baltic Sea, where also biological balance occurs, which results in a good ecological condition, and may

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<sup>5</sup> <https://helcom.fi/baltic-sea-action-plan/>

<sup>6</sup> COMMISSION STAFF WORKING DOCUMENT, EU Strategy for the Baltic Sea Region, Action Plan [COM(2009) 248 final], Revised Action Plan replacing the Action Plan of 17 March 2017 - SWD(2017) 118 final (<https://www.balticsea-region-strategy.eu/action-plan>)

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support sustainable economic and social use. Action plan (adopted in 2007) is an ambitious and exhaustive action plan for the benefit of healthy sea environment, the aims of which are set in the following way:

1. Baltic Sea not impacted by eutrophication,
2. Favorable condition of Baltic biological diversity,
3. Life in Baltic Sea not polluted with hazardous substances,
4. Eco-friendly business activity on the sea.

UE Strategy Action Plan for the Baltic Sea region is based on three foundations:

- Save the Sea,
- Connect the Region,
- Increase Prosperity.

The goals are supplemented with 10 detailed goals that refer, for the most part, to more than one goal (they are mutually related and co-dependable).

From the point of view of the aims of the Report, it is necessary to include the environmental goals, as determined in the following detailed goals:

- Clear water in the sea,
- Rich and healthy wildlife,
- Clean and safe shipping,
- Reliable energy markets,
- Climate change adaptation, risk prevention and management.

Evaluation of intentions, as performed through the programme of union environmental goals, expressed in detail in the European Green New Deal, and also detailed goals included in the Action Plan, do not present discrepancies. According to the program, development of regional, national and cross-border cooperation requires consideration of horizontal principles of the European Union, namely the sustainability rule, the rule of equality and non-discrimination and also cohesion with EGD. The programme showed contribution of particular action of the Programme in facing the challenges determined in EGD. Also, proven was reinforcing the impact of the Programme on development of the Baltic macro-region indicated in the SUERMB action plan, especially OP Energy, Tourism, Culture and Innovations.

General compliance with sustainability and goals of environment protection was indicated in the vision of the Programme already: “United by Sea for action for blue and green future –

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innovative, sustainable, attractive, active South Baltic” and by definition of “sustainable” according to the Programme means action that will be taken (...), will have positive impact on regions in terms of environmental, social and economic growth. It was declared that action of the Programme will positively impact the regions in terms of environmental, social and economic development. High compliance with environmental goals is proven by relation of sustainable approach with green economy. According to the Program, it is understood as eco-friendly solutions, promoting sustainable management of resources in consideration of power effectiveness, recycling, issues related to safety and health. Supporting implementation of environmental goals is expressed in remaining dimensions of the planned vision of the Program. “Attractive” region indicates the nature and landscape value of the region “active” with “sustainable” and “innovative”, should make effort to improve involvement of citizens and their knowledge - which would result in improvement of life quality in the region. The programme vision so formulated allows one to clearly indicate that programme was performed in consideration and understanding of environmental goals and sustainable development.

Detailed analysis of intentions included in the Programme showed also regions of support, implementation of which may slightly weaken implementation of environmental goals (potentially generating negative impact on environmental components). Noticeable hazards may arise when implementing action of the Programme 2.1 (Supporting transition to green energy), within the scope of which the investment related to Renewable Energy Source may receive support. It was accurately indicated in the Programme that it will be performed in accordance with the environment protection requirements, however, the consideration of environmental aspects should be stressed by developing criteria for selection of projects, assuring that undertakings with negative impact on environment do not receive funds under this Program. Similar recommendation, assuring implementation of a variant that better include environmental aspects, is related to the Action of Programme 3.1 (Development of sustainable, resilient and innovative tourism). Although, according to the Program, the sustainable tourism should be understood as reduction of negative impact of tourism and traveling on natural environment (...) and satisfaction of needs of potential tourists without a damage to the needs of the citizens, it should be noted, that impact of tourism on nature and landscape is often negative (especially when accumulated). **It is recommended to consider, whether the Programme should focus only on projects, that will be directed at minimizing the existing negative impact resulting from tourism (also by identification of existing and potential hazards, development of action plans within this scope and promoting good practices).** In this case, this may be detailed at the stage of project selection e.g. **Through favoring projects that contribute to a reduction of environmental pressure related to tourism.**

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In the Program, the reference is made to the horizontal “Do No Significant Harm” rule (DNSH) under the art. 17 of the EU Regulation 2020/852 (regulation on taxonomy), the application of which will significantly reinforce implementation of the EGD provisions. It is recommended to consider supplementation of the provision regarding horizontal rules with reference to all investments supported by the Program, proving compliance with this principle. This would assure adoption of the Programme variant that considers environmental aspects better than the Programme project subject to evaluation.

Challenges formulated in BSAP and EUSBSR result from union’s environmental policy and present cohesion with challenges of the European Green Deal, and the detailed goals of BSAO and Priority Areas of EUSBSR, that are specific areas of cooperation on the level of macro regions, also take into consideration specific challenges in the area of the Baltic Sea. The intentions of the Programme (with assumption of proper preparation of applications, considering the DNSH rule and project development in consideration the best knowledge regarding marine environment protection) will contribute to implementation of assumptions of the strategy of Baltic Sea environment protection. In this case, especially Priority II (Action 2.2 and 2.3) may positively contribute to reaching the goals, as set in the documents discussed. It should be noted, that both projects based on cooperation, meant to develop concepts and solutions, and digitization, should contribute directly and positively to improvement of the marine ecosystem.

Finally, it should be noted, that the Interreg South Baltic 2021-2027 programme coincides geographically with the supranational Interreg programme of the Baltic Sea Area 2021-2027. Moreover, it also divides the parts of the area that may coincide, in terms of content, with other Interreg programmes, above all:

- Interreg Central Baltic Region,
- Interreg German/Mecklenburg Fore Pomerania-Brandenburg-Poland Programme,
- Interreg Öresund-Kattegat-Skagerrak Programme,
- Interreg Poland-Russia Programme.

These Programmes are not superior to the Interreg South Baltic 2021-2027 Programme. They do not set environmental goals, that should be taken into consideration in the subject program. The aim of the Report is not to evaluate complementariness with these Programmes. They were, however, taken into consideration in evaluation of accumulated environmental consequences, that may result from implementation of their assumptions on the basis of strategic environmental assessment (SEA).

## 2.2 Documents that set the environmental goals on the national level and their correlation with the Program

Planning the perspective for 2021-2027 combines EU requirements with national challenges, that were formulated in developmental strategies. The documents that are significant from the point of view of documents that set the environmental goals and are related to the Program, include:

Country	The most important national documents and compliance evaluation
Poland	<p>The Environmental Policy of the Country <sup>7</sup> - The goals formulated for the 2030 perspective correspond to the most important trends in the environment protection and are related to (1) development of the environment potential for the benefit of citizens and entrepreneurs (2) Environment and health (3) Environment and economy (4) Environment and climate (5) Environment and education, (6) Environment and administration.</p> <p>The strategic plan of adaptation for sectors and areas sensitive to climate change until 2020 and with a perspective for 2030 <sup>8</sup> - in the document, a special attention was paid to the issues of marine areas in the time of climate change and suggestions were made regarding action to adapt the foreshore area to climate change.</p> <p><u>Compliance Evaluation Summary:</u> In the regional perspective, the assumptions of the Programme are compliant with the national environmental and climate policies, and also with challenges within the scope of Baltic protection. Implementation of the Programme will positively contribute to reaching these goals (especially, the goals regarding digitization and also stress on marine resources protection).</p>
Germany	<p>The German Policy for Sustainable development (Deutsche Nachhaltigkeitsstrategie. Weiterentwicklung 2021)<sup>9</sup> – includes challenges within the scope of efforts towards SD on international and national level (action taken is to support implementation of the Agenda 2030 and EGD). The latest strategy takes into consideration challenges related to Covid 19 and aims at supporting modernization of Germany as a world expert on latest technologies, especially in terms of digital investments and investments regarding technologies for climate protection. The following action is assumed: promotion of transformations within the scope of mobility, power and efforts towards reaching environmental goals, investing in digitization, promoting education and research, reinforcing the health care system</p>

<sup>7</sup> <https://bip.mos.gov.pl/strategie-plany-programy/polityka-ekologiczna-panstwa/polityka-ekologiczna-panstwa-2030-strategia-rozwoju-w-obszarze-srodowiska-i-gospodarki-wodnej/>

<sup>8</sup> <https://klimada.mos.gov.pl/wp-content/uploads/2013/11/SPA-2020.pdf>

<sup>9</sup> <https://www.bundesregierung.de/resource/blob/998006/1873516/3d3b15cd92d0261e7a0bc8f43b7839/2021-03-10-dns-2021-finale-langfassung-nicht-barrierefrei-data.pdf?download=1>

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Country	The most important national documents and compliance evaluation
	<p>Compliance Evaluation Summary: The priorities and action for support, within the Program, will support implementation the environmental goals and ZR.</p>
Denmark	<p>The Danish National Strategy for Sustainable Development – Et bæredygtigt Danmark – Udvikling i Balance<sup>10</sup> is based on three foundations of ZR: economic, social and environmental. They are performed within 23 goals, in consideration of international action of Denmark for the ZR. Seven goals are strictly oriented towards environment protection (i.a., they are related to greenhouse gas reduction, transition of heat and electric power (also for transport) entirely to renewable energy sources, increasing recycling of municipal waste to 50%, reduction of pesticide pollution, protection of biodiversity and meeting the requirements of union directives regarding Fiord and marine and inland water protection.</p> <p>The goals and tasks regarding power transformation were formulated in the document: Power Strategy 2050 (Strategia energetyczna) - from carbon, oil and gas to green power (Energistrategi 2050 - Fra kul, olie og gas til grøn energi)<sup>11</sup>. It contains a precise plan of increasing the share of RES and withdrawing from fossil fuels. It also assumes that implementation of the strategy will contribute to increasing the prosperity and economic growth (through development of innovations and new technological solutions).</p> <p><u>Compliance Evaluation Summary:</u> In the regional context, within the boundaries of the Program, it is expected that projects will be supported, which projects contribute to fulfillment of Dutch requirements within the scope of environment protection (especially RES, water resource protection, and minimization of negative impact of tourism on environment, and positive environmental outcome related to digitization).</p>
Sweden	<p>Sweden’s National Strategy for Sustainable Regional Growth and Attractiveness 2015–2020<sup>12</sup>, within the scope of implementation of SD, Sweden developed six plans <sup>13</sup> within the scope of transformation of Sweden towards SD (6 - Clean water and sanitation; 7 - Affordable and clean Energy; Sustainable cities and communities; Responsible consumption and production; 15 - Life on land)</p>

<sup>10</sup> <https://eng.mst.dk/sustainability/sustainable-development-in-denmark/>

<sup>11</sup> <https://www.regeringen.dk/aktuelt/tidligere-publikationer/energistrategi-2050-fra-kul-olie-og-gas-til-groen-energi/>

<sup>12</sup> <https://www.government.se/contentassets/ad5c71e83be543f59348b54652a0aa4e/swedens-national-strategy-for-sustainable-regional-growth-and-attractiveness-20152020---short-version.pdf>

<sup>13</sup> <https://www.government.se/government-policy/the-global-goals-and-the-2030-Agenda-for-sustainable-development/>

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Country	The most important national documents and compliance evaluation
	<p>Circular economy – Strategy for the transition in Sweden<sup>14</sup> – the basis for transition to a circular economy, co-created by politics, science, business and society. The outcome of the strategy assumed are particular plans developed in this area.</p> <p>Swedish Climate Act<sup>15</sup> The Swedish Climate Policy Council)<sup>16</sup> are foundations of the climate policy in Sweden. The latest report focuses on transport sector, for which the emission reduction goal, by 70%, was set by 2030, compared to the emission in 2010.</p> <p><u>Compliance Evaluation Summary:</u> The objectives of the Programme are compliant with environmental goals, set by the national documents. Especially positive solutions are to be expected regarding performance of Priority II of Zrównoważony Baltyk Południowy, and also regarding projects for development of common strategies and solutions (within this scope, it is worth to stress the intention to adopt recommendations regarding project selection - so the beneficiaries include the environmental issues in all projects)</p>
Lithuania	<p>National Strategy For Sustainable Development<sup>17</sup> – The assumptions of the strategy are based on provisions of Agenda 21, there was a stress on the need to base the future economic growth on advanced and more eco-friendly technologies. A stress was made on development of resource-saving technologies, and on increase of participation of society in order to develop social responsibility of business. A need was stressed to transpose the assumptions of national strategy to regional and municipal plans of development.</p> <p><u>Compliance Evaluation Summary:</u> Implementation of the programme will be associated with positive contribution to reaching the environmental goals, set forth in the national environment protection policy.</p>

To sum up: the according to the evaluation, planning expenditures of resources was carried out in consideration of national policies and strategies that set the environmental goals. No discrepancies were identified between documents evaluated, however, a positive contribution of the Programme to reaching the environmental goals may be increased at the stage of its implementation (at the stage of developing the competition criteria and project selection).

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<sup>14</sup> <https://www.government.se/4ad42c/contentassets/d5ab250cf59a47b38feb8239eca1f6ab/circular-economy--strategy-for-the-transition-in-sweden>

<sup>15</sup> <https://www.government.se/49c150/contentassets/811c575eb9654a6383cf0ed4e0d5db14/the-swedish-climate-act.pdf>

<sup>16</sup> <https://www.klimatpolitiskaradet.se/summary-in-english/>

<sup>17</sup> <https://sdgtoolkit.org/wp-content/uploads/2017/02/NATIONAL-STRATEGY-FOR-SUSTAINABLE-DEVELOPMENT-Lithuania.pdf>

## 2.3 The analysis of compliance with the Sustainable Development principles

The aims of the European funds in the 2021-2027 perspective, according to the regulation, that determines common provisions regarding European funds and financial rules regarding these funds, should be reached in accordance with the sustainable development principles and union's support to maintain, protect and improve the quality of natural environment, under art. 11 and art. 191(1) of TFEU, in consideration of the "pollutant pays" rule, the goals of sustainable development of UN and Paris agreement, adopted under The United Nations Framework Convention. At the stage of operation selection, according to the Interreg Regulation, criteria and procedures should be applied, that are non-discriminatory, clear, guarantee equality of gender and consideration of provisions of the Basic Human Right Card of the European Union, and also the rules of sustainable development and union's policy on natural environment.

Evaluation of compliance of the programme with SD principles was made from 3 perspectives: environmental, social and economic. It was carried out on the basis of the catalog of main rules, included in the "Renewed European Strategy for Sustainable Development <sup>18</sup>" and in the UN document "Transformation of our world: Agenda for Sustainable Development 2030" (Agenda 2030)<sup>19</sup>. The Agenda 2030 includes 17 Sustainable Development Goals (SDG). The results were presented in the Table. 2.1.

### I. Innovative South Baltic

- 1.1: Digitizing the region
- 1.2: Building connectivity in the region through internationalization

### II. Sustainable South Baltic

- 2.1: Supporting transition towards green energy
- 2.2: Promoting sustainable use of water
- 2.3: Supporting a circular and more resource efficient development

### III. Attractive South Baltic

- 3.1 Develop sustainable, resilient and innovative tourism

### IV. Active South Baltic

- 4.1: Strengthen the cooperation capacity of actors based within the South Baltic Area (including civil society)

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<sup>18</sup> <https://data.consilium.europa.eu/doc/document/ST-10917-2006-INIT/en/pdf>

<sup>19</sup> European obligation, in this context, were confirmed in the message of the Commission from 11/22/2016 Following steps towards sustainable future of Europe. European action for sustainable growth. COM (2016) 739 final.





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Tab. 2.2 Assessment of INTERREG compliance with the sustainable development objectives

Priority	I.		II.			III.	IV.
Measure SDG	1.1	1.2	2.1	2.2	2.3	3.1	4.1
 1 NO POVERTY	+	+		+	+	+	
 2 ZERO HUNGER	+	+		+	+	+	
 3 GOOD HEALTH AND WELL-BEING	++	+	++	++	+	+++	+
 4 QUALITY EDUCATION	+	+					++
 5 GENDER EQUALITY	++	+					++
 6 CLEAN WATER AND SANITATION	+	+		++	++		+
 7 AFFORDABLE AND CLEAN ENERGY	+	+	++		++		+
 8 DECENT WORK AND ECONOMIC GROWTH	++	+	++	+	++	+++	+
 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	++	++	+++	+	++	++	+
 10 REDUCED INEQUALITIES	+++	+				++	++
 11 SUSTAINABLE CITIES AND COMMUNITIES	+	++	+	+	++	++	+
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	++	++	++	+	+++	++	+
 13 CLIMATE ACTION	+	+	+++	+	++	+	+
 14 LIFE BELOW WATER	+	+	+	+++	++	+	+
 15 LIFE ON LAND	+	+	+	+	++	+	+

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	++				+		++
	+	++	++	++	++		++

**Score Definition**

- +++ Very high direct compliance of the Programme with the objectives of sustainable development
- ++ High direct and/or indirect compliance of the Programme with the objectives of sustainable development
- + Direct and/or indirect compliance of the Programme with the sustainable development objectives
- Weakening impact of the Programme on the possibility of achieving the sustainable development objectives
- n/a None

Programme Concept: “United by Sea for action for blue and green future - innovative, sustainable, attractive and active South Baltic” literally refers to the concept of SD and refers to assumption of harmonic environmental, social and economic growth. The foundation of this approach is strong effort towards green and blue economy. The key challenge of the development is “reinforcement of cooperation between the models in the model of fourfold helix, which indicates relations between industry, academic environment, public entities and citizen society”. The rule of maintaining harmonic balance between society, economy and natural factors is a foundation of SD paradigm. By following this rule, according to the Renewed EU SD strategy, it is necessary, among others, to: maintain ecological potential, protect eco-system diversity, respect limitation of natural resources; assure high level of environment protection and improvement of its quality, prevent pollution and limit this phenomenon; promote sustainable consumption and production to separate economic growth from environmental degradation. Such care for environmental capital of the world makes it possible to perform further SD goals, such as high quality of life in clean environment.

The assumed conceptual model of “fourfold helix” requires precise description and illustration. Assuming, that the Programme is to be a tool for development management, all terms and concept used therein should be clear and understandable to the final recipient.

Referral to the “life quality improvement” as a superior strategic goal should be highly evaluated. Compliant with SD are action for the cooperation and involvement of citizens, as well as deepening their knowledge on developmental processes. Also, it is worth to positively evaluate the fact that planning the modernization process is based on using the endogenous potential: scientific, economic, cultural and natural.

The concept of development assumes application of “eco-friendly solutions promoting sustainable resource management” Active policy for improvement of environment is, without a doubt, complaint with the spirit of SD. In theory, this is for the basic goal, that is maintaining the

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developmental capacity in time, according to the SD definition indicated in the Brundtland Commission Report “Our Common future” (see. P. 67 Polish version PWE Warszawa 1991\_ about development that satisfies current needs, not depriving the future generations of a chance to satisfy theirs. Action for environment are a part of SD strategic challenges, as expressed in the documents Europa 2020 and Agenda 2030.

Highly evaluated should be a declaration of catalog of superior principles as an important part of the entire implementation, monitoring and evaluation of the Program. SD was indicated among some of horizontal principles. In the document, a classic definition was assumed, that “sustainable development should be understood as satisfying the needs of current generation without harm to future generations”. Thus, a reference was made to the rule of intra and intergenerational justice. SD is a regime principle under art. 5 of the Constitution of The Republic Of Poland “The Republic of Poland (..) assures environment protection, following the rule of sustainable development”. This provision means that the issues of environment protection must be considered in the broader context of sustainable development (ZR). Borys<sup>20</sup> suggests, that the constitutional provision should be perceived as a collective rule, equivalent to a full set of detailed rules. Sustainable development is a holistic concept including the entirety of social, economic and environmental relations. The SD paradigm integrates the three civilizational dimensions and gives them a nature of sustainable, durable, and self-sustaining progress. In the era of political activity, it means global society and global responsibility for the fare of current and future generations. Postulates of SD refer, among others, to de-materialization of production, conscious and self-limiting consumption, building innovative economy based on knowledge, where cooperation is more precious than competition, creating institutions and procedures of participating democracy, limiting the use of natural resources and no further damage to natural environment. The key issue for this project is a change of the term of prosperity.

### I. Innovative South Baltic

#### 1.1: Region digitization

In theory, this action is to support the transfer of technologies between regions and reinforce cooperation between enterprises, universities and other research and development institutions in the trans-border dimension. According to the Renewed UE SD Strategy, universities, research institutions and private enterprises have a significant role to play in promoting research

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<sup>20</sup> Borys T. 2005. The sustainable development indicator WEiŚ.

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supporting efforts for economic growth and environment protection to reinforce each other. Universities and other higher should play a key role related to provision of education and trainings making it possible to provide qualified employees with competences necessary for full development and use of sustainable technologies.

SD objectives are to: (8.2) reach the high level of economic capacity through diversity, modernization of technology and innovations, and through focusing on sectors of high added value and of high labor intensity (8.3) Promote policies of development supporting productive activity, creating dignified working places, entrepreneurship, creativity and innovation. Economic growth is to contribute to new work places. The postulate of full employment is one of main SD goals on the European level (por. Renewed EU SD Strategy: The goal of economic prosperity: Promote strong, innovative and competitive economy based on extensive knowledge, sensibly using natural resources, ensuring high life quality and full employment of citizens and high-quality work). The Agenda 2030 includes also the postulates of employee right protection and promotion of safe work environment for all, including immigrants.

Also, integrated approach in shaping the developmental policy should be highly evaluated. It was stressed in the Program, that digitization is to be a factor for economic growth, but also to improve the accessibility of communication in agricultural areas, to include seniors and disabled people and reduce differences between sexes in the work sector.

### 1.2: Building region connectivity through internationalization

One of the most recognizable slogans promoting SD is “Think globally, act locally”. Increasing the level of internationalization of Polish enterprises should take place in compliance with global dimension of ZR. Economic expansion cannot mean externalization of environmental and social costs. Employee , citizen rights and provisions of environment protection should be fully maintained and respected. Promoted should be the rules of Corporate Social Responsibility CSR and it is necessary to actively contribute to the development of local communities (see Renewed EU SD Strategy: The Commission and the member states will reinforce their efforts to use globalization in the interest of durable growth through intensification of action to make international trade and international investments tools to reach the real and durable growth on global level).

## II. Sustainable South Baltic

### 2.1: Supporting transition to green energy

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The programme assumes development and introduction of solutions supporting transition to green and renewable energy sources. Provision of access to stable, sustainable and modern energy at reasonable prices is one of key goals of SD (SDG 7). Important, from the SD point of view, are declarations for “cross-border cooperation to raise awareness...”. Knowledge exchange, and raising awareness of citizens, are both challenges of SD. One of the key issues in implementation the sustainable development is consumer education and promotion of conscious consumption. One of challenges determined in Strategy Europe 2020, within the lead project: Europe effectively using the resources is an obligation to change consumer approach. Promoting sustainable consumption and production through social and economic development within the scope of capacities of ecosystems and separation of economic growth from environment degradation is a key challenge defined in the Renewed EU SD Strategy.

### 2.2: Promotion sustainable water consumption

Sustainable water management is, as a rule, cohesive with challenges formulated in SDG 6: Provide all people with access to water and sanitary facilities through sustainable water resource management. Sustainable water consumption, acc. To 2030, involves, among others: provision of stable access to safe drinking water at reasonable prices (action 6.1) and access to proper and dignified sanitary and hygiene conditions for all (6.2). Important action for water resources involve improvement of water quality (6.2), improvement of effectiveness in water consumption in all sectors and sustainable water intake (6.4), integrate management of water resources on all levels (6.5), protection and renewal of water-dependent ecosystems (6.6), international cooperation (6.A) and participation of local communities in improvement of water resource management (6.B). Protection of water resources is an action for inter and intragenerational justice.

### 2.3: Supporting closed-circuit and resource-saving development.

Compliant with challenges of Strategia Europa 2020, within the lead project: “Europe effectively using the resources” is an obligation to change consumer approach. Promoting sustainable consumption and production through social and economic development within the scope of capacities of ecosystems and separation of economic growth from environment degradation is a key challenge defined in the Renewed EU SD 2006 Strategy. SDG (9.4) tasks defined in Agenda 2040 state, that by 2030 it is necessary to increase the quality of infrastructure and introduce new sustainable industry development through increase of effectiveness of use of resources and application of clean and eco-friendly technologies and production processes with participation of all states according to their capabilities.

## III. Atrakcyjny Bałtyk Południowy (Attractive South Baltic)

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### 3.1 Development of sustainable, resilient and innovative tourism.

It was accurately assumed that tourism development must be sustainable. According to one of SD goals, by 2030, policies must be developed and implemented to promote sustainable tourism (action 8.9 SDG), that creates work places and promotes local culture and product [Agenda2030].

According to UN, sustainable tourism should optimally use natural resources, maintaining significant ecological processes and helping to keep the natural heritage and biological diversity. It should respect social and cultural authenticity of guest communities, protect their cultural heritage and traditional values, and contribute to understanding and inter-cultural tolerance. Sustainable tourism growth requires conscious participation of all parties concerned, as well as strong political leadership to provide broad participation and build consensus. Teaching sustainable tourism is a constant process and requires constant monitoring of impact, introduction of necessary preventive and/or remedy measures as required <sup>21</sup>.

It is necessary to remember that economic growth is not a goal itself, but only a condition to reach better life quality and not to deteriorate prosperity. Sustainable tourism should provide social and economic benefits to all parties concerned. Benefits should be justly divided and contribute to alleviation of poverty.

Within the ST-EP Programme (Sustainable Tourism - Eliminating Poverty) 7 mechanisms were indicated to operationalize SD goals in tourism, namely:

- 1/ employment of local people in tourism enterprises,
- 2/ providing goods and services of tourism enterprises by local communities or enterprises that employ local communities,
- 3) direct sales of goods and services to tourists by local communities,
- 4/ establishing and carrying out tourist business by local communities,
- 5/ tax and fee on income or benefit from tourism in consideration of local communities,
- 6/ voluntary donations or support from tourism enterprises and tourists,
- 7/ investments in infrastructure stimulated by tourism, bringing benefits to the guest community <sup>22</sup>.

The programme accurately shows the need for protection biodiversity and natural heritage of the region in the context of tourism development. Action in this area should relate to protection of

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<sup>21</sup> Making Tourism More Sustainable - A Guide for Policy Makers, UNEP and UNWTO, 2005, p.11-12

<sup>22</sup> Simpson, D, 2017: Sustainable Tourism - Eliminating Poverty [access:25.08.2021: <https://www.cabi.org/leisuretourism/news/25463>]

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landscape and preservation of spatial order. Current negative trends of non-sustainable spatial management require policy and urgent remedy action <sup>23</sup>.

### IV. Active South Baltic

4.1: Reinforcing the capacity of cooperation of entities with the head office in the South Baltic Area (including the citizen society)

Strong institutions and care for efficiently operating legal system are subject of goal 16. Of Agenda 2030 According to SD, it is necessary to develop efficient, responsible and transparent institutions; provide flexible, inclusive, participative and representative process of decision making on all levels. And also provide common access to information. Also, Agenda 2030 clearly indicates reinforcement of the role of law (p. 16.3); social inclusion and co-deciding (p. 16.7), reinforcement of institutional roles (p. 16.A) and non-discrimination of anybody for any reason. SD should be implemented mainly through decentralized action through active local communities. Clearly defined rules of use, adjustment of rules of use and delivery of goods to local conditions, possibility to modify rules by users and monitoring the management process are key items of proper common goods management <sup>24,25</sup>. SD is a modernization model, that requires efficient, global partnership and international cooperation [17 SDG]. Building common trust, especially through encouraging interpersonal action: One of the leading rules of SD is promotion and protection of basic rights and intragenerational justice. The first mentioned rule states, that in shaping the policy of development, it is necessary to follow the rule that human is in the center of politics, so: to promote basic rights, fight all discrimination and act for the benefit of reduction of poverty and social exclusion. The aim of Agenda 2030 is promotion of peaceful and inclusive society and building institutional order favoring social inclusion.

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<sup>23</sup> Socha R., 2019: The concrete sea. Policy 28.2019 (3218) from 09.07.2019, p.12

<sup>24</sup> Ostrom E., 2013, *Dysponowanie wspólnymi zasobami*, Wolters Kluwer Business, Warszawa.

<sup>25</sup> Sobol A., 2016, *Kategoria dobra wspólnego w zrównoważonym rozwoju miast*, Prace Nauk. UE we Wrocławiu, no. 453, pp. 87-95.

### **3 Environment condition in the areas covered by anticipated significant impact**

#### **3.1 Biotic elements of environment (biological diversity, plants, animals, protected areas)**

##### **Sea areas**

The Baltic Sea is of low salinity, it is characterized by small number of species compared to open seas. According to estimations, there are 2700 macroscopic species and thousands of microorganisms in the Baltic Sea. Their distribution is affected by salinity, but also bottom topography, variation of which enables distinguishing basins of particular physical and chemical features (HELCOM 2009, 2017, 2018).

The typical species of phytoplankton in the South Baltic Sea are diatoms, dinoflagellate or cyanobacteria. Eutrophication and climate warming lead to the fact, that the composition of summer collections of phytoplankton changes, especially there is an increase of number of species; frog spits being earlier than ten years ago, and last longer (ICES, 2019) Their area is also larger. The domination groups of phytoplankton are: copepods, daphnia pulex and rotifers that appear in preferred salinity ranges. Within last 50 years the salinity of Baltic Sea decreased which lead to the change in specie composition in the foreshore zone, from domination of large copepods of marine origin to freshwater daphnia pulx and WROTKI. At the open sea, such changes are not so clear. Since the 70's, there has been a decrease in average size of zooplankton and biomass (HELCOM, 2017).

The results of integrated evaluation of biodiversity of pelagic organisms <sup>26</sup> are reflected in, in majority of cases, deterioration of their condition according to all basic indicators (Fig. 3-1, BQR values >0.6 mean a good condition).

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<sup>26</sup>Organisms that lice in open waters rich with oxygen.



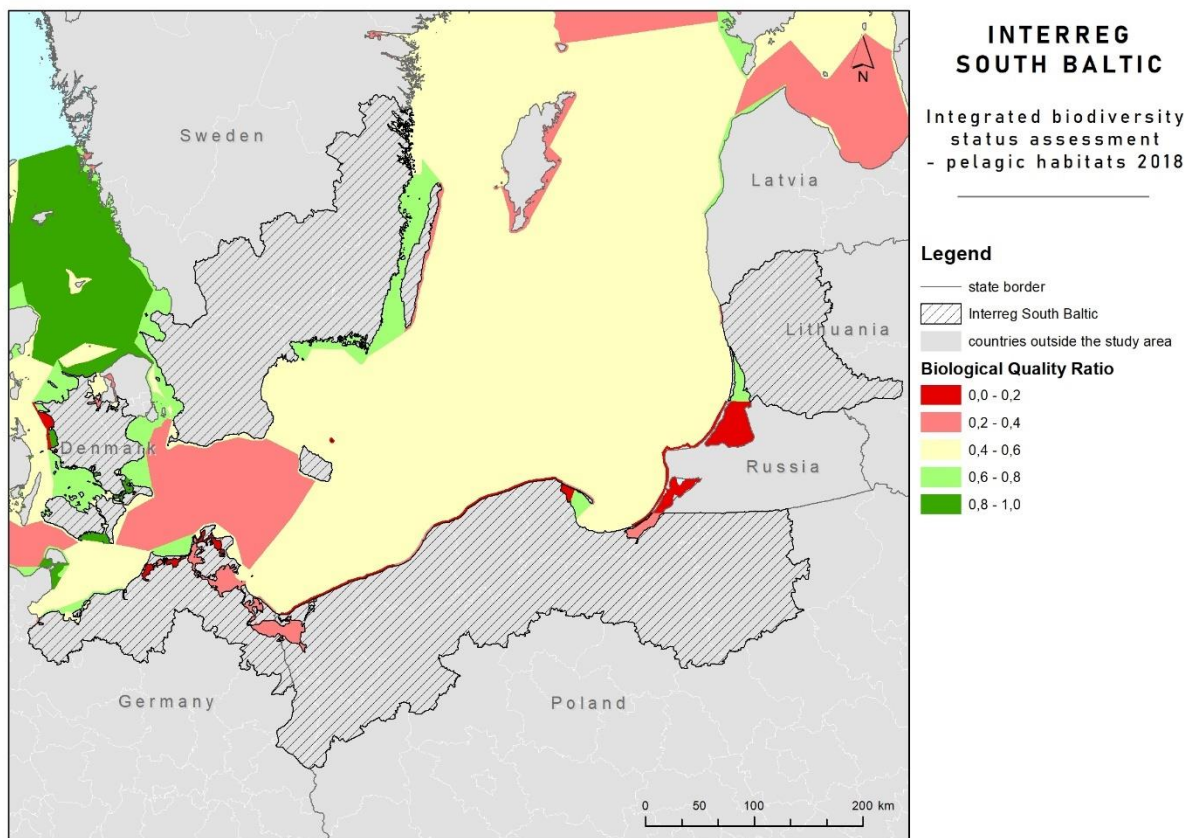


Fig. 3-1 Integrated evaluation of biodiversity of pelagic organisms in South Baltic Region - biological quality indicator (BQR) (source: own work on the basis of HELCOM's data)

The benthic collections in the south and west part of the Baltic Sea are far more diverse than collections located further North. Benthic life is rare and absent in many deeper basins underneath halocline, especially after longer periods with no salt water feed, due to seasonal and permanent oxygen deficiencies. The phytobenthic composition is dominated by green alga, brown alga and red alga, and also flower plants. Their distribution depends on thickness of the eutrophic zone. Zoobenthic includes mainly According to the integrated evaluation of biodiversity of benthic organisms in the South Baltic is bad (Fig. 3-2, Values of BQR>0,6 mean a good condition), which is related to increasing oxygen debt below halocline (HELCOM, 2017).

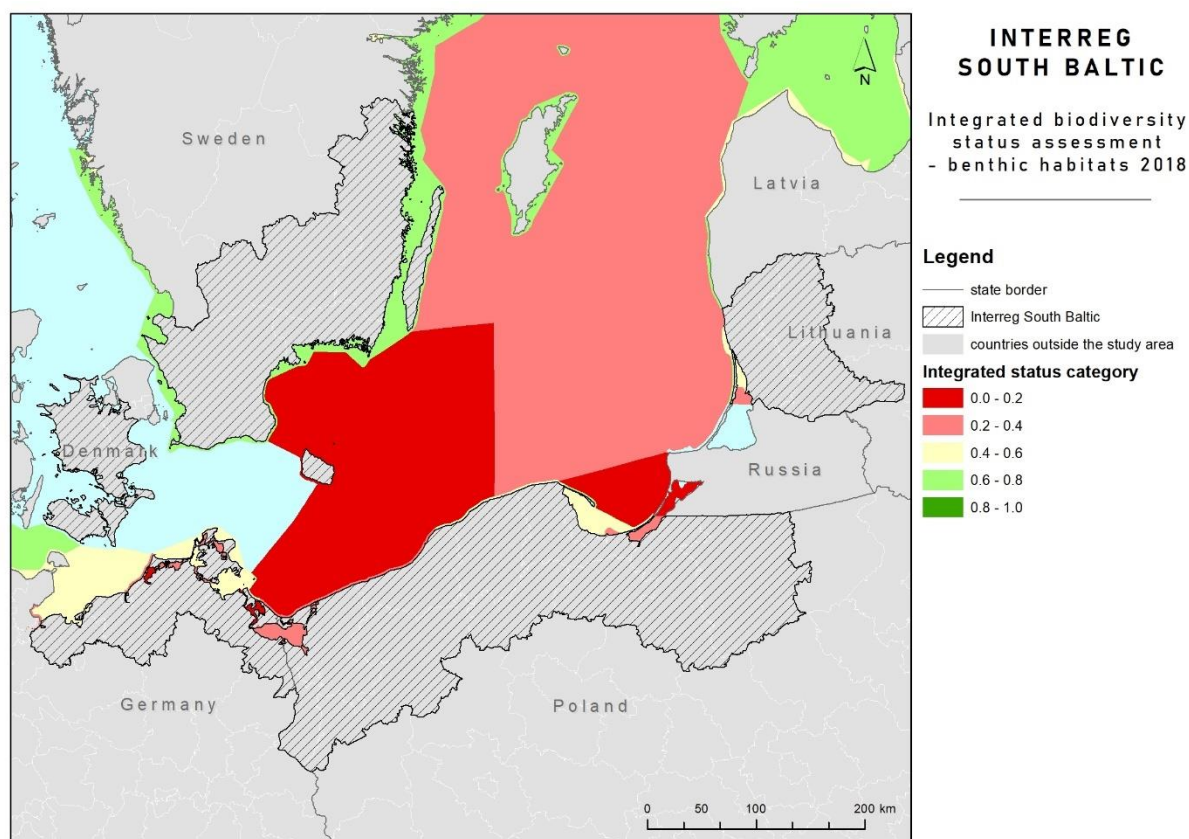


Fig. 3-2 Integrated evaluation of biodiversity of pelagic organisms in South Baltic Sea - biological quality indicator (BQR) (source: own work on the basis of HELCOM's data)

Collection of Baltic fish may be divided into various groups according to origin. These are marine species deriving from marine environment, fresh water fish from seas and rivers, glacial relics that are what is left from the last ice period and foreign species (round goby). The Ichthyofauna includes also bi-environmental fish (such as bull trout or salmon). There are a few species of marine water fish of utilitarian importance in the Baltic Sea (herring, sprat, cod, carp, European flounder). The non-utilitarian fish in the deep bottom includes: hooknes. In these waters, there are also species from the North Sea: garfish, anchovy, trachurus, whiting. In the foreshore zone, there are also non-utility species such as pipefish, straightnose pipefish, eelpout, lumpfish or tobias.

Populations of fish in the Baltic Sea are impacted by fishery, eutrophication, oxygen deficiency, high level of hazardous substances and natural factors, such as frosty winters or various levels of salinity. In general, in the area of the Baltic Sea, the fish condition is not good, both in case of pelagic fish and near-bottom fish (pic. Fig. 3-3, BQR values >0.6 mean good condition).

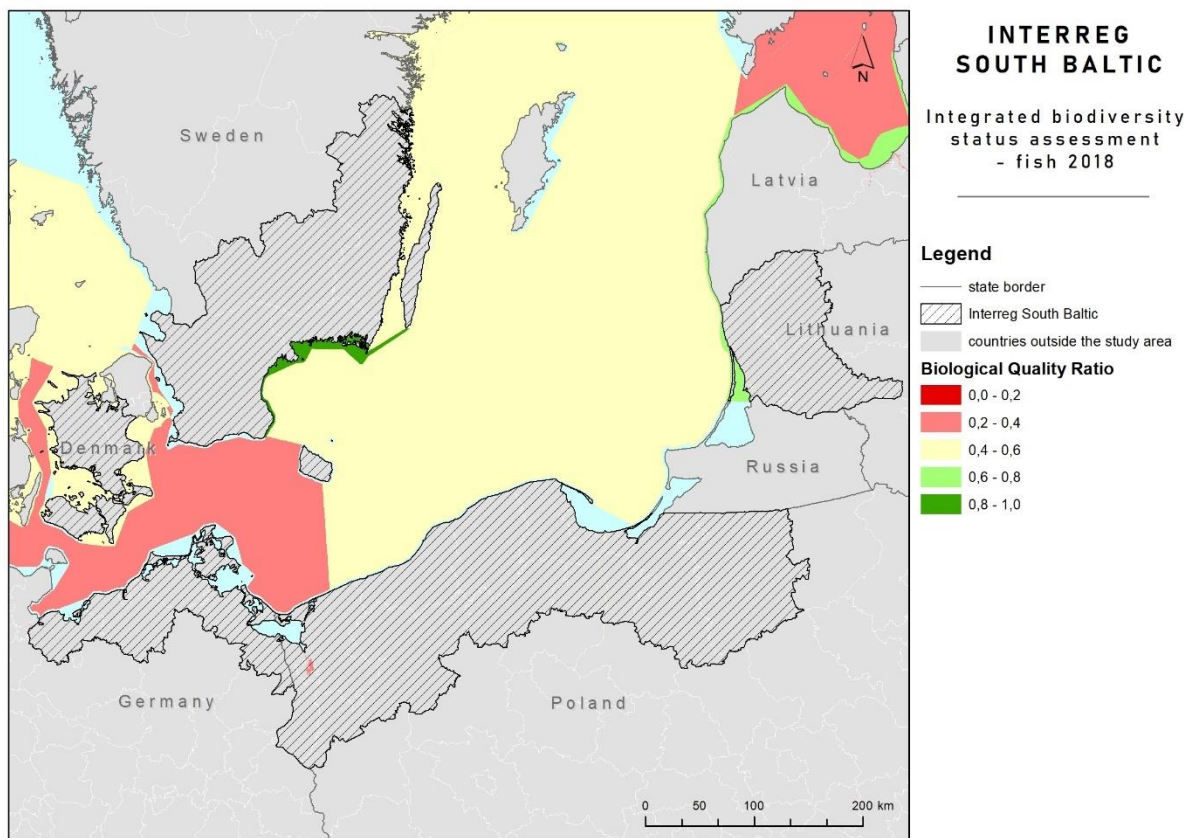


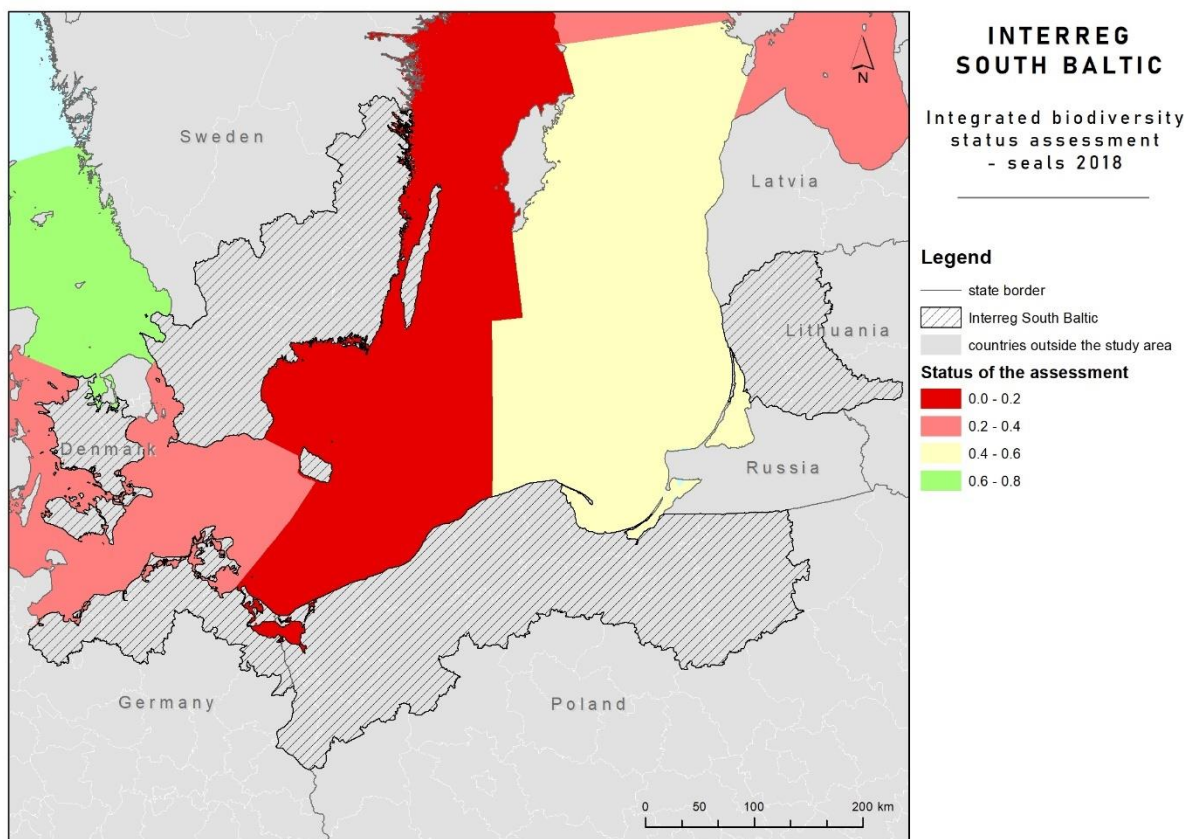
Fig. 3-3 Integrated evaluation of biodiversity of fish in South Baltic Sea - biological quality indicator (BQR) (source: own work on the basis of HELCOM's data)

The Baltic Sea is an important area of rest, feed, shedding, breeding and wintering for about 80 species of birds. Water birds combine trophic webs in water with birds inland, and through migration, they also connect the Baltic Sea with other marine regions. In last several dozen years, a population of some species decreased (e.g. great black-backed gull - *Larus marinus*, common eider - *Somateria mollissima*), and some increased (black guillemot - *Cepphus grylle*, razorbill - *Alca torda* and arctic tern - *Sterna paradisaea*). These changes are related to disturbance in the digestive chain structure, climate change and changes of habitats. The population of Baltic Sea birds is differentiated depending on the season. Some species use the Baltic Sea as a winter habitat, e.g. Long-tailed duck, that migrate to these areas to breed, such as arctic tern. Many water birds of the Baltic Sea are predators, feeding mainly on fish, mussels or shellfish, but they are also represented by scavengers and herbivorous animals.

In the Baltic Sea there are four species of marine mammals. Three species of seals: Grey seal, harbor seal and ringed seal and porpoise. In the South Baltic Sea Grey seals are observed, the population of which increased rapidly from 2000 till 2014, before it stabilized on the level of over

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30 000 animals and harbor seals, the population of which increased by 8,4% in 2002-2014. According to the integrated evaluation of the condition of seals in the South Baltic Sea, the condition is bad (Fig. 3-4, BQR >6 mean good condition). The population of porpoise is less than 500 animals and is critically endangered.



*Fig. 3-4 Integrated evaluation of biodiversity of seals in South Baltic Sea - biological quality indicator (BQR) (source: own work on the basis of HELCOM's data)*

The map below (Fig. 3-5) shows the results of evaluation of biodiversity in the South Baltic Sea, carried out with the use of BEAT methodology (HELCOM 2017, 2018). Among the five possible grades: High, good, moderate, poor, bad (from which, the first two indicate a very good environmental condition, and the remaining ones - improper), the extremely negative evaluation dominates in the South Baltic Area.

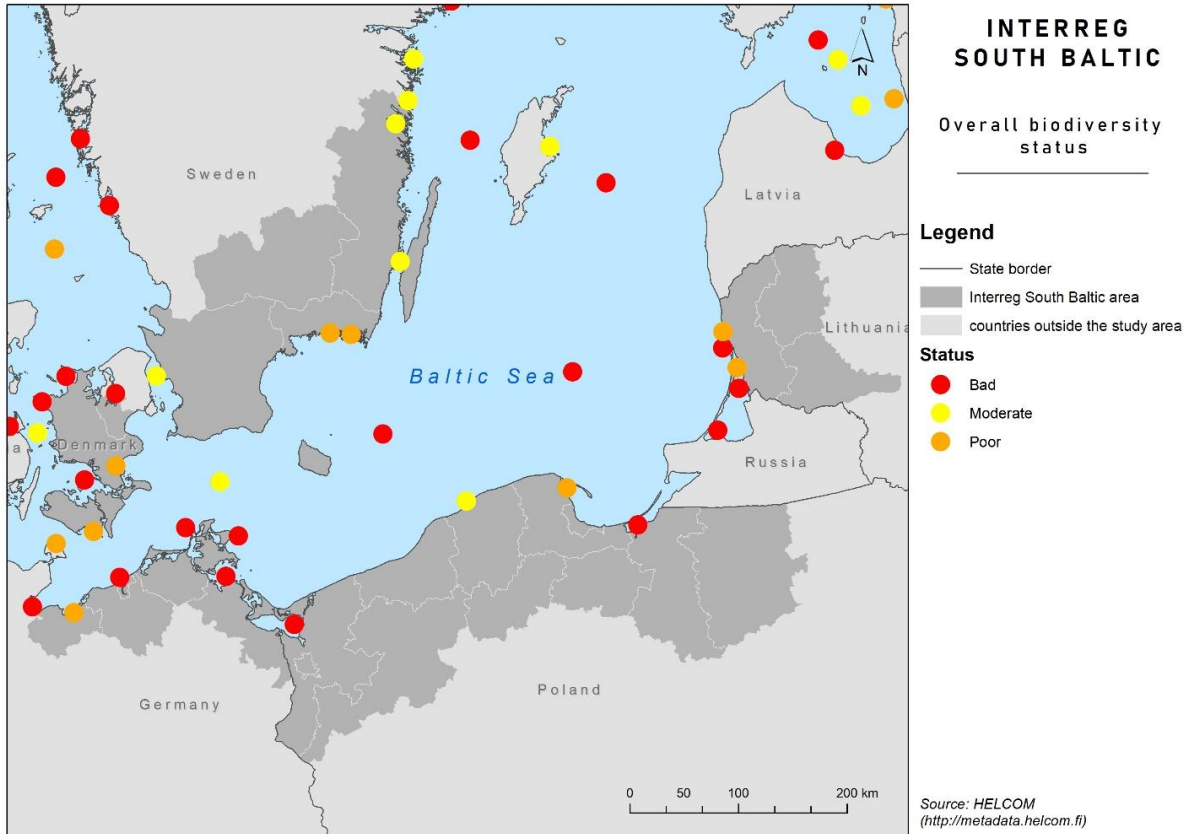


Fig. 3-5 Evaluation of biodiversity in the South Baltic Area (source: own work on the basis of HELCOM's data)

Despite poor level of biodiversity, the Baltic Sea is characterized with high diversity of habitats and unique composition of animate and inanimate nature. The most precious natural areas were protected under Natura 200 and Maritime Protected Areas). The interweaving areas of HELCOM MPA and Nature 2000 (Fig. 3-6) may have various boundaries and areas depending on the purpose of protection. The areas of HELCOM MPA are limited to the foreshore and marine area, whereas the areas of Natura 2000 may cover also inland areas. Natura 2000 network protects natural habitats and species considered important on EU level, whereas the HELCOM MPA network aims at protection of particular species, habitats or processes in maritime ecosystems.

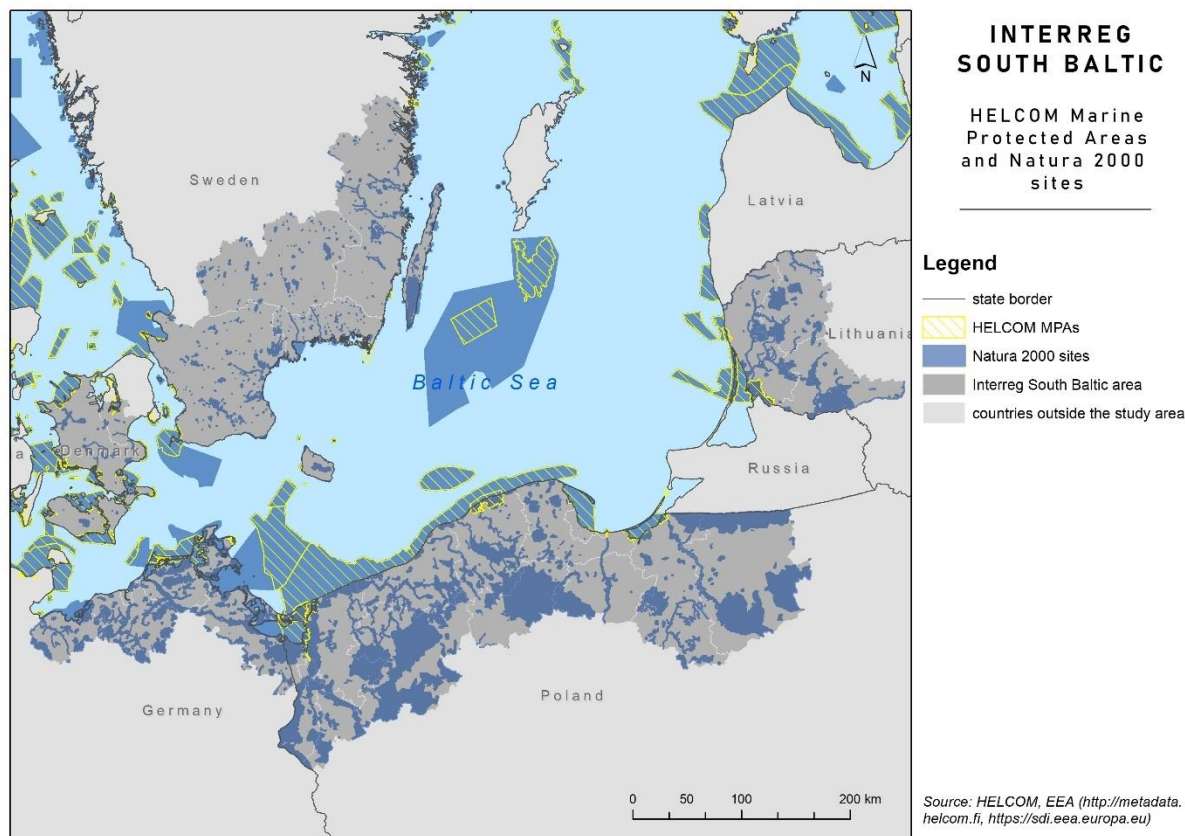


Fig. 3-6 Areas under protection in the area of South Baltic Sea (source: own work on the basis of HELCOM's and EEA's data)

According to the WWF report (2019), the MPA network is ecologically cohesive, since it does not fulfill any of the criteria commonly applied in evaluating this parameter, i.e. Representativeness, replication and connectivity. Although most replications are close to the target (almost 90% of all habitats presents sufficient number of replications in the network), the remaining two criteria look much worse. Only one fourth of all habitats of the Baltic Sea reaches the required 30% of coverage in the MPA network, whereas the least represented are the deep water habitats. The connectivity covers two third of MPA, the remaining part does not allow sufficient species distribution from one MPA to another. Thus, the MPA network quality is low.

### Foreshore areas

Sea landscapes of the Baltic shore are divided into dune, delta, lake-marshy and upland. The region includes also moraine plains and proglacial stream valleys. The flora of the shore is characterized with a band-like layout, starting from beaches, through wrack line, a sequence of white dunes, a sequence of internal dunes. The internal dunes are covered with plants (turf, dry

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and wet heaths and forests such as Baltic dune Scots pine woods). The bushes of hippophage are typical for the Baltic shore. The marshy Baltic shore is covered with swamps and meadows. Halophyte are characteristic for this landscape. On the cliff shore, a band of beaches tends to be narrow, and the flora covers the edges of the cliffs. The plateau of cliffs is covered with beechmast. In this region, there are also near-shore lakes with hydrophyte flora. The neighboring sequence of lake districts is rich with forests, various lakes and peatlands. The Baltic Sea and its shore are, for the most part, covered with natural habitats, protected under the habitat directive in the Natura 2000 system. These include <sup>27</sup>:

1110 - Sandbanks which are slightly covered by sea water all the time

1130 - estuaries

1140 – Mudflats and sandflats not covered by seawater at low tide

1150 - Coastal lagoons, dams and near-sea lakes.

1160 - large, shallow inlets and bays

1170 - Reefs

1210 – Annual vegetation of drift lines

1220 – Perennial vegetation of stony banks

1230 – Vegetated sea cliffs of the Atlantic and Baltic coasts

1310 – Salicornia and other annuals colonizing mud and sand (glasswort mudflats and sandflats)

1330 - Atlantic salt meadows

1340 - Inland salt meadows, pastures and rushes

1610 – boreal Baltic islets

2110 - Embryonic shifting dunes

2010 - coastal white dunes

2130 – Fixed coastal dunes

2140 – Decalcified fixed dunes with *Empetrum nigrum*

2150 - Atlantic decalcified fixed dunes

2160 – Dunes with *hippophae rhamnoides*

2170 – Dunes with *Salix repens* ssp. *argentea*

2180 – Wooded dunes of the Atlantic, Continental and Boreal region

2190 – humid dune slacks

2310 - Dry sand heaths with *Calluna* and *Genista*

2320 - Dry sand heaths with *Calluna* and *Empetrum nigrum*

2330 - inland dunes with open *Corynephorus* and *Agrostis* grasslands

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<sup>27</sup> <https://natura2000.eea.europa.eu/#>

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In the lake band near the shore, the most precious habitats related to water are:

3110 - lobelioidae lakes

3130 – Oligotrophic to mesotrophic base poor standing waters with Cl. Littorelletea uniflorae, Cl. Isoeto-Nanojuncetea

3140 - hard oligotrophic and mesotrophic waters with benthic vegetation of Chara spp.

3150 – Natural eutrophic lakes with Magnopotation and Hydrocharition type vegetation with All. Nymphaeion, All. Potamion

3160 - natural, dystrophic lakes and ponds

3190 - lakes of Gypsum Karst

3210 – Fennoscandian natural rivers

3260- water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Betragion vegetation All. Ranunculion fluitantis

3270 – Rivers with muddy banks with Chenopodion rubri p.p. And All. Bidention tripartiti p.p.

7110 – Active raised bogs

7120 – Degraded raised bogs (which may still be capable of natural regeneration)

7140 - transitional mires and quaking bogs (mainly with flora with Cl. Scheuchzerio-Caricetea nigrae)

7150 – Depressions on peat substrates of All. Rhynchosporion albae

7160 – Fennoscandian mineral-rich springs and springfens

7210 – Calcareous fens with (Ass. Cladietum marisci, Ass. Caricetum buxbaumii, Ass. Schoenetum nigricantis) and species of the Caricion davallianae

7220 – Petrifying springs with tufa formation (Cratoneurion)

All. Cratoneurion commutati

7230 - Mountain and lowland alkaline fens in the form of bog-springs, mud sedge and moss field

Forest communities typical for this area are:

159 - 9110 Luzulo-Fagetum Beech Forest (SubAll. Luzulo-Fagenion)

161 – 9130 Asperulo-Fagetum Beech Forest (SubAll. Dentario glandulosae-Fagenion, SubAll. Galio odorati-Fagenion)

163 - 9150 Xerothermic Beech Forest (SubAll. Cephalanthero-Fagenion)

164 - 9160 SubAtlantic oak-hornbeam forests (Ass. Stellario holostaeae-Carpinetum betuli)

167 - 9190 Old Acidophilous Oak Woods with Quercus robur on sandy plains (All. Quercion robori-petraeae)

171 - 91D0 – Bog Woodland (Ass. Vaccinio uliginosi-Betuletum pubescentis, Ass. Vaccinio uliginosi-Pinetum sylvestris, Ass. Pino mugo-Sphagnetum, Ass. Sphagno girgensohnii-Piceetum and birch and pine boreal swamp forests)



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172 - 91E0 – Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Ass. *Salicetum albo-fragilis*, Ass. *Populetum albae*, SubAll. *Alnenion glutinoso-incanae*, large bittercresses)

173 - 91F0 – Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers (*Ulmenion minoris*) (Ass. *Ficario-Ulmetum minoris*)

186 - 91T0 – Central European Lichen Pine Forests (Ass. *Cladonio-Pinetum* and *Cladonia-Sctos* form Ass. *Peucedano-Pinetum*)

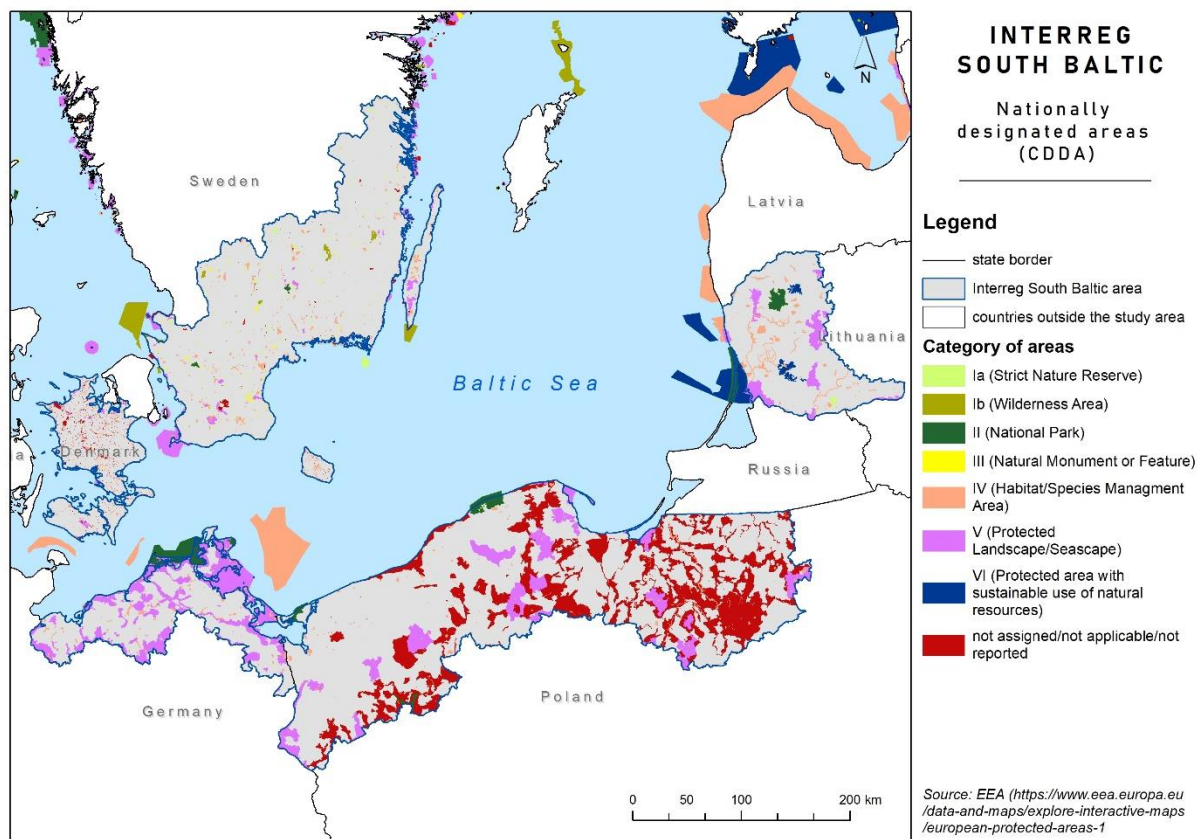


Fig. 3-7 National protected landscapes (source: own work on the basis of EEA's data)

The most significant issues and threats of the component regarding to the entire support area

### *Impact of climate change on ecosystems of the Coast of Baltic Sea*

The marine ecosystem of the Baltic Sea is affected by the changes in the thermohaline structure that is affected significantly by climate and hydrological changes. In turn, mass blossoming of alga indicates deterioration of water quality, and as a result of strong eutrophication of the

environment and climate warming, the frequency and intensity of this phenomenon increases gradually<sup>28</sup>

In case of coastal areas, the key factor affecting the state of habitats will be increasing the sea water level which leads to, apart from direct fading of foreshore habitats due to flooding, increased erosion and increased salinity of coastal areas. Increased wind speed and soil salinity will directly affect the habitats on coastal and inland dunes<sup>29</sup> The dune habitats are facing lowering of the underground water levels and change in soil structure. Considering the SEA Report regarding increase of the sea water level, we can anticipate that halophytes and coastal habitats will be lost completely in the near future. Such types of habitats are more often located near urban, industrial and tourist areas, which makes it even more difficult to avoid the results of sea level increase through migration to other areas.<sup>30</sup> Moreover, adaptation action itself may disturb the existence of coastal ecosystems. Maintaining the coastal line through construction of embankments and reinforcements means destruction of habitats of various species, including birds and seals.

Changes in hydrological regime apply also to fresh, flowing and standing waters. These areas are vulnerable to change due to increase in heavy precipitation, dry periods, eutrophication and disturbances in water flow in reservoirs. A significant threat to biodiversity, and retention and adaptation capacity of the area will be disappearance of small surface reservoirs (swamps, lakes, ponds, small shallow lakes and also streams and small rivers). This is also a threat for various species that stay there or that use it, as a drinking water reservoir. Habitats typical for the lake districts, related to water reservoirs, but also natural and semi-natural meadow and turf formations, peat lands and other water-marsh areas will degrade due to lowering of underground water levels and increased eutrophication<sup>31</sup>

The climate change also includes other types of anthropopressure on ecosystems, lowering their adaption capacity. In the area discussed, this is, above all, the investment pressure, especially

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<sup>28</sup> Wibig, J., & Jakusik, E. (2012). Climate and oceanographic conditions in Poland and in the South Baltic: anticipated changes and guidelines for development of adaptation strategy in the national economy (No. 1). The Institute of Meteorology and Water Management - The National Research Institute

<sup>29</sup>Strategic Adaption Plan for Sectors and Areas Sensitive to Climate Change by 2020, Scenarios of Climate Change by 2030 and Impact on Sensitive Sectors and Areas

<sup>30</sup> Sârbu, A., Janauer, G., Profft, I., Kaligarič, M., & Doroftei, M. (2014). Potential impacts of climate change on protected habitats. n Managing Protected Areas in Central and Eastern Europe under Climate Change (pp. 45-60). Springer, Dordrecht.

<sup>31</sup><http://klimada.mos.gov.pl/blog/2013/04/15/roznorodnosc-biologiczna/>

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spilling and disturbing the structure (suburbanization, second houses, urban sprawl, development of tourism infrastructure on coasts) and development of communication infrastructure<sup>32 33</sup>. This leads to reduction and fragmentation of ecosystems and preservation of continuity and cohesion of ecological passages<sup>34</sup> to the Baltic Sea related thereto, and increases already high, in current climate warming, eutrophication<sup>35</sup>. It should be noted that also action regarding adaptation to climate change may negatively impact biodiversity, e.g., diversification of coasts.

### *Eutrophication*

Eutrophication was considered one of the most significant threats to the Baltic Sea. Excessive supply of nutrients for the marine environment increase the growth of phytoplankton, leading to deterioration of lighting conditions in water, deficiencies in oxygen in water and many other unfavorable changes in the ecosystem. This leads to excessive alga frog spit and creates dead zones, where lack of dissolved oxygen disallows breeding of marine species. Excessive loads of biogenic substances from inland sources in the catchment of the Baltic countries - including from agriculture, municipal or industrial waste plants or deposition in air - are the main causes for eutrophication. To limit this tendency, the inflow of Nitrogen and Phosphorus to sea must increase further.<sup>36</sup> Integrated evaluation of eutrophication for 2011-2016 shows that eutrophication still occurs in the Baltic Sea. Among 247 units of evaluation covered by HELCOM assessment, only 17 reached a good water condition. When it comes to protected areas, 96% of the Baltic Sea surface, from Kattegat to internal bays, is below the good condition level due to eutrophication. The results ranked in the category further away from the good condition in case of 12% of the area. Only few coastal areas were not affected by eutrophication.<sup>37</sup> Eutrophication affects both biodiversity and tourist attractiveness of bathing beaches. Apart from marine area, this applies also to water reservoirs in the lake district neighboring the coast.

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<sup>32</sup> Hennig, E. I., Schwick, C., Soukup, T., Orlitová, E., Kienast, F., & Jaeger, J. A. (2015). Multi-scale analysis of urban sprawl in Europe: Towards a European de-sprawling strategy. *Land use policy*, 49, 483-498.

<sup>33</sup> Bielecka, E., Jenerowicz, A., Pokonieczny, K., & Borkowska, S. (2020). Land cover changes and flows in the Polish Baltic coastal zone: A qualitative and quantitative approach. *Remote Sensing*, 12(13), 2088.

<sup>34</sup> Sârbu, A., Janauer, G., Profft, I., Kaligarič, M., & Doroftei, M. (2014). Potential impacts of climate change on protected habitats. In *Managing Protected Areas in Central and Eastern Europe Under Climate Change* (pp. 45-60). Springer, Dordrecht.

<sup>35</sup> <https://www.eea.europa.eu/data-and-maps/indicators/nutrients-in-transitional-coastal-and-4/assessment>

<sup>36</sup> WWF Report

<sup>37</sup> <http://stateofthebalticsea.helcom.fi/pressures-and-their-status/eutrophication/>

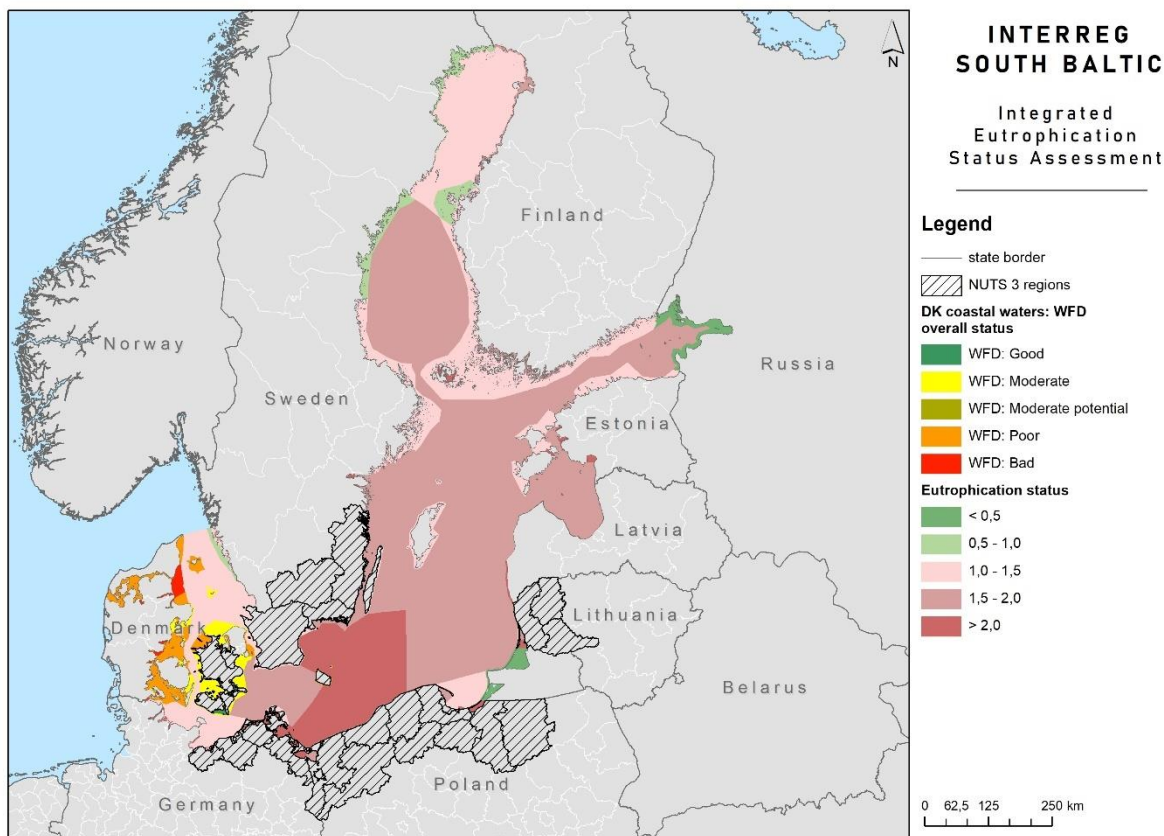


Fig. 3-8 Integrated evaluation of the Baltic Sea eutrophication for 2011-2016 (source: own work on the basis of EEA's data)

### Tourism

The coastal areas are, apart from mountain areas, one of the most anthropopressure-sensitive areas of tourist reception. Impact of tourism on biotic elements applies also to the level of ecosystems and landscape and particular species of flora and fauna.

Impact of tourism on the landscape and ecosystems

- Excessive tourism infrastructure development in direct neighborhood of the coast, the so called concrete coasts, especially large hotels, not adjusted to the local landscape and infrastructure and excessive density of hotel base
- Spatial chaos, excessive advertising and service points not adjusted to local tradition.
- Littering of beaches, dunes and coastal forests
- Eutrophication and growth of alga in the bathing beach area.

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- Destruction of protective functions of dunes by tourism infrastructure and poaching leading to erosion and compromising the dune stability.
- Filling the lagoons to obtain space for investments.
- Destruction of coastal swamps by drying them and destroying them as a result of development of tourism base.
- Cutting down forests for development of the tourist infrastructure.

### Impact of tourism on plants

- Disturbances in growing periods of plants and physical destruction of the flora landscape by running over, damaging during various forms of tourism and free time activities, gathering decorative plants, poaching, especially the dune flora by tourists.
- Synanthropization of habitats and change in specie composition
- Appearance of invasive species

### Impact of tourism on animals

- Disturbance of breeding and feeding cycles by disturbing, scaring and stress
- Termination of ecological pathways due to development of tourist infrastructure and communication paths, which negatively impacts the animal migration
- Feeding animals and adjusting them to unnatural sources of food
- Anti-mosquito spays in coastal tourist facilities, affecting also the population of other species of insects
- Drying wet areas, changing the habitats of amphibians and reptiles
- Tourists entering breeding areas of marine birds, destruction of nests and eggs

## ***Renewable Energy***

RES - Energy Policy of UE considers RES a key element in transformation towards green energy. **These are sources necessary from the point of view of climate change prevention**, however, not without an impact on biodiversity The RES infrastructure, currently existing in the area in question, negatively impacts the habitats and species. Below are presented the most negative impact of RES installations on biodiversity. <sup>38</sup>

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<sup>38</sup> Gasparatos, A., Doll, C. N., Esteban, M., Ahmed, A., & Olang, T. A. (2017). Renewable energy and biodiversity: Implications for transitioning to a Green Economy. *Renewable and Sustainable Energy Reviews*, 70, 161-184.

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Solar energy - development of the solar energy infrastructure requires significant areas, which may lead directly to loss and fragmentation of habitats. This is an obstacle in migration of species and affects the availability of hiding places and food. The research showed also direct mortality of birds due to impacting the panels and sunburns. Polarized light, that often occurs in such facilities, may mislead insects and make them lay eggs on panels, impacting their reproductive chances. The light draws insects, which in turns draws birds, that may be vulnerable to predator attack, making this installation an eco-trap.

Biomass - Loss and transformation of habitats is one of the most important factors affecting the loss of biodiversity due to production of energy and biomass. Direct and indirect outcome of using the areas resulting from mass-scale use of biomass for production of energy led to loss of biodiversity, especially in case of transformation of soils on a large scale, with the use of a mono cultural production of raw materials. It should be noted, that direct and indirect change of use of soils may significantly affect the climate, both due to greenhouse gas emission and change in local microclimate due to albedo and evapotranspiration.

Wind energy (on land) - each wind plant causes a small loss of habitat area, whether directly through occupation of the land or indirectly due to the fact that species avoid lands around the wind plants. However, the biggest threat for biodiversity is, in this case, possibility of collision of birds and bats with wind turbines, and also impact of rotating blades on air circulation. Especially vulnerable are species that are a) rare/endangered, b) live long and breed slowly, c) are large and not agile (e.g. Geese and swans) d) have a tendency to fly in worse lighting conditions (dawn or sunset). Presence of turbines affects also scavenging and sheltering in further locations. Higher risk of collision also exists around intensively used passage routes (including migration routes) or in areas that are regularly used for scavenging and/or sheltering. Both in case of birds, and bats, the risk of collision applies not only to home species but also foreign species during migration (e.g. bats killed on German wind farms are from Scandinavia, Estonia and Russia). The risk of collision may vary for particular specie in various seasons.

Blue energy (offshore wind, tides and waves) - in case of blue energy, the loss of habitats results from the fact, that each type of modern marine energy plant requires occupation of a piece of bottom and sea. Change in habitat due to such installations is based on hindering normal migration and feeding for species, and also on impact on hydrodynamic processes in marine environments neighboring these plants. In case of habitat loss, excavations for foundations of power devices installed/anchored to the bottom may cause local changes in species composition of fish. Marine mammals often avoid areas of ongoing underwater construction and return upon conclusion thereof. Some species of sea birds may disappear from the direct neighborhood of wind farms and within 2-4 km of the buffer area due to loss of feeding grounds. Habitat of most

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population of sea birds doesn't seem to be disturbed by presence of sea wind farms. It should be noted, that protection of off-shore wind farms led to increase in the number of benthic and fish species, most likely due to shielding effects. However, such direct impact on sea bottom habitat, both positive and negative, will probably be limited to 100-200 m from the plant. The more significant impact seems to be direct impact of devices on organisms, e.g. Tide dams may trap animals, and off-shore wind farms may pose a risk of collision of birds, just as on-shore wind farms. The mortality evaluation is more difficult to carry out compared to conventional wind farms. According to some research, while some bird species avoided off-shore wind farms, other were drawn by them (e.g. Nocturnal migrating species drawn by lights), which increased the risk of collision. Proximity of off-shore wind farms to the coast may also impact migrant birds, that use the coast line for navigation. Similarly, the rotators of devices using the wave energy may pose a risk of collision with marine species or impact routes, navigation and feeding patterns for some migrant species. Tide turbines may also collide with some species, such as diving birds or fish. There are concerns regarding consequences of sea pollution by power plants, including chemical, acoustic and electromagnetic pollution. Similarly to conventional hydroelectric dams, the tide dams may change the nature of sediments, salinity and cloudiness of water. This may lead to cases of mass mortality of fish and other benthic species. Moreover, installation and withdrawal from use of marine power devices may temporarily deteriorate the quality of habitats and water due to sea bottom disturbances. Moreover, generating noise during construction and use of the plant may impact some marine species. Increased traffic and noise of ships at these stages may impact various marine animals, flocks of fish and bird population, although these phases are relatively limited in time.

### **3.2 People, material goods (including human health, life quality)**

Area covered by the scope of the document, with population of approx. 8.93 million people, half of which are citizens of the territory of Poland. Fig. 3-9 shows percentage of population in particular countries under the Program.

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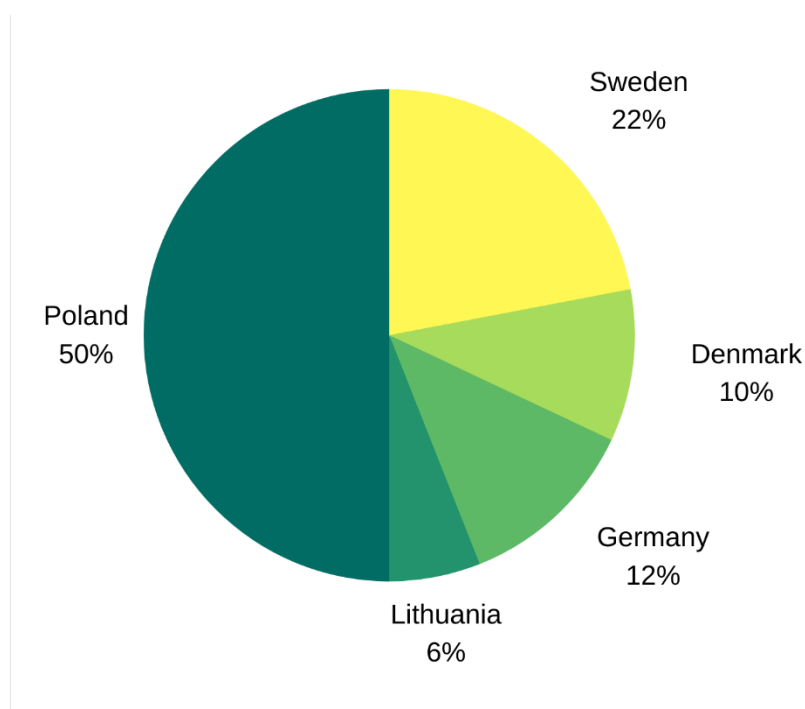


Fig. 3-9 Population with respect to the overall population on the area covered by the support Programme (source: Eurostat)

The population density in the support area is 70 ppl/km<sup>2</sup> (as of 2019). A large disproportion of this phenomenon can be noted depending on the country. The highest population density is estimated in the Tri-City area (Poland) - 1802 ppl/km<sup>2</sup>, whereas the lowest indicator was noted in the region of Taurages apskritis (Lithuania) - 21 ppl.km<sup>2</sup> and Kalmar Lan (Sweden) - 22 ppl.km<sup>2</sup>. This shows large diversity in population. The number of people per km<sup>2</sup> is clearly higher in urban centers such as: the mentioned Tri-City area (1802 ppl/km<sup>2</sup>), The City of Szczecin (13355 ppl.km<sup>2</sup>) and Rostock, Kreisfeire Stadt (1154 ppl/km<sup>2</sup>). Areas of typically rural nature have a significantly lower indicator, showing smaller amount and construction density (Fig. 3-10).



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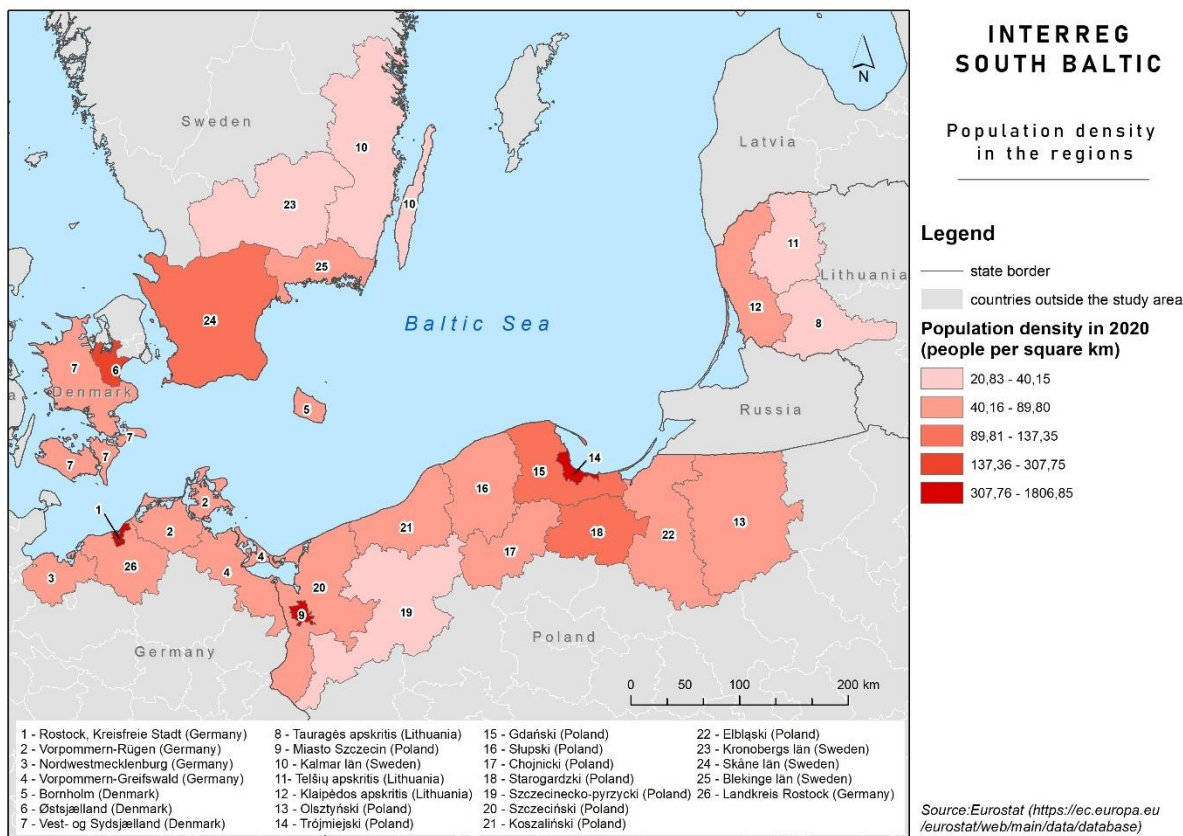


Fig. 3-10 Population density as of 2020 (source: own work on the basis of EUROSTAT's data)

The South Baltic Region has, for the most part, rural nature with metropolitan areas. The larger units of urban nature, focusing on large concentration of people, include: Malmö (Sweden), Tri-City: Gdańsk-Gdynia-Sopot and Szczecin (Poland).

According to Socio-economic analysis of Interreg South Baltic Cross-border Co-operation Programme 2021-2027, the area of South Baltic is characterized, in recent years, by a stable economic growth. The level of economic growth varies significantly between countries and subregions. Disproportions are especially notable both in case of earnings and economic indicators such as GDP per capita. The richest areas include subregions of Denmark and Sweden. The poorest areas include subregions in Poland and Lithuania. German subregions are slightly poorer than the already-mentioned areas of Denmark and Sweden.

Wealthiness of society is not always distributed proportionally to the GDP indicators. With respect to rural nature of the major part of support area, it might be noted, that a relatively large group of people is not hired in agriculture, but only lives in a particular subregion. Employment in

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industry or service branch forces every-day movement from place of residence to larger urban or suburban location of industrial nature.

The subregions of Denmark and Sweden located within the boundaries of the Programme are disproportionately richer than areas located in the South and East area of the Program. Income according to subregions is distributed unevenly. Apart from differences between countries and subregions, disproportions are also of strong urban-rural nature.

The poorest areas include subregions in Poland and Lithuania. German subregions are slightly poorer than the already-mentioned areas of Denmark and Sweden. This is related to the level of unemployment in each country. According to Eurostat <sup>39</sup> the highest unemployment level is in the subregion of Szczecin-Pyrzyce (13,2%) and Elbląg (10,8%) and the lowest is in Tri-City (2,5%) and the City of Szczecin (2,6%). In all regions of NUTS 2 including SBA, except for Meklemburgia-Pomorze Przednie (45,5%), the level of long-term unemployment (within the percentage of overall unemployment) is significantly higher than the European average (43,2%).

According to the Strategy for the Interreg South Baltic Cross-Border Co-operation Programme 2021-2027 <sup>40</sup>, the higher percentage of population of the area under the Programme (NUTS3) is employed in services (76,95%), 18,35% of population are people working in industry, 4,7% works in agriculture, forestry and/or fishery. The level of employment in service is, for the most part, related to a high participation of employment directly or indirectly in tourism. Due to location near sea and a high biological and cultural variety, periodic inflow of tourists is observed, depending largely on weather conditions. It should be noted, however, that these data are not objective due to lack of data regarding employment structure of subregions in Denmark. Moreover, high diversity between particular subregions is very visible. Especially on the side of Poland, in subregions covered by the Program, especially visible is very high, on the level of approx. 11-12%, share of people employed in agriculture, forestry or fishery. Significant differences are also visible in terms of employment of people in services (approx. 58%). This may generate a need to improve the quality of services and develop new ones (Fig. 3-11).

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<sup>39</sup> Dane Eurostat; Socio-economic analysis of the Interreg South Baltic Cross-border Co-operation Programme 2021-2027; Strategy for the Interreg South Baltic Cross-border Co-operation Programme 2021-2027

<sup>40</sup> Strategy for the Interreg South Baltic Cross-border Co-operation Programme 2021-2027

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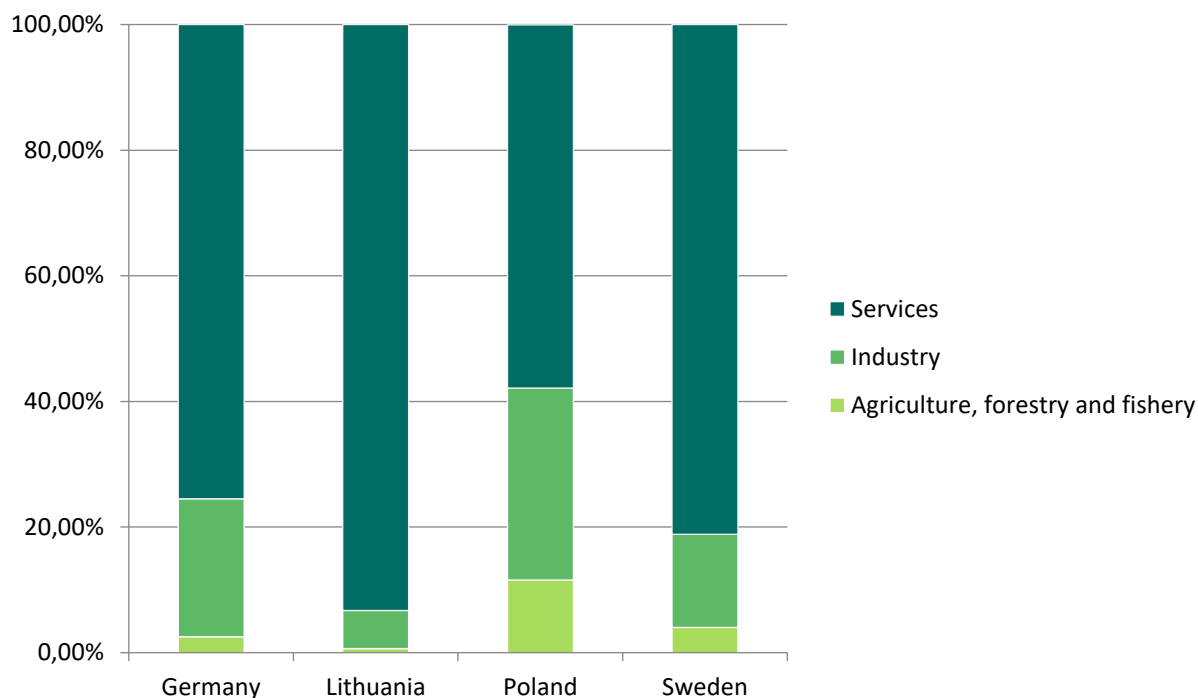


Fig. 3-11 Share of particular employment branches in subregions covered by the Programme (source: Eurostat)

The overall share of population according to economical age groups in percentage of population of Baltic countries covered by the support programme (Fig. 3-12) is as follows: 15,35% are people in pre-productive age, 3,78% in productive age, 22,02% in post-productive age (as of 2019) <sup>41</sup>. The support area of the Programme is demographically regressive, with clear tendency of depopulation. This is directly related to a low birth rate and life length of citizens. A relatively good progress of health care and medicine favor aging of societies. According to Eurostat in 2019, the age of women to have a first child is 29,4 in Europe.

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<sup>41</sup> Dane Eurostat; Socio-economic analysis of the Interreg South Baltic Cross-border Co-operation Programme 2021-2027

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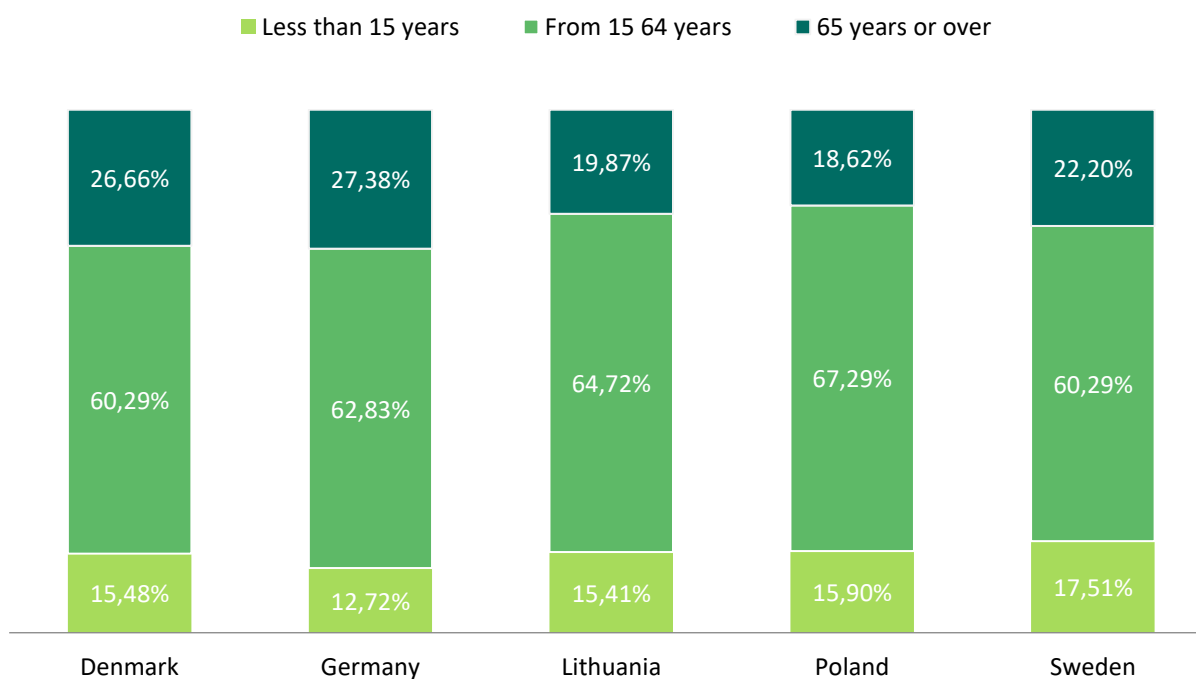


Fig. 3-12 Percentage of population according to economic age groups (source: Eurostat)

The general tendency related to change in population (Fig. 3-13) shows aging of society, and thus, common issues on the job market, due to this process, are expected. These issues determine also various accessibility of public services, including health care. A relatively high number of seniors generates the need to improve accessibility and development of transport services (various payment methods, intuitive passenger information systems), and also health care (e-health care).

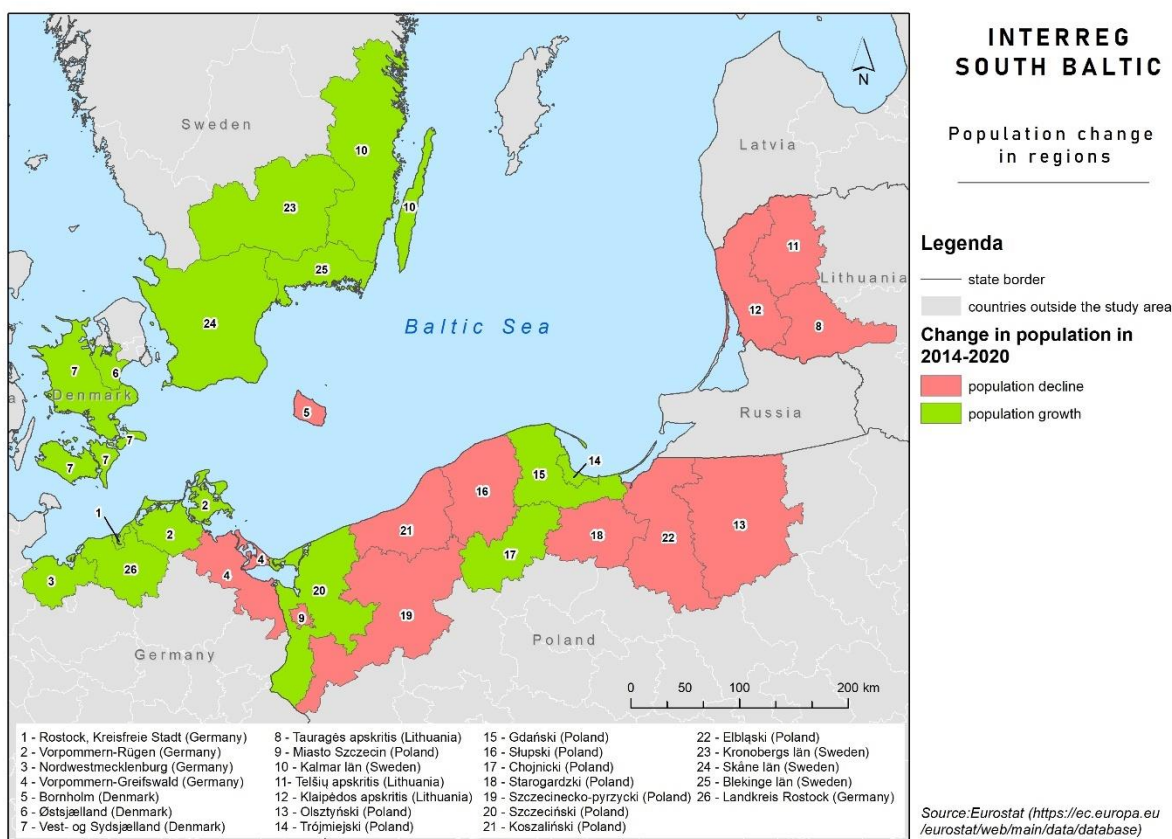


Fig. 3-13 Changes in population in 2014-2020 (source: own work on the basis of EUROSTAT's data)

Rapid changes recently occurring in population structure, and also in migration and child birth indicators are highly impacted by the development of SARS- CoV 2 virus. Inability to perform duties in remote form led to mass firings in some branches. The necessity to quickly introduce new solutions regarding remote education, administrative processes or health care, enabled development and testing of innovative digital solutions. However, this enabled notification of the need to automate some processes of development of new technologies. The possibility to deal with administrative and official issues, remote submission of applications and development of various e-services significantly improved access to information, especially to people from smaller cities, disabled and seniors.

### 3.3 Inland waters

For the purpose of this chapter, the condition of inland waters in the area covered by the programme was diagnosed and evaluated according to the Framework Water Directive (WFD) The focus was not on aspects also related to waters, but including such issues as droughts or

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flooding, that are subject to interactions with climate and its changes and adaption to them, which was described in a separate chapter Prognoses.

Water systems of five countries constituting the area of South Baltic, are monitored on the national level on the basis of standards and laws of each country, which however, includes regulations of the EU directives. Data within the scope of water quality are collected by proper institutions of particular countries and forwarded to a common system, kept by the European Environment Agency (EEA). The diagnosis of water condition and most significant issues within the scope of water protection in the area analyzed was based on collection and publication of EEA's data <sup>42</sup>

The level of development of river network in particular regions of the South Baltic is presented in Fig. 3-14. All rivers are a part of main Baltic catchments. In the area analyzed, in entirety or in part, there are 380 river catchments within 23 subunits, separated for the purpose of WFD.

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<sup>42</sup> <https://www.eea.europa.eu/publications/state-of-water> (access: 11.08.2021)

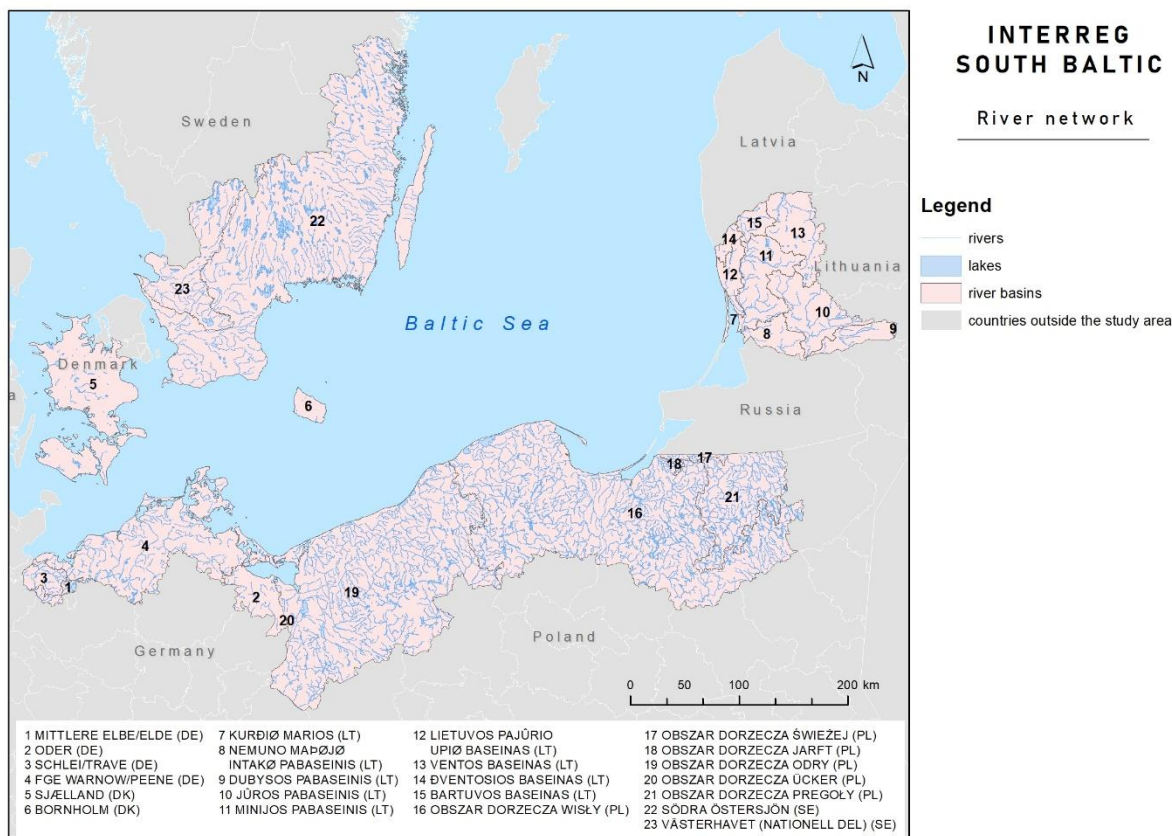


Fig. 3-14 The network of inland waters flowing in the South Baltic area (source: own work on the basis of EEA’s data)

According to the latest EEA data, a very high percentage of the so called homogeneous parts of water, does not meet the standards of good condition or ecological potential, which is a synthetic indicator of general condition of river ecosystems. It should be noted, that reaching or maintaining the above-mentioned good condition is an environmental goal for all waters in Europe. Within the South Baltic area analyzed, the percentage of JCW not meeting the requirements in particular subunits varies from 36 to even 100%<sup>43</sup>(Fig. 3-15). In case of chemical condition, considering the so called uPBT substances, these values vary in full extent, from 0 to 100%<sup>44</sup>. The chemical condition of waters without the above-mentioned substances looks much

<sup>43</sup> <https://www.eea.europa.eu/data-and-maps/figures/proportion-of-classified-surface-water-7> (access 11.08.2021)

<sup>44</sup> <https://www.eea.europa.eu/data-and-maps/figures/percentage-of-number-water-bodies-2> (access 11.08.2021)

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better in all regions of South Baltic <sup>45</sup>. However, EEA recommends balance in comparing data from particular countries due to differences in methodology applied by different countries.

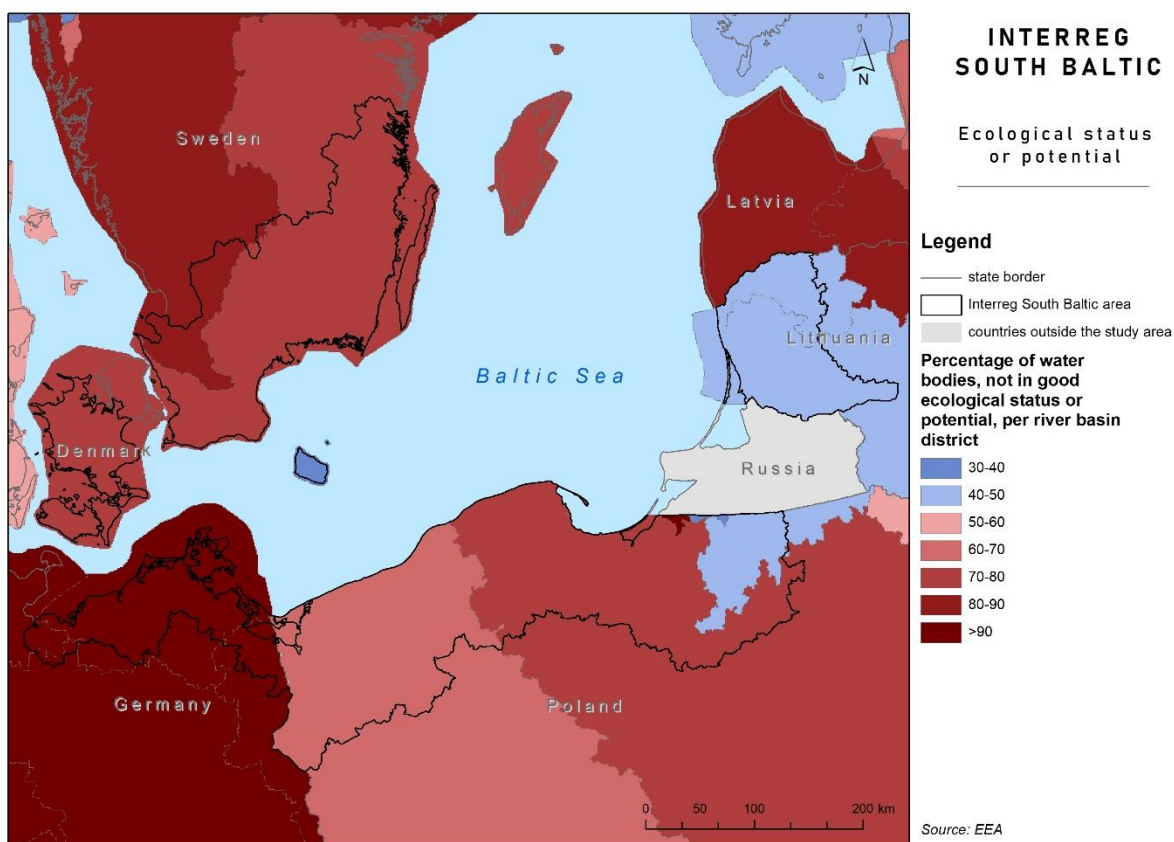


Fig. 3-15 The share of JCW not meeting the conditions of good condition/ecological potential (source: own work on the basis of EEA's data)

<sup>45</sup> <https://www.eea.europa.eu/data-and-maps/figures/percentage-of-number-water-bodies-3> (access 11.08.2021)



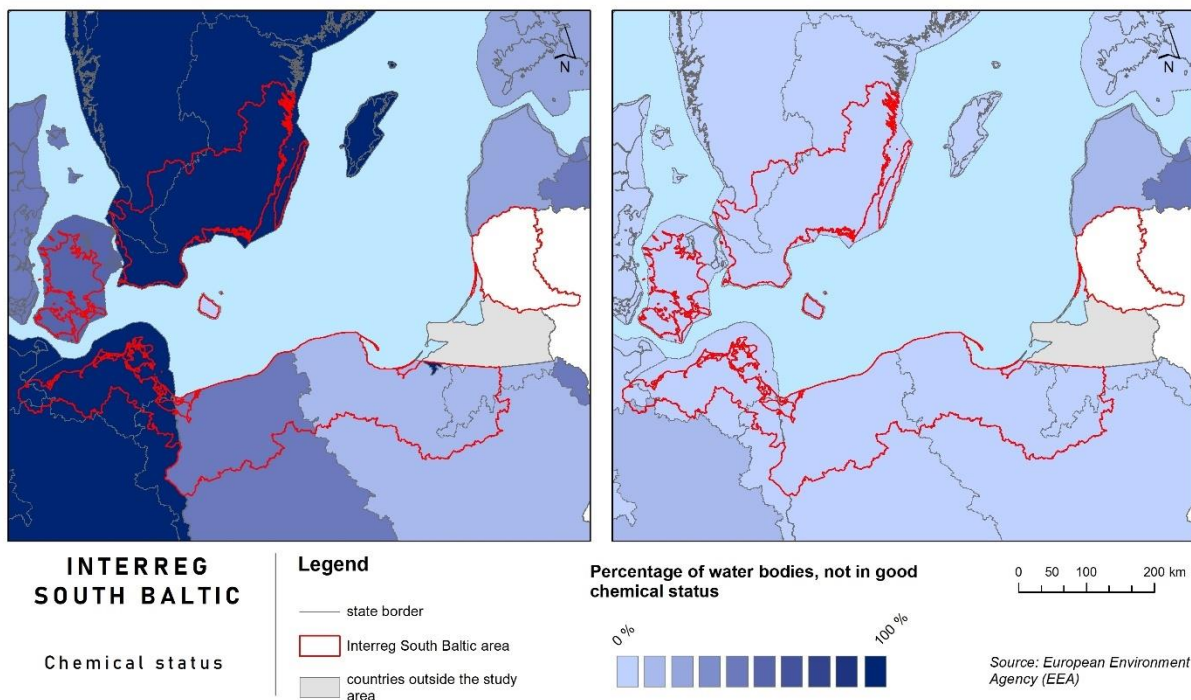


Fig. 3-16 The share of JCW not meeting the conditions of good chemical condition - evaluation in consideration of the so called uBPT substances <sup>46</sup>, on the left, and not in consideration of the same, on the right) (source: own work on the basis of EEA's data)

According to available data, the problematic issues in the context of water condition are the amount of pollution flowing to these waters, and on the other hand, the habitat conditions determined by the level and manner of water management in a particular countries, e.g., the level of transformation or river regulation. In case of the first aspect the amount of pollution flowing into the rivers gradually and significantly decreases. According to EEA calculations for 2010-2019 <sup>47</sup> in countries of the region analyzed, the increase was a case only in Denmark and Lithuania for the loads of overall limited carbon and nitrogen and phosphorus. In other cases, significant reduction was noted (Tab. 3.1), although there still is the issue of priority substances, especially the so called uBPT substances.

<sup>46</sup>uBPT substances- (ubiquitous (present, appearing or found everywhere), persistent, bioaccumulative and toxic). The uBPTs are mercury, brominated diphenyl ethers (pBDE), tributyltin and certain polyaromatic hydrocarbons (PAHs)

<sup>47</sup> <https://www.eea.europa.eu/data-and-maps/figures/water-pollutant-releases> (access 11.08.2021)

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Tab. 3.1 Changes in the load of some pollutions released from the country to waters in 2010-2019 (source: EEA).

Country	T Cd, Hg, Ni, Pb			mil T OWO			mil T N overall.			mil T P overall.		
	2010	2019	Change	2010	2019	Change	2010	2019	Change	2010	2019	Change
Denmark	764	610	-20,1%	3.60	4.37	21,4%	1.43	1.94	35,5%	0.15	0.20	30,8%
Germany	41493	30453	-26,6%	68.80	55.60	-19,1%	46.80	33.30	-28,8%	1.86	1.26	-32,2%
Lithuania	970	268	-72,4%	0.39	0.05	-86,4%	0.99	0.16	-83,8%	0.03	0.04	20,2%
Poland	64687	30389	-53,0%	18.50	16.10	-13,1%	22.10	12.60	-43,1%	0.66	0.45	-32,2%
Sweden	8611	6870	-20,2%	61.10	57.60	-5,8%	9.24	9.24	0,0%	0.31	0.30	-3,8%

In case of the latter aspect, according to latest publications <sup>48</sup>, globally in the 12 mil km evaluated, only 37% of rivers longer than 1.000 km flows freely along the entire length, whereas only 23% flows freely to the oceans. According to the data, The percentage of such discontinuous rivers is still high <sup>49</sup>. The situation in the area evaluated is shown here Fig. 3-17. This shows, however, that although the problem of migration barriers occurs here, it has lower intensity than in other, more transformed regions of Europe.

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<sup>48</sup> Grill, G., Lehner, B., Thieme, M. et al. Mapping the world's free-flowing rivers. Nature 569, 215–221 (2019). <https://doi.org/10.1038/s41586-019-1111-9>

<sup>49</sup> <https://www.eea.europa.eu/data-and-maps/figures/free-flowing-rivers-in-europe>

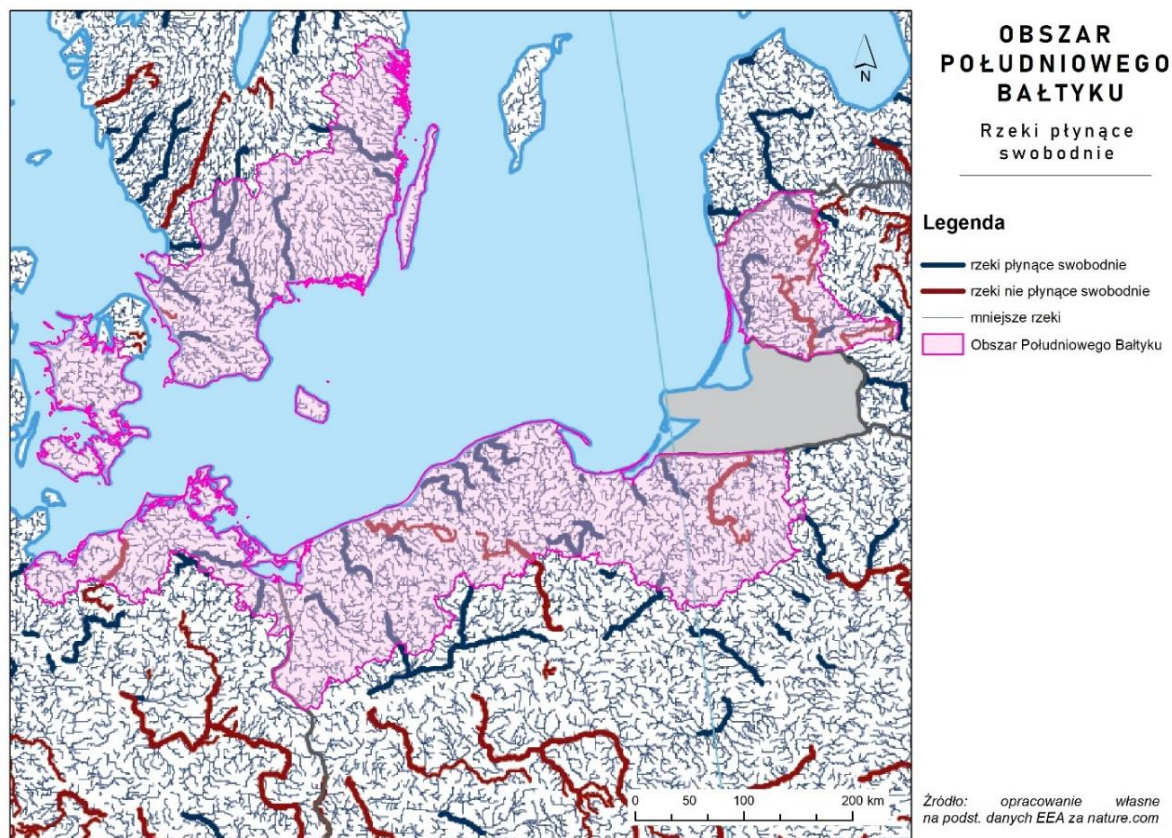


Fig. 3-17 Rivers flowing freely (source: own work on the basis of EEA's data after nature.com)

The general condition of surface waters in the area analyzed, in consideration of division defined by WFD (river, lake, coastal and transitional) based on 5-level scale is presented in Fig. 3-18<sup>50</sup>. This shows, that still a high percentage of them within the area evaluated does not meet the WFD criteria, so the criteria for reaching or maintaining at least a good condition. This clearly shows the necessity to intensify further action for water protection. This is especially significant in case of transitional and coastal waters, vast majority of which are characterized by a condition below good, since reaching the environmental goals in this case requires broader international cooperation, which is a subject of the document evaluated in this Report. The Aspect was described in more detail in the following chapter.

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<sup>50</sup> <https://www.eea.europa.eu/data-and-maps/explore-interactive-maps/water-framework-directive-quality-elements> (dost. 12.08.2021)

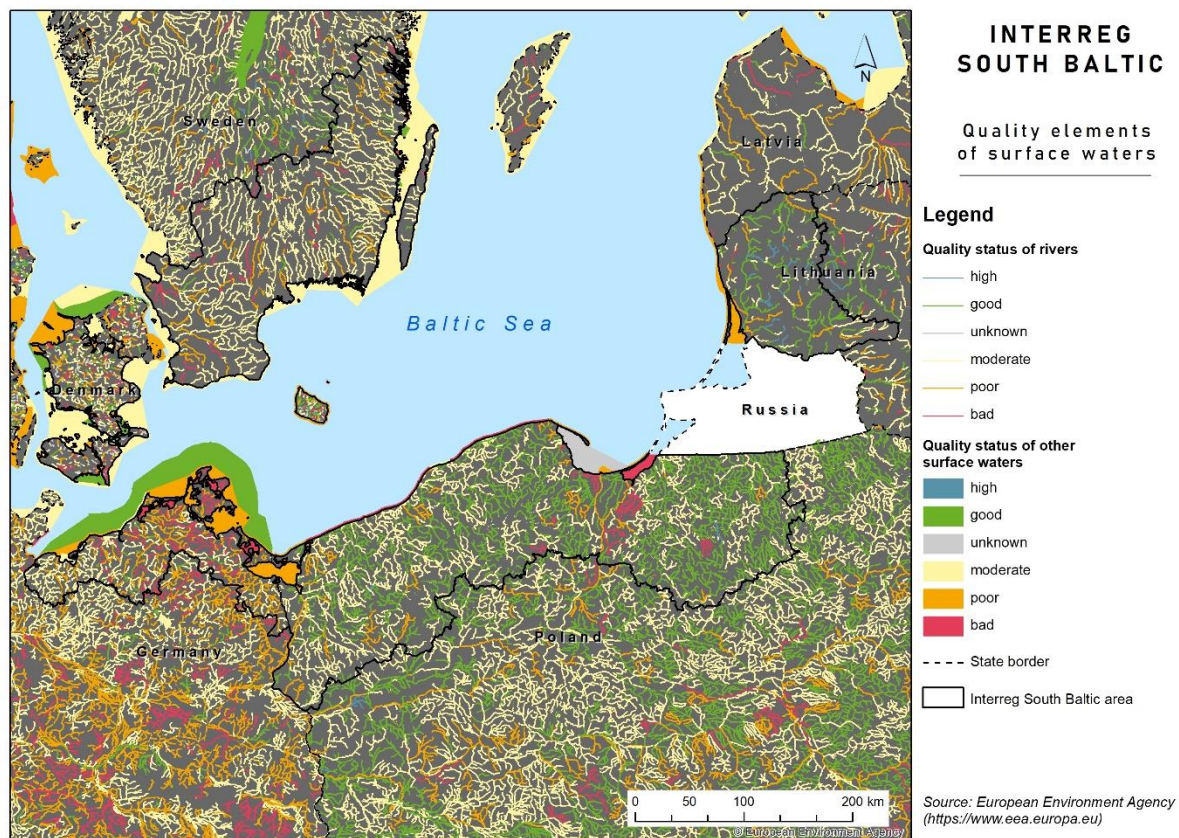


Fig. 3-18 The network of surface waters flowing in the South Baltic area (source: own work on the basis of EEA's data)

In case of underground waters, EEA's data show lack of significant issues in qualitative<sup>51</sup> or quantitative<sup>52</sup> evaluation, and the percentage of waters not meeting the criteria for good chemical or qualitative condition, for the majority of area analyzed, is zero (Fig. 3-19).

<sup>51</sup> <https://www.eea.europa.eu/data-and-maps/figures/chemical-status-of-groundwater-bodies-2> (dost. 12.08.2021)

<sup>52</sup> <https://www.eea.europa.eu/data-and-maps/figures/percent-of-groundwater-bodies-in-1> (dost. 12.08.2021)

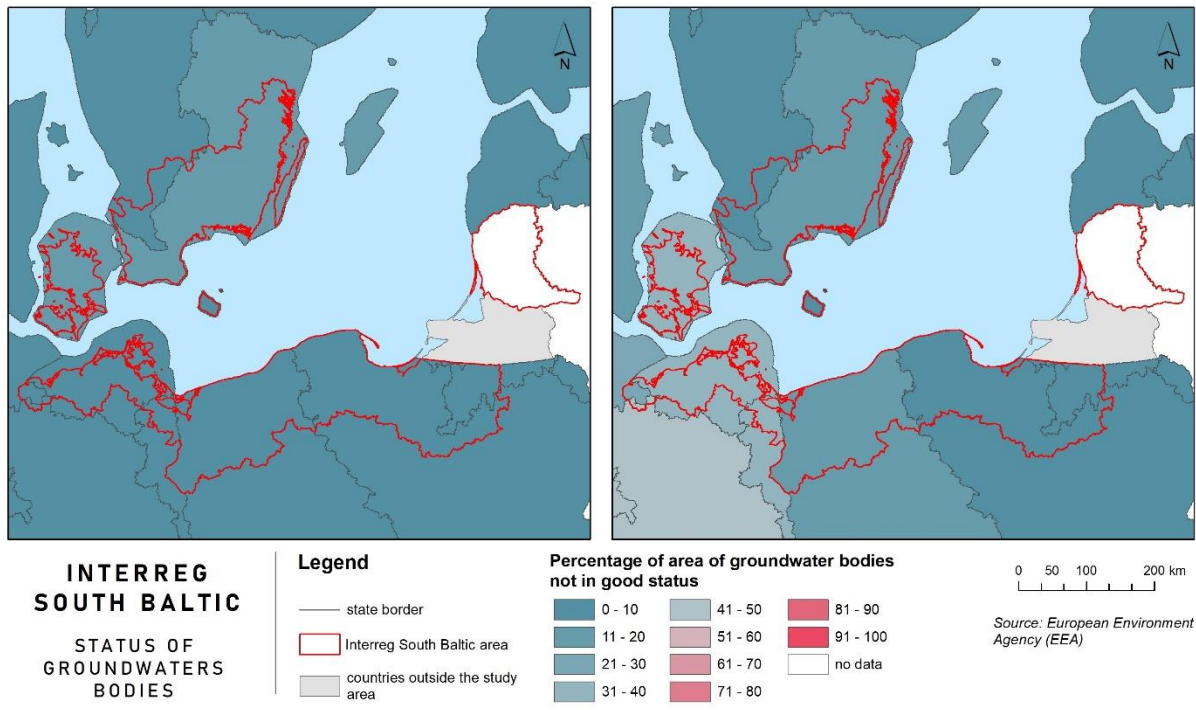


Fig. 3-19 The percentage of JCW not meeting the standards for good qualitative condition on the right and for qualitative - on the right (source: own work on the basis of EEA's data)

To sum up the analyses and evaluations, it should be noted that the most significant issues within the scope of inland water condition in South Baltic include ecological quality the evaluation of which turns out least favorably in case of German subregions. According to the chemical parameters including the so called uPBT substances, the worst evaluated are subregions of Germany and Sweden. Whereas, the problem of similar scale is river continuity. According to EEA analyses, to reach the WFD goals, namely to obtain a good water condition in the entire Europe, there is a need for further and intensive and cohesive action of all member states in following planning cycles.

### 3.4 Marine waters

The Marine part of the programme includes the area of 140.000 km<sup>2</sup>, it is the Eastern part of Baltic. The Western part of the area is a natural connection with the North Sea through the Great Belt, Small Belt, Sund, Kattegat and Skagerrak. The average depth of Baltic in the area covered by the Programme does not exceed 200m. Typical waving height is 3 to 8 m, waves are short and steep. During strong storms, they may be higher than 10 m. The water quality in Baltic Sea is impacted by increasing, for years, inflow of nitrogen and phosphorus, whereas the most

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significant increase took place in the 50's, since till 80's. The result of this is eutrophication, occurring in the form of increased original production, increase of chlorophyll concentration in water depth, and changes in organism metabolism. Increased original production may lead to reduced water clarity and increased sediments of organic material, which in turn increases oxygen consumption on the sea bottom and may lead to its deterioration. IN the context of potential pollution, it should be noted that water exchange in the Baltic sea has been going on for over 30 years (stigebrandt, 2001).

With reference to the Programme goals, the most important action in the Baltic Sea are wind energy, marine transport and tourism development.

### **Wind energy**

In recent years, there has been an intensive development of coastal wind energy, which results directly from EU's assumptions regarding climate neutrality. According to the Strategy for the renewable marine energy sources, assumed in November, 2020, by 2030 increase of marine wind power is to take place from the level of 12 GW to at least 60 GW and 300 GW by 2050. Then, it is planned to use 40 GW of ocean energy.

The success of renewable marine energy may be favorable for Europe, provide the member stated with sustainable energy transformation and set a new path towards climactic neutrality by 2050. This may also contribute significantly to restoration after COVID-19 due to the fact, the Europe is the world leader in coastal wind energy.

Currently, the share of Baltic wind farms is 10% of European coastal wind energy. The best location conditions for farms are in the Baltic are covered by the Program. The production leaders are Germany (1 GW of power), Denmark (0,87 GW), Sweden (almost 0,2 GW) and Finland (almost 0,07 GW) whereas according to estimations, almost 30% of potential of the entire Baltic is located on Polish waters, where there is currently no wind farm (Bieliszczuk and Raś, 2021). Overall, in the area of the Program, there were fourteen operating wind farms identified, nine confirmed, one under construction, twenty six planned and six dismantled (Fig. 3-20). All new plants (confirmed or planned) are located approx. 30 km from the shore. The distance of operating farms is far smaller (approx. 12 km).

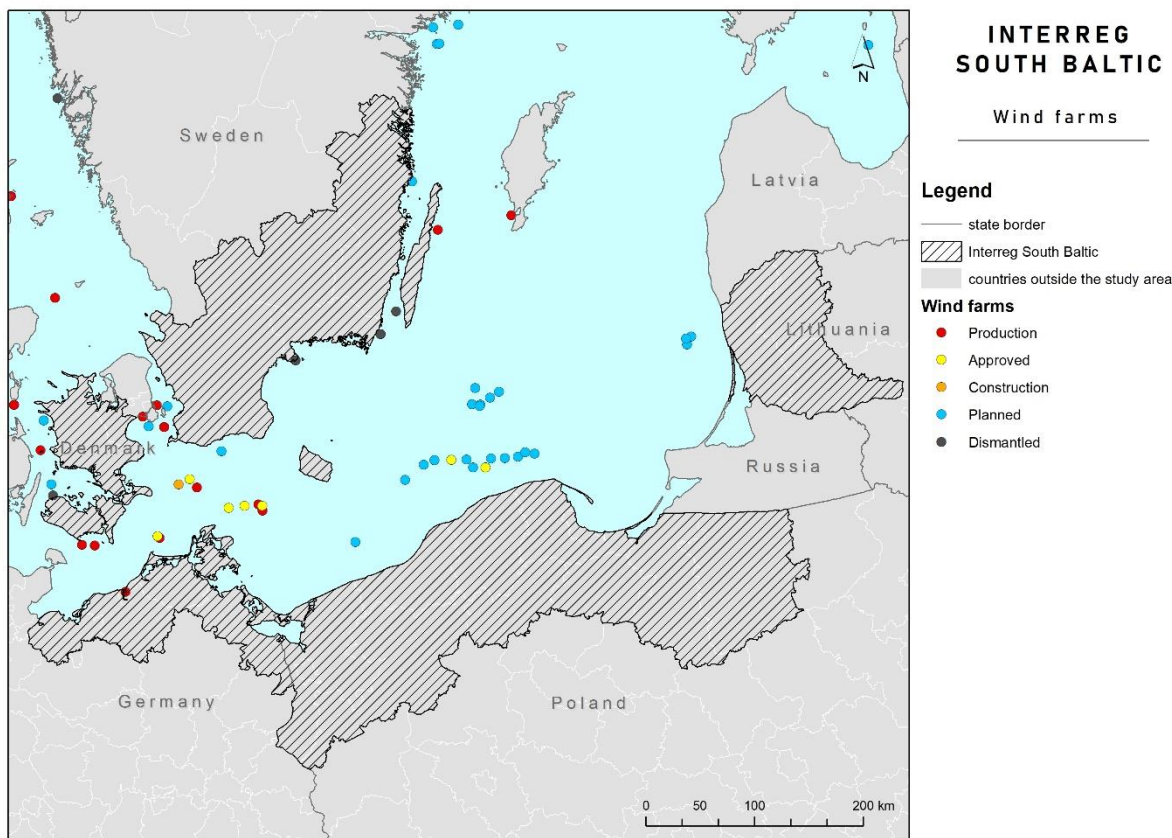


Fig. 3-20 Location of marine wind farms in the South Baltic area (source: own work on the basis of EEA's data)

The planned farms are located further from the shore (approx. 30 km) Due to the fact, that their construction will be associated with interference in the sea bottom, a hazard to people (during construction) and ecosystem should be taken into consideration, which results from release of toxic chemical substances deriving from chemical weapons, utilized once in the sea.

It should be noted, that reaching the assumed results of the strategy will require cooperation of all parties concerned: member states, regions, EU citizens, social partners, non-government organization and all sea users especially marine renewable energy sector and fishery and aquaculture sectors.

### Maritime transport

The issue of maritime transport is related on one hand, to the transport infrastructure, and on the other hand - with shipping. The Baltic Sea is one of the most crowded seas in the world, whereas the shipping conditions are relatively difficult. This results from geographic conditions (narrow straits, numerous islands and shallow waters) and weather conditions (intensive storms

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in autumn, strong tides in straits and freezing waters in Winter). Apart from these limitations, the location of shipping routes (Fig. 3-21) is limited by need for space for marine wind farms and marine protected areas (Baltic LINES, 2016).

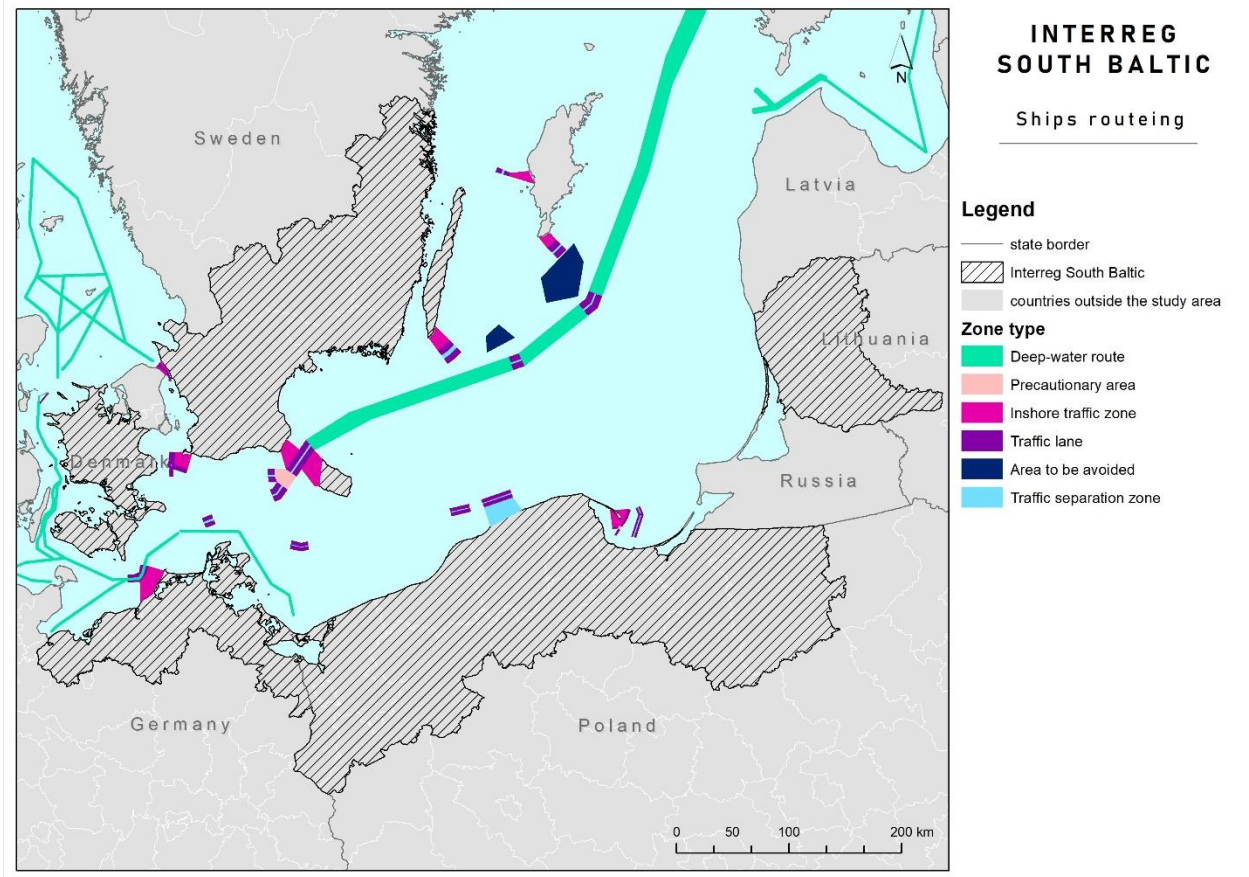


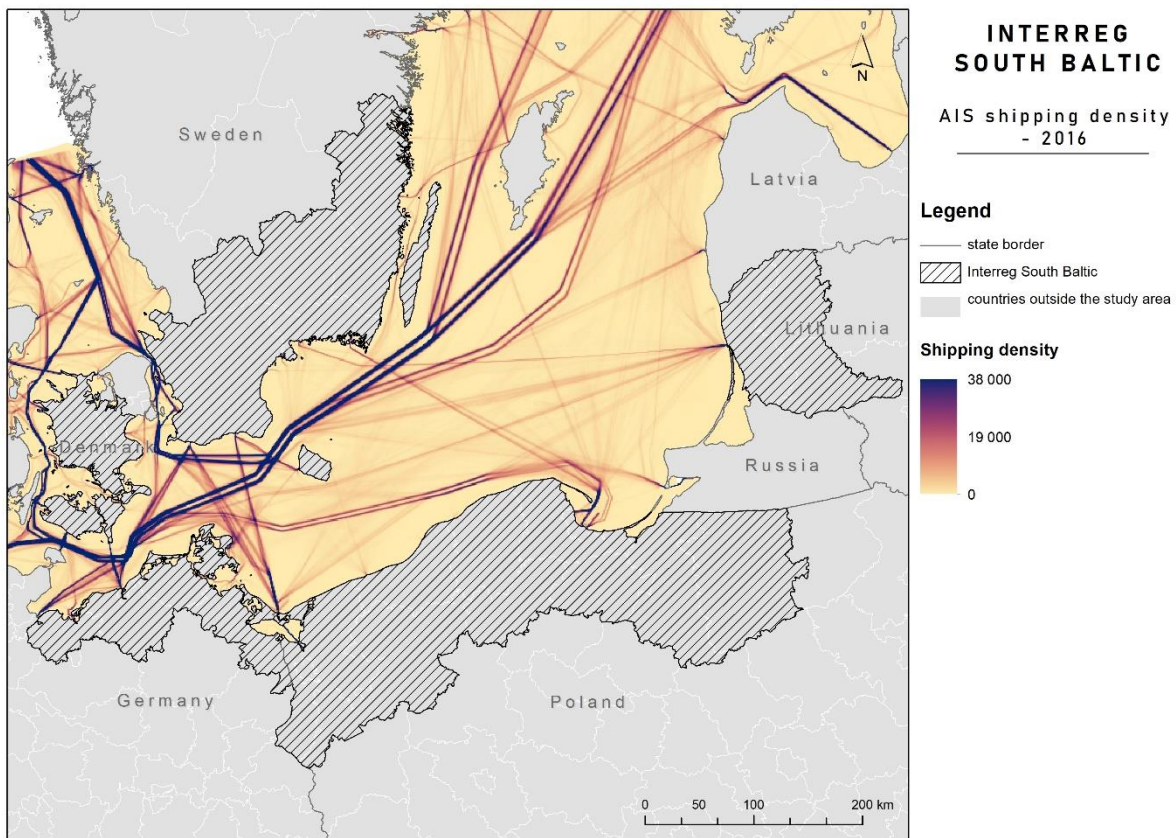
Fig. 3-21 Deep-water routes and other areas significant for traffic according to the definition of the International Marine Organization.

In the Baltic Sea, the shipping traffic is collected in regional network and HELCOM AIS database, initiated in 2005. According to data, in 2018, the fleet registered by the International Marine Organization was represented on the Baltic Sea by over 4000 cargo ships (approx. 48,2% of the entire fleet). The tankers were 22,3% of the fleet of over 1800 ships. Passenger ships were 5,4% of the fleet (449 ships), but they too took part in almost half of visits in harbors in the region of the Baltic Sea (44,5% with 154 233 visits). This results mainly from frequent connections between the cities in the region (HELCOM 2019). It should be noted, that these data do not fully reflect the intensity of traffic - registration in the AIS system is mandatory for ships of over 300 ton load capacity gross and more, employed in international shipping, all ships of the capacity of 500 registered tons gross, and all passenger ships, regardless of their size.



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The maritime transport is characterized by high hazard potential, and accidents that occur in shipping are difficult to foresee. According to Eurostat, Baltic shipping in 2017, with 21%, was ranked third in volume of cargo shipped. It should be noted here, that only 25% of ships operating on the Baltic Sea are registered under the flag of Baltic countries. At any moment, in the reservoirs of the highest maritime traffic, approx. 2000 ships is sailing (Fig. 3-22). The structure of ships operating on the Baltic Sea is as follows: over 50% of the ships are bulk carriers, 20% are tankers (whereas shipping on the Baltic Sea is forbidden for t single-hull tankers transporting oil, that carry over 200 mil tons of oil), 11% are passenger ships, and the remaining 19% are other ships (container ships, ro-ro, fishing ships and other) (Szubrycht, 2020).



*Fig. 3-22 Density of ships registered by IMO and operating on the Baltic Sea according to AIS-2016 (the density is defined as the number of ships exceeding the network cell 1 x 1 km).*

In case of cargo ships and tankers, it is easy to identify main routes, and separation of traffic may even be observed in the open sea (Fig. 3-22). Special attention should be paid to no connection between Poland and Lithuania. Passenger ships show similar scheme of traffic for longer distances; short-distance travels are concentrated around small and medium harbors. Fishing and service ships work along other routes - their density is observed near harbors, especially in the

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Southeastern Baltic (coasts of Poland, Lithuania and Latvia). The service ships that handle construction of coastal installations sail along determined routes of local and usually temporary nature (Baltic LINES, 2016).

Due to development and intensification of hazardous substance transport (e.g. Oil), there is an increased risk of uncontrolled release of hazardous substances to the marine environment.

### **Tourism**

The South Baltic is an attractive region for maritime and coastal tourism, for years there has been a massive inflow of tourists observed here. Maritime tourism includes, above all, activities related directly to water, such as sailing, yachting, journeys and marine sports (such as fishing), as well as activities of facilities related to these activities on land (e.g. Marinas or travel harbors). Among the ten leading travel harbors on the Baltic Sea, five of them are in the area covered by the Programme (Visby, Malmo, Gdansk, Kalmar, Rostock), whereas it should be noted, that number of guests coming to these harbors dramatically decreased in 2020 due to COVID-19 pandemic (Statista, 2021). Coastal tourism means tourist-oriented action in coastal areas - neighboring the sea or towards the land, up to 10 km from the coast. IN 2014-2016, in the Baltic region, there was an increase in arrivals of tourists by 10,4% and respectively 8,9% in accommodation, which gives 88 mil of arrivals and 227 mil accommodations in 2016 (BSTC 2021).

Development of tourism in the Programme area depends largely on the social and economic development level. More developed countries characterized by high GDP have also higher value of arrivals of tourists per capita - Sweden is ranked first. Germany are characterized by the highest number of accommodations per citizen. Poland, Lithuania and Estonia have high indicators of international tourism development (Kropinova, 2020). Significant part international guests travel within the region, whereas Germany are the main source market for both the neighboring Denmark, and Poland, whereas Russian Federation - although with much smaller absolute numbers - is a number one source market for both Latvia and Finland (Jacobsen, 2018).

Also there is a fading of political borders, the tourists travel freely according to their individual and more and more demanding needs. In particular areas, it is inevitable to use international solutions, that contribute to development of tourism so that it fully uses the enormous international potential, with preservation of cultural and natural resources and with the sense of respect for local communities. Development of tourism on the macro region level requires constant patterns of cooperation, stronger political support and stable funding opportunities after 2020 - to fight the maze of structures, meet common criteria and increase competitiveness on international scale (BSTC, 2021).

**Marine water quality (eutrophication, pollution).**

Due to location, depth and shape of the coastal line, Baltic is characterized by a very limited ability to remove pollution. Water exchange between the Baltic Sea and the North Sea is limited to Dutch straits, which affect water quality with respect to inflow of pollution from inland sources. Pollutions come to the Baltic Sea directly (municipal and industrial waste through rivers or precipitation).

The water quality is largely affected by significant amount of compounds of nitrogen and phosphorus from chemical fertilizers that flow in the rivers from rural areas. Accumulation of these elements causes eutrophication, reflected in increase of phytoplankton biomass. These organisms, after death, fall to the bottom and during their decomposition, oxygen is used, which causes oxygen-less zones.

The map below presents eutrophication in the Programme area, as determined with the use of multimetric HEAT tool. Each separated subarea was evaluated with the use of information about reference conditions and allowable deviations from reference conditions, in combination with data from national monitoring from 2003-2007. Various eutrophication indicators were used, depending on their environmental significant for a particular area, e.g. Physical and chemical properties, water clarity, concentration of nitrogen and phosphorus, chlorophyll concentration, plankton biomass and benthic invertebrate biomass. As a result, the following scale was obtained: high, good, moderate, poor, bad. IN the area of the Program, the poor grade is dominant.

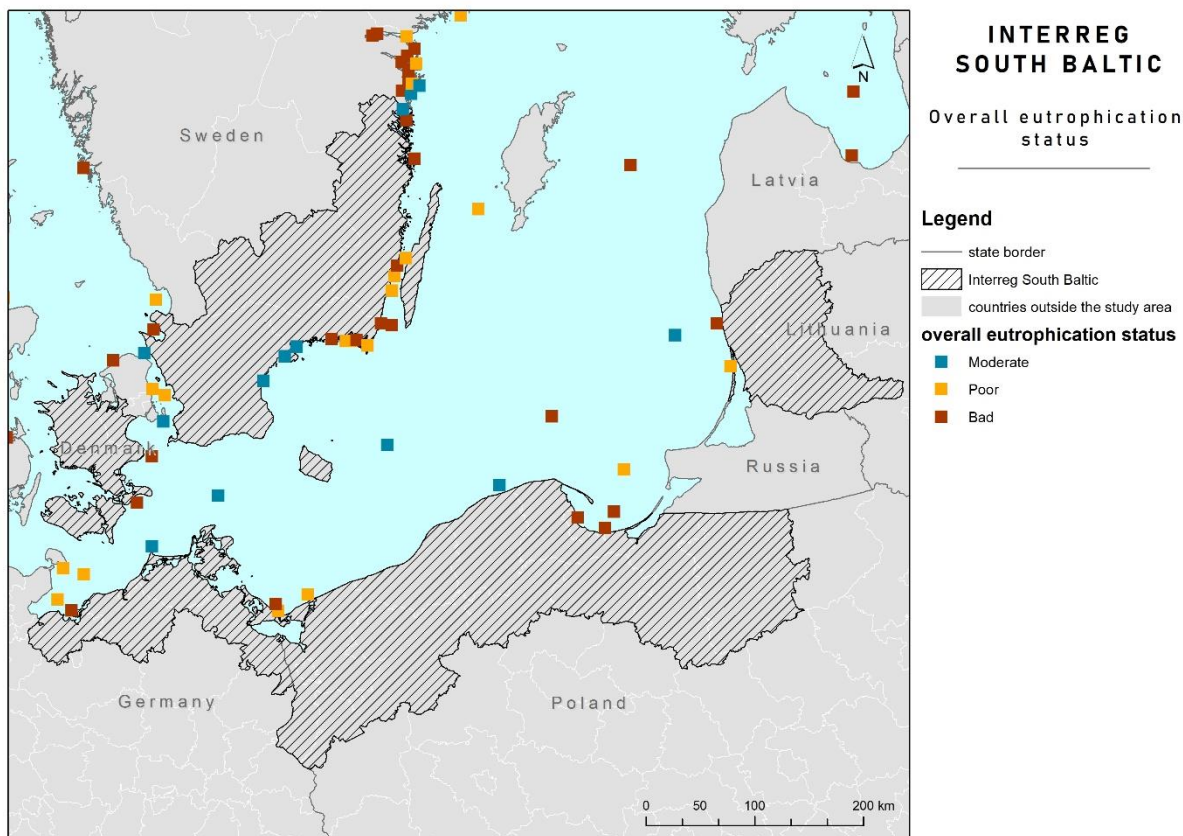


Fig. 3-23 The overall eutrophication (source: own work on the basis of EEA's data)

IN the marine waters, there are various types of pharmacy products entering the environment with disposals of municipal waste, According to research, only nine out of 118 evaluated substances were removed from wastes during treatment processes with the efficiency of over 95%, and almost half of compounds were removed only partially, with the efficiency below 50%. The most often measured substances in the Baltic Sea are included in therapeutic groups of anti-inflammatory and pain killers, drugs for cardiovascular and central nervous system. Most often discovered pharmaceutical substances are included in therapeutic groups of metabolic and stomach and intestine factors, e.g. clofibric acid and drugs for central nervous system, e.g. Primidonum or carbamazepine. As a result, these substances are identified in marine organisms (Zandaryaa, 2017).

Apart from pharmaceuticals and biogenic substances in Baltic waters, there are also detergents, hard metals, phosphororganic esters, solvents, synthetic musk, sun filters, fluorescent whiteners, process chemicals from plastic production and many other substances for which save limits were not determined.

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Another class of pollution in marine environment are wastes in solid form, produced or processed solids resulting from human activity. The most important fraction of marine waste are plastics, especially micro particles of plastic, the original source of which are cosmetics and cleaning agents entering waste systems, emissions during the product life cycle (clothing, tires) and secondary plastic micro particles deriving from fragmentation and degradation of larger fragments of material.

Action to improve the condition of Baltic waters, supported with political recommendations, has been carried out for many years now. A certain challenge is another level of economic growth and other cultural conditions of Baltic countries, so often recommendations are referred to the local context. Attention is drawn to the need for cooperation with farmers to come up with best solutions in food production and environment protection, whereas cross-border cooperation is absolutely necessary here. Also there is a need to introduce new regulations, and the necessity to improve waste treatment technologies. In turn, increasing the social awareness should be a foundation of all new processes aiming at improving the condition of environment.

### **Fishery**

Commercial fishing in the Baltic Sea take place only in case of few flocks. Pelagic fishing, that are the largest fishing activities (acc. To mass) in the region, means fishing for sprat and herring. The most important bottom fishing are fishing for cods and flounders with the use of bottom fishing. Demersal fishing is focused in the southwest part of the Baltic Sea, namely the area of the Program, while pelagic fishing are more common. Recreational fishing grounds in the Baltic sea apply, above all, to cod and salmon.

The region is proud of the smallest number of fished-out flocks in European waters, however, Baltic fishing is not sustainable yet and is not fully integrated with general marine planning. Improper fishing management and excessive consumption threaten fish, marine ecosystems, sources of survival and coastal communities.

The main solution for improvement of fish populations in the Baltic Sea is stopping over-fishing, implementation of sustainable fishing management and limitation of harmful fishing practices.

### **Warlike chemical materials.**

It is estimated that since the World War II to 1986, in the Baltic Sea, according to the permission for temporary utilization, there are approx. 40 000 tons of weapons / ammunition, including warlike chemical agents and up to 5000.000 tons of conventional weapon that is also toxic. Chemical weapon was transported to dedicated deep-water locations, located in the Programme

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area, namely south-east Gotland and East from Bornholm, but were often thrown to water during transport (Fig. 3-24). As it happened, post-war utilization of weapon took place in an uncontrolled way, without activation of type of ammo and place of sinking - also on shallow water areas.

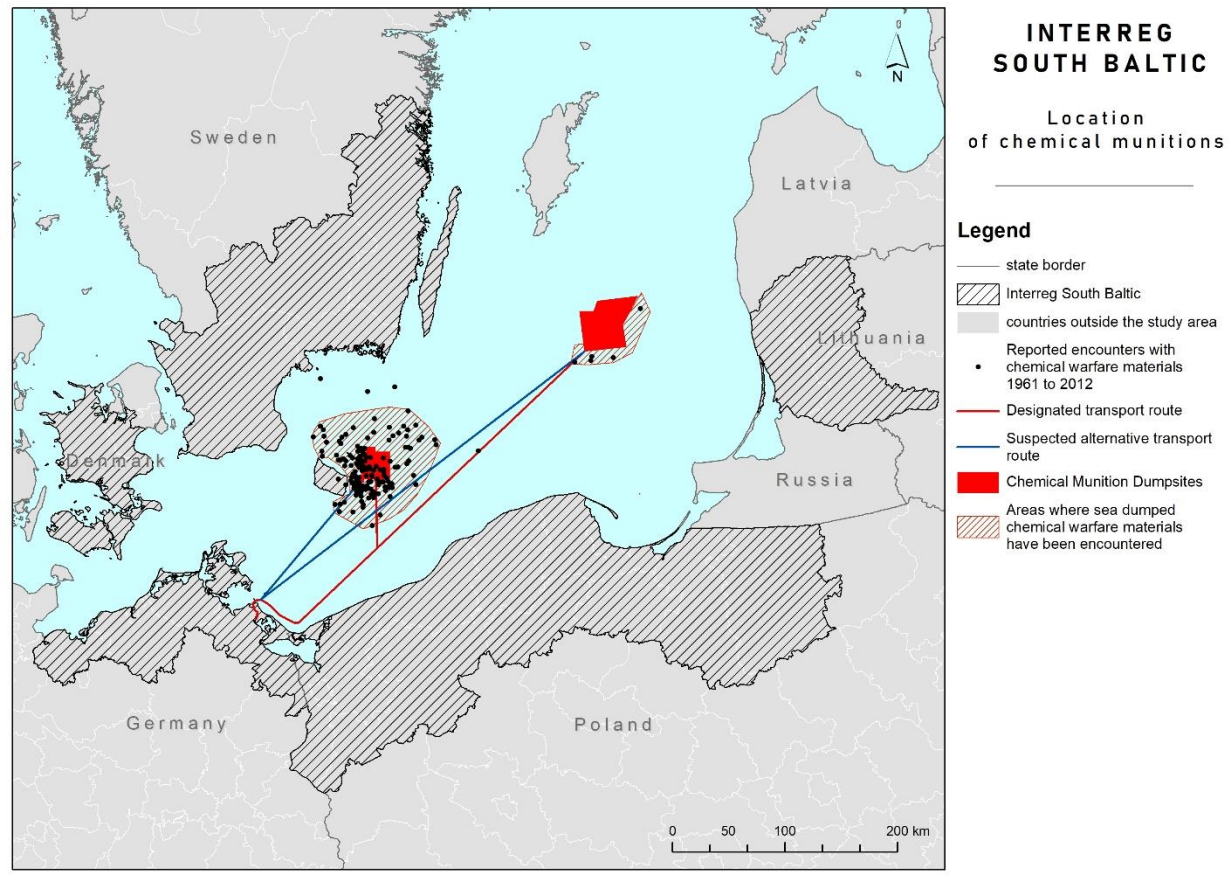


Fig. 3-24 Location of warlike chemical materials

It was assumed that tightness period of metal containers, in which weapons were disposed, is 150 years, but first cases of release of chemical substances occurred much earlier (Jurczak and Fabisiak, 2017). Corrosion of drowned ammo led to the fact that chemical substances are released to near water, where they undergo hydrolysis, sitting in the bottom. This is a local source of ecosystem pollution with these substances and arsenic (decomposition product) and it poses threat to people working in marine environment (e.g. Fishers and employers working on off-shore construction). Due to increasing use of sea bottom for economic purposes (e.g. Marine wind farms, marine cables, pipelines) there is increasing risk of these hazards happening.

## Climate change

The Baltic Sea is one of the fastest warming inland seas in the world - the rate of average temperature rise is many times higher than on global scale. The climate change will have numerous consequences for the condition of the sea, and also for biodiversity.

The following is expected:

- Increase in frequencies and size of precipitation in the Baltic Sea, especially in Winter, also increase of extreme phenomena - also in areas, where decrease of average annual precipitation may occur.
- Increase of water level, especially in south and south and east part of the Baltic Sea; consequences of increase of sea level will differ along the coast line, where the lowland and densely populated areas are vulnerable.
- Increase in maximum wind speed and frequency of extreme phenomena, which will lead to increase in height and frequency of highest waves; the consequence will be increase coast erosion
- Increase in water temperature and decrease in salinity, which will affect presence and distribution of various species in the Baltic Sea.
- Change of chemical composition of the spring river downflow, which will provide nutrients to water (warm winter effect, during which soil will not freeze); higher temperatures with excessive nutrients in soil will increase eutrophication.

Thus, the Baltic Sea will be less salty and warmer, hence in the species composition there will be less marine species, and ore fresh water species. Eutrophication will intensify, and further reduction of oxygen concentration will lead to occurrence of more desert areas in deeper parts of the Baltic Sea. Expected are also changes in glacial conditions in the northern part of the Baltic Sea, apart from impact on bird population, they may lead to functional changes in the ecosystem.

Apart from impact on organisms inhabiting the Baltic Sea, the consequences of climate change will be observed in the coastal zone. Rising temperature, decreasing layer of marine ice, increasing sea level, changing precipitation and storm patterns will directly impact the infrastructure, such as coast protection, harbors or tourism infrastructure. Indirect results of climate change, such as changes in tourism or in biodiversity, will have further consequences for citizens of the region and for various branches of economy such as forestry, agriculture, construction, energy production and transport (Lahtvee, 2019).

## Action plan for the Baltic Sea.

In mid-February, 2021, The European Commission published a new EU Strategy action plan for the region of the Baltic Sea (SUERMB). The plan constitutes an unique platform of cooperation and coordination between eight member states (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden) and countries from outside EU (Belarus, Iceland, Norway and Russia); the goal is coordination of action, better division of tasks among the parties concerned, existing networks of organization and to address the challenges efficiently.

SUERMB fits the framework of European policy and strategic programme of EU for 2019-2023, priorities of which were determined as follows:

- **Protection of citizens and freedom** Efficient control of external EU borders and further development of extensive migration policy. Fighting terrorism, cross-border and Internet crime, improving resistance of UE to natural disasters and disasters caused by human.
- **Developing strong and efficient economic base.** Building resilient economy through deepening of economic and currency union, finishing creation of bank and capital markets in the union, strengthening the international role of Euro, investing in skills and education, supporting European enterprises, considering digital transformation and development of solid industrial policy.
- **Building climate neutral, ecological, just and social Europe** Investing in ecological initiatives, that improve quality of air and water, promote sustainable agriculture and protect environmental systems and biodiversity. Creating efficient closed-circuit economy and well-functioning union energy market, ensuring sustainable, safe and cheap energy. Faster transition to renewable energy sources and power efficiency, with limitation of dependency of UE on external power sources. Implementation of the European foundation of social rights.
- **Promotion of European interest and values in the world** Building solid foreign policy within the scope of ambitious neighboring policy and extensive partnership with Africa. Promotion of peace, stability, democracy and human rights in the world. Effort towards efficient trade according to multilateralism and international order based on principles. Wider responsibility for safety and protection with strict cooperation with NATO.

In the context of SUERMB, also necessary are assumptions of the EU Green Deal - strategy of EU regarding environment protection and prevention of climate change. According to assumptions, by 2050, Europe is to reach climate neutrality. This means, that until the middle of the century, the economy is to emit only so much greenhouse gas it is able to absorb. In short-term perspective, namely until 2030, EU is to limit NET emission by at least 55% compared to 1990.



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Three main goals of SUERMB are:

- 1. Save the Sea,
- 2. Connect the Region,
- 3. Increase Prosperity.

Whereas the detailed goals are:

- 1.1. Clear water in the sea,
- 1.2. Rich and healthy wildlife,
- 1.3. Clean and safe shipping,
- 1.4. Better cooperation
- 2.1. Good transport conditions
- 2.2. Reliable energy markets,
- 2.3. Connecting people in the region
- 2.4. Improvement of cooperation within the scope of fighting cross-border crime
- 3.1. Baltic Sea region as a front runner for deepening and fulfilling the single market
- 3.2. EUSBSR contributing to the implementation of EU 2020 strategy
- 3.3. improved global competitiveness of Baltic Sea region
- 3.4. Climate change adaptation, risk prevention and management.

These goals set a range of Priority Areas, that are specific areas of cooperation on micro region level (see table 3.2). Priority Areas are carried out by parties concerned by detailed action and projects.

*Tab. 3.2 Priority areas under the UE Strategy Action Plan for the Baltic Sea Region (SUERMB)*

Priority area	Action taken	Goals
Nutrients (nutri)	Action 1: Reducing emission of nutrients from agriculture and other dispersed sources Action 2: Reducing emission of nutrients from urban areas and other spot sources Action 3: Development and promotion of safe and sustainable nutrient recycling Action 4: Handling nutrients already accumulated in the Baltic Sea	Priority area is a tool of cross-border and cross-sectoral policy for the benefit of cooperation in the Baltic Sea region. Action is to limit release of nutrients and more effectively manage nutrients to alleviate eutrophication and climate change. Nutri will assure that horizontal aspects, especially regarding climate change, including contribution to eutrophication from outside the Baltic Sea and cooperation with countries and organizations neighboring EU, will be

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Priority area	Action taken	Goals
		appropriately included in works in this area.
Hazards (Hazardous substances)	<p>Action 1: Prevention and limitation of application of hazardous substances</p> <p>Action 2: Limitation and removal of pollution</p>	<p>The priority area promotes macro regional solutions to global challenges related to management of chemicals and better association with international political programmes. It assumes action to prevent pollution and limit application of hazardous substances, and also to alleviate and reclamation of the existing pollution of the Baltic Sea environment. It helps the parties concerned to develop projects or initiatives to perform the goals presented.</p>
Bio-economy	<p>Action 1: Reinforcing the role and significance of bioeconomy to reach balance, productivity and adaptation to climate change and also resistance including resistance of ecosystems to climate change.</p> <p>Action 2: Improvement of agricultural practices for sustainable development and adaptation (e.g. to climate change) in sustainable and developing bioeconomy.</p> <p>Action 3: Reinforcing reuse of resources by cross-sectoral approach to release the potential and acceleration of development of sustainable closed-circuit economy.</p>	<p>The priority area supports promotion of sustainable use of marine, agricultural and forest resources, and also development of agricultural areas. It favors global competitiveness of the Baltic Sea, adaptation to climate change, prevention of risks and risk management. The added value is based on supranational cooperation regarding issues, which one member state is not able to solve separately.</p> <p>Performance of action within the area assumes international cooperation in the context of acceleration of promotion of new sustainable practices in agriculture, forestry, blue bioeconomy, including fishery and aquaculture.</p>
Shipping safety	<p>Action 1: Provision of proper navigation conditions on the Baltic Sea</p> <p>Action 2: Development of winter navigation to face future challenges</p> <p>Action 3: Implementation of digitization and automation</p>	<p>Priority area refers to shipping safety. It contributes to performance of the “safe the sea” goal and the subgoal of “clean and safe shipping”.</p> <p>Performance of action within the are will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>

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Priority area	Action taken	Goals
	Action 4: Provision of proper preparation and reaction to marine accidents and safety issues.	
Ship (Clean transport)	<p>Action 1: Supporting action to reduce emission from transport, including digitization</p> <p>Action 2: Supporting research on upcoming issues related to clean shipping and its impact on environment and ecosystem of the Baltic Sea.</p> <p>Action 3: Supporting development of facilities on shore to reinforce clean shipping measures, including infrastructure for alternative fuels.</p>	<p>The aim of the priority area is alleviation of transition to sustainable marine transport. It assumes implementation of new and innovative products, services, methods and practices addressing global challenge such as environment degradation and climate change, creating sufficient possibilities for blue growth in the Baltic area.</p> <p>Performance of action within the area will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>
Transport	<p>Action 1: Improvement of region connectivity and cooperation with third countries</p> <p>Action 2: Development of measures for neutral transport for climate and without pollution</p> <p>Action 3: Making it easier to apply innovative technologies and solutions in the Baltic region.</p>	<p>Increase of prosperity in the Baltic Region strongly depends on efficient, accessible and sustainable cross-border connection in the Baltic region and outside, including the third countries. The aim of the priority area is to make it possible to improve foreign trade and international exchange of knowledge and services, and long-term, improvement of global competitiveness of the region. It assures that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>
Energy	<p>Action 1: Improvement of works for energy effectiveness in the region through deepening of regional cooperation</p> <p>Action 2: Further integration of gas and electric power market, including development of</p>	<p>The priority area addresses the main goals - “safe the sea” and “connect the region” (improvement of access to energy markets and their effectiveness and safety), detailed goal: reliable energy markets.</p> <p>Performance of action within the area will assure that horizontal aspects, especially regarding climate change and cooperation</p>

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Priority area	Action taken	Goals
	infrastructure resistant to climate change Action 3: Baltic synchronization Action 4: Increase in share of renewable energy, including marine renewable energy.	with countries and organizations from outside EU will be properly included in works in this area of policy.
Spatial planning	Action 1: Reinforcing the territorial cohesion in the Baltic region through spatial planning as on land. Action 2: Provision of cohesive spatial planning marine areas for the entire Baltic Sea	The general aim of the priority area is to increase the territorial cohesion in the Baltic Sea region. Spatial planning is a integration process affecting the future spatial distribution of human activity. It aims at providing functional integration in many scales (macro regional, national, regional, local) and various sectors of public politics to balance the developmental needs with the need to protect the environment. Assumed is reduction of sensitivity of spatial planning to unfavorable consequences of climate change.
Secure (security)	Action 1: Creating ability to prevent, be ready, react and restore in crisis situations, and crisis management. Action 2: Reinforcing the common mechanisms of strategic and operational action to protect people and society against crime. Action 3: Common social safety culture in the Baltic Sea region.	The priority area contributes to performance of all SUERM main goals. It offers a cross-border, cross-sectoral and multilevel cooperation platforms to reinforce social safety and allows for better coordination of action to prevent and prepare for both natural and human-caused hazards. It assumes development of reaction methods to safety hazards caused by climate change. It helps to adjust the national priorities to global and union strategies, action plans and funding possibilities.
Tourism	Action 1: Development of trans-national tourism in further and agricultural areas Action 2: Investing in people, skills and technologies in tourism Action 3: Protection and balanced use of cultural heritage and natural resources in tourist locations	The priority area contributes to performance of all SUERM main goals. Business and consumer behavior in tourism Performance of action within the area will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from

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Priority area	Action taken	Goals
		outside EU will be properly included in works in this area of policy.
Culture	<p>Action 1: Promotion of cultural and creative branches in the Baltic Sea Region, encouraging to creative business activity.</p> <p>Action 2: Promotion of the culture of the Baltic region and European values, use of culture for sustainable development</p> <p>Action 3: Maintenance of RMB cultural heritage, reinforcement of regional identity</p>	<p>The priority area contributes to performance of the goal “improvement of global competitiveness of the Baltic Sea region” and “connection of the region”. It promotes cultural and creative branches in the Baltic Sea Region, encouraging to creative business activity.</p> <p>Performance of action within the are will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>
Innovation	<p>Action 1: Challenge-oriented innovations</p> <p>Action 2: Digital innovation and transformation</p> <p>Action 3: Co-creative innovation</p>	<p>The priority area promotes global competitive position of the region. It assures an efficient platform to reinforce the ecosystem of macro regional cooperation for innovation, research, MŚP, and digitization. It enables common learning through action related to knowledge transfer. It creates and reinforces networks in the entire Baltic region. It adjusts resources and regulation, i.a., through coordination of funding sources. It simplifies joining forces in common programmes and investment and developing solutions to common challenges.</p> <p>Performance of action within the are will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>
Health	<p>Action 1: Promotion of active and healthy aging to face the challenge of demographic change</p> <p>Action 2: Promotion of health in all policies, with stress on impact of environmental factors,</p>	<p>Healthy population in the Baltic Sea region is a preliminary condition for productivity, competitiveness in economy and further growth. The priority area contributes to increase of prosperity in the region through efforts to improve health of people in the region. The aim of the area is</p>

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Priority area	Action taken	Goals
	<p>especially climate change, on human health.</p> <p>Action 3: Increasing the number of parties concerned and institutional abilities to handle regional health-related challenges.</p>	<p>to raise awareness among other areas of policy on impact of their branch on health.</p> <p>Performance of action within the are will assure that horizontal aspects, especially regarding climate change and cooperation with countries and organizations from outside EU will be properly included in works in this area of policy.</p>
Education	<p>Action 1: Prevention of premature end of education and improvement of transition from school to work</p> <p>Action 2: International perfection and broader participation in education and research</p> <p>Action 3: Job market for all, with the use of the resource of longer life</p> <p>Action 4: Recognition of potential - enabling careers for migrants</p>	<p>The priority area contributes to increase of prosperity, that assumes high quality of education and trainings for all, efficient and integration system of social care and well functioning job market supporting geographic, professional and social and economic mobility.</p>

Performance of action within the Programme is compliant with SUERMB It should be noted that all action are a part of the Action Plan of EU Strategy for the Baltic Sea region (SUERMB). The key to reach the goals of the Programme and assure that:

- Negative impact on environment will not take place or will be reduced to minimum
- Potential pollution of sea waters, resulting from action defined in the Program, will be maximally limited and prevented
- There is cooperation between countries, macro regions and organization included in performance of the Programme

### 3.5 Air

The air quality is another significant aspect in the contest touched upon in the international action document. Air pollution does not recognize administrative borders, forcing common responsibility of the countries for air protection policy. It is significant due to progressing climate crisis

For the purpose of evaluation and analyses carried out within the Program, at least the same component was defined as the lowest part of troposphere, strongly related to processes

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occurring on the surface, within which there is an exchange of mass and energy with all other components of the environment. It is characterized by a range of parameters in the form of pollution concentration, the analysis of which was made according to quality, separating it from the aspect related to atmosphere, but involving interaction with climate and adaptation to them, which was touched upon in a separate chapter called Prognoses.

Similarly to other parts of environment. Data on air quality are collected by particular member states and aggregated on community level by the European Environmental Agency within EIONET monitoring.

According to latest data published by EEA for 2019, the air quality in EIONET monitoring points (measured by annual average values of concentration of main pollutions, such as NO<sub>2</sub><sup>53</sup> PM<sub>2,5</sub> dust<sup>54</sup> or Benzopyrene (B(a)P)<sup>55</sup>) there in, in the area included of impact of the analyzed document is satisfactory and looks better than in more industrialized and urbanized regions of Europe. The advantage of the area of South Baltic is good ventilation, characteristic for coastal regions. Poland is unlikely exception here, where high values of pollution with atmospheric particulates PM<sub>10</sub> and MP<sub>2,5</sub> and harmful compounds therein, especially B(a)P. The reason for this is still to be solved problem of low emission generated by burning of low quality fuels in individual heating sources.

The most important sources of emission of the main air pollutions in Europe is shown here Fig 3-25. Usually, after them, depending on analyzed pollution, industry, power production, communal sector, transport and agriculture.

EEA analyses carried out on national level for the last decade<sup>56</sup> indicate decreasing emission of most pollutants. Denmark is an exception, that during this period significantly, increase emission of heavy metals by 244%, and volatile organic compounds by 97% (VOC) and emission of PM<sub>10</sub> dust by 74%. It should be noted that in absolute figures, the values for this country are lower than in case of others. During this period, only in case of Poland and Lithuania, an increase in VOC emission by 10% was noted. The remaining emissions were more or less reduced (Tab. 3.3). It

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<sup>53</sup> <https://www.eea.europa.eu/data-and-maps/figures/annual-mean-no2-concentrations> (access. 12.08.2021)

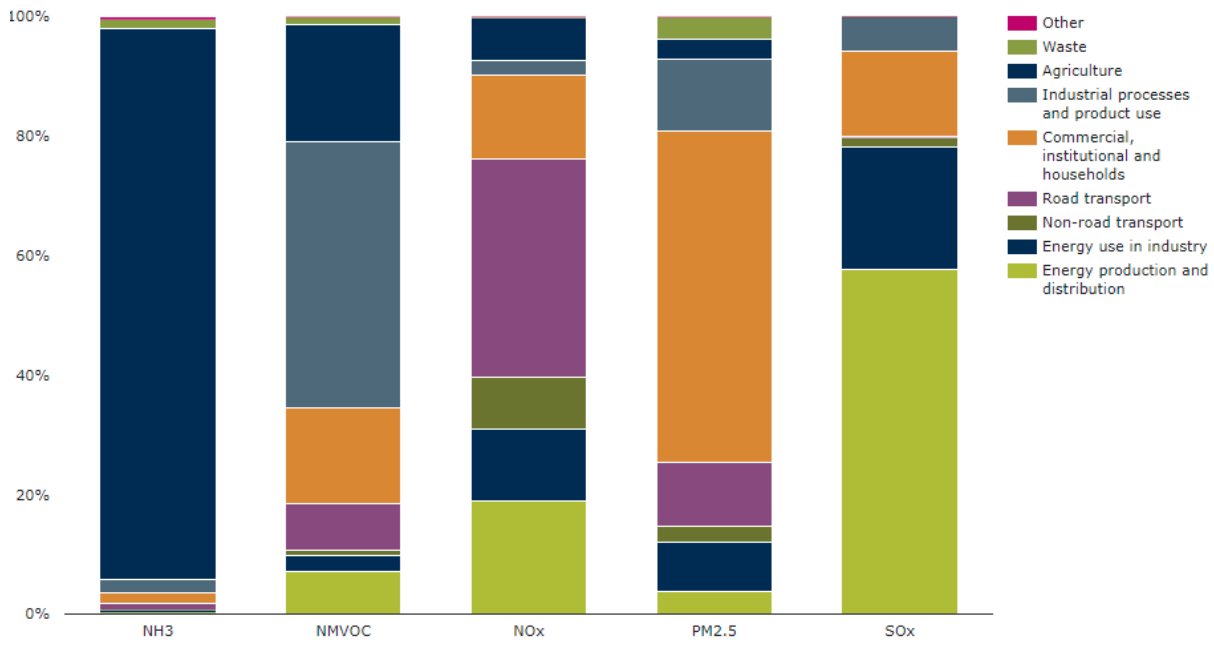
<sup>54</sup> <https://www.eea.europa.eu/data-and-maps/figures/annual-mean-pm2-5-concentrations-6> (access. 12.08.2021)

<sup>55</sup> <https://www.eea.europa.eu/data-and-maps/figures/annual-mean-bap-concentrations-in-4> (access. 12.08.2021)

<sup>56</sup> <https://www.eea.europa.eu/data-and-maps/figures/change-of-pollutant-releases-into> (access. 12.08.2021)

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should be noted that this data should not be directly related to the analyzed area of South Baltic since it includes only parts of particular countries as indicated in the table.



*Fig 3-25 Participation of particular sources in main pollution emissions to air in Europe (source: EEA)*

EEA analyses carried out on national level for the last decade 57 indicate decreasing emission of most pollutants. Denmark is an exception, that during this period significantly, increase emission of heavy metals by 244%, and volatile organic compounds by 97% (VOC) and emission of PM10 dust by 74%. It should be noted that in absolute figures, the values for this country are lower than in case of others. During this period, only in case of Poland and Lithuania, an increase in VOC emission by 10% was noted. The remaining emissions were more or less reduced (Tab. 3.3). It should be noted that this data should not be directly related to the analyzed area of South Baltic since it includes only parts of particular countries as indicated in the table.



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Tab. 3.3 Changes in emission of some pollution in 2010-2019 (Source: EEA)

Country	T Cd, Hg, Pb			mil T NOx			mil T NMVOC			mil T PM10			mil T SOx		
	2010	2019	Change	2010	2019	Change	2010	2019	Change	2010	2019	Change	2010	2019	Change
Denmark	172	594	<b>244%</b>	14.98	13.47	<b>-10%</b>	3.96	7.82	<b>97%</b>	0.18	0.31	<b>74%</b>	5.40	4.18	<b>-23%</b>
Germany	83264	35935	<b>-57%</b>	336.37	271.66	<b>-19%</b>	42.13	38.75	<b>-8%</b>	11.20	8.18	<b>-27%</b>	254.65	186.94	<b>-27%</b>
Lithuania	n/a	n/a	<b>n/a</b>	6.84	4.06	<b>-41%</b>	9.55	10.50	<b>10%</b>	0.68	0.44	<b>-34%</b>	14.36	10.20	<b>-29%</b>
Poland	42279	23707	<b>-44%</b>	314.03	231.24	<b>-26%</b>	5.87	6.54	<b>11%</b>	24.46	8.55	<b>-65%</b>	483.05	142.58	<b>-70%</b>
Sweden	2624	2835	<b>8%</b>	29.60	26.30	<b>-11%</b>	24.58	23.03	<b>-6%</b>	5.72	3.49	<b>-39%</b>	14.94	8.51	<b>-43%</b>

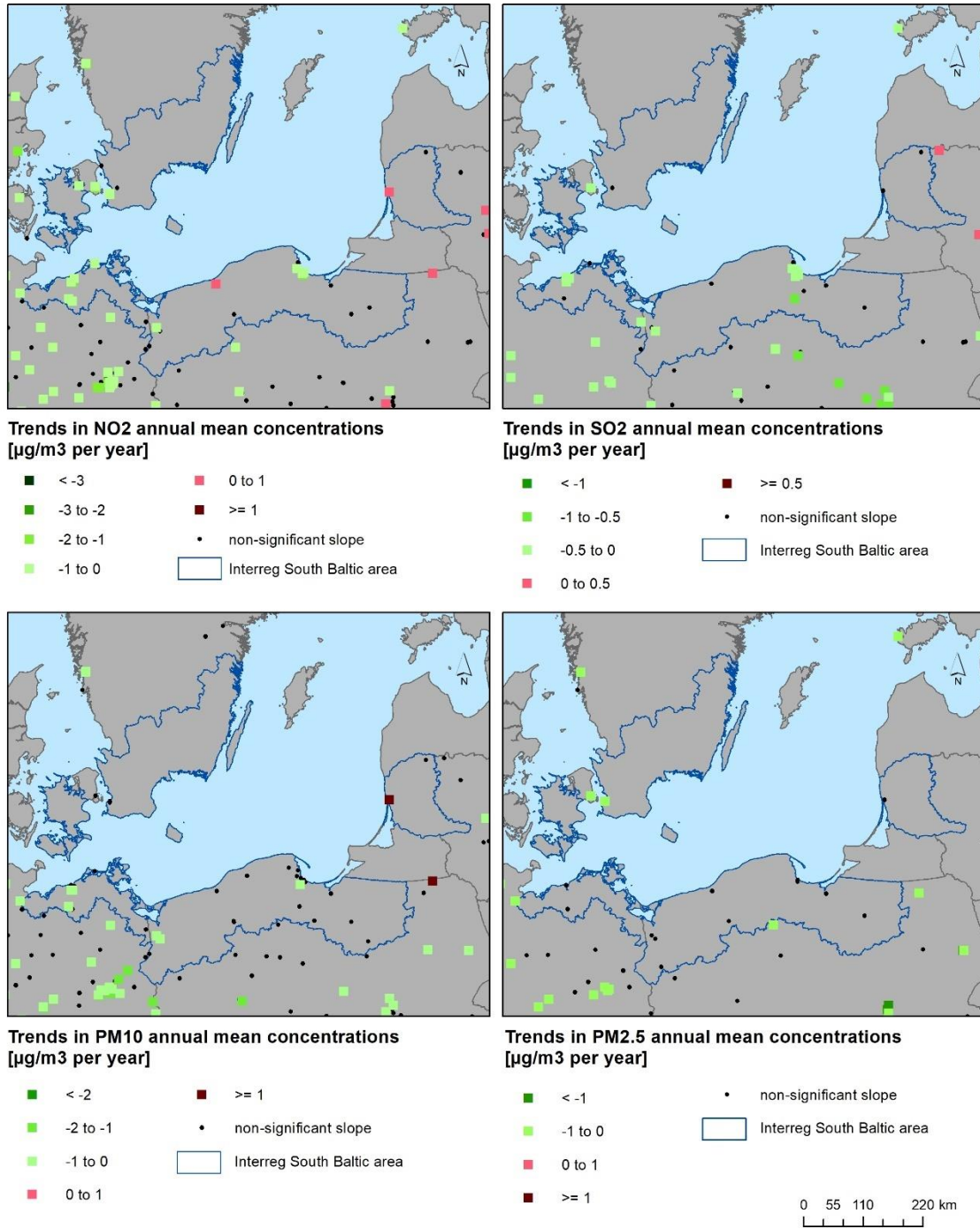
Despite the fact that in the South Baltic region covered by the support of the document analyzed, trends diagnosed in this period (2009-2018) regarding change in annual average concentrations for main pollutants within the measuring control points of EIONET indicate certain increase for NO<sub>2</sub><sup>58</sup> and PM10<sup>59</sup>, only in case of Poland and Lithuania. The remaining changes in case of pollutants such as SO<sub>2</sub><sup>60</sup>, or PM2.5<sup>61</sup> are of positive nature and do not show significant trend (Fig. 3-26).

<sup>58</sup> <https://www.eea.europa.eu/data-and-maps/figures/trends-in-no2-annual-mean-concentrations> (access. 12.08.2021)

<sup>59</sup> <https://www.eea.europa.eu/data-and-maps/figures/trends-in-pm10-annual-mean-concentrations> (access. 12.08.2021)

<sup>60</sup> <https://www.eea.europa.eu/data-and-maps/figures/trends-in-so2-annual-mean-concentrations> (access. 12.08.2021)

<sup>61</sup> <https://www.eea.europa.eu/data-and-maps/figures/trends-in-pm2-5-annual> (access. 12.08.2021)

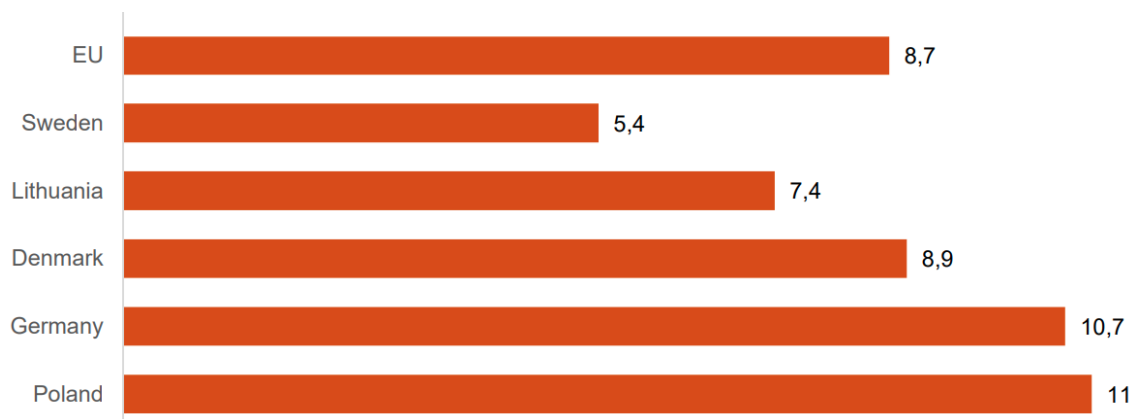


Source: European Environment Agency (<https://www.eea.europa.eu>)

Fig. 3-26 Long-term trends of changes (2009-2018) of main pollutants (NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>) of EIONET network points located in South Baltic area (source: own work on the basis of EEA's data)

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A significant issue in the context of climate crisis is also the so called greenhouse emission, substances that contribute to accumulation of energy in the atmosphere. Among 5 countries of the South Baltic region, per citizen, Poland and Germany are above the EU average, Denmark is on the average level, and Lithuania and Sweden are below it <sup>62</sup>.



*Fig. 3-27 greenhouse gas emission in the South Baltic region, 2018 (ton per citizen) (source: SBCCP)*

Latest data reported by EU to the Framework convention of United Nations on climate change (UNFCCC) indicate that EU member states managed to reduce own emission by 3,8% in 2018-2019. This reduction led to the fact that EU emissions decreased to 24,0%, below levels from 1990, without recognition of absorption of carbon dioxide from soil use, change in using soils and forestry (LULUCF). Considering these improvements, the overall reduction in 1990-2019 was 25,9% <sup>63</sup>.

When analyzing the trends for the countries of the region in case of CO<sub>2</sub> emission, published by EEA for 2010-2019 t significant differences in preliminary values of particular countries, that confirm the highest share of Poland and Germany in general emission should be noted, as well as 50% of reduction of annual emission that Denmark achieved in this period.

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<sup>62</sup> Socio-economic analysis of the Interreg South Baltic Cross-border Co-operation Programme 2021-2027

<sup>63</sup> <https://www.eea.europa.eu/highlights/major-drop-in-eus-greenhouse> (access. 13.08.2021)

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Tab. 3.4 Changes in CO<sub>2</sub> emission for 2010-2019 (source: EEA)

Country	mil T CO <sub>2</sub>		
	2010	2019	Change
Denmark	20,048	9,438	-52.9%
Germany	461,917	406,252	-12.1%
Lithuania	6,489	5,190	-20.0%
Poland	188,801	174,283	-7.7%
Sweden	54,506	49,179	-9,8%

To sum up the analysis, it should be noted that air quality in the region of South Baltic varies. General standards of air quality within the scope of three main pollutants are met in majority of countries. Local excess are generated by transport and municipal sector, especially in Poland and Lithuania, especially in the so called heating season. Apart from small exceptions (Poland, Lithuania), in the last decade, reduction trends were noted regarding main pollutants in most EIONET points located in the area analyzed. Significant reduction of greenhouse emission was noted which is related to EU climate policy carried out on this level. Poland and Germany remain the largest emitters of these pollutions, in absolute figures and per citizen.

### 3.6 Landscape

According to the definition of the European Landscape Convention <sup>64</sup>from 2004, the landscape is defined as: “Area, seen by people, the nature of which is a result of action and interaction of natural and/or human factors” Changes there in are related, above all, to the process of transformation of natural landscape resources, which took place in two ways. The first aspect that affected changes in landscape, was a need to adjust the space to human needs, and on the other hand, human subconsciously made effort to protect beauty, uniqueness and biodiversity (Chmielewski 2001) <sup>65</sup>.

Complex natural and social and cultural processes contributed to various types of landscape of characteristic features. The area covered by the programme is located in five Baltic countries: Denmark, Germany, Lithuania, Poland and Sweden. Due to location, the landscape is mainly coastal.

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<sup>64</sup>European Landscape Convention, developed in Florence on October 20, 2000 The Journal of Laws 2006.14.98.

<sup>65</sup> Chmielewski T.J (2012): Landscape systems Wydawnictwo Naukowe PWN. Warszawa

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The area covered by the development is located in the area of four physical geographical provinces: in the Southern part of Central European Plain, in the northern part, Scandinavian Peninsula and Baltic Islands and from the East, the East European Belorussian Plain. These units are divided into sub provinces (on the basis of universal decimal Classification (UDC), The International Documentation Federation (FJD)). Below presented is classification of the sub province corresponding to each region that was covered by the development.

*Tab. 3.5 Classification of sub provinces on the basis of universal decimal classification (UDC)*

ID	Name of Province	Name of Sub province	NUTS3 Area
1	Scandinavian Peninsula	115 South Swedish Highlands	SE212
		11 Calamari plain	SE212
			SE213
			SE221
119 Scania	SE224		
2	Baltic Islands	132 Öland	SE213
		135 Blekinge-Bornholm	DK014
3	Central European Plain	311 Jutland Peninsula	DK022 DK021
		313 South Baltic Coastal Region	DE80N DE80L DE803 DE80K DE80M PL424 PL428 PL426 PL636 PL634 PL633 PL634 PL638 PL621
			314-316 South Baltic Lake Districts
841 Eastern Baltic Coastal Region	PL621		

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ID	Name of Province	Name of Sub province	NUTS3 Area
	Eastern Baltic and Belorussian Plain		PL622 <sup>66</sup> LT023 LT028 LT027
		842 Eastern Baltic Lake Districts	PL622 LT027

Due to the area surface, it is characterized by large diversity of land shape and coverage, and each unit has their own individual, and unique features. The elements taken into consideration in distinguishing particular regions are, above all: land shape, geological structure, micro-climate conditions and area coverage, especially for a particular area, plant collections. Visible is relatively large share of lands of natural character and high natural value. Natural and semi-natural nature and sequential and linear spatial structure near river values and land lowering leads to the fact, that there are numerous ecological corridors here (Żarska 1999)<sup>67</sup>. Variety of land and water ecosystems causes that the landscape of Baltic coasts has unique features on European scale.

Within the Scandinavian Peninsula, we have 3 sub provinces that are included in the protection area of the development (Tab. 3.5). They are characterized by skerry and fiard and small islands. Natural topography may be determined as plain with local hills. Characteristic for this area are coniferous forests (Ostaszewska 2002 <sup>68</sup>, Kondracki 1976 <sup>69</sup>).

The province occurring in most part of the area evaluated is Central European Plain. Its coverage includes part of Denmark, Germany and some territory of Poland. The supported area includes three sub provinces (Tab. 3.5) that are characterized by high diversity. They were divided in a more detailed manner, into macro regions. Due to proximity of the sea, they have characteristic features for coastal areas. We can distinguish here the following areas: delta, dune, lake and swamp and upland. There are also ice-marginal valleys, moraine plains and few hills. Going back

<sup>66</sup> Olsztyn subregion - optional region in case of Programme extension

<sup>67</sup> Żarska B. (1999): Protection of river valleys landscape in the light of European Union legislation concerning nature and international ecological conventions. *Annals of Warsaw Agricultural University. Horticulture*. 20: 127-134

<sup>68</sup> Ostaszewska K. (2002): *Geografia krajobrazu*. Wydawnictwo Naukowe PWN. Warszawa

<sup>69</sup> Kondracki J. (1976): *Podstawy regionalizacji fizycznogeograficznej*. Wydawnictwo Naukowe PWN. Warszawa

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into the land, the landscape assumes a characteristic lowland feature. The dominating feature is a hill-like topography, occurrence of recesses and holding lakes, and also characteristic for young glacial landscapes, deep ice-marginal valleys (Ostaszewska 2003, Kondracki 1976).

The province in the East of the area in question is East Belorussian Plain. In the area subject to this paper, it includes two sub provinces. Features that distinguish these lands are occurrence of uplands and moraine hills, outwash plains and numerous lakes and swamp areas. A characteristic type of land coverage are swamp forests and peat lands, and also alder forests (Ostaszewska 2002).

The entirely different type of landscape is area located centrally, in the Baltic Sea basin. The Baltic sea is an inland sea. It combines with the North Sea and Atlantic through narrow Straits of the Netherlands. This leads to a very slow water exchange. It is estimated that complete exchange of water takes 25-30 years. Compared to other reservoirs of this type, the Baltic Sea is deep. The average depth is estimated to be approx. 53 m, in the deepest place, approx. 459 m. It should be noted that the Baltic Sea is the least saline sea in the world, with approx. 7 PSU. Apart from inland location and saline, climate has a significant impact. In moderate climate, a relatively high precipitation and low temperature significantly limits water evaporation. Also it is important that there are approx. 2550 rivers flowing into the Baltic Sea. Inflow of such amount of fresh water leads to reduction of saline. It is also a cause for the water level being a dozen or so centimeters higher than in the North Sea, which means, that there is a constant water outflow from the Baltic Sea. These features impact also the level of basin pollution. The rivers carry enormous amounts of pollution, including fertilizers, pesticides, herbicides and trash. One of the consequences is eutrophication (Helcom 2017). The outcome of this phenomenon is also increase in phosphorus and nitrogen and this leads to phytoplankton growth. This causes a range of unfavorable consequences, from transformation of marine ecosystems to extinction of underwater meadows and extinction of a part of sea bottom in deeper areas. The source of pollution is also maritime transport and ship wrecks (also sunk after the World War II chemical weaponry) (Michalak 2019)<sup>70</sup>.

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<sup>70</sup> Michalak J. (2019): Identification of hazards caused by chemical ammunition sunk in the Baltic Sea. Rocznik Bezpieczeństwa Morskiego. R.XIII: 1-21

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The characteristic feature here is diverse coast line. This means diversity of coast types. Here, one can distinguish sand-like beaches with long sequences of dunes, and also bay coasts, cliffs and steep banks, creating almost vertical walls separating sea from land.

One of the most precious terrains in case of landscapes are areas entered into the UNESCO World Heritage (Fig. 3-28). The area covered by the support Programme includes three locations of this type. In the region located on the German side, one may distinguish exceptionally precious areas, creating, with other areas of this type, a serial supranational object called “primeval and original beech forests of Carpathian and other regions of Europe”. These are Jasmund and Muritz National Parks. Both places are examples of relatively not impacted beech forests, characteristic for the moderate climate. Another example is Stevns Klint, located in Denmark. This is one of the cliffs appreciated especially due to its exceptional history. Occurrence of Stevns Klint is to be 66 mil years ago. It has an unique fossils record, dating back to the Cretaceous Period. Cliffs consist mainly of Cretaceous layers, with over 450 species of microfossils. The locations, due to their history and condition, are especially protected and all investments that may potentially impact these natural resources must undergo obligatory, separate evaluation <sup>71</sup>.

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<sup>71</sup>UNESCO website <http://whc.unesco.org/> (access: 27.08.2021)



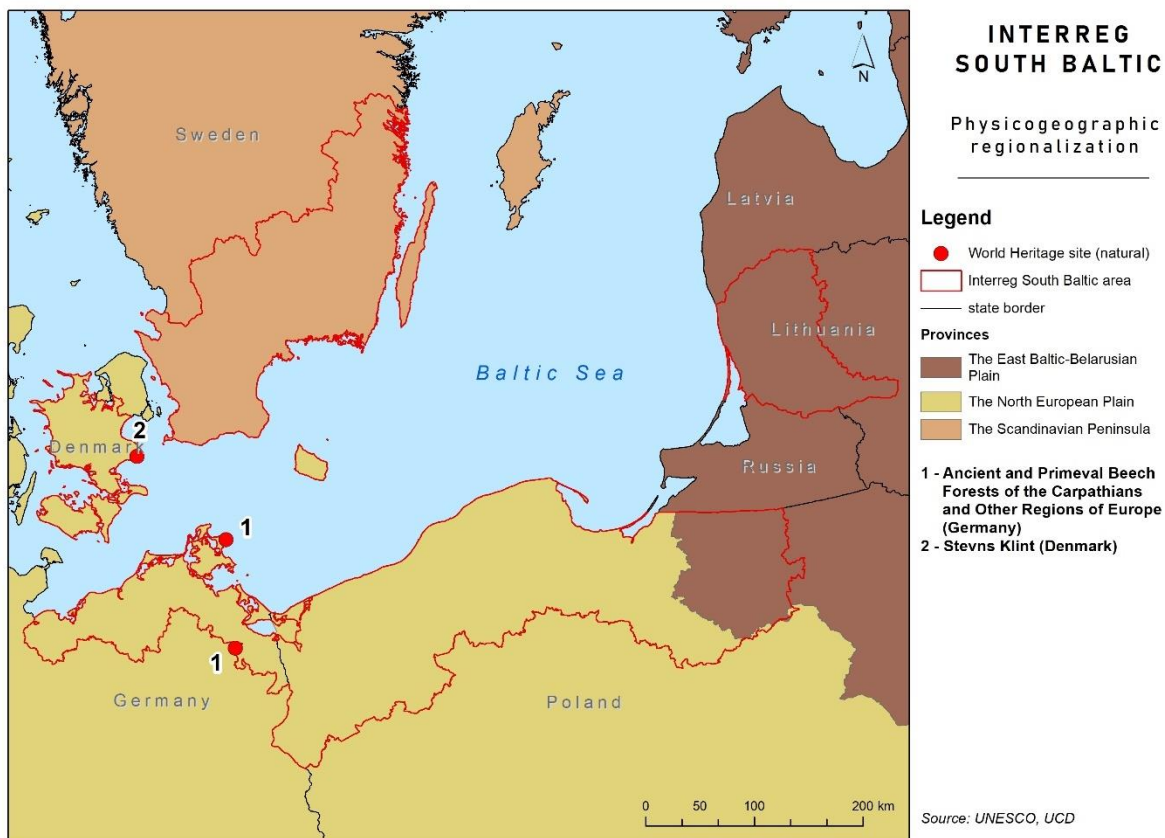


Fig. 3-28 Map of natural objects entered into the UNESCO World Heritage (source: own work on the basis of UNESCO's data)

A significant threat to the coastal landscape of the Baltic Sea is strong anthropogenic pressure. This activity that largely impacts the quality and visual features of the landscape is based on reinforcing the shores. Although in principle it is to prevent erosion and destructive activity of waves, very often it leads to complete change of embankment structure. These area changes leading to, for the most part, irreversible transformation of natural habitats of marine flora and fauna.

### **3.7 Monuments**

According to the Convention on protection of the world cultural and natural heritage <sup>72</sup>, the monuments, along with sets and historic places, are cultural heritage. Uniqueness of particular elements on local, regional or international scale, brings necessity to preserve them and care for them. Action planned within the Programme should also include the need to preserve and promote the cultural heritage of the Baltic region.

High diversity of the cultural landscape proves rich history of Baltic countries and is a result of friction of Western Europe, Polish and Scandinavian influence. In all Baltic countries, visible is a strong association of culture development with the reservoir nearby. Lands directly neighboring the coast line are characterized by characteristic elements related to marine economy. Their technical condition and preservation level varies depending on location and performed maintenance, however, they are evidence of a very significant period in the history of Baltic regions.

In Poland, the rules of protection of monuments are regulated by the Act on protection and Care for Monuments<sup>73</sup>. According to the Act, monument is immovable or movable object or parts or sets, that are made by human or related to human activity and that constitute evidence of previous era or event, preservation of which is in the best interest of society due to historic, artistic and scientific value. In Poland, the following forms of monument protection apply: monument register, Heritage Treasure List, monument of history, cultural parks and establishing protection in the spatial development plan or in a decision on the location of a public purpose investment, a decision on development conditions, a decision on a permit to implement a road investment, a decision on the location of a railway line or a decision on a permit to implement an investment in the field of a public airport.

In Germany, protection and care for monuments are competence of associate countries, which means, that each province regulates the rules of handling the monuments by the power of own acts on monument protection. In this case, the body responsible for it is Denkmalschutzgesetz

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<sup>72</sup> Convention on protection of cultural and natural heritage, adopted on November 16, 1972 by the General Conference of the United Nations for Education, Science and Culture, during the seventeenth session. The Journal of Laws 76.32.190

<sup>73</sup> The Act from July 23, 2003 on protection and care for monuments (c. t. The Journal of Laws 2021.0.710)

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von Mecklenburg-Vorpommern (DSchG M-V)<sup>74</sup>. It should be noted, that in the German system, there are no particular time frame, thanks to which there are also modern objects on the cultural heritage lists.

In Denmark, the document related to current cultural heritage development, including monuments, is: Act No. 332 of 4 June 1986 on Protection of Cultural Assets. Protection of various monuments is regulated by various legal acts, execution of which is governed by five official agencies (subject to five ministries). The Dutch divide monuments into: buildings (secular, private property), ancient monuments (graves, banks, etc.), public buildings (buildings administered by national institutions), royal palaces, churches (belonging only to the Dutch Lutheran Church) and museums.

Acc. to Swedish law, protection covers buildings, archaeological positions, secular buildings and other elements that are precious for culture or history. Special protection covers also the cultural landscape, including historic environment. Thus, cultural reservations are created that cover also non-material heritage and craftsmanship tradition. Currently, the forms of protection that may cover buildings of special cultural or historical meaning, are: registry in the list of Ancient Monuments and Remains and entrance into the list called: Building Register- Information on Historic Surrounding of Buildings. Provisions that regulate establishment of monuments are regulated by the Act on Cultural Environment (Kulturmiljölag (1988:950))<sup>75</sup>

Protection of immovable objects in Lithuania includes architectural monuments, cemeteries, places of cult, archaeological locations and other objects of special historic or cultural value, and parks and gardens entered into the Register of Cultural Property. Due to value for cultural heritage, the monuments are granted a certain protection status. Namely: status of complete protection, status of protection of original function and status of economic use.

Current list of monuments within the scope of the Programme is kept and published by national institutions responsible for protection of monuments. Below are the links to Internet lists of monuments:

- Poland - <https://mapy.zabytek.gov.pl/nid/>

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<sup>74</sup>The Act on environment protection (DSchG M-V) in the version published on January 6, 1998 \*GVOBl. M-V s. 12, 247; GS Meckl.-Vorp. Gl. No. 224-2). The recently changed art. 10 of the Act from July 12, 2010 (GVOBl. M-V p. 383)

<sup>75</sup><http://raa.diva-portal.org/smash/get/diva2:1507258/FULLTEXT01.pdf> (access: 23.08.2021)

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- Germany (Mecklenburg-Vorpommern) - <http://www.denkmaliste.org/denkmalisten.html#mecklenburg-vorpommern-denkmaliste>
- Denmark - <https://www.kulturarv.dk/fbb/frededeDanmarksKort.pub>,  
<https://www.kulturarv.dk/fundogfortidsminder/>
- Sweden - <https://www.raa.se/hitta-information/bebyggelseregistret-bebr/forteckning-over-statliga-byggnadsminnen/>
- Lithuania - <https://kvr.kpd.lt/>

Characteristic for this are sunk ship wrecks. According to data by Mare Foundation <sup>76</sup>, the entire Baltic basin contains over 8000 wrecks. Over 100 of objects are protected by the high priority wreck status due to hazard related to leak of significant amounts of oil.

One of more important forms of landscape in the land covered by the Programme is entry into the UNESCO World Heritage List (UNESCO convention on protection of cultural and natural heritage protection, 1972). The condition for such protection of culture is its unique, common value from historic, esthetic, ethnographic and anthropologic point of view. Places and facilities entered into UNESCO (Fig. 3-29) are characterized by unique nature, authenticity and integrity. Often they are a work of creative genius of human, a model example of traditional settlement, manner of use of particular land, and unique evidence of cultural tradition. Within the boundaries of the development there are currently 6 objects that stand out due to such extraordinary values.

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<sup>76</sup> <https://fundacjamare.pl/baltyk-dla-wszystkich-wraki-baltyku/> (access: 27.08.2021)

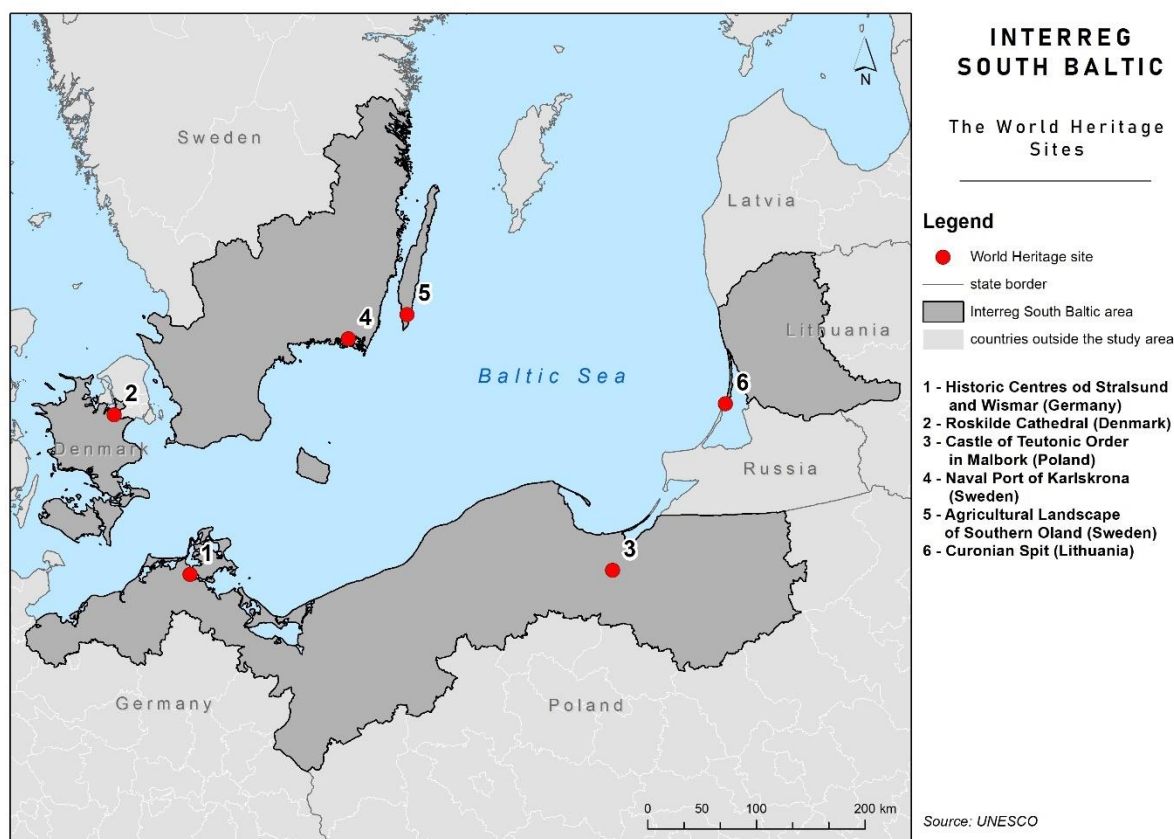


Fig. 3-29 Map of cultural objects entered into the UNESCO World Heritage (source: own work on the basis of EEA's data)

On the Polish side of regions covered by the Program, there is a Teutonic Order Castle in Malbork, an example of XIII-century monastery of the Teutonic Order. Here, after 1309, the head office of the Grand Master was relocated. The complex is located on the Eastern bank of the river of Nogat. It is an example of Gothic castle made of brick, with a characteristic structure for this order.

In Germany, a place that was qualified for UNESCO, is Historic Centers of Stralsund and Wismar. The cities represent merchandise structures of XVII-XVIII century. Moreover, due to administrative and defense facilities, they contributed to development of the art of war. According to types and construction techniques, they are an example of characteristic architecture of brick Gothic.

Another object on the list is Dutch Roskilde cathedral. It is a Gothic basilica built in XII and XIII century. It significantly contributed to development of secular architecture as the first

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Scandinavian cathedral made of brick. Successively added chapels and porches are an example of European evolution of architectural styles.

IN Sweden, two locations were distinguished that stand out due to special cultural heritage features: Karlskrona navy harbor and the area of Rural Landscape of Southern Oland. The first of them is characteristic element of marine sea from the end of XVII century. Karlskrona was originally a base for Swedish navy, and it covered: marine bases, war and defense fortifications, shipyard and supply and storage areas and residential areas. The area of Agricultural Landscape of Southern Oland is an area located on an island in South-East coast of Sweden. It is an example of how human, since prehistoric times, adjusted its activity to natural conditions. In the entire area there are archaeological facilities from prehistoric period, and current manner of use of the land and biodiversity was not significantly changed since the Iron Era. This enabled preservation of unique traditions and maintenance of customs and culture of the region.

Location entered into UNESCO cultural heritage is also Curonian Spit in Lithuania. It is area of unique natural and cultural features. A characteristic feature here are moving dunes. Specific conditions led to the fact that these lands are inhabited by protected species of animals and plants. This place has special cultural features due to its history. Preserved elements related to folklore and beliefs, traditional occupations and cultivation of tradition creates a unique identity of this place.

All objects and areas are entered into the UNESCO World Heritage List and constitute unique value due to their special features. They also have non-material value due to evidence of history, culture and humanity development. To preserve them, research is made and measures assuring their preservation are provided.

### **3.8 Climate (including adaptation to climate change)**

The range of impact of the Programme is approx. 140.000 km<sup>2</sup> in marine portion and approx. 118.000 km<sup>2</sup> in the inland portion. For such vast and varied area, the analysis presented in this Report is of illustrative nature to draw attention to the most important elements of shaping of the climate in the South Baltic Sea region, along with issues related to change in the course of meteorological variables.

A significant part of areas in South and South-West region of the Baltic Sea is under the Western climate of sea coasts and marine climate, where the dominating winds bring humid air from the Atlantic Ocean, whereas the impact of warm oceanic tide assures humid and gentle winters, with defrosting periods even in winter. Among the characteristic features of the marine climate, one must distinguish: high humidity of air, frequent precipitation, low annual temperature amplitude,

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chilly summer, gentle winters and changeability of winds in the annual cycle that in summer blow from the sea, and in winter, towards the sea).

In the XX century, the temperature in the Baltic Sea increased, especially during the warming of the beginning of the century, until the 30s. The period after 1960 brought cooling, after which another warming took place, which lasts up till now. Progressing warming is characterized by increase in annual daily minimum temperatures with respect to annual average daily maximum temperatures. The recent studies show, that annual increase in the temperature of the Baltic Sea is 0,08°C per decade, which exceeds the world trend (0,05°C /decade). Progressing change is observed in reduction of a number of very frosty days ( $T_{\min} < -10^{\circ}\text{C}$ ) and limitation of the time of retention (also reduction in thickness) of the ice sheet on rivers and lakes, especially in the Eastern and South-East part of the area analyzed. Moreover, for the entire South Baltic region, there is extension of the vegetative period. The most important (linearly incrementing) warming was identified in Spring, whereas the increase of temperature in winter is irregular, but clearer than in Summer or Autumn. Climate warming in the Baltic area is reflected also in a time series regarding maximum annual range of marine ice and length of ice season in the reservoir. Fading of ice-related phenomena occurred in the second half of XIX century, since the length of the ice season showed a decreasing tendencies by 14 to 44 days in XX century, depending on the area analyzed.

Observations carried out within last 30 years enabled estimation of average annual precipitation to be approx. 750 mm for the entire Baltic Sea basin (both in marine and inland part). Despite increase in precipitation, no homogeneous spatial distribution for the phenomenon in the area of occurrence is presented. The highest increase is noted in Sweden and on the Eastern coast of the reservoir. Seasonally, the highest increase takes place in Winter and Spring. In summer, the changes are characterized by increase in Northern, and decrease in Southern part of the Baltic Sea. It is expected that winters will become more humid for the most area analyzed, whereas summers will be drier in its Southern part. It is expected for the South Baltic region that the annual precipitation will increase from approx. 20% to 70% in winter, whereas in summer, a negative balance of is expected (45%). All above-mentioned changes will finally lead to expected increase in precipitation for the region.

Along with increase in temperature (indicated above), increasing humidity leads to increase in vapor in the atmosphere, which may cause increase of intensive short-term precipitation in many areas, even where the average precipitation decreases. Moreover, changes in atmospheric circulation may cause significant change in precipitation characteristics on local scale, where changeability is avoided by smoothing the projection of climate model. Thus, significantly higher local precipitation fluctuations may occur than it is suggested in prognoses. IN case of the Baltic Sea, most prognoses for regional models indicate increase in extreme daily precipitation for both winter and summer. This applies to southern parts of the basin, where analogical models foresee extremes with decrease in averages in summer. On the other hand, simulations suggest decrease

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in the number of precipitation days in Southern and Central part of the Baltic Sea, in summer. This may impact the increase of risk of long droughts in southern parts of the region.

Air conditions in this area do not show such clear tendencies as in case of temperature or precipitation. Prognoses and models regarding extremes and average courses bear certain uncertainty. Regional Climate Models (RCM) do not show clear trends for wind speed on land in the Baltic Sea region, although local fluctuations (by approx. 5% to 10%) are observed and are related, above all, to extreme events. Changes in wind speed significantly depend on change in multi-scale atmospheric circulation. The pressure fall currently observed above the Arctic Ocean in combination with anticipated increase in Central Europe shows both increase in climate pressure gradient in the south-north axis, and shift of the cyclone activity to north. Both factors increase the wind speed in Northern Europe. Future changes in atmospheric circulation depend, however, on many factors (partially compensating each other), thus they are difficult to foresee with current state of knowledge. Unlike inland areas, most RCM simulations show slight increase in average wind speed on the Baltic Sea reservoir. This is related to reduction of range of inland phenomena, which favors near-surface winds through weakening of atmospheric stability near border layers. Local changes in wind speed on the Baltic area are expected in summer due to strong warming near sea surface. Most prognoses are related disturbances in stability of weak winds. Expected changes of the strongest winds do not differ significantly between the Baltic Sea and the land surrounding it.

Changes in climate impacts on social and ecosystem relations in the Baltic Sea area. Some consequences are of direct nature, e.g. Observed changes in temperature and precipitation: and indirect, e.g., through changes in marine ecosystem sensitive to fluctuations in the area hydrology. Negative outcome of changes are multiplied by exposure of the Baltic area to anthropogenic pressure, impacting the area through, e.g. Increasing pollution with nutrients. Due to current and growing feedback in the human-climate system, in most cases, determination of share of natural climate changeability in currently observed changes is problematic. However, it is a fact that environmental changes that influence the area analyzed result from many interrelated factors, among which climate change is present. According to the recent, sixth report on climate change developed by International Panel for Climate Change (IPCC), the impact of human activity in the Baltic region is strictly related (“high certainty”) to changes in trends of extreme temperatures and torrential precipitation. Moreover, the report shows supra regional trends:

- Regardless of future level of global warming, the temperatures will rise faster than global annual increase - certainty of changes is determined as high.
- Frequency and intensity of heat (including the so called marine heat waves) will continue the increase from recent decades and it will rise regardless of the adopted scenario of greenhouse emission prognosis (RCP). A critical point of threat for human and ecosystems will be exceeded at least by 2°C , with high certainty.



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- For each RCP scenario and in each time horizon, frequency of cool waves and frosty days will decrease, which shows that current trend continues - certainty is considered to be high,
- Despite strong internal changeability, the observed trends of moderate and extreme temperatures cannot be explained without consideration of anthropogenic factors. However, clearly reduced impact of aerosol emissions in recent decades led to positive trend within the scope of limitation of short-wave radiations with high certainty.
- In the Baltic Sea region, seasonal observations are compliant with expected increase in precipitation in winter months. It is expected that extreme precipitation and flooding of flash flood type will increase after exceeding the 1.5°C threshold of global warming - high certainty of the prognosis.
- Regardless of the scale of global warming, relative level of the Baltic Sea will not rise by the 2100. At the same time, extreme events related to the sea will be more frequent and intensive, leading to coastal flooding. It is estimated that sand coast regression will occur by the XXI century, with high certainty.
- Observed strong decrease in range of winter cover and during the snow season, will remain as the climate warms, with high level of likability.
- In last decades, many factors impacting the climate change were shaped at the same time. It is expected, that along with increase of global warming, there will be an increase in the number of factors significantly affecting the climate (high certainty).

Action proposed under the Programme is included , for the most part, in the category of non-investment solutions. The document determines main directions for integration in the region and is related to aspects related to the component analyzed. IT should be noted that similarly to spatial and time distribution of shaping of climate variables, action taken are also differentiated (especially in case of more detailed approach). Their consequences may be various, depending on particular features of their application. This applies also to non-homogeneity in the implementation rate of assumptions of the Programme in various areas, that are impacted, in case of climate, by extreme, precedence events or event that generate unknown, until now, social or environmental consequences. Thus, the detailed analysis for a particular action is indicated for the majority of solutions prior to their implementation. According to guidelines of the latest report on climate change, within the scope of adaptation, performance of assumptions should additionally consider differences in various subregions, the so called appetite for risk, resulting from separate social and environmental goals, especially of high sensitivity (habitats) and also the economic potential.

### 3.9 Land surface and natural resources

The diagnosis was based on data collected in the social and economic analysis developed for the Interreg South Baltic Cross-border Co-operation), resources of CBDG <sup>77</sup> and data of Corine Land Cover (CLC) <sup>78</sup> and European Environmental Agency (EEA) <sup>79</sup>.

According to social and economic analysis for the Program, the entire area under the development is 118,209 km<sup>2</sup>. The South Baltic Area is of clear blue-green nature, including the marine basin, coastal landscapes and vast green areas with numerous lakes and water race. At the same time, mainly marine nature (most of the land covered by the Programme is within 50 km from the coast line). The area is of non-metropolitan nature with large share of rural areas and dispersed settlement structure <sup>80</sup>.

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<sup>77</sup>Central Geodetic database:

<http://geoportal.pgi.gov.pl/portal/page/portal/PIGMainExtranet> (access: 23.08.2021)

<sup>78</sup>Corine Land Cover (CLC): <https://land.copernicus.eu/pan-european/corine-land-cover/clc2018> (dostęp: 23.08.2021)

<sup>79</sup>European Environmental Agency <https://www.eea.europa.eu/data-and-maps> (access: 23.08.2021)

<sup>80</sup> Socio-economic analysis of the Interreg South Baltic Cross-border Co-operation Programme 2021-2027

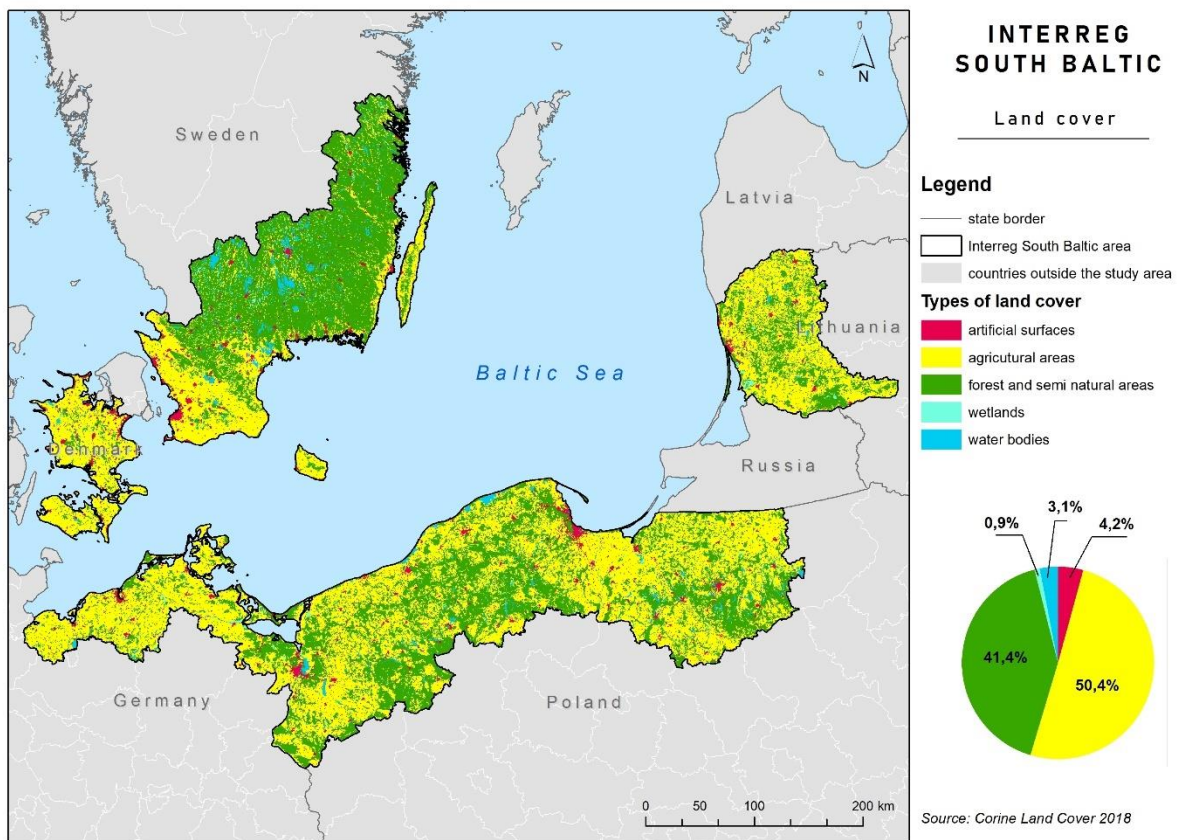


Fig. 3-30 Land coverage in the South Baltic Area (source: own work on the basis of CLC's data)

According to EEA, CLC2018 the land area of the support area are characterized by a dominance of rural areas (50,4%) and forests and semi-natural ecosystems (41,4%). Anthropogenic area is 4,2%. Marine and wetland areas cover approx. 4% of the surface.

According to location and geological structure, it is rich with natural resources occurring both on land in the Baltic Sea area. Along the south-East Baltic coast, approx. 2-66km deep, there are resources of oil and natural gas. The largest deposits of these resources occur in the Polish economic area (Fig. 3-31). Small extraction is around 0,11% of the overall extraction of these resources in the EU. Currently, there are ongoing research on other regions with oil which is frequently accompanied by natural gas.

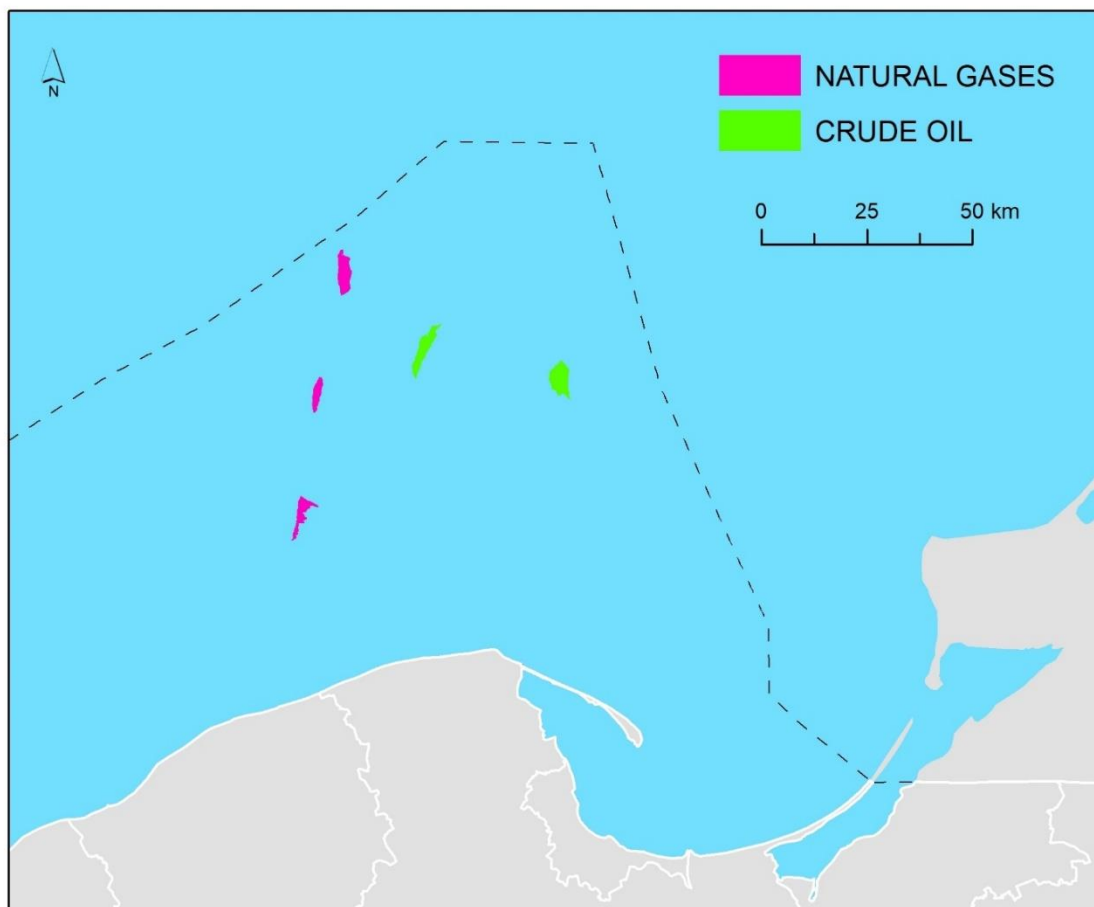


Fig. 3-31 Location of oil and gas deposits in the Polish economic areas (source: [Midas \(pgi.gov.pl\)](http://Midas(pgi.gov.pl)))

Due to its characteristic location, the reservoir bottom is rich with aggregates. They are used mostly in construction (Fig. 3-32). They include, among others: sands, gravels, rocks and pebbles. The highest extraction of these resources is registered by Latvia, Finland, Sweden and Denmark (Kozioł et al. 2011<sup>81</sup>)

Another resource characteristic for the Baltic Sea is rare amber (Szamałek 2016<sup>82</sup>). Its origin is dated back to the Tertiary Period (approx. 40 million years ago). It is a natural organic substance.

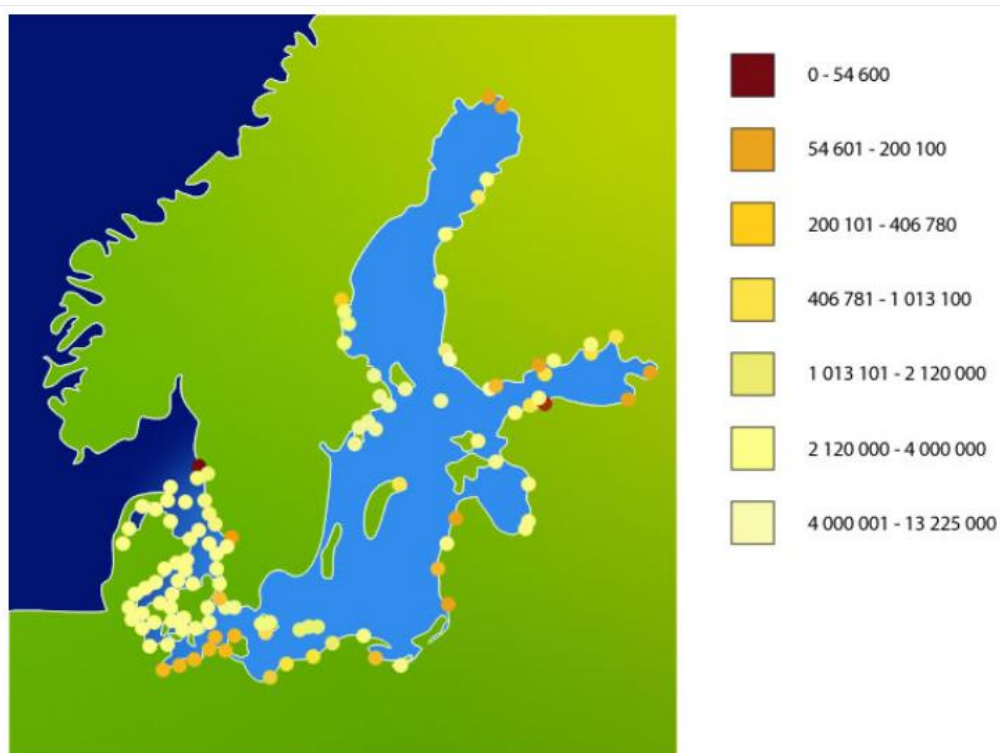
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<sup>81</sup> Kozioł W., Ciepłiński A., Machniak Ł. (2011): Ekspozycja kruszyw z obszarów morskich w Polsce i Unii Europejskiej. *Górnictwo i Geoinżynieria*. 35(4/10): 215-231

<sup>82</sup> Szamałek K. (2016): Bursztyn jako surowiec strategiczny. *Biuletyn Państwowego Instytutu Geologicznego* 466: 291-296

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It is derived from resin of coniferous trees covering the lands of Baltic countries, including the area of today's reservoir. IT consists mainly of carbon (60-80%), nitrogen and oxygen. Its structure consists also of slight amounts of other minerals related to location and amber shaping process (Weitschat 2010<sup>83</sup>). Amber deposits are located along the southern coasts of the Baltic Sea and highest extraction of it takes place in the Jantary Region (Kaliningrad Oblast).



*Fig. 3-32 Exploration of aggregates used in construction, expressed in tons (source: [naszbaltyk.pl/zasoby-naturalne](http://naszbaltyk.pl/zasoby-naturalne))*

In the Baltic Sea area, there are also small deposits of heavy minerals such as: magnetite, zirconium, rutile or garnet, and iron-manganese concretions (Kozioł et al 2011 ). Due to small amounts and difficulty in extraction, they do not constitute a significant source of extraction. IN case of depletion of minerals, they may become precious in future.

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<sup>83</sup> Weitschat W., Wichard W. (2010): Baltic Amber. Biodiversity of fossils in amber from the major world deposits. 80-115

## 4 Characteristics of the Programme and evaluation of environmental consequences of its objectives

The Programme analyzed is developed in cooperation of five countries and coastal subregions of South Baltic. In the first part, it defines the area of support, currently covering 25 regions from Denmark, Germany, Lithuania, Poland and Sweden. Its surface is approx. 118.000 km<sup>2</sup>, with population of approx. 8-9 million people. The Baltic Sea area, with the surface area of 140.000 km<sup>2</sup>, located centrally with respect to the countries as a natural border defines cross-border and regional nature of the Program.

The next section, based on social and economic diagnosis, identifies main challenge of the region in economic, social, environmental area, summarizing conclusions from previous experience. It also defines the Programme concept, that is: “United by Sea for blue and green future - innovative, sustainable, attractive and active South Baltic”, which also defines the terms therein. The above served to formulate four priorities of the Programme and determinations and justifications of action that will be taken. Synthetic summary is presented below.

### I. Innovative South Baltic

- 1.1: Digitizing the region
- 1.2: Building connectivity in the region through internationalization

### II. Sustainable South Baltic

- 2.1: Supporting transition towards green energy
- 2.2: Promoting sustainable use of water
- 2.3: Supporting a circular and more resource efficient development

### III. Attractive South Baltic

- 3.1 Develop sustainable, resilient and innovative tourism

### IV. Active South Baltic

- 4.1: Strengthen the cooperation capacity of actors based within the South Baltic Area (including civil society)

Within the description of particular action, their contribution to the goals of EU cohesion policy and EY strategy for the Baltic Sea Region was characterized. Moreover, basic indicators of product and outcome were determined, by defining also target groups and types of beneficiaries. The last element of the description of action is indication of division of resources of available allocation of the Programme according to types of intervention area.

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Allocation of the entire Programme will remain on the level close to the budget for 2014-2020, namely approx. 83 million EUR from the European Regional Development Fund (ERDF) . The scale of action within particular priorities and action is presented below 4.1

*Tab. 4.1 Scheduled value of support within the scope of particular action*

PRIORITY	ACTION	SUPPORT VALUE [ MIL EUR]
I	1.1	11.73
	1.2	5.03
II	2.1	15.08
	2.2	13.20
	2.3	9.43
III	3.1	20.95
IV	4.1	8.38

**It should be noted, that the Programme does not define particular undertakings and is limited only to description of exemplary types there of that may obtain support under particular action whereas it should be noted that it is not a closed list.**

Below characterized are particular priorities and action of the Program, with evaluation of their impact on particular components of the environment. The evaluation includes factual scale and nature of projects that are to be performed, as determined on the basis of analyses of case studies, namely projects performed and finished in the previous financial perspective, as presented in appendix 1 to the Report.

The carried out case studies indicates, that despite differences in construction of priorities and action of the evaluated programme and programme from the previous financial perspective, the scope of projects performed is similar to assumptions determined in this perspective. Priorities of the South Baltic 2011-2020 programme included:

1. Reinforcement of international activity and innovative capability of blue and green economy of the South Baltic
2. Use of environmental and cultural potential of the South Baltic from “blue” and “green” growth
3. Improvement of cross-border connection for functional “blue” and “green” transport
4. Reinforcement of efficiency of human resources for “blue” and “green” economy of the area
5. Improving the efficiency of cooperation of local entities in the South Baltic area for “blue” and “green” growth
6. Technical Support

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The analysis of 10 projects selected for case studies showed, that within the scope of previous perspective, only soft project were performed that do not generate directly significant impact on environment. However, some of them was of investment nature with potential to make direct impact. However, most often they were projects on small scale in tourism, aquaculture and green technology. Their potentially negative impact in this case was observed in the SEA Report for the Programme.

It should be noted, however, that in previous perspective, there was no pressure on pro-environmental aspects, including renewable energy sources, water protection of circular economy, referring only to broadly understood “blue” and “green” branches. Thus, in case of projects performed within the current perspective of Interreg, it is necessary to expect similar or smaller impact of projects performed.

### **4.1 Priority I - Innovative South Baltic - increasing the level of innovation and internationalization of local entities**

This priority implements the assumptions of the first EU policy objective: PO1: a more competitive and smarter Europe by promoting innovative and smart economic transformation and regional ICT connectivity. The activities of the Programme are intended to directly support the implementation of the following specific objectives defined under PO1:

Specific objective – reaping the benefits of digitisation for citizens, companies, research organisations and public authorities

Specific objective – enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments

#### ***4.1.1 Programme Measure 1.1: Digitizing the region***

The progressive digitization and the growing importance of modern technologies is an inevitable element of development resulting from both human nature and civilization needs. Use in analog technical, logistic, information systems etc. digital circuits allows for optimization and acceleration of activities, avoiding errors or finally combining with each other, separating functioning issues in order to improve a given product or service. Digitization is one of the pillars of the EU and digital technologies have a key role to play in transforming Europe's economy and society so that the EU becomes climate neutral by 2050. This aspect was emphasized in Measure 1.1 of the Programme. It is also worth emphasizing that it was the COVID 19 pandemic, on the one hand, that highlighted the differences in access to digital services in different regions, and on the other hand, it accelerated the EU's technological transformation. Attention should be paid



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also to the growing role of cybersecurity, as insufficient actions in this area may carry a number of threats with real negative effects on the environment, e.g. in the event of failure of critical energy, transmission, transport infrastructure, etc., induced by hacker attacks.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- developing, demonstrating and implementing cross-border solutions regarding digitization of public services (e.g. developing inclusive new e-services: in transport (e-ticket), in health care (e-Care) etc.) ,
- developing, demonstrating and implementing cross-border solutions regarding digitization of processes in different sectors (e.g. in maritime (joint security standards and applications for small ports), in logistics (optimization of transport of passengers and goods), etc.),
- development of learning modalities that focus on digitization (e.g. online tools, apps, etc.) in the most relevant sectors (e.g. blue and green economy, sustainable transport),
- actions aimed at building platforms for cooperation of digital innovation hubs / universities / R&D institutions and SMEs to support the modernisation and digitalisation in the SBA,
- joint actions aimed at promotion of digitization processes and new digital solutions (e.g. cross-border promotion campaigns etc.)
- joint actions aimed at enhancing social aspects of digitization (i.e. digital inclusion), including development of e-services for elderly people and / or people with disabilities,
- support of development of digital competences of the employees of institutions of public sector important for effective functioning of modern administration and implementation of public policies
- transfer of knowledge and exchange of best practices on technical standards between regions.

The exemplary action mentioned focuses on development of digital services, that exclude direct or indirect impact on environment of potentially negative nature. However, possible or indirect positive effects related to a broadly understood digitization of various aspects of life of citizens in the South Baltic area and optimization and innovation of a series of processes within the scope of public and private services, production, logistics and transport - especially marine transport, and trade. This will occur through reduction of the need and consumption of resources and energy.

**Biological diversity** - in the marine part, special attention should be paid to insufficient digitization of marine transport. Inter-organizational information systems are used on the sea insufficiently, the harbor are obsolete in case of sue of technology and information systems, UE does not have a clear strategy for digitization in marine industry, and provision of safety through use of

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innovative technologies remains more of a goal and reality. Digitization in marine logistics is still at the preliminary stage (Kapidani et al. 2020). Thus, it is evaluated that performance of this action will potentially impact, in a positive way and long-term, and in a continuous manner, the biotic elements through provision of safety of transport and reinforcement of social, environmental and economic dimension of sustainable development. However, due to the scale of the Program, small significance of such impact on the regional scale is anticipated.

**People, material goods** - Development of various industrial sectors will enable better access to services. A significant role is played here by transport digitization with a stress on marine transport. This will allow for better and faster communication between the SBA countries. Thanks to this, sea will not be such an obstacle of economic growth, or transport of goods or people. It is possible to slowly reduce economic differences of countries under the support Program, which currently are still very clear. One of the problems of European countries in this region and covered by the support Program, is aging of society. Growing number of seniors brings about the necessity to adjust some services to the needs of this social group. This applies mainly to development of new technologies and introduction of tools regarding improvement of availability of health care. This problem applies to seniors in areas further from urban centers. Action, within the scope of which development and “implementation of cross-border solutions within the scope of public service digitization”, including health care is planned will potentially positively affect health and quality life of people. Digitization impacts significantly the marine economy both in transport of goods and people, and also fishery. Faster flow of data enables better navigation and predictive analysis, thanks to which is possible to analyze possible difficulties along the route. Moreover, efficient flow of data on particular floating units and possibility to remotely update schedules of arrival at destination locations, enables optimization of operation of harbors. This impacts significantly the safety on both open waters and in crowded small harbors. All the action indicated will positively affect health and life quality of people. Indirectly, there is also a possibility of positive impact on material goods, due to economic growth, increase in income of local community is expected. This situation should be visible especially in less developed regions, where relatively large unemployment is observed.

**Inland waters** - The widely understood digitization of social life and economy through optimization of many processes and thus reduction of need and consumption of resources and energy and waste production and waste entering waters may, long-term, contribute to support reaching the environmental goals of homogeneous parts of waters. However, the scale of action under the Programme excludes high significance of this effect, especially in view of action directly towards improvement of water quality.

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**Sea Waters** - It is estimated that performance of action will impact optimization of marine logistics. Digitization may lead to increased control of smaller floating vessels (currently not registered in AIS system). This will enable realistic monitoring of Baltic traffic. Moreover, implementation of new technologies in marine transport will impact reduction of risk of marine accidents, and in case of such - quicker reaction to their results. Thus, it is evaluated that performance of this action will potentially impact, in a positive way and long-term, and in a continuous manner, the marine waters through provision of safety of transport; significance of impact may be determined as insignificant.

**Air** - Types of intervention indicated in the description of action, exclude the possibility of significant direct impact on air quality within the South Baltic region. Certain positive direct impact may be done by postulated digitization within the scope of transport and logistics, resulting in, in long-term perspective, possible reduction of emission of pollution through optimization of processes in the industry. However low significance of such impact on a regional scale is anticipated.

**Landscape, monuments** - no impact on the landscape identified. Digitization may, however, contribute to easier access to information on cultural and natural heritage. Raising awareness of society may, in turn, indirectly affect their safety.

**Climate** - Action under the Program, namely 1.1 Region Digitization and 1.2 Construction of connection of the region through internationalization is the preceding element (or supplementing element) for pro-climate action namely it affects directly the construction of supra regional social capital. Building platforms for supranational cooperation, including universities, enterprises from innovative industries, may finally reinforce positive, in case of understanding the climate change, knowledge and technology transfer. For sure, management (including the risk control) within the scope of cohesive cross-border processes will indirectly affect the safety control and optimization of action in such branches as blue and green economy or sustainable transport (Passenger or cargo). The challenge within this Priority is efficient monitoring of the scale of positive impact of digitization or real emission reduction, which will enable avoidance of maladaptation, that with the use of dynamic of digital society, promote solutions inadequate to costs. An example may be increase in sensitivity resulting from promotion of investments in extended wave breaker systems, that encourage developers to start construction on lands with a high risk of flooding by the sea (example of Ho Chi Minh in China).

**Area and natural resources** - No impact identified

#### **4.1.2 Programme Measure 1.2: Building connectivity of the region through internationalization**

The postulates in the region economic growth Programme requires action to increase competitiveness and innovativeness of MŚP, and also their presence on the international market, thus a support for this aspect is planned under action 1.2 aiming at creating cross-border platform for education and creating networks, services of business advising to help them in transition from national to international business practices.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- promoting and supporting cross-border cooperation between SMEs to create innovative solutions in key strengths areas, e.g. blue and green sectors (incl. maritime / offshore),
- developing and promoting on international markets joint products / solutions / services in key strengths areas, e.g. blue and green sectors (incl. maritime / offshore),
- initiation and development of sector and cross-sectoral networks (clusters) and their expansion aiming at improving i.a. innovation capacity, quality of services and internationalisation among local actors in the SBA in relevant sectors, e.g. blue and green sectors (incl. maritime / offshore),
- supporting collaborative research projects between SMEs, universities (or other R&D institutions), public entities and business support organizations,
- organisation of activities (e.g. fairs, exhibitions, marketing and joint branding campaigns etc.) promoting products and services from the South Baltic area in international markets.

Action analyzed assumes financing main promotional action and action to support research and development programmes on the edge of economy and science, which will have limited potential to impact the environment. Mainly indirect action of positive nature are to be expected, related to development of new technologies and implementation of them in business solutions within the South Baltic Area. Of course, the scale of implementation will determine significance of indicated action. **In this context, it is important that support is provided only to these enterprises and entities activity of which (in case of products or services) is compliant with the DNSH rule, namely these that do not significantly harm the environmental goals under art. 17 of EU Regulation 2020/852 (regulation on taxonomy) [ang. „Do No Significant Harm” (DNSH)].** Also, important is proper definition of framework of blue and green sector, mentioned in the description, as eco-friendly areas, to avoid financing the projects within the scope of greenwashing - phenomenon based on misleading consumers that the product or enterprise are compliant with nature and ecology, whereas it is often the opposite and such action aim only at PR improvement of this entity and maximization of income. An example of a cosmetic company may be reminded here, which company wanted to indicate that it is pro-environment, and in the

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outdoor campaign it installed panels with cladonia - indicating that it has air cleaning features in the city. Only lichen were dried, impregnated and painted beforehand with green paint, so features mentioned in the commercial were not applicable.

**Biological diversity** - Action is not likely to impact biotic elements of marine environment including nature conservation areas. No action is planned that could directly impact marine habitats.

**People, materials goods** - Internationalization of regions and action taken to balance chances for economic development, industrial and development of education will positively impact life quality of citizens in the regions covered by the program. Currently, large disproportions may be observed due to level of development of higher education, research and development institutions and introduction of innovative solutions. Supporting cross-border cooperation, exchange of knowledge and experience and creating inter-sector partnerships will positively impact development of new technologies and quality of service offered. International cooperation, in broader perspective, will enable equalization of opportunity for economic growth in supported countries. A significant aspect is also promotion of local products on international markets.

**Inland waters** - Exemplary types of project expected to be supported under the point analyzed focus, above all, on the so called soft action regarding promotional aspects and supporting research and development projects on the intersection of economy and science - especially innovation. Especially, they are to cover green and blue sector so water-related - although the stress here is put on marine aspect. Potentially, they may directly or indirectly affect the inland water condition. Expected impact should have positive character, reflecting in alleviation of current pressure on waters (e.g. Emission of municipal and industrial pollution, or changes in hydromorphology of watercourses due to their use for transport or power) resulting from technological progress and know-how sharing between the countries or implementation of developed innovative solutions. Significance of such impact will be limited and depending strongly on particular projects based on support under the program.

**Marine waters**- Similarly to inland waters.

**Air** - soft nature of projects possible for support under the action performed limits the risk of significant direct impact on air. Moreover, effort towards promotion of innovative solutions in sectors in description of the action that as a rule are of none or low emission, compared to traditional solutions, enables identification of possible indirect favorable impact on the component. Its significance on the regional scale, due to expected location of resources, should be considered low.

**Landscape, monuments, surface and natural resources** - no impact identified

**Climate** - Evaluation similar to action 1.1

## **4.2 Priority II - Sustainable South Baltic - Promotion of sustainable development and blue and green economy**

This priority performs main assumptions of the second UE policy goal: CP2: more eco-friendly, low-emission and transitioning towards zero emission economy and resilient Europe, due to promotion of clean and just energy transformation, green and blue investment, closed-circuit economy, alleviation of climate change and adaptation to them, prevention of risk and risk management and sustainable urban mobility. This goal includes a series of detailed goals, whereas the Program, as a rule, is to directly support performance of three of them :

Specific objective – promoting renewable energy in accordance with Directive (EU) 2018/2001, including the sustainability criteria set out therein;

Specific objective – promoting access to water and sustainable water management;

Specific objective – promoting the transition to a circular and resource efficient economy

The priority analyzed and practical action planned within it, are completely dedicated to the issue related to environment protection, so expected should be the most important (mainly positive) impacts on environment resulting from implementation of assumptions of the Programme performed.

### **4.2.1 Programme Measure 2.1: Supporting transition towards green energy**

The first action 2.1. Namely support for transition to green energy, stresses cooperation of regions within the borders of the supported area in decarbonization of energy sector as the key element in preventing climate crisis. Significant support for this aspect is a subject of a series of other action performed on the EU level and particular Member States. Exemplary common investment action that may be supported under it, will be mainly of pilot and demonstrative nature, so they exclude significant scale of negative impact on environment. However, significant positive effects, in the form of reduction of CO<sub>2</sub> emission and other pollutants to the atmosphere, should be expected only in the following stage, namely propagation and implementation of developed solutions in the support area on a larger scale, including as effect accumulated with mentioned remaining action on EU level. Considered should be also threats on land and on the sea, that may be brought by the investment stage of intensification of investments in RES including marine wind farms, tide and wave energy or transformation of thermal energy, being significant elements of new energy mixture.

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The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- promoting areas of joint cooperation regarding energy policies, e.g. joint strategy development, joint cross-border studies, action plans and joint development of harmonisation tools, spatial development plans etc.,
- developing, demonstrating and implementing green energy solutions in production, distribution and storage of energy from renewable sources (e.g. wave, solar energy, biomass (also for fuel, heating and biogas), geothermal energy, etc.), while finding a balance with the requirements of environmental protection and laws (e.g. MSFD),
- developing and testing of innovative, applicable cross-border solutions aiming at improving and adapting energy / power grids to renewable energy specificity (e.g. development or reorganisation or integration of smart grids etc.),
- promoting the use of green energy (e.g. in vehicles) and support establishing new markets,
- elaboration of green policy strategies and patterns to overcome challenges and mobilise regional opportunities for renewable energies, including models for cooperation with energy service companies on comprehensive energy solutions,
- elaboration and testing of common cross-border standards in renewable energy by public entities, in cooperation with universities, research centres, companies and cooperatives of farmers and residents,
- capacity building actions, transfer of knowledge and exchange of best practices on green energy, green technology solutions (incl. ways of green energy distribution and storage).

Below presented are impacts, that were identified for particular components of the environment.

**Biological diversity** - Programme Action 2.1 is related, above all, to development of the RES infrastructure. According to the Programme “Although in the area various renewable production sources are used, significant potential of the region in terms of production sectors (i) wind energy (ii) bioenergy and (iii) solar energy should be noted”. Various renewable energy technologies may impact change in ecosystems and contribute to loss of biological diversity. Apart from direct impact on loss of species and habitats, RES plants may disturb ecological processes in ecosystems, impacting provision of ecosystem services, e.g. Regulation (micro climate control, functions of insects and birds in ecosystems, control of pests and pollination). It should be noted that the Programme is in place in the period of higher activity in terms of construction of marine wind farms and underground cables and piping related to them. It seems likely that some projects might be directly related to construction or planning of marine wind farms. During the construction of these types of objects, a series of negative impact on marine environment occurs.

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Pressure exerted at the construction stage is similar to pressure during extraction or deepening of the sea bottom. Also significant to organisms is growth of suspension, noise, more intense traffic of vessels and aircrafts. As a result, local, but permanent destruction of habitats occurs. Moreover, construction may impact existing economic use of this area, through marine transport, fishery, extraction of bottom sediments as well as tourism and recreation. It should be noted, that the area covered by the investment is small, and pressures at the stage of exploration are significantly smaller. Moreover, the programme does not involve large investments in this department, but only soft action, such as energy strategies and investments of pilot and small scale nature, so the impact on biodiversity and the network of nature protection areas will not be significant. Significance of impact may be determined as small.

**People, material goods** - Air pollution and consequences related thereto contribute to development and severity of respiratory system, cardiovascular diseases, more frequent cancers and many other disorders. Moreover, deterioration of quality of public health causes external health costs that are borne by the entire economy. A large share in air pollution is caused by energy and transport. Development of the cross-border solutions, aiming at improvement and adjustment of the infrastructure and energy policy to renewable energy needs, allowing its transfer and storage, is crucial to improve the air quality in the Baltic countries. A significant aspect of development and introduction of alternative forms of energy acquisition is also creating new workplaces. Development of new strategies and technologies requires cooperation of public authorities with universities and research institutions, which causes a need to employ additional staff of experts. All action enabling development of the sector of energy from renewable sources will have potentially positive impact on health and life quality.

**Inland waters** - According to the description presented in the Program, support under this action is directed, above all, at projects related to common development of policies, strategies and energy standards, as well as research and development in terms of production, distribution and storage of OZE. This action should only have a positive impact on the component analyzed, above, all, indirect one, based on elimination of negative impact on waters - surface and underground, by currently used technologies based on obtaining energy from non-renewable sources. Also, noted should be a significant area of problem related to continuity of watercourses, impacting their ecological quality. Objects related to hydro energy may lower them additionally. Thus, it is necessary to promote solutions assuring continuity of migration of aquatic organisms and provision of such solutions to objects that has not provided them yet.

**Marine waters** - Support for transition to green energy is related to the strategy for energy from marine renewable sources. Performance of this action may indirectly support construction of new marine wind farms within the Programme area. Thus, it is worth to recognize the threat



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when building the farms, resulting from a possibility of local pollution of the environment with substances released from corroded containers with chemical weapons, stored on the bottom.

**Air** - According to the description in the Program, this action is characterized with high potential of indirect positive impact. Increase of RES share in the energy mixture, as a result of support, reduces the demand for energy generated in a traditional manner, impacting the reduction of pollution and CO2 emission. Considering the specificity of the region and its potential in terms of RES use, significance of this impact may be determined as high.

**Landscape** - Action based on possibility to finance pilot programmes. Their nature is not precisely described - in case of direct support for projects within the scope of renewable energy production, it should be noted, that construction of wind farms and solar power plant causes the need to introduce new elements in the form of turbines and accompanying infrastructure, namely cables and pipelines, which will significantly and negatively impact perception of particular landscapes and views. Depending on location of projects and time frame for their performance, the level of impact will differ.

**Monuments** - Pollution related to emission of large amounts of dusts and harmful substances such as fumes and exhaust gas, negatively impact preservation of monuments located on the open space. Currently, in the polluted air and precipitation, the chemical compounds build up on surface of historic buildings, causing chemical and mechanical damage. Especially vulnerable are monuments located near busy streets. Intensive wheel transport contributes to settlement of dusts on building walls, in sculpture recesses and various types of architectural details, which dusts, through increase in condensation saturated with harmful substances of water vapor, accelerate the decomposition process.

Within the scope of the program, action is planned to limit emission of pollutions for the benefit of acquisition of energy from renewable emission-free sources. Improvement of air quality may positively impact the behavior of cultural objects. Promotion and introduction of innovative solutions using green energy to propel vehicles will limit the amount of produced fumes, which will positively impact protection of monuments, although this will not be an action of high significance.

Climate - Alleviation of results of climate changes is an element that is a permanent part of assumptions of EU environmental policy. Within the Priority II, The Programme is related to community-related trend through introduction of action supporting development of renewable and rational energy (here: sustainable) of the marine economy. The key exemplary actions that may generate indirect positive impact are all forms of support for energy transformation. Cross-functional approach in the Programme should be noted, where political and strategic aspects

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were recognized through: (1) supporting the areas of common cooperation regarding energy policy, (2) developing strategies and patterns for green policy to face the challenge and mobilize regional capabilities in terms of renewable energy; then examples of action in terms of transfer of innovation and building technological capital are detailed: (1) promotion of use of green energy, which are related to proposals considering higher detailedness and approach towards implementation (and testing): (1) developing, demonstrating and implementing solutions regarding green energy, (2) developing and testing innovative, applicable solutions and (4) cross-border standards. These examples show the need for holistic approach, visible currently in strategies promoted by EU (e.g. Regulation 2020/852). An important aspect in this type of sequential action (strategy - cooperation - technology) is, in the time of dynamics of climate change (see: 6 IPCC report), the need to carry out simultaneous action. This means transformation of some projects to the area of the so called ad hoc management, that is characterized by requirement of efficient performance with simultaneous consideration of possible rapid turns caused by independent external factors - in this case, climate system. **Deficiencies in this area may generate problems related to efficiency of implementation of projects, so it is necessary to ignore climate uncertainty that may impact rapid changes, also on the strategic level.** Apart from recognized negative consequences of climate change, in the context of renewable energy, also expected can be changes in terms of increase in air temperature (including thermal extremes), and also changes in characteristics and intensity of air phenomena, that may be a chance for the sector (photovoltaics, wind energy). All depends on flexibility of implementation of solutions, and impact of climate extremes.

Ground surface and natural resources - each action towards green energy will positively impact preservation of natural resources. This may contribute to reduction of degradation of the surface related to active exploration or transport of deposits. The scale of impact will not be significant.

### **4.2.2 Programme Measure 2.2: Promoting sustainable use of water**

An extremely important, from the point of view of problems identified in the South Baltic Region, is action 2.2, namely promotion of sustainable water consumption. The Baltic Sea, apart from historic pollution, is still supplied, from many countries, with a high amount of pollution, hence its condition is considered very poor, and in some cases, catastrophic. Moreover, marine habitats and coastal ecosystems face giant pressure, caused by climate change, water level rising, eutrophication and intensification of use of marine areas, so common action to improve the marine water condition is crucial for the entire South Baltic area. Reinforcement of cooperation in terms of planning, standardization and implementation of sustainable solutions in terms of water use should bring positive effect, supporting achievements of already existing international initiatives such as Baltic Safety Action Plan (BSAP) performed by The Baltic Environment

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Protection Commission (HELCOM). It should be noted, that the latest WWF report <sup>84</sup> determines these effects as far from expected and satisfactory, and involvement of majority of Baltic countries in action towards improvement of sea water quality is insufficient. Thus, support under the programme should take into consideration the disproportion and properly channel know-how transfer within the area.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- promoting areas of joint cooperation regarding water management policies, e.g. joint strategy development, joint cross-border studies, action plans etc.,
- developing, demonstrating and implementing green technology solutions in water management (incl. sustainable land use and waste water collection and treatment) and flood water management,
- developing and testing of innovative cross-border solutions aimed at decreasing the outflows of nutrients from small and diffuse sources in catchment areas (incl. evaluation of the cost effectiveness of solutions),
- developing and testing of innovative cross-border solutions aimed at enhancing nature protection and biodiversity,
- joint development of solutions which help to secure various conflicting water uses that serve public interests (e.g. recreation and free time vs. water usage, as well as water resource protection), as well as the future water supply (both for drinking water and industrial water),
- elaboration and testing of common cross-border standards in waste and water management by public entities, in cooperation with universities, research centres, companies and cooperatives of farmers and residents,
- promoting areas of joint cooperation regarding the enhancement of aqua-culture,
- developing, demonstrating and implementing solutions for reducing pollution of the Baltic Sea by chemical munitions and other dangerous remains of sunken oil ships),
- capacity building actions, transfer of knowledge and exchange of best practices in the fields of water management and waste water collection and treatment.

Below presented are impacts, that were identified for particular components of the environment.

**Biological diversity** - Promotion of sustainable use of water may indirectly and positively impact biotic elements of the environment. This action is, however, soft and does not directly impact

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<sup>84</sup> Baltic Sea Action Plan Scorecard 2018; WWF, 2018

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biotic elements of the marine and coastal environment, including protected areas. It should be noted, however, that performance of such action as:

- Promotion of areas of common cooperation regarding aquaculture reinforcement,
- Development, demonstration and implementation of solutions to limit the Baltic Sea pollution,
- Exchange of best practices in water economy and collection and treatment of waste,

Which, long-term may positively impact the biotic elements of the environment and nature protection areas. However, significance of impact compared to the scale of the issue is considered low.

**People, material goods** - Action, that is to protect and reduce water pollution, is significant for proper functioning of all living organisms. Water is a key factor for economy and tourism development in countries covered by the support program. Current, high indicator of pollution and growing eutrophication often leads to closure of bathing beaches which in turns negatively impact operation of tourism. Protective action and cooperation within the scope of skillful marine resource management will positively impact improvement of marine resource quality, and in turn, will positively impact people. Under the program, action is to be taken aiming at limiting pollution of the Baltic Sea. Improvement of marine water quality will contribute, positively, to slow restoration of Baltic ecosystems. Along with improvement of quality of coastal regions, increase in tourism is expected, and hence, growing income for people providing services in this industry.

**Inland waters** - Due to the subject, this action will have the most important impact on the component analyzed of all the analyzed. According to the assumption of the Program, support will be multi-aspect, namely both in terms of cooperation within the scope of development and exchange of knowledge regarding policies, standards and good practices in sustainable management of marine resources, and technical action - especially international and innovative to reduce existing pressures related to exploration of water resources, pollution, anti-flooding protection, etc. Thus, direct and indirect impact on waters is expected. These will be activities of positive and permanent and long-term nature and of high importance for performance of environmental goals, as determined for part of waters in the South Baltic area.

**Marine waters**- Impact similar to inland waters. Especially development, demonstration and implementation of solutions to limit pollution of the Baltic Sea may positively impact the marine environment, however, the scale of impact, in light of identified issues may be considered insignificant.

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**Air** - Water-focused action is of a very limited potential of direct impact on air. Thus, we may exclude occurrence of direct or indirect negative or positive impact.

**Landscape** - Water-focused action is of a limited potential of impact on landscape. It should be noted, that improvement of water quality will positively impact reception of landscape features, and hence, will improve its quality.

**Monuments** - Coastal regions are characterized by occurrence of various monuments related to marine economy. Above all, these are technical objects such as: harbors. Locks, channels and water towers are the groups of items occurring commonly in the area covered by the support program. Due to presence of relatively high biogenic pollution related to alga growth, we may observe progressing biological corrosion, covering mainly wooden and metal elements. Also flooding and local immersions are significant to the level of preservation of monuments. Development of proper scheme for flooding water management may lead to reduce of the rate of degradation of some objects, which will positively impact their visual features. Activities to improve water quality may positively and potentially impact the condition of preservation of some monuments.

**Climate** - In case of exposure of water economy to climate threats, they are recognized and clear, with high certainty (r Report IPCC). Activities proposed under this goal cover a wide area, touching upon the most important issues on regional level. Similarly to previous goals, indirect positive impact will be generated by projects that are managed by the community, within the scope of development and transfer of innovation. Potentially positive outcome may be anticipated due to performance of solutions to reduce the impact of nutrients and small and dispersed sources near backwaters that will be an answer to growing threat to coastal habitats and aquaculture. The relation between the climate and the Baltic Sea will be impacted positively by elimination of threat of anthropogenic origin that, according to recent research, are a deciding factor for environmental stability and may lead to unprecedented implications related to climate extremes. We are talking about activities related to associating the waste economy to water management, and implementation of solutions within the scope of limitation of pollution of the Baltic Sea by chemical weapon which is a threat to safety of sunk tankers .

**Ground surface and natural resources** - no occurrence of direct negative impact on ground surface or natural resources was recognized.

### ***4.2.3 Programme Measure 2.3: Supporting a circular and more resource efficient development***

This action has a potential to generate significant direct and indirect positive impact on the environment. IN the context of challenges facing Europe, the domination linear model of

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production and consumption must be changes soon for the benefit of circulatory economy. Thus, supporting these changes on international level should bring positive environmental outcome in the form of lower consumption of resources and energy by economy, lower amount of waste produced and higher level of recycling. In this aspect, the Programme involves mainly soft and research, pilot and demonstrative activities on a small scale, thus positive effects may be anticipated only after the stage of propagation of solutions in the supported area. In the context of planned support action, stressed should be the importance of limitation of greenwashing through proper definition of criteria of its application enabling identification and exclusion of such cases. Also, recognized should be disproportions in implementation of CE principles in particular Baltic Countries and direct the support to fast liquidation thereof.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- promoting areas of joint cooperation regarding waste management policies, e.g. joint strategy development, joint cross-border studies, action plans,
- developing, demonstrating and implementing new business models (e.g. service instead of selling a product), product design (prevent waste, use non-toxic materials to prepare for reuse and recycling), production and distribution technologies / solutions / processes in waste / water management and resource efficiency (e.g. re-use, recycling, recovery), incl. optimized energy utilisation (e.g. biogas) and industrial symbiosis,
- building cross-border cooperation networks aimed at re-use of waste as resource,
- joint actions aimed at optimization of value chains for recycled materials, forest and agricultural bio-products, including the sustainable design of fishery gear with regard to recovery and recycling of 'ghostnets' etc.,
- joint inclusive innovative actions and pilot projects aimed at inhabitants on building awareness about the necessity to introduce the processes of waste management in households,
- cross-border promotional and awareness raising campaigns aimed at local public companies (waste / water / heating / facility / transport management) and SMEs to facilitate a transition from traditional management to circular oriented,
- elaboration and testing of common cross-border standards in waste management by public entities, in cooperation with universities, research centres, companies and cooperatives of farmers and residents and NGOs,
- developing, demonstrating and implementing solutions / investments that minimizes the use of new raw-materials, including promoting the use of recycled materials, in production processes,

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- capacity building actions, transfer of knowledge and exchange of best practices on waste management solutions, sharing best practices and blueprints on data sharing on current waste management practices and waste flows.

Below presented are impacts, that were identified for particular components of the environment.

**Biological diversity** - Supporting the development of the closed-circuit development and more resource-saving one - is of soft nature and does not directly impact biotic elements of environment and nature protection areas. Long-term, this may lead to less significant indirect impact by general improvement of environment quality due to reduction of emission of pollutions and waste and wastewater production.

**People, natural resources** - Supporting activities within the scope of closed-circuit and resource-saving economy will positively impact the natural environment, and hence, people. Development of closed-circuit economy leads to minimizing acquisition of new resources for the benefit of use of recycled products. To do so, activities are planned to raise the awareness and promote rational waste management. Educational campaigns and promotion of products from recycling with simultaneous implementation of solutions to minimize use of new, non-renewable resources may increase the interest in these products. Proper waste management, oriented towards repeated use of resources may lead to improvement of quality of particular environment components, and hence, also the quality of life for humans.

**Inland waters** - This action may significantly, directly and positively impact waters. Assumed widely understood support for transition of the regional economy from current model to CE will result in, on one hand, reduction of demand for water from environment in many branches, and on the other hand, limitation of production of waste water and pollution emission - especially the so called priority substances. These will be effects significant from the point of view of environmental goals, both for some inland and marine waters.

**Marine waters**- Evaluation similar to inland waters.

**Air** - According to assumptions within the support program, the anticipated effect will be progress of the region towards CE through promotion of the same in the region. This may positively and indirectly and repeatedly impact and component analyzed, related to a widely understood lowering of economy emissivity, hence reduction of emission of pollutants released to the air due to closure of the resource-waste circuit. Due to the scale of supported action, considering long-term and complex nature of transformation, significance of this action on the general scale of the process will not be high.

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**Landscape** - Limitation of acquisition of non-renewable resources, hence reduction of their extraction, will positively impact the landscape. This will contribute to reduction of topography and land coverage degradation. Limitation of the rate of change will enable preservation of more stable ecosystem conditions, which will enable avoidance of rapid changes in the landscape.

**Monuments** - No impact identified.

**Climate** - Evaluation similar to action 2.2

**Ground surface and natural resources** - minimizing extraction of raw materials is related to implementation of solutions of closed-circuit economy, and will positively and directly impact natural resources. Promotion of action related to effective use of resources and promotion of recycling may lead to reduction in extraction of current and lack of need to search for new deposits of particular materials. Reduced anthropogenic pressure will positively impact the condition of ground surface.

### **4.3 Priority III - Attractive South Baltic - activation of the tourist potential of the South Baltic Area**

This priority performs main assumptions of the fourth UE CP4 policy goal: Europe of stronger social dimension, favoring social inclusion and implementing the European foundation of social rights". This goal involves four detailed goals, among which the programme is oriented directly towards performance of the following foal:

Specific objective – enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation

#### **4.3.1 Programme Measure: 3.1: Develop sustainable, resilient and innovative tourism**

Tourism, as one of the fastest developing and crucial industry branches in the Baltic Sea is also a factor generating a significant pressure on the environment. It is visible for example in case of waste water and waste, by burdening the system in the season peak, or burdening nature by introduction of the infrastructure in non-developed areas and hence, increase of pressure on fauna and flora or generation of pressure resulting from overloading of local communication systems. Thus, proposed action is to make it easier to perform the transition from current model towards more sustained and eco-friendly one. Due to planned support, as described with types of activities, a series of positive impacts may be anticipated, above all, in the area of biodiversity and natural and cultural heritage, as well as minimization of the mentioned pressure related to tourism and recreation. Whereas, postulated projects will be performed, above all, on small



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scale, so significance of anticipated impact will be limited, whereas it should be considered, that this action received a largest allocation, namely 25% of the overall Programme resources. Moreover, accumulated impact may be anticipated only after association of previously described environmental action within the scope of the remaining priorities. However, the assumed and described increase in attractiveness of the area through increase of tourist availability, especially creating the whole-year tourism offers breaking the season nature of tourism, brings also threats in the form of unintended off-season intensification of pressure on the environment, including the areas specially precious in terms of nature.

Here a reference must be made to threats resulting from planned inclusion of natural objects and protected areas to the network and chain of tourism (sustainable tourism and eco-tourism). The programme lacks explanation and identification of indicated terms and a manner of inclusion in the protected areas, which generates a risk of negative impact on them in case improper action is taken. Networking the tourist product means creating associations between various business entities within the scope of creating a common offer. For example, accommodation base connected to the gastronomic base and bicycle and kayak renting places, etc. Membership in the network allows the participants to obtain additional effects of the scale both in promotion and infrastructure, human resources and distribution system development. Package tourist offer is more attractive than a n individual service. In case of development of networks and chains of tourism, especially in protected areas, it should be considered that the scale effect may increase proportionally the environmental consequences. For example, growing and uncontrolled mass kayak tourism may lead to degradation of coast line and river flora (e.g. Collecting white water roses on the river), may also lead to scaring off animals (including rare nest species and protected species of birds).

The programme enables performance of construction investments, e.g. Development of infrastructure for cross-border tourism. It should be noted, that development of tourism infrastructure may directly and indirectly and negatively impact the broadly understood biological diversity. An excellent example may be financing, also within the scope of Union programmes, view towers or tourism infrastructure located in very attractive natural and landscape locations. These investments may cause negative impact on nature, due to intensification of tourist pressure in such location, and on the landscape by creating non-harmonic dominants. Occurrence of such effects is directly related to both a particular construction site for such “plant” and the technology and performance thereof itself. **Thus, it is impossible to identify these impacts at the stage of strategic evaluation.** However, it is possible to determine criteria that should be applied in selection of projects to avoid potentially negative effects.

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The above-mentioned issues were recognized in the Program. According to the program, the entire action puts stress on sustainable development of tourism, which should be understood as reduction of negative impact of tourism on natural environment due to introduction of project to preserve biodiversity, protection of rich and diverse natural offers (and cultural offers) in this area and sustainable use of resources such as energy and water. It seems that the mentioned fragment, if it determines the type of support projects, should sufficiently secure the interest of the natural environment. However, reinforcement of this aspect in the Programme should be considered by referring to generally accepted principles of sustainable tourism.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- development of new tools supporting the tourism network products and services, incl. ICT tools, marketing and the promotion of cultural and natural assets of South Baltic area,
- actions to protect the biodiversity and natural heritage of the region, inclusion of natural heritage sites and protected areas in the networks and chains of sustainable tourism in the South Baltic area,
- projects aiming at preserving the cultural heritage of the region (e.g. culinary heritage, history, language),
- adapting the tourist offer (including small scale investment needed to create cross border touristic routes (e. g. signs, information stands)) to people with disabilities, activities aimed at social inclusion and the availability of e.g. open public spaces, natural and heritage sites, protected areas,
- development and testing tools, joint solutions and trainings for the tourism and cultural sector to meet e.g. the demand for future skills (e.g. digital skills), health standards (e.g. at tourism sites and when developing new offers).
- inclusion of cultural heritage sites and protected areas in the networks and chains of eco-tourism,
- joint marketing and the promotion of cultural and natural assets,
- joint campaigns, publications, studies, strategies for enhancing tourism potential of the SB,
- preparation and implementation of new tourist offers / small cross-border solutions that enhance the sustainable tourism and meet the needs of tourists as well as citizens of the region (e.g. cross-border thematic routes),
- sharing knowledge and best practices in the field of maintenance and revitalisation of cultural/natural heritage areas and sites enhancing tourist attractiveness and potential of the SBA,
- establishment of joint networks in the field of tourism and culture (esp. networks acting in the South Baltic),

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- activities aimed at creation / management / promotion of cultural heritage routes existing in the South Baltic region,
- activities aimed at promotion of creative sector connected with regional heritage (e.g. handcrafts, design),
- joint cultural activities in cooperation with creative sector enhancing tourism potential of the SBA in the field of sustainable tourism e.g. thematic tourism and culture.

Below presented are impacts, that were identified for particular components of the environment.

**Biological diversity** - The Baltic Sea is an important resource of marine and coastal tourism. The Baltic Sea Coast is an important tourist asset, boast for leisure and sightseeing. Here leisure, cognitive and qualified and health tourism develop. Many coastal areas fulfill a tourism role, and tourism is an important part of their industry. However, coastal ecosystems are one of the most sensitive and vulnerable to anthropopressure, and influence of tourism on nature in these locations is usually very significant. The impact of tourism on nature involves tourism infrastructure and tourist traffic. Frequency, seasonal nature and form of tourist traffic are very important from the point of view of evaluation of potential negative impact. Also significant is awareness of tourism and their behavior. Other factors that must be considered are the level of development of tourism management, management and organization of tourist traffic, (e.g. Distribution or channeling), resistance on natural environment to anthropopressure (tourism absorption), and general tourist capacity of the region and level of control over tourism development at a particular location (the more chaotic development, the worse for the environmental and local communities). It should be noted, that there are also positive impacts, especially if the tourism is in fact of sustainable nature. They include increase in eco-awareness and social pressure on protection of precious natural areas. Positive change in the areas of tourism reception result from improvement of environment condition (e.g. Waste channel systems) and aesthetics of the surroundings and landscape, crucial for tourist attractiveness.

Impact of tourism on the environment will significantly depend on following the rules of sustainable tourism. This especially applies to the form and scope of availability of precious natural areas and inclusion of the same in the tourism offer, such as network, or chain of eco-tourism. The programme puts stress on sustainable nature of tourism, which should minimize its negative impact, hence the scale of impact in this case must be evaluated as insignificant, **whereas adopted rules of sustainable tourism require more detail in this document.**

**People, material goods** - Tourism in countries included in the programme is one of the most important branches of employment and constitutes a main source of income for many citizens of coastal cities. The feature distinguishing this sector is, however, its seasonal nature. Under the

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program, sustainable development of tourism is anticipated, performed by creating a whole-year offer of tourist attractions with promotion of knowledge on unique natural features and natural use of resources. Adjusting the tourist offer to various social groups and also to people with various disabilities will positively impact the quality of offered services and a level of tourist satisfaction. Introduction of new services and larger impact of tourists will influence the necessity to create new jobs and potential growth of the number of employees in this branch. This will directly affect improvement of their life quality.

**Inland waters** - Tourism is a branch of economy that with high intensity, fast development and no control, may be a threat to waters. The principles of the Programme under the action analyzed, must be supported above all by soft action related to development of new tools, support for tourism and protection of cultural and natural heritage, marketing, promotion of cohesion of routes for creating a whole-year offer, etc. This does not exclude investment projects, but only on a small scale such as e.g. Infrastructure for cross-border tourism. However, all elements of the action put stress on approach towards sustainable and eco-friendly solutions, which reduces the risk of negative impact on the component analyzed. Thus, the result of realizations described in the Program, in the context of inland waters, anticipated must be mainly indirect impact in medium and long-term perspective, go rather positive nature. From the point of view of protection of waters, a desired direction is postulated development of tourism without simultaneous pressure on waters, and where possible, based on application of solutions assuring savings of water consumed and effective manners of its treatment under the constructed/modernized infrastructure and proper channeling of traffic assuring balance of aquatic ecosystem, around which tourism appear.

**Marine waters**- Evaluation similar to inland waters.

**Air** - Project supported under the action are to lead to development of tourism in the region. This me directly and indirectly impact the component analyzed. Inflow of tourists was associated with intensification of transport that is a source of air pollution. Also, emission of the municipal branch increases, especially in case of the whole-year offer, namely including the heating season. Of course, such pressure still occurs at some locations. However, the risk of increase of such impact in the analyzed case, limits the approach of the Programme towards sustainable solutions, so solutions that do not lead to emission e.g. Through proper channelization of traffic, promotion of public transport and supplying tourist facilities from RES. The scale of the support under the Programme excludes significant changes for the region, locally it may significantly contribute to improvement of the air quality.

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**Landscape** - Tourism significantly affects quality and features of the landscape. Its development may have a twofold impact, depending on action taken. Promotion of knowledge of unique features for particular space, species occurring locally or need for protection of precious natural and/or cultural areas is for sure a positive impact on landscape protection.

**Monuments** - Action under the Programme is to promote knowledge on monuments and promotion of routes of cultural heritage, Increase in awareness of society regarding a need to preserve precious historic and cultural elements may positively impact their protection.

**Climate** - Continuous development of tourism in this area is one of the anthropogenic factors generating impact indicated in climate models within the scope of scenarios promotion strong environmental pressure. According to the latest IPCC report, in case of performance of scenarios indication an average increase in temperature in the region by 1,5 °C, this will lead to irreversible change in ecosystems, regardless of scale of impact of the remaining variables of the climate. Among the factors of anthropopressure, tourism branch is indicated as one of constantly growing negative impact. Indication, in the program, of the need for sustainable tourism is a part of goals, that are a focus of the remaining regions of the continent related to this branch. A positive aspect of direct impact is indication of a need to integrate solutions on supranational level, that up till now has not been recognized as characteristic for tourism. It is an answer to a growing pressure of recreational trends, that indirectly amplify negative results of climate change, especially for sensitive land-aquatic ecosystems of the South Baltic Sea. More sustainable tourism behaviors contribute to minimization of impact of accumulated negative impacts resulting from strong couplings in the economy-climate system, through activities such as biodiversity and natural heritage protection of the region, inclusion of natural heritage protection and protected areas in the network and chain of sustainable tourism in the South Baltic Area.

**Area and natural resources** - No impact identified

### **4.4 Priority IV - Active South Baltic - improvement of cooperation management**

The last priority focuses on strengthening cooperation and institutional capacity in the South Baltic Area, in line with the following detailed objective of the development policy:

Specific objective – enhance the institutional capacity of public authorities, in particular those mandated to manage a specific territory, and of stakeholders (all strands)

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### **4.4.1 Programme Measure 4.1: Strengthen the cooperation capacity of actors based within the South Baltic Area (incl. civil society)**

Support indicated under the action 4.1 is to translate to building a potential and reinforcement of cross-border cooperation of entities representing both public sectors and private and citizen and social. Exemplary action defined under this project are mainly soft projects, namely programmes, trainings, workshops, of limited impact on environment. Potential positive impact of indirect nature might be anticipated in social areas as an effect related to raising the environmental awareness of society.

The Programme indicates exemplary action (types of intervention) that may be financed within the scope of the Program:

- delivery of initiatives (cross-border programmes, trainings, workshops etc.), aimed at strengthening the networking and cooperation capacity of local actors;
- activities supporting joint local self-government administration/agencies and other institutions (e.g. NGOs) contributing to influencing regional, national and EU level policies and decisions affecting the local development;
- actions aimed at developing stronger links between citizens and institutions at a cross-border level civil society and bottom-up involvement in decision- and policymaking;
- activities increasing the involvement of local actors (e.g. NGOs, cultural institutions, non-formalized organizations, organizations supporting people with disabilities and from vulnerable groups) in project development and intercultural dialogue;
- actions supporting youth empowerment, engagement of the youth with civil society and into local decision-making processes;
- actions supporting exchange of experience in the field of innovative entrepreneurship among universities, high school and vocational school students as well as graduates;
- awareness-raising and promotion measures among local actor groups to increase trust, promote cooperation culture and common identity of the actors based;
- development and promotion of models and networks gathering diverse actors (e.g. research institutions, SMEs, business development organisations, universities, public entities) improving the transfer and absorption of knowledge and innovation.

Below presented are impacts, that were identified for particular components of the environment.

**Biological diversity** - reinforcement of cooperation ability of entities with the head office in the South Baltic Area (including citizen society) may directly impact biotic elements of the environment through reinforcement of non-government organizations and citizen initiatives for nature protection

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**People, material goods** - Action under the programme is mainly of social nature, orientation towards integration and making it easier for society to take part in decision making and shaping the policy. As a rule, reinforcement of relations between citizens and public institutions will reinforce the position of local society, which will directly contribute to improvement of quality of life of people and their sense of unity with local community.

Performance of student exchange programmes and involvement of youth in local and regional decision making process allows development of their ability to cooperate. Contact with others helps to better understand another human, extends horizons, integrates and additionally enables knowledge exchange.

Any type of activation of local community, especially inclusion of people from small cities and rural areas in projects is significant to positively affect the development of social awareness. Easier access to knowledge, promotion of various types of business models and exchange of experience enables development of small business and farms, which will affect quality of their life.

**Inland waters** - Action is of very soft nature, assuming support for trainings, workshops, knowledge exchange and cooperation between government and non-government institutions and administration of the member states. IN their case, it is necessary to exclude the risk of occurrence of any direct impact on waters, including these of especially negative nature.

**Marine waters**- Similarly to inland waters.

**Air** - Due to soft nature of supported projects, this will not have direct implications on the component analyzed. The least postulated cooperation of entities and institutions, knowledge and experience exchanges may lead to improvement of eco-awareness of citizens from less developed regions of the area, also impacting the attitudes within the scope of air protection. This effect will, on a small scale, accumulate with action taken in eco-education, under other programmes,

**Landscape** - the programme aims at action of social nature. Reinforcement of positions of local community and improvement of relations between public entities and society is related to performance of soft action, not requiring investment solutions. Thus, no impact on the landscape is recognized.

**Monuments** - Due to non-investment nature of proposed action, related mainly to development of relations between society and public entities and also attempts to reinforce the position of

local community and youth in decision making processes, no negative impact on monuments is recognized.

**Climate** - Still, also within the scope of 6 Report on Climate change, IPCC, indicated i the need to build a society aware of current (and future) climate situation on each level of modern society. Thus, indirectly, one might anticipate long-term positive effects of action to educate society and to support integration within administration on supranational forum. This became important in transition of aspects related to climate change from the area of physical science to every-day life, becoming a common problem requiring decisive action on highest levels of international cooperation. It is anticipated, that importance of initiatives reinforcing involvement of authorities and social awareness will increase, binging long-term positive outcome.

Ground surface and natural resources - Exemplary action related to performance of this part of the Programme are oriented towards performance of projects of soft nature without interference in ground surface or natural resources directly or indirectly. Thus, no negative impact on any of these aspect was found.

#### **4.5 Collective summary of impact deriving from Programme objectives**

To visualize and sum up impact identified within the analyzed elements, a collective table ( 4.2) was prepared, presenting a balance of impact on environmental components on the level of action indicated i the Program.

The most important conclusion from the evaluation is that no impact of significantly negative nature was identified, including impacts in the Area of Nature 2000 network under art. 55(2) of EIA, that world requires analysis of factors under art. 34 of the Environment Protection Act.

The evaluation of the nature and significance is dominated by positive impact of different level, whereas identified impact of negative potential is limited to threat of insignificant scale, local and potential, that may be eliminated or alleviated with the use of distinguishing or explanation of records of the Programme or proper formulation of criteria being a basis for selection of applications for project financing.

The balance of impacts in the form of average of evaluation, carried out on the level of component indicates ,that only a positive effects of the Programme should be expected, whereas the most important ones should be experienced by citizens of the region, which is compliant with strategic goals of the process.



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The positive components should impact the quality of inland waters, air quality and adaption to climate change.

Balance of impact carried out on the level of action identifies only a positive nature thereof, whereas it is most favorable in case of the following measures:

- 1.1: Digitizing the region
- 2.2: Promoting sustainable use of water
- 2.3: Supporting a circular and more resource efficient development.

In case of two measures:

- 2.1: Supporting transition towards green energy
- 3.1 Develop sustainable, resilient and innovative tourism.

Potential of occurrence of insignificant local negative impact identified. Thus, a series of recommendations was developed in chapter 5, to eliminate them.

Tab. 4.2 Quantification of nature and significance of impact

PRIORITY	MEASURE	Biodiversity (marine areas)	Biodiversity (costal areas)	People and material goods	Inland waters	Marine waters	Air quality	Landscape	Monuments	Adaptation to climate change	Land area and natural resources
I	1.1	1	1	2	1	1	1	1	1	1	0
	1.2	0	0	1	1	1	1	0	0	0	
II	2.1	-1	-1	2	-1	0	2	-1	1	2	1
	2.2	1	1	2	3	1	0	1	1	1	1
	2.3	1	1	1	2	1	1	1	0	1	2
III	3.1	-1	-1	2	1	-1	1	-1	1	1	0
IV	4.1	0	1	1	0	0	0	0	1	1	0

#### **4.6 Evaluation of possibility of occurrence of cross-border impact on environment due to Programme project**

The goals and priorities indicated in the Programme are strictly related to creation of innovative, sustainable, attractive and active region, that respects the interest of environment and society (citizens and tourists).

Assumptions of the programme include reinforcement of cross-border cooperation. Possible and desired is occurrence of cross-border impact on environment, however, according to detailed evaluation from particular components,, also in holistic evaluation of particular priorities, these will be positive impacts. Small and insignificant negative impact may be related to pilot projects related to energy and improvement in terms of access to tourist infrastructure, however they will be of only local nature. Moreover, they will be carried out in consideration of requirements of environment protection which guarantees that performance thereof will be done with care for natural resources.

In light of the foregoing, it is possible to exclude the risk of occurrence of significant negative cross-border impact on any component of the environment, that would require proceedings on cross-border impact on environment.

## **5 Recommendations of alternative solutions to solutions indicated in the developed document and proposals regarding anticipated methods of analysis of results of assumptions of the developed document**

According to art. 5 of SEA Directive, environmental report (in this case, the Prognosis) should include described and estimated potential significant impact on environment due to performance of the plan or program, and sensible alternative solutions in consideration of goals and geographic range of the document evaluated.

According to the directive, the SEA Report should also contain information that may be sensibly required, in consideration of current knowledge and evaluation methods, content and level of detail of the plan and program, its stage in the decision-making process and scope, within which some cases may be more properly evaluated at various stages of the process to avoid copying the evaluation.

The evaluation of alternative solutions should especially be made in consideration of protection goals for Nature 2000, their integrity and contribution to general cohesion of Nature 2000. Each time, the results of lack of undertaking should be considered. The term of “lack of alternative solutions” means that there are no solutions that would make it possible to reach the assumed goal in other, less harmful to environment, way.

Criteria for alternative variants taken from the European Commission, auxiliary documents and doctrines refer to designed undertakings under EIA procedure and include the following alternative items:

- Undertaking locations,
- Technological and structural solutions of the undertaking
- Course of routes (in case of linear investments)
- Various scales and sizes of investments,
- Schedule and organization of construction works,
- Construction methods, and
- Ways to liquidate the undertaking
- alternative processes.

Strategic documents, especially for such high level of generality as the Program, cannot and should not be subject to such extensive varying. Also, variant evaluation should not cover interventions, for which no significant impact was identified. Thus, alternative variants to

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provision of this Programme were presented on the basis of analyses and evaluations in the SEA Report:

- Recommendations for modification of provisions of the Programme project (alternative variants to the provisions),
- Recommendations (alternative variants) within the scope of project selection criteria, that enable fulfillment of environment protection requirements during their performance.

Such varying enables consideration of conclusions drawn from research and analyses in the final shape of the document evaluated, and hence, improve the level of consideration of the rules of environment protection. Proposals of the authors in this case were presented in chapter 5.1, 5.22, however, the decision regarding introduction of them to the document evaluated will depend finally on the body that develops it.

Thus, a requirement determined by the General Environment Protection Director in the position (DOOŚ-TSOOŚ.411.20.2021.aba from 07/12/2021) that solutions to prevent, limit or compensate for negative impact on environment that may result from performance of the document and also alternative solutions should be adjusted to particular situations they apply to, should be considered.

### **5.1 The analysis of possible alternative variants within the scope of change of Programme provisions resulting from the evaluation of impact on environment**

Recommendation	Explanation
<p><b><i>Programme measure 2.1: Supporting transition towards green energy</i></b></p> <p>The description should precisely indicate locations for RES installations that will be preferred for the support.</p> <p>Proposal of modification of the description of exemplary action in p. 2.3.2:</p> <ul style="list-style-type: none"><li>• developing, demonstrating and implementing green energy solutions in production, distribution and storage of energy from renewable sources (e.g. wave, solar energy, biomass (also for fuel, heating and biogas),</li></ul>	<p>It is suggested to determine criteria, that enable financing of RES installations in developed, industrial areas, excluding or limiting building them in the protected areas and their protected zones as well as within the ecological corridors.</p>

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Recommendation	Explanation
<p>geothermal energy, etc.), while finding a balance with the requirements of environmental protection, <b>especially according to the network of protected areas and ecological corridors, as well as other</b> laws (e.g. MSFD).</p>	
<p><b><i>Programme measure 3.1 Development of sustainable, resilient and innovative tourism</i></b></p> <p>Precise description of significance of the term “sustainable tourism” in consideration of the principles and goals determined by UNEP and WTO in: „MAKING TOURISM MORE SUSTAINABLE - A Guide for Policy Makers”</p> <p>Proposal for modification of p. 2.6.2:</p> <p>In this measure the emphasis on sustainable tourism development that should be understood <b>considering the rules and goals as determined by UNEP and WTO in: „MAKING TOURISM MORE SUSTAINABLE - A Guide for Policy Makers, so mainly:</b></p> <ul style="list-style-type: none"> <li>• reducing the negative impact of travel and tourism on the natural environment with conducting projects aimed at preserving biodiversity, protecting the area’s rich and diverse natural (as well as cultural) offers, and a sustainable use of resources such as energy and water,</li> <li>• meeting the needs of potential tourists without compromising the needs of the citizens.</li> </ul>	<p>Increase in tourist traffic can contribute to depending of the pressure on SBA area. Thus, in the action 3.1. Precise description of significance of the term “sustainable tourism” is suggested in consideration of the principles and goals determined by UNEP and WTO in: „MAKING TOURISM MORE SUSTAINABLE - A Guide for Policy Makers”.</p> <p>In the referred development in 3 areas the following goals for sustainable tourism were defined:</p> <p>The aims of sustainable tourism of UNWTO in protection of natural environment and landscape</p> <p>Physical integrity - it is necessary to maintain and protect the quality of landscapes, urban and rural, avoid physical and visual degradation of the environment.</p> <p>Biological diversity - it is necessary to support protection of natural precious areas, habitats and species and minimize negative impact on nature.</p> <p>Effectiveness in use of natural resources - it is necessary to minimize the use of rare and non-renewable resources, both in development and current operation of tourist infrastructure and services.</p> <p>Environment cleanliness - it is necessary to minimize pollution of air, waters, soil and waste production by tourism enterprises and visitors.</p>

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Recommendation	Explanation
	<p>The aims of UNWTO sustainable tourism in protection of local cultures and social structures and visitor satisfaction.</p> <p>Visitor satisfaction - it is necessary to provide safe and satisfactory experience to the visitors regardless of age, race, sex, disability etc.</p> <p>Local control - it is necessary to involve and reinforce local communities in planning and decision making regarding management and development of tourism in their place of residence, in consultation with other parties concerned.</p> <p>Cultural richness - it is necessary to respect and protect historic heritage, authenticity of local culture, traditions and differences of home communities.</p> <p>Community well-being - it is necessary to maintain or improve the quality of life of accepting communities according to social structure resource availability, facilities and ecological systems supporting life with avoidance of any forms of social degradation and exploration.</p> <p>The UNWTO sustainable tourism goals in supporting the local economic development</p> <p>Economic realism - it is necessary to provide competitiveness of tourism enterprises to provide durability of their operation in the market and long-term profitability.</p> <p>Local prosperity - it is necessary to increase the share of tourism in prosperity of tourist reception, including expenditures that visitors bear locally.</p> <p>Employment quality - it is necessary to reinforce the number and quality of work places in tourism,</p>

Recommendation	Explanation
	<p>including the level of wages, working conditions and availability to all, regardless of sex, race, disability, etc.</p> <p>Social equality - it is necessary to search for a new distribution of benefits from tourism within local communities, in consideration of possibilities, income and services for the poorest members thereof.</p>
<p><b>Programme measure 3.1 Development of sustainable, resilient and innovative tourism</b></p> <p>More precise rules and manner of inclusion of protected areas in the network and chain of tourist offer -</p> <p>Proposal of modification of the description of exemplary action in p. 2.6.2:</p> <ul style="list-style-type: none"> <li>inclusion of cultural heritage sites and protected areas <b>already available to tourists</b> in the networks and chains of eco-tourism,</li> </ul>	<p>In the action 3.1, it is necessary to clarify the manner of inclusion of protected areas in the network and chains of tourist offer. Does it have to be one promotion or tourist information on protected areas already available or making available new ones, through e.g. Construction of new infrastructure and tourist back-office.</p> <p>The second case may lead to negative impact and would require proper provisions to secure the interest of environment and nature protection in these areas. In case of development of networks and chains of tourism, especially in protected areas, it should be considered that the scale effect may lead to faster degradation thereof.</p>

## 5.2 Analysis of possible alternative options within the scope of project selection criteria that would allow for fulfillment of requirements on environment protection at the stage of performance

According to the introduction to the chapter, the analysis of alternative variants in case of the document of a high level of generality and without indications of particular projects of their location is practically impossible. According to the methodology adopted, it was assumed that in case the evaluation of impact is based on the method of policy evaluations, it is necessary to consider which solutions may apply to implement the Programme so that its overall impact on environment is positive (with possible maximization and desired environmental impact) It was assumed that the most important thing during implementation of the Programme will be to make sure that the manner of selection of project to be financed enables fulfillment of superior goals of environment protection at the stage of performance. The alternative variant, to which it is



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possible to make effort, is also rewarding projects the biggest climate and environmental positive impact will be the highest.

Considering goals and directions for development as indicated in the documents described in the chapter 2, it is necessary to implement mechanisms that enable transformation towards more sustainable, neutral for climate and environment and hence competitive economy. It is also necessary to propose mechanisms that enable fulfillment of sustainable development in the context of environment.

In light of the foregoing, it is just to adopt, within the scope of the program, horizontal criteria referring to environmental and climate aspects. Similar approach was applied in majority of operational programmes. Horizontal nature applied to criteria for access (formal assessment). Also, various criteria were applied that refer to environmental and climate aspects, efficiency of which (selectivity) depended on the level of detailedness of description. Criteria, in which precise conditions for range, scale and strength of impact were not formulated, were not very selective, and hence of limited functionality.

Some projects, under the Program, may constitute pilot and investment activity (e.g. Within the scope of building the tourist offer, renewable energy). For this project, it is recommended to apply criteria that assure that their performance will not be associated with generating significant damage to environment, according to the approach formulated in the regulation of the European Parliament and Council EU No 2020/852 from June 18, 2020. The assumption was adopted that the guarantee of performance of sustainable development in environment is on one hand fulfillment of basic conditions not to harm significantly for environmental goals determined in the regulation (DNDH) on the other hand, effort towards maximization of share in projects that contribute significantly to performance of environmental goals. A decision was made to recommend such approach, since the regulation (in appendices) introduces detailed criteria, including measurable, technical, enabling for verification of impact of undertakings on the environment, both in negative and positive way, and hence, objective verification of fulfillment of sustainable development in environment.

The proposed criteria system enables, on one hand, identification of undertakings, that may significantly and negatively impact the environment and climate, and on the other hand, undertakings that may contribute to alleviate the climate change, adaptation to climate change, balanced use and protection of aquatic and marine resources, transition to closed-circuit economy, prevention of pollution and its control, and protection and restoration of biodiversity and ecosystems. The proposed criteria system refers to key components as determined under art. 51(2) of the EIA Act, and at the same time, to a very broad catalog of undertakings. It might

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be expected that in following years it will become a standard that will be successively improved and developed. Moreover, the criteria system is oriented towards reaching goals determined in the European Green Deal document.

Although according to carried out analysis, majority of assumptions of the Programme will be of non-investment nature. For such projects no negative impacts are expected, however the so called soft project may be characterized by significant direct impact if they support (condition, contribute to or enable) performance of environmental goals in other areas of activity (e.g. Areas directly associated with performance of the undertaking)

**The proposal of introduction of the rule to finance projects that do not significantly harm under art. 17 of the regulation (EU) 2020/852 (regulation on taxonomy) „Do No Significant Harm” (DNSH)]<sup>85</sup>.**

On June 18, 2020 the European Parliament and the EU Council adopted the regulation 2020/852 on establishment of framework regarding sustainable investment, amending the regulation (EU) 2019/2088. The Regulation is an answer to call of the EC to create on the Union level, a technically reliable classification system to ensure clarity of which business qualifies as “ecological” or “sustainable”.

The regulation determines systemic nature of global environmental challenges and indicates the need of systematic and perspective-oriented approach towards environmental balance, that considers the development of negative tendencies, such as climate change, loss of biodiversity, excessive use of resources on a world scale, food deficiency, degradation of ozone layer, acidification of oceans, deterioration of fresh water system and changes in soil use, as well as occurrence of new hazards, including hazardous chemical substances and their combined effects.

In essence, the regulation applies to financial market participants. However, DNSH principle within the meaning of the Art. 17 is reflected in the Regulations of the European Parliament and of the Council (EU) on EU funds, adopted on June 24, 2021:

- Regulation (EU) 2021/1058 of the European Parliament and of the Council of 24 June 2021 on the European Regional Development Fund and the Cohesion Fund in the preamble, point 6, indicates that the objectives of the ERDF and the Cohesion Fund should be achieved in a

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<sup>85</sup> The proposal refers to investment projects

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sustainable manner. development and in line with the objective of preserving, protecting and improving the quality of the environment promoted by the Union (...), Both funds should support activities that respect the climate and environmental standards and priorities of the Union and do no significant harm to the environmental objectives within the meaning of Article 17 of Regulation (EU) 2020/852 of the European Parliament and of the Council and that ensure the transition towards a low-carbon economy in the pathway to achieve climate neutrality by 2050.

- Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 laying down common provisions on the Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and the European Maritime, Fisheries and Aquaculture Fund, and also the financial provisions for these funds and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Financial Support Facility for Border Management and Visa Policy in point 10 of the preamble indicate that the Funds should support activities that would be carried out in compliance with the standards and the priorities of the Union in the field of climate and environment and which would not seriously harm the environmental objectives within the meaning of Art. 17 of Regulation (EU) 2020/852 of the European Parliament and of the Council. In addition, in Article 9, it indicates that the objectives of the funds are implemented in accordance with the objective of supporting sustainable development, as defined in Art. 11 TFEU, and taking into account the United Nations Sustainable Development Goals, as well as the Paris Agreement and the "do not do serious harm" principle.

- Regulation (EU) 2021/1059 of the European Parliament and of the Council of 24 June 2021 on specific provisions for the European territorial cooperation goal (Interreg) supported by the European Regional Development Fund and external financing instruments direct reference to Art. 17 of Regulation (EU) 2020/852 was introduced to point 5 of the preamble: "Reflecting the importance of tackling climate change in line with the Union's commitments to implement the Paris Agreement adopted under the United Nations Framework Convention on Climate Change and to achieve the United Nations Sustainable Development Goals, the Funds will contribute to mainstream climate actions and to the achievement of an overall target of 30 % of Union budget expenditure supporting climate objectives. In that context the Funds should support activities that respect the climate and environmental standards and that would do no significant harm to environmental objectives within the meaning of Article 17 of Regulation (EU) 2020/852 of the European Parliament and of the Council".

Thus, taking into account the content of the above-mentioned regulations, it is certain that in the financial perspective 2021-2027 the application of the DNSH principle within the meaning of Art. 17 of the Taxonomy Regulation will be a mandatory requirement for projects financed under the

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INTERREG Programs in the 2021-2027 perspective, and will also apply to subjects willing to apply for support under the Program.

The assumptions to implement, on the project evaluation level, the “do not make significant harm” rule under art/ 17 of the regulation (EU) 2020/852

According to art. 9 of regulation (EU) 2020/852 (hereinafter the regulation), six environmental goals were set that were significant for the community. These are:

- 1) Alleviation of climate change;
- 2) Adaptation to climate change;
- 2) Sustainable use and protection of water and maritime resources;
- 4) Transition to closed-circuit economy;
- 5) Preventing pollution and control thereof;
- 6) Protection and renovation of biodiversity and ecosystems.

These goals directly correspond to the environmental goals (see chapter 2.2).

The regulation in art. 17 refers to the “do not make significant harm” rule, indicating the criteria when a particular business activity (project that may be financed under the Program) is considered to be making significant harm:

- In the area of alleviation of climate change, in case such activities leads to significant greenhouse gas emission;
- In the area of adaptation to climate change, if such activity leads to increase of unfavorable existing and future outcome, future climate conditions, exerted on this activity or on people, nature or assets
- In the area of sustainable use and protection of marine and aquatic resources, if such activity harms:
  - Good condition or good ecological potential of homogeneous parts of waters, including surface waters and underground waters; or
  - Good condition of marine water environment;
- In the area of closed-circuit economy, including prevention of precipitation and recycling, if:
  - Such activity leads to significant lack of effectiveness in using materials or direct or indirect use of natural resources such as non-renewable energy sources, raw materials, water and soils, at least one of the stages of product life, including according to durability of products and ability to repair, improve, or reuse or recycle products;
  - Activity leads to significant increase in production, burning or treating waste, except for burning hazardous wastes that are not recyclable; or

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- Long-term storage of waste may significantly and in a long-term harm the environment;
- In the area of prevention of pollution and its control, if such activity leads to significant increase in emission of pollution to the air, water or ground compared to situation prior to commencement of such activity;
- Within the scope of protection and restoration of biodiversity and ecosystems, if such activity:
  - Significantly harms a good condition and resistance of ecosystems; or
  - Is harmful to preservation of habitats and species, including habitats and species in the interest of the Union.

The beneficiary should refer to these criteria at the stage of application proving, that project subject to application does not require the above-mentioned “negative” criteria. **If a project did meet any of these criteria, this would mean that it could significantly harm (not meet the DNSH criteria) - even if it was accepted for performance by national legislation, it should not be financed from public funds.**

The appendices to the regulation (EU) 2020/852 determine (or will be determined) the detailed conditions (the so called technical criteria) that should be fulfilled in case of various undertakings, so that it is possible to admit that the DNSH rule is followed. They should be the point of reference for both subject preparing the undertaking and people that evaluate these projects.

IN light of the foregoing, it is proposed to supplement the application for funding with statement regarding compliance of the project with the “do not significantly harm” rule”.

**The assumptions regarding the requirement of compliance of the project with the “do not significantly harm” rule - the stage of formal evaluation (formal and administrative evaluation sheet)**

Preliminary proposal of the beneficiary statement:

The statement regarding compliance of the project with the “do not significantly harm” under art. 17 of the Regulation (EU) 2020/852 (regulation on taxonomy) „Do No Significant Harm” (DNSH)].

**Notice: In evaluation, considered are environmental outcome of the activity itself, and impact that the product and service provided will have on environment within the scope of this activity during the entire life cycle, especially in consideration of production, use and conclusion of life of these products and services.**

I hereby declare that delivery of the project does not lead to significant emission of greenhouse gas;

YES/NO

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I hereby declare that delivery of the project does not lead to increase in unfavorable results of current and anticipated, future climate conditions, exerted on this activity or humans, nature or assets	YES/NO
I hereby declare that the project does not harm: <ul style="list-style-type: none"> <li>• Good condition or good ecological potential of homogeneous parts of waters, including surface waters and underground waters,</li> <li>• Good condition of marine water environment;</li> </ul>	YES/NO
I hereby declare that the project does not lead to: <ul style="list-style-type: none"> <li>• significant lack of effectiveness in using materials or direct or indirect use of natural resources such as non-renewable energy sources, raw materials, water and soils, at at least one of the stages of product life, including according to durability of products and ability to repair, improve, or reuse or recycle products;</li> <li>• significant increase in production, burning or treating waste, except for burning hazardous wastes that are not recyclable;</li> <li>• Long-term storage of waste may significantly and in a long-term manner harm the environment;</li> </ul>	YES/NO
I hereby declare that this project does not lead to significant increase in emission of pollutions to air, water or ground compared to the situation prior to commencement of the project	YES/NO
I hereby declare that this project <ul style="list-style-type: none"> <li>• Does not harm (significantly) a good condition or resistance of ecosystems</li> <li>• Is harmful to preservation of habitats and species, including habitats and species in the interest of the European Union.</li> </ul>	YES/NO

The requirement of the above-mentioned statement should be verified at the stage of formal evaluation and apply to all investment projects, financed from the Programme funds. Due to necessity to apply the simplest rules for expenditure and calculation of the funds within this type of projects, verification of the DNSH rule may come in the form of a statement. However, it is recommended to develop auxiliary materials for beneficiaries, which will enable submission of the statement without the need to refer to detailed technical criteria, constituting the appendix to the Regulation (EU) 2020/852. It is possible, that the DNSH rule will apply to more Union programmes and one handbook will be developed.

**The proposal to award projects (at the stage of evaluation) within positive impact on environment and climate**

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The assumptions regarding awarding projects at the stage of evaluation refer to introduction of additional points for projects that:

- Significantly contribute to reaching environmental goals, significant for the community
- Minimize current pressures of tourism on environment

Awarding projects that significantly contribute to performance of environmental goals as determined in art. 9 of the Regulation (EU) 2020/852, namely meet the conditions as determined in art. 10 -15 of this regulation.

In art. 10 - 15 of the regulation 2020/852 determined were conditions of qualification of business activity according to significant contribution to:

- Alleviation of climate change
- Adaptation to climate change
- Sustainable use and protection of water and maritime resources
- Transition to closed-circuit economy
- Preventing pollution and control thereof
- Protection and renovation of biodiversity and ecosystems.

This may constitute auxiliary evaluation criteria for projects submitted for financing, in consideration of the fact that at the same time they do not significantly harm any of the remaining environmental goals.

**The Programme should adopt the horizontal rule of maximization of impact on performance of environmental and climate goals of the European Union, as determined in the European Green Deal document.** Thus, within the scope of evaluation of the content, it is suggested to awards these projects that significantly contribute to one of the six environmental goals, as determined in the regulation 2020/852/

**Notice! Evaluation of contribution to performance of environmental goals is related also to non-investment projects, if they support (condition, contribute to or enable) performance of environmental goals in other areas of activity (e.g. In areas directly related to performance of the undertaking). This should be stressed in information materials for beneficiaries.** In evaluation of contribution of the undertaking in performance of the environmental goals, the beneficiaries should consider both direct environmental outcome of the undertaking and impact that the products and service provided under this activity will have on the environment during their entire life cycle. Application of such approach may be significant in relation to projects related to advising and e.g. Development of common strategies regarding climate challenge or blue and green infrastructure.

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The criteria proposed should be verified at the stage of content evaluation and be of facultative nature, i.e., enable additional points for the project that significantly contributes to performance of environmental goals as indicated in art. 9, under art. 10 - 16 of the Regulation (EU) 2020/852. At the current stage of the SEA Report, the weight this element should have in the overall evaluation is not determined. **The weight should be selected so that it is not an obstacle for performance of valuable projects that, due to their nature, do not present contribution to performance of any of the goals determines under art. 9 of the regulation.**

The adopted point weight should be a motivation for the beneficiaries to design their interventions submitted for funding under the Programme better. The point of reference should be factors, as determined under art. 10 - 16 of the Regulation (EU) 2020/852 - as well as detailed factors for various types of business activity (technical criteria) determined in appendices to the regulation (upon their publication). According to the assumptions, the technical criteria, that will be defined in appendices to the Regulation (EU) 2020/852 are to be a simple tools, enabling objective evaluation of the impact of undertakings on the environment, including the evaluation of significant contribution to performance of environmental goals, as well as evaluation of compliance with the previously described DNSH rule.

### **Criteria specific for the Priority III of the Programme - awarding projects, that minimize identified pressures in tourism**

According to the diagnosis and evaluation of impact of the Priority III( action 3.1 Development of sustainable, resilient and innovative tourism), financial interventions that are to develop and promote tourism (also sustainable) may increase (accumulate) the overall pressure on the environment that is currently observed due to development of tourism. The coastal areas are especially vulnerable to pressure related to tourism and leisure. In the Program, it was observed and stressed by indicating that “this action puts stress on sustainable development of tourism, that is to be understood in two ways:

- reduction of negative impact of tourism on natural environment due to introduction of project to preserve biodiversity, protection of rich and diverse natural offers (and cultural offers) in this area and sustainable use of resources such as energy and water.
- satisfying the demand of potential tourists without any damage to the needs of citizens of the region”.

The above translates directly to the exemplary activities indicated in the Program. Thus, it is suggested that the terms and conditions for selection of projects include awarding projects, the aim of which is to reduce the negative impact of tourism and travelling on natural environment to increase their chance for funding. Thus, it is suggested that the application for funding includes



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the question: “Does the project contribute directly to reduction of current negative impact of travelling and tourism on natural environment?”. In case the applicant confirms such activity, he/she should be obliged to indicate the pressure on the environment (current) that he/she will reduce. As far as possible, the applicants should be obliged to precisely determined bot the type of pressure to be minimized and a scale in which the project will contribute to improvement of the environment.. The above should be subject to verification at the stage of content evaluation. I should be explained in the beneficiary handbook how this criteria is evaluated.

The point weight should be selects so that it is not an obstacle in performing other valuable projects -at the same time, the adopted point weight should be an additional motivation for beneficiaries to submit applications for performance of these types of projects.

### **5.3 Proposals regarding the manner of monitoring of impact on environment resulting from performance of the Programme objectives**

One of recommendations resulting from this document is adaptation of obligatory tulle that the Programme will not support undertakings that may significantly harm environmental goals under art. 17 of the Regulation (EU) 2020/852. At the same time, according to the environmental and climate in all financial instruments from EU funds, effort should be made so that some of Union funds are directed at performance of environmental and climate goals 86. Thus, the catalog of indicators monitored on the level of the entire program, inclusion of the following indicators is proposed:

Item	Indicator	Indicator description	Meas. unit	Direct value [2024]	Target value [2029]
1.	Number of financed projects compliant with the DNSH rule under art. 17 of the Regulation (EU) 2020/852.	To the indicator value added are all projects supported under the Program, that meet the “do not significantly harm” rule Under art. 17 of the Regulation (EU) 2020/852.	pcs.		It should correspond to the analogical values adopted for the indicator regarding number of projects to be funded under the Program.

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<sup>86</sup> Such approach results from the provisions of the European Green Deal

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Item	Indicator	Indicator description	Meas. unit	Direct value [2024]	Target value [2029]
2.	The percentage of funds directly for performance of projects, that significantly contribute to performance of environmental goals as determined under art. 9 of the regulation (EU) 2020/852	To the value of the indicator, calculated should be the share of EU funds spent under the Program, for performance of projects that significantly contribute to performance of the environmental goals as determined in art. 9 of the Regulation (EU) 2020/852, namely they meet the requirements under art. 10-15 of this Regulation with respect to funds for performance of all projects under the Program	%		
3.	The percentage of funds directly for performance of projects, that minimize current pressures resulting from development of tourism in the South Baltic area.	To the value of the indicator calculated should be the share of EU funds under the Program, for performance of projects, that assume minimization of current pressures resulting from the development of tourism and obtained points under the adopted additional criteria referred to in chapter 5.2.	%		

Inclusion of the first indicated will guarantee that no projects will be funded under the Programme that may significantly harm, and at the same time, will not be a threat to performance of environmental goals under art. 17 of the Regulation (EU) 2020/852. In case of adoption of the horizontal rule that specifies that under the programme only projects compliant with DNSH rule will be funded, there will be no need to monitor the indicator on the Programme level. This indicator should be monitored in relation to all projects supported under the Program.

Another indicator will enable monitoring of contribution of the Programme in performance of the goals related to environment protection and climate. Controlling this indicator will enable reacting, when performance of the assumed indicator level will be threatened. Considering ambitious goals of the Community, as indicated in the EGD, efforts should be made to maximize

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this indicator (e.g. Through proper selection of weight for horizontal criteria referring to contribution of project to performance of environmental and climate goals). This indicator should be monitored in relation to all projects selected through competition.

The third indicator makes it possible to conduct ongoing monitoring of contribution of the Programme to minimization of pressures resulting from tourism development in the area.

Efforts should be made to improve programmes funded from EU funds in terms of limitation of risk of negative impact on environment as well as maximization of positive impact on environment and performance of environmental and climate goals. Moreover, due to proposed rule of awarding projects that may significantly contribute to performance of at least one of environmental goals as determined in art. 9 under art. 10-16 of the Regulation (EU) 202/852, it is recommended to monitor their share of projects. Due to the foregoing, the catalog of indicators monitored at the stage of programme implementation (e.g. Indicators monitored on the level of detailed description of priorities) should be extended by the following indicators:

Item	Indicator	Indicator description	Measuring units
	Number of project that significantly contribute to performance of environmental goals.	To the value of the indicator, calculated should be projects supported under the Program, that significant contribute to performance of environmental goals as determined in art. 9 of the Regulation (EU) 2020/852, namely they fulfill at least one condition under art. 10-15 of the regulation, which means additional points under at least one horizontal criterium regarding significant contribution to performance of environmental goals.	pcs.
	Number of projects that minimize current pressures resulting from development of tourism in the South Baltic area.	To the indicator value, calculated should be all project supported under the Program, that minimize the existing pressures resulting from the development of tourism in the area and obtained points from the adopted additional criteria.	pcs.

Implementation of the proposed system should be based on assigning, in the IT system, proper indicators to these project, for which the applicants declared significant contribution to performance of environmental goals, namely these that gained additional points under the

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environmental criterium proposed above. Selection of the indicator would mean awarding additional points under proper criterium regarding significant contribution in performance of environmental goals. Mentioned indicators should be monitored evenly in all projects selected under the competition.

Implementation of the proposed **system may bring many additional benefits**. Assigning indicators to projects that contribute to performance of environmental goals enabling gaining information (on the basis of data monitored in the IT system\_ regarding e.g. value of EU funds for performance of undertakings contributing significantly to performance of environmental and climate goals as a result of performance of this type of project.

Proposed indicators will make it possible to constantly monitor the results of the Programme, and also to make a detailed evaluation of impact of the Programme on performance of environmental and climate goals of the Community at the stage of periodic and final evaluation of the Programme.

**It is additionally recommended to test the proposed indicators and their potential correction after first selections. It is necessary also to prepare the handbook for beneficiaries and people that evaluate projects, that will determine the manner of verification of the DNSH rule and will include the synthesis of appendices to the Regulation (EU) 2020/852, optimally adjusted to the specifics of types of financial undertakings from Programme funds.**

### **5.4 Summary of possible change of environment condition in case of failure to perform the Programme objectives**

Evaluation of current condition of particular components of the environment and potential change within them due to performance of Programme objectives was presented in detail in chapter 3 and 4 of the SEA Report.

Detailed analyses showed that performance of the Programme objectives will be associated with a significant advantage of positive impact in social, environmental and economic area. Identified impact of negative potential are characterized, however, by a local scale and low significance. Moreover, it is possible to minimize them or completely avoid them through suggestion , in chapter 5.2 of more details to the provisions that eliminate activities identified as posing a risk of generating local negative impact. Another way to exclude them is also selection of projects based on environmental criteria, as suggested in p. 5.2. Thus, withdrawal from performance of the Programme will not be related to reduction of impact of negative nature. It is necessary to stress

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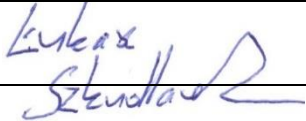

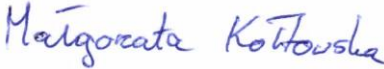
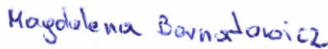









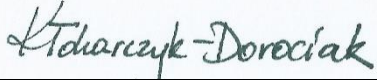

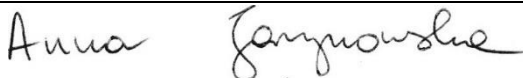
the fact of lack of occurrence of anticipated positive impact in all evaluated components of the environment.

During the variant zero analysis (situation, when cross-border cooperation is not supported from union funds) one should expect hindering of anticipated positive impact that would result from ability to perform projects together, within the scope of South Baltic regions and the Baltic Sea itself that is the center of the area. Activities anticipated for support based on developing common strategies and action frame work, especially regarding environmental and climate issues, will contribute to cohesion and systemization of activities so needed to improve the condition of the South Baltic area, that faces a series of the above-mentioned issues. Moreover, cooperation of the countries of the region that is subject to funding, will lead to equalization of disproportions in relation to their social and economic development, which is significant in the context of efforts towards performance of the goals of sustainable development. The amount of allocation of the Program, approx. 83 mil EUR, excludes crucial impact on development of the region countries, however the lack of the same would weaken the potential positive impact.

To sum up, considering the series of anticipated positive impacts due to performance of the Programme for 2021-2027, and also significant positive impact of implementation of the Programme in previous periods, it should be stated that withdrawal from its development would negatively impact the support area in all dimensions of sustainable development.

## 6 Authors, appendices and source materials

### 6.1 List of authors

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## 6.2 Appendices

*Appendix 1 - Analysis of case studies*

*Appendix 2 - Non-technical summary*

*Appendix 3 - Author's statement*

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## Analysis of case studies

Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
OP 1 Innovative South Baltic - increase of level of innovation and internationalization of local subjects				
1	<p><b>INTERMARE South Baltic</b>  <u>Internationalization of marine economy of South Baltic</u></p> <p>The project involved reinforcement of international cooperation Activities of small and medium enterprises in “blue” economy of the South Baltic. The aim was to increase the share of marine economy on international markets, especially regarding improvement of competitiveness and implementation of new technologies.</p>	<p><b>Project conclusion: 06/30/2021</b>  <b>Effect:</b> Due to activities performed, an analysis of current offer and potential of companies from the marine economy of South Baltic was performed. Thus, a database of marine economy was developed at: <a href="https://db.intermare-southbaltic.eu/">https://db.intermare-southbaltic.eu/</a> . The website enables more effective information exchange and cooperation of companies from this industry. Moreover, under the program, a trade event was created called INTERMARE South Baltic, dedicated to small and medium companies from the Baltic Sea region.</p>	<p>Programme Action 1.2: Development of connection of the region through internationalization (all exemplary action)</p>	<p>On the basis of effects of the project, it is possible to observe a positive impact on development of digitization of marine economy (optimization of enterprise and company databases; easier cooperation, also cross-border). It might be assumed that a similar protect performed on such scale will positively affect development of this sector.</p>
2	<p><b>ELMAR</b>  <u>Supporting MŚP of South Baltic in entering the international chains of supply and sales</u></p>	<p><b>Project conclusion: Monday, August 16, 2021</b>  <b>Effect:</b> Due to performance of the project, a series of seminars promotion knowledge on construction and activities of electrically-driven boats was organized. Additionally, a website made it possible to promote modernization activities (exchange of traditional drive</p>	<p><b>Programme action 1.1 and 1.2</b>            Development of connection of the region through</p>	<p>Activities under the project were mainly soft, oriented towards promotion of MŚP and sales of</p>

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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
	<p><u>markets of boats and ships with electric drive.</u></p> <p>The aim of the project was to support small and medium enterprises (MŚP) in developing the international sales of boats and ships with electric drive. The activities under the programme involved, i.e., development of knowledge on e-mobility, international exchange of experience in construction and activities of electrically-driven boats and help for companies covered by the programme in organization of promotional events for products and services in the South Baltic region.</p>	<p>to no-emission) of vessels and companies from the industry of water mobility electric network.</p>	<p>internationalization <u>Exemplary action:</u> Promotion cross-border solutions in digitization in marine sector; knowledge transfer and exchange of best practices within the scope of technical standards between regions; cross-border cooperation between MŚP do create innovative solutions in marine sector; development and promotion on international markets of common solutions, products and services</p>	<p>electrical boats and ships. No significant direct negative impact on environment under these initiatives was recognized. Thus, it might be stated, that similar activities under the project of similar scope will not significantly impact any of the components of the environment.</p>
<p>OP 2 Sustainable South Baltic - promotion of sustainable development and blue and green economy</p>				
3	<p><b>InnoAquaTech</b> <u>Cross-border development and</u></p>	<p><b>Project conclusion: Sunday, June 30, 2019</b> <b>Effect:</b> The research enabled development of a tool making it possible to configure the aquaculture system according to the</p>	<p><b>Programme Action 2.2:</b> Promotion</p>	<p>Research under the project was carried out at</p>

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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
	<p><u>transfer of innovative and sustainable technologies in aquaculture</u></p> <p>The aim of the project was to develop and introduce innovative solutions in aquaculture. Due to planned activities, cross-border development and exchange of knowledge and experience in sustainable aquaculture was assumed.</p>	<p>needs and simulate its efficiency, with a stress on amount of resource consumption and exploitation costs (<a href="http://aquaculture.teknologisk.dk/">http://aquaculture.teknologisk.dk/</a>). Moreover, the cross-border cooperation made it possible to create a South Baltic Aquaculture Alliance.</p>	<p>sustainable water consumption <u>Exemplary action:</u> promotion of areas of common cooperation regarding aquaculture reinforcement,</p>	<p>universities and in small and medium enterprises oriented towards fish production. It might be assumed, that a similar project related to support and development of aquaculture will not negatively impact the environment.</p>
4	<p><b>Morpheus</b> <u>Model areas for removing pharmaceuticals in the South Baltic Area</u></p> <p>Under the MORPHEUS program, three Swedish waste treatment plants were evaluated according to releasing waters with</p>	<p><b>Project conclusion: December 2019</b> Effect: The result of action was development of guidelines regarding reduction of chemical burden for waters released from waste plants. The knowledge gained and good practices make the target groups aware of the pharmaceuticals released to the Baltic Sea, which in a long-term perspective may contribute to improvement of water quality in the Baltic Sea.</p>	<p><b>Programme Action 2.2:</b> Promotion sustainable water consumption <u>Exemplary action:</u> action based on building potential, knowledge transfer and exchange of best practices in marine economy and collection and</p>	<p>Similar projects, oriented towards building potential and knowledge exchange and current experience may support implementation of good practices and positively affect</p>

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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
	<p>pharmaceuticals into rivers. The aim was to collect information about presence of pharmaceuticals in treated waters and develop solutions to select the most optimal treatment technology.</p>		<p>treatment of waste.</p>	<p>minimization of concentration of pollution in waters released to the region rivers, and to the Baltic Sea.</p>
<p>5</p>	<p><b>SEAPLANS</b>  <u>Arine instruments of spatial planning for sustainable management of marine areas</u></p> <p>The aim of the project was to develop marine area development plans based on analysis of various activities performed on sea.</p>	<p><b>Project conclusion: Friday, June 30, 2017</b>  <b>Effect:</b> Within the project, a series of trainings and workshops on sustainable development of marine economy was organized. Cooperation with research facilities, enterprises and administrative bodies to develop common standards, enabled sharing good practices to implement spatial planning for marine areas. This enabled improvement of qualification of employees who deal with various marine economy branches.</p>	<p>Programme action 2.2 Promotion of sustainable water use                      Exemplary action: common development of solutions that support securing various contradictory manners of using waters for the public interest; development and testing common cross-border standards in marine economy by public authorities in</p>	<p>The project involved soft activities not directly impacting the environment, however, this may indirectly lead to improvement of condition of some components of the environment due to increase in competences of managing bodies and enterprises, activities of which are strictly related to use of marine resources. It might be</p>

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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
			cooperation with universities, research facilities, enterprises	assumed that similar project on similar scale will not negatively impact any of the components of the environment, but it may have some positive impact.
6	<p><b>WASTEMAN</b>  <u>Integrated Sustainable Waste Management Systems reduction release of pollution in the South Baltic Area</u></p> <p>The aim of the project is to introduce changes in the municipal waste management sector through promotion of closed-circuit economy, recycling and sustainable use of resources.</p>	<p><b>Project conclusion: Thursday, June 30, 2022</b>  <b>Effect:</b> Activities within the project are still carried out To perform the objectives, a handbook of WASTEMANG design was developed, including guidelines to co-design systems for sustainable waste management and also application that simplifies recycling of municipal waste.</p>	<p><b>Programme Action 2.3:</b>  Supporting closed-circuit and resource-saving development.  <u>Exemplary action:</u>  Organizing promotional campaigns and promotion of knowledge in waste management to make it easier to transition to closed-circuit economy.</p>	<p>It is a soft activity. It is based mainly on campaigns, creating recommendations and promotion recycling and closed-circuit economy. It might be assumed that similar activities will not directly impact any components of environment, but they may have positive and indirect impact through increase in knowledge and</p>



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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
				awareness on ecological business and social awareness.
OP 3 Attractive South Baltic - activation of tourism potential of the South Baltic Area.				
7	<p><b><u>Biking South Baltic! Promotion and development of the Baltic Bicycle Route (Route 10) in Denmark, Germany, Lithuania, Poland, and Sweden</u></b></p> <p>The project involved construction of bicycle routes in accordance with the rules of environment protection and minimization of anthropogenic pressure related to growing number of tourists.</p>	<p><b>Project conclusion: Tuesday, December 31, 2019</b></p> <p>Effect: The research carried out (<a href="https://southbaltic.eu/documents/18165/434178/Del.+3.1+Biking+South+Baltic+Survey+Results.pdf/61f0d9dd-a441-4748-a5e0-db594a2a8997">https://southbaltic.eu/documents/18165/434178/Del.+3.1+Biking+South+Baltic+Survey+Results.pdf/61f0d9dd-a441-4748-a5e0-db594a2a8997</a> ) showed a high interest in newly created bicycle routes. There has been an increase in number of tourists that use local services (accommodation, gastronomy) which positively impacted the development of this sector.</p>	<p>Programme Action 3.1 Development of sustainable, resilient and innovative tourism</p> <p><b>Exemplary action:</b> Performance of new tourism offers, that promote sustainable tourism and satisfies the recreational needs for both tourists and region citizens.</p>	<p>The statistical research show positive impact on tourism development in the region with minimal or complete lack of negative impact on environment. Thus, a similar impact may be expected in case of similar projects.</p>
8	<p><b><u>ArcheoBalt Building stable foundations for innovative archeotourism - new "green" Archeoroute in South Baltic Area region.</u></b></p>	<p><b>Project conclusion: Wednesday, June 30, 2021</b></p> <p>Effect: As a result, it was possible to extend the archeotourism offer of the regions. A series of trainings on archeology and creative economy was organized. A Facebook page and YouTube channel were created to promote knowledge on archeology and archeotourism in South Baltic region. Also, family picnics and festivities related to this topic are organized. The result is increase</p>	<p>Programme Action 3.1 Development of sustainable, resilient and innovative tourism</p> <p><b>Exemplary action:</b> Projects aiming at preserving the</p>	<p>For the most part, it is a soft project on a small scale. No possibility of occurrence of negative impact on environment is recognized. One</p>

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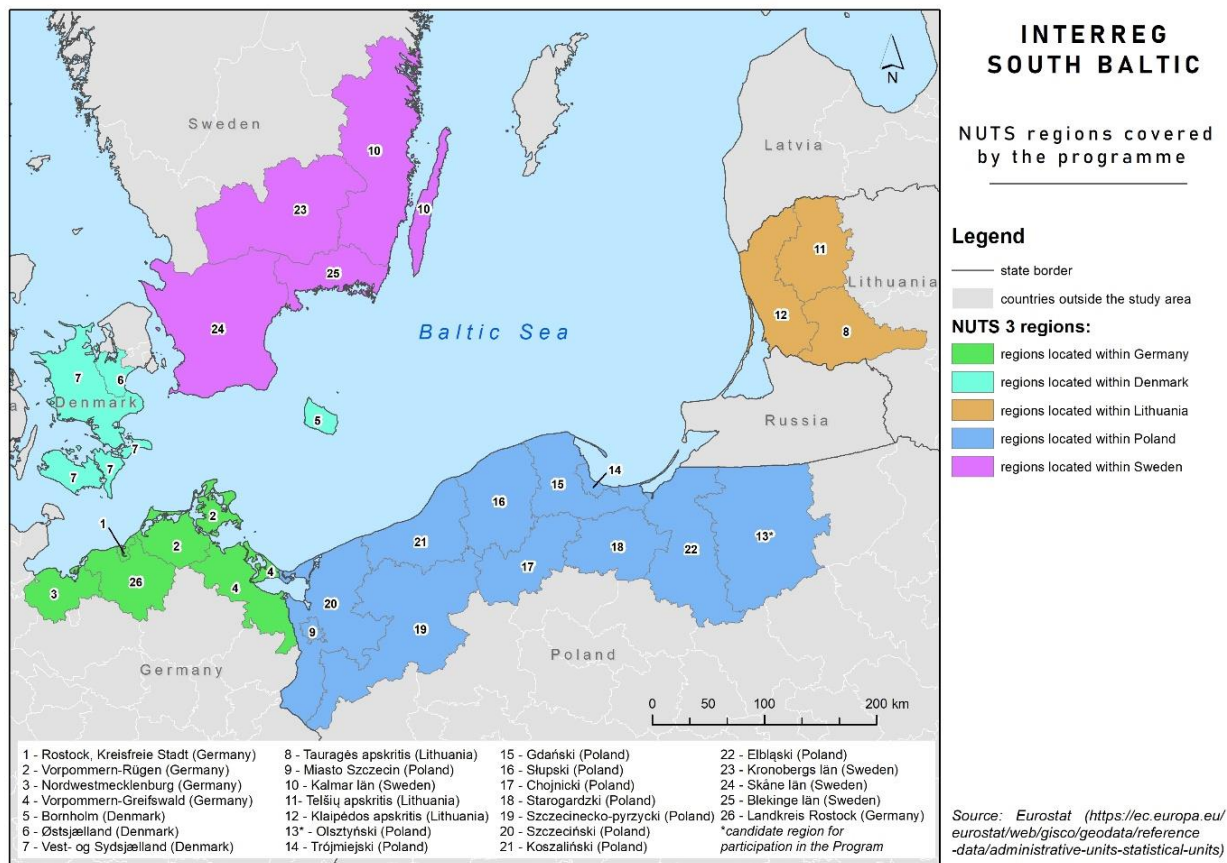
Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
	<p>The aim of ArchaeoBalt is to create a strategy for tourism development in the South Baltic Area and tools to implement the same. The project focuses on promotion of common tourism features, by presenting the SBA cultural heritage in an innovative manner.</p>	<p>in interest of the history of Baltic regions and science related to archeology and promotion of whole-year tourism</p>	<p>cultural heritage of the region.</p>	<p>might expect similar impact on similar scale in case of similar activities in the future perspective.</p>
9	<p>Baltic Heritage Routes <u>Development of Historic Tourism Infrastructure in the South Baltic Area</u></p> <p>BalticDreams project aimed at Promoting tourism features of SBR tourism Creating tourism routes enabling visiting at any time and own pace following unique locations was to lead to</p>	<p><b>Project conclusion: Friday, April 30, 2021</b> Effect: 8 travel routes were created that promote the cultural heritage of the regions under the program. The project positively impacts the increase of knowledge on region culture, promotion of history and local traditions.</p>	<p>Programme Action 3.1 Development of sustainable, resilient and innovative tourism <u>Exemplary action:</u> Projects aiming at preserving the cultural heritage of the region.</p>	<p>Project of mainly soft nature and similar scope, oriented towards promotion of regional traditional and culture have low or insignificant impact on components of the environment. Indirectly they might contribute to increase of</p>

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Item	Project performed	Result obtained	Similar activity from current program	Possible impact on environment
	development of tourism and build coastal region identity.			tourism pressure and introduction of traffic where there was no traffic before.
OP Active South Baltic - improvement of cooperation management.				
10	<p>BBVET  <u>Increase in business integration through common education on vocational training</u></p> <p>The assumption of the project was to create an international education and vocational training programme enabling students to develop in mechatronics and EdTech (including the cross-border student exchange). Within the scope of activities, creating of even curriculum and evaluation was assumed, as well as introduction of grant to equalize opportunities for all participants.</p>	<p><b>Project conclusion: Friday, May 31, 2019</b>  <b>Effect:</b> The project made it possible to create a base for the programme for international vocational training, integrating educational facilities in the South Baltic region.</p>	<p><b>Programme Action 4.1:</b> Reinforcing the capacity of cooperation of entities with the head office in the South Baltic Area  <u>Exemplary action:</u>                      Activities supporting exchange of experience in innovative business activity between the students of higher secondary schools; cross-border action supporting the position of youth.</p>	<p>The project is oriented towards soft activities, without direct impact on environment. Based on this example it might be assumed that similar programmes oriented towards cross-border cooperation related to improvement of competences of students within the scope of science will not have negative impact on environment.</p>

## Non-technical summary

The Interreg South Baltic Programme 2021-2027 in question is being developed by five countries of the South Baltic area: Denmark, Germany, Lithuania, Sweden and Poland, the latter coordinating and managing the ongoing work. The Programme currently covers 25 coastal areas of the region with an area of approx. 118,000 km<sup>2</sup>, inhabited by approx. 8.9 million people. The Olsztyn area is also a candidate for inclusion in the Programme.



The main objective of the document is to develop cross-border cooperation in order to achieve the vision outlined in the Programme, which is: 'United by the Sea into action for a blue and green future. Innovative, Sustainable, Attractive and Active South Baltic. The Programme provides for support for international projects within the defined area, which will be in line with the priorities and activities described below. It does not therefore define specific investment projects that may have a direct impact on the environment, but it does set out a framework of possible support for such projects.

## I. Innovative South Baltic

- 1.1: Digitizing the region
- 1.2: Building connectivity in the region through internationalization

## II. Sustainable South Baltic

- 2.1: Supporting transition towards green energy
- 2.2: Promoting sustainable use of water
- 2.3: Supporting a circular and more resource efficient development

## III. Attractive South Baltic

- 3.1 Development of sustainable, resilient and innovative tourism

## IV. Active South Baltic

- 4.1: Strengthening the cooperation capacity of actors based within the South Baltic Area (including civil society)

The overall Programme budget allocation will remain at a level similar to the 2014-2020 amount, i.e. approx. EUR 83 million from the European Regional Development Fund (ERDF).

In the course of preliminary agreements between the countries it was assumed that the Programme would be developed on the basis of Polish regulations and administrative procedures, taking into account EU requirements. According to them, the Programme qualifies for a Strategic Environmental Impact Assessment (SEA). It has been assumed that the assessment will be carried out on the basis of Polish regulations, the so-called The EIA [Environmental Impact Assessment] Act, which takes into account the provisions of the so-called of the SEA Directive, which guarantees full compliance with EU regulations and requirements.

The overarching aim of strategic assessment is to support sustainable development by analyzing and assessing potential environmental impacts at the earliest possible stage of designing activities within programme documents at each level of strategic planning.

The SEA Report prepared under the requirements of the EIA Act is the equivalent of the environmental report referred to in the EIA Directive. The Report was carried out for the June 2021 version of the Programme. In the course of the analysis, a model of assessment was adopted in which the most important role is played by the identification of the objectives of the document itself and the effects of its implementation, as well as the assessment whether the environmental issues have been appropriately covered therein, and whether they are consistent with the principles of sustainable development and the environmental objectives set out in higher ranked documents. In this model, more emphasis is placed on the decision-making process resulting from the implementation of the evaluated document, and recommendations are addressed primarily to the institutions responsible for programme implementation. These are the Managing Authority and National Coordinators of other Member States. Moreover, the team of authors focused on those elements of the environment on which both the assessed document and the resulting project support may have an actual impact (either negative or positive). Such an element in the case of the analyzed Programme, apart from the land area, is undoubtedly the Baltic Sea, which requires a specific approach and highlighting the issues related to it. The result of this approach was the

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identification of key environmental problems of the South Baltic Area and the differentiation of their severity within particular States and the Baltic Sea.

The assessment carried out in the context of the first of the mentioned aspects, i.e. compliance with the principles of sustainable development, indicates that the Programme does not provide for interventions which could be contrary to any of the 17 main objectives of sustainable development, which are defined in the UN document "Agenda 2030". Furthermore, a more or less positive contribution to the achievement of the objectives set out in the renewed European Sustainable Development Strategy, especially on the regional scale, is expected in the case of all priorities and measures proposed within the Programme.

The analyses of the next aspect, i.e. compliance with the environmental protection objectives set at the EU and national level, showed that the planning of the assessed document was carried out taking into account all the key policies and strategies in this field with particular emphasis on the environmental protection objectives. There were no inconsistencies between the evaluated Programme and the documents defining the objectives of environmental protection. Nevertheless, the positive contribution of the Programme to their realization may be increased at the stage of its implementation through an appropriate selection of criteria for support project selection.

The assessment of the Programme objectives from the perspective of impacts on particular elements of the environment is presented in the summary table below. The scale of assessments takes into account both positive and negative impacts differentiated in terms of intensity, ranging from 0 (no impact), through 1 (impacts of insignificant scale, whose possible effects on the environment will be insignificant), then 2 (impacts of moderately significant scale, whose possible effects on the environment may be significant), to 3 (impacts of significant scale, whose possible effects on the environment will be significant). The scale also makes it possible to assess these impacts:

PRIORITY	MEASURE	Biodiversity (marine areas)	Biodiversity (costal areas)	People and material goods	Inland waters	Marine waters	Air quality	Landscape	Monuments	Adaptation to climate change	Land area and natural resources
I	1.1	1	1	2	1	1	1	1	1	1	0
	1.2	0	0	1	1	1	1	0	0	0	
II	2.1	-1	-1	2	-1	0	2	-1	1	2	1
	2.2	1	1	2	3	1	0	1	1	1	1
	2.3	1	1	1	2	1	1	1	0	1	2
III	3.1	-1	-1	2	1	-1	1	-1	1	1	0
IV	4.1	0	1	1	0	0	0	0	1	1	0

The most important conclusion of the assessment is that no significantly negative impacts have been identified, including significant impacts on the status and integrity of the protected areas network, including Natura 2000.

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In the assessments of nature and significance, positive impacts predominate, with varying degrees of intensity, while the identified impacts of potentially negative nature are limited to threats of insignificant, local and most often potential scale, which may be eliminated or significantly mitigated by means of clarification and explanation of the Programme provisions and appropriate formulation of criteria being the basis for the assessment of the applications for the calls for proposals for the project co-financing.

The balance of impacts carried out at the individual (component) level indicates that only positive effects of the Programme are to be expected, while the most significant of them should be experienced by the region's inhabitants, which is in line with the objectives adopted during the strategic planning process.

Among the remaining components, positive impacts are to be expected in the field of inland water quality, air quality and adaptation to climate change.

The balance of impacts carried out at the level of measures also identifies only positive impacts, with the most favorable being in the case of the following measures:

- 1.1: Digitizing the region
- 2.2: Promoting sustainable use of water
- 2.3: Supporting a circular and more resource efficient development

In case of two measures:

- 2.1: Supporting transition towards green energy
- 3.1 Development of sustainable, resilient and innovative tourism

the risk of occurrence of negligible local negative impacts was identified.

For measure 2.1 this is the risk of impact of investments related to renewable energy sources, notably offshore wind farms and hydropower facilities, which may be directly supported by the Programme, or result from the development of joint energy programmes or strategies within it, on the marine environment or surface waters and associated ecosystems and landscape.

On the other hand, in the case of measure 3.1 focused on the development of tourism, a threat of the emergence or intensification of pressure on local ecosystems and landscape as a result of excessive tourist traffic and the development of tourist infrastructure was identified.

For this reason, as a result of the conducted assessments and analyses, recommendations were presented that will allow the minimization or complete elimination of the indicated threats.

Within the framework of the prepared recommendations, on the one hand it was proposed to modify some provisions of the Programme document clarifying or specifying the introduced terms and definitions in order to avoid discrepancies in their understanding by the Programme recipients. On the other hand, the introduction of additional rules and criteria to ensure the safeguarding of environmental interests and to reinforce the positive effects of project implementation, particularly in the context of the environmental and climate objectives of the European Union.

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In the first case, it was suggested to:

- modifying the description of the exemplary measure in point 2.3.2. in a way that would exclude the implementation of energy projects, which may have a negative impact on the environment, within protected areas and their protection zones as well as within ecological corridors;
- clarify the meaning of the introduced term "sustainable tourism" as taking into account the principles and objectives defined by UNEP and WTO in the a Guide for Policy Makers titled "MAKING TOURISM MORE SUSTAINABLE and which will exclude support for projects that contradict the principles of sustainable tourism, and thus potentially reinforce the negative impact of tourism on the environment;
- clarify the rules and method of including protected areas in networks and chains of tourist offers in the description of the exemplary measure under point 2.6.2, aiming at avoiding the risk of negative impacts related to the introduction of tourist pressure within the network of protected areas, where it has not occurred so far.

In the second case, the most important recommendation is the proposal to introduce the horizontal principle of financing only projects that do not cause serious harm, i.e. those complying with the so-called DNSH or "*Do No Significant Harm*" principle . Furthermore, it is proposed to give preference to projects having a positive impact on environmental and climate issues, i.e. making a significant contribution to the achievement of environmental objectives set out at the EU level and projects which will result in minimizing identified pressures in the area of tourism.

This approach will ensure that environmental objectives are consistently met within the Programme and that the projects funded do not pose a threat to any of them. This can be achieved by requiring beneficiaries to declare during the application process that the proposed project complies with the DNSH principle within the meaning of Article 17 of the so-called the Taxonomy Regulation (EU Regulation 2020/852). The requirement to submit a declaration should be verified at the stage of formal assessment and apply to all investments financed by the Programme.

Furthermore, as part of the application process, it is additionally suggested to reward projects that make a significant contribution to one of the six environmental objectives set out in the aforementioned regulation. The idea of a bonus at the stage of project evaluation refers to the introduction of additional points for projects that significantly contribute to the achievement of environmental goals important for the community or minimize the existing pressure on the environment. Additional points may be awarded for projects that meet the conditions set out in Articles 10-15 of the Regulation. These may be additional criteria for the evaluation of projects submitted for financing included in the rules of calls for proposals. The assessment of a significant contribution to the environmental objectives may also apply to non-investment projects if they make it possible to achieve the environmental objectives in other areas of activity (e.g. in areas directly linked to the implementation of the project).

Due to the threats related to tourist pressure identified in the diagnosis and the impact assessment of Priority III, it was also suggested to include criteria specific to Priority III of the Programme, i.e. to award



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projects which minimize the identified pressures in the area of tourism. It is suggested that the regulations of project calls for proposals provide for bonuses for applications aimed at reducing the negative impact of travel and tourism on the environment.

The introduction of the above recommendations to the final version of the document and the construction of the criteria for project selection at the stage of its implementation on the basis of the proposed principles will, in the opinion of the authors, make it possible to avoid the risk of negative environmental impacts, while maximizing the positive contribution of the Programme to the achievement of the EU environmental and climate objectives.

Wrocław, 08.09.2021 r.

STATEMENT

Pursuant to Art. 74a. 1 of the Act of October 3, 2008 on the provision of information on the environment and its protection, public participation in environmental protection and on environmental impact assessments (2021, item 247), I declare that I meet the requirements set out in Art. 74a.2 - 1c of the above-mentioned the Act.

I am aware of the criminal liability for submitting a false statement.

Lukasz  
Szkudlarek

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