

# Stockholm University's Baltic Sea Research – The Vision of *Baltic Eye*

## Vision, mission statement, and motivation for the Baltic Eye project

For at least a century, the ecosystem of the Baltic Sea has been heavily impacted by human activities, such as pollution (anthropogenic chemicals and eutrophication), overfishing, changes in land use, and different kinds of coastal development. Climate change affects the Baltic Sea and its limited number of species, which may cause changes in the food web.

The University has long had strong marine operations in the Baltic Sea and conducted other environmental research in the Baltic Sea area as a whole. These operations have contributed to the University identifying “climate, seas, and environment” as one of its leading research areas. Much of our current knowledge of the Baltic Sea environment has sprung from the research and environmental monitoring initiated and conducted at Stockholm University. The research has developed gradually on the basis of the professional interests and high expertise of strong representatives. Some of the research concerning issues of relevance to the environmental conditions of the Baltic Sea has not previously been included in the Baltic Sea perspective. It is important for the future and for policy-making to integrate the accumulated knowledge and develop a holistic perspective.

The University now wants to create opportunities for advanced synthesis and analysis of all available data for all aspects of the research concerning the Baltic Sea environment, which aspects are currently divided into a number of research areas. As part of this synthesis and analysis, knowledge gaps will be identified, which should be investigated further. Baltic Eye should have the resources to gather new knowledge, so that critical “gaps” in the knowledge base can be filled. The main objective also includes professionally and dynamically conveying the scientific knowledge about the Baltic Sea environment as a whole. Communications should be aimed at policy makers at the regional, national, and international levels. In addition, the level of knowledge should be greatly increased through initiatives in special research areas, for example, through the establishment of professorships/lectureships with specific research perspectives.

In our contacts with researchers, unit representatives, and university management, we have perceived that there is strong support for a vision statement with the following wording:

*“...that a powerful centre for analysis and synthesis of all relevant data on the state of the Baltic Sea be established at Stockholm University, with professional, research-based communications with authorities, policy makers, and the public. The centre's interdisciplinary approach will allow for breadth and the cross-scale efforts that are necessary to convey information to society.”*

Clarification of keywords in the vision:

- The term “*powerful*” refers to strengths in terms of in-depth knowledge, topic breadth, and capacity (i.e. dimensioning of staff). The centre should have sufficient capacity to process new data and carry out advanced analyses within a relevant time frame for potential action.

- “*All relevant data*” refers to all quality-assured data of significance to the understanding of fundamental relationships related to the environmental conditions of the Baltic Sea, and to science-based assessments of the effects of proposed measures.
- “*Professional, research-based communication*” means that communications efforts will take place in close collaboration with the researchers, and that the communications function at the centre will act as a channel for society’s expressed need for knowledge. The communications function should be fully professional in terms of environmental scanning and target group analysis, as well as in the actual communications.
- “*Interdisciplinary approach*” means that the centre’s activities should be open in terms of collaboration and use of knowledge from various disciplines. The word “*interdisciplinary*” does not refer to an imposed approach, but to an openness to work with the full disciplinary breadth that any particular issue requires in the analysis and synthesis. The centre’s focus should be on scientific analysis; however, close collaboration and communication with the social sciences are a prerequisite for success.
- “*The cross-scale efforts that are necessary to convey information to society*” are meant to emphasise that decisions of importance to the Baltic Sea are made on municipal, regional, national, and international levels, and that society therefore has a need for scientific knowledge across the full spectrum, from local to global (the entire Baltic Sea) scale. The centre’s communications should be fully bilingual (Swedish and English) and, in terms of language, level, and substance, be clearly directed at the relevant target groups.

**The development of a high-quality analysis and synthesis operation for the most important scientific issues relating to the Baltic Sea, and the development of an efficient and resourceful communications function in close collaboration with the analysis and synthesis unit.**

We need to deepen and broaden our knowledge of the Baltic Sea by identifying and addressing gaps in the knowledge, so that we can detect and, in the best-case scenario, respond to new threats to the environment. An important step in this process is to analyse existing and new research findings, including environmental monitoring data. Stockholm University has pushed, developed, and generated very large parts of Swedish environmental monitoring in the second half of the 20th century, and on into the 21st century.

This research has also given rise to good collaborations around the Baltic Sea. In Sweden, the work has been carried out in close contact with the Swedish Environmental Protection Agency and, more recently, with regional authorities and water conservation organisations. Today, the work is carried out in close contact with EU environmental agencies and directives.

Stage 2 involves the development of the analysis/synthesis/communication capacity, where the scientific results directly requested by society will be produced and conveyed. The most important reason to create this unit with analysis and synthesis as its main task is that a holistic perspective requires a research environment that:

*-Has a critical mass; that is, that a sufficient number of researchers are gathered in a cohesive environment who, in terms of disciplines and methods, cover the most important types of data and issues relating to the Baltic Sea.* Experience indicates that a sufficiently large and physically unified

environment is necessary for the efficient exchange of ideas and data between researchers, which is fundamental to discovering previously unknown relationships, and for the systemic work on issues and relationships that were not previously part of any specific group's agenda or area of responsibility. A cohesive environment is also important to get positive spillover effects from groups that are methodologically strong to groups that are not yet as methodologically advanced.

*-Structurally facilitates efforts to develop a basis for periodic (e.g. every three years) high-profile reports on the state of the Baltic Sea.* For such reports to be more valuable than mere compilations of primary data or "one-issue syntheses", the work needs to be cyclical, so that the analysis and synthesis work towards temporally defined goals, and so that there is time for in-depth analysis and special projects with a duration of 1-2 years between publications. This can only be achieved with distinct leadership of the analysis and synthesis efforts and a temporal synchronisation with the communications efforts (cf. IPCC's cyclicity and practices).

*-Has the necessary size, breadth, and resources to allow IT and database issues to be handled efficiently.* Society and other stakeholders expect good availability of data, which cannot be achieved with research-group-based ad-hoc solutions.

Here, we would like to discuss four key terms and concepts which are all central to the work of the analysis and synthesis unit:

**Environmental monitoring.** Swedish environmental monitoring started with the aim to see what impact the implementation of approved measures had on the environment. This relates to eutrophication, environmental toxins, fishing, and the impact on the Baltic Sea's fauna and flora. Swedish environmental monitoring is successful, but the synthesis suffers from a certain "silo mentality" and there are probably important insights to gain through combined analysis of different types of data and a systematic search for correlations outside the established "silos". The data collected by the environmental monitoring programmes have a large, not yet fully exploited potential to identify areas for **specialised basic research**, i.e. defined areas where the basic understanding of the processes needs to improve. It is important to use all environmental data from the Baltic Sea region in close international collaboration. With the use of data from a broad spectrum of data sources, evaluating the quality of the utilised data also becomes an important task for the analysis and synthesis unit.

By the term **interdisciplinary**, which is an important concept in the analysis and synthesis unit's work, we mean close collaboration between researchers from different disciplines; a collaboration which raises new questions and sees previously unknown correlations. Interdisciplinary research is a prerequisite for gaining new insight into the dynamics of functionally interconnected systems. We also believe that it is important to identify and work with **functional research chains**. For many issues, it is possible to identify natural chains of questions, where the most appropriate approach to a sub-question is dependent on the available data, resolution requirements, etc., in adjacent "links" of the research chain. The explicit data needs of the adjacent "links" can then govern the approach in a given sub-question. This way of working is powerful, but requires the development of a critical mass, breadth, and effective forums for internal communication.

In terms of topics, we intend the initial focal points of the analysis and synthesis to be *nutrients, environmental toxins, fish and fishing, marine ecology, physical oceanography, seabed sediments, and the hydrology and geochemistry of the drainage basin.* We want to emphasise that this list is by no

means complete or definitive. On the contrary, the centre will work very openly to gradually expand as new important issues arise. What defines the framework of the centre's activities should be the processes, changes, and events within the Baltic Sea's drainage basin that have or have had an impact on the environmental conditions of the Baltic Sea.

Each of the initial topics contains issues of direct relevance to society as well as issues pertaining to basic research. Synthesis efforts will be issue-driven and largely carried out in connection with predefined publication dates.

### *Communication*

Communication has a key role in Baltic Eye. The aim is to make scientific summaries and evaluations available in a form adapted to important target groups. This should be conveyed regularly in different forms and different forums to give politicians, businesses, authorities, environmental organisations, and the public easy access to material to work from. It is important to paint a complete, factual, and accurate picture of the state of the Baltic Sea, i.e. both potential threats *and* data showing that implemented measures may have a powerful, positive effect should be conveyed. The main focus of Baltic Eye should be to work regularly on the big picture that describes the environmental conditions of the Baltic Sea from different perspectives. Communications efforts should take place in direct contact and interaction with researchers. The centre should also be the natural platform at Stockholm University for Baltic Sea researchers who have results to disseminate.

The initial strategic communications efforts involve developing a communications platform and communications plan, on the basis of which the concrete communications efforts will then be defined. All activities/projects carried out should be coordinated and work together to achieve the stated objectives. Through systematic work based on environmental scanning, the communications unit should reach the right target groups at the right time through the right channels. The unit should be proactive and seek out communication gaps in order to convey knowledge to places where the centre's results and expertise may be useful.

The work is led by a communications director, who is part of the centre's management team and also leads the communications-oriented part of the environmental scanning. The fact that the communications director is part of the management team is also an indication to the centre and the University of the importance of communication to the centre's activities.

**Environmental scanning and target group analysis** are central to the communications efforts. Environmental scanning identifies other research parties, society's need for knowledge and data, and the "communications landscape" the centre will work in. Good environmental scanning is key to making wise decisions regarding how the centre should interact with other organisations. More detailed target group analysis is important to achieve the best possible dissemination of knowledge with the available resources, i.e. a good communications economy.

Providing society with reliable information about complex correlations is no trivial matter. Thus, **objectivity and scientific basis** are keywords for the communications efforts. Objectivity is based on the broad analysis of specific issues and the use of information from a large variety of scientific sources. This is followed up in the communications stage, as the knowledge base is clearly and openly presented in the sometimes simplified communications adapted to the target group. The successful "Planetary Boundaries" concept can be implemented and applied to parts of Baltic Eye's operation.

The Planetary Boundaries research, including the publishing and communication aspects, has shown how many researchers from the departments/units that will support Baltic Eye have already collaborated with great success.

The researchers' motivation to actively and personally take part in the communications efforts is dependent on the **communications efforts having strong support in the research community**. It is the communications unit's responsibility to secure this support and identify existing needs for internal training, e.g. media training, to make the communications efforts truly effective. Experiences from other centres at the University have shown that it is both important and effective to involve young researchers and doctoral students in the communications efforts, and that they often have a strong and genuine desire to participate in this work.

**Internal workshops** will be used as a working method in the strategic communications efforts, and are particularly important in the development stage, when communication objectives and strategies are defined and a more detailed plan for communication activities is developed. Synergy between analysis/synthesis and communications efforts will thus be created through workshops where researchers and communications officers are the main actors.

The level of ambition is high with Baltic Eye, and the vision is to convey solid, up-to-date syntheses that will be considered the best existing basis for societal decisions. This role can only be won if the community has **confidence in the operation**. In addition to objectivity and a scientific basis, the most important factors in creating such confidence are probably **clarity and documentation**. Accordingly, the website should have easily accessible and consistent information about what Baltic Eye is and how the centre works, as well as key target and policy documents.

When it comes to **communication activities**, Baltic Eye's most important activity is to regularly publish summary reports on the state of the Baltic Sea, which are expected to fill the role as one of the most important pieces of supporting documentation for societal decisions in matters relating to the Baltic Sea. A central issue is the cyclicality of these summaries. Annual reports have weaknesses; reality does not change much in a year, which means that the news value and level of attention will be low. There will not be enough time to complete new analysis/synthesis projects before the next report, and with a short one-year cycle, the staff will inefficiently go back and forth between research and preparations for the concrete report. We believe that high-profile reports with a three-year cycle will eliminate the disadvantages mentioned above and could have a major impact as the preferred supporting data for decisions regarding policies and potential measures. A three-year model will give a rhythm to the work and give the researchers a real opportunity to publish peer-reviewed articles, which is a necessary basis for scientific credibility. These three-year reports should, if necessary, be supplemented by analyses of specific problem areas.

A high-quality and active website will be created in both a Swedish and an English version. The target-oriented approach means that the Swedish and English versions of the website should not be identical in content. For example, the Swedish version should have a front page and material directly aimed at Swedish schools, both teachers and students.

In Askö, workshops are already taking place with world-leading researchers according to the Planetary Boundaries concept. Our aim is for the workshops to become a well-known series of workshops,

similar to the “Aspen Workshops” or the “ASKÖ Workshop”; workshops that, along with the cyclical reports, are expected to give Baltic Eye a high degree of international visibility.

Baltic Eye should, to a high extent, work with modern, IT-based modes of communication; organise and be represented at seminars, workshops, and press conferences; and organise specific round-table discussions between researchers and selected key individuals. “Open lectures” about the Baltic Sea will be given to provide a better holistic view. With today’s information technology, these lectures will be able to reach all interested parties via web transmissions.

#### *Analysis and synthesis*

A permanent group of seven researchers will be recruited to continuously collect and evaluate relevant Baltic Sea data from both monitoring and research. The Baltic Sea and its drainage basin are a joint framework for all positions. The researchers’ skills should be complementary, with the general keywords: *eutrophication, fish and fishing, and environmental toxins in a changing climate.*

The positions will specialise in the following areas:

- Environmental toxins
- Fish and fishing
- Marine ecology
- The impact of agriculture on the Baltic Sea
- The dynamics and geochemistry of seabed sediments
- The Baltic Sea’s circulation and water exchange
- Hydrology and geochemistry in the Baltic Sea drainage basin