



Biosphere for Baltic

International collaboration for
a sustainable Baltic Sea



Biosphere for Baltic provides a unique opportunity for UNESCO biosphere reserves around the Baltic Sea to network, to share experiences and results, and to find new opportunities for collaboration.

The aim of Biosphere for Baltic is to facilitate learning and disseminate good practices from the Baltic Sea region, within and beyond the network of biosphere reserves. In addition, the project also highlights the contribution of biosphere reserves to the UN Sustainable Development Goals and the 2030 Agenda, with particular emphasis on SDG 14 - Life Below Water.

**Swedish Agency
for Marine and
Water Management**

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Preface



Biosphere for Baltic is a joint commitment initiated in June 2017 during the UN Ocean Conference. The Man and the Biosphere Programme (MAB) in Sweden, the Swedish National Commission of UNESCO, and the Swedish Agency for Marine and Water Management joined forces to increase dissemination of good practices from UNESCO biosphere reserves in the Baltic Sea Region, both within and beyond the network of biosphere reserves.

This joint commitment intends to contribute to raising awareness of sustainability challenges linked to the Baltic Sea, enhance the knowledge of interconnectedness between land and sea, and facilitate learning from biosphere reserves as arenas for implementing the SDGs with a multi-stakeholder approach.

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A world-wide network of sites at the frontline

Since the 1970's, UNESCO has selected areas of special value throughout the world as biosphere reserves. When designated, these regions are commissioned to serve as learning sites and role models for sustainable development, crafting local solutions to global challenges. More than 680 biosphere reserves in 122 countries (2018) now form a world-wide network where best practices are developed, tested and shared across the globe.

The Global Strategy for UNESCO's Man and the Biosphere Programme (MAB) with its associated Lima Action Plan (2016-2025) underlines the MAB Programme's instrumental role in the implementation of the 2030 Agenda and the SDGs. This alignment at the internation-

al level further supports the potential of biosphere reserves around the Baltic Sea to contribute to the implementation of the Agenda, in particular goal 14, for a sustainable Baltic marine environment.

While the Agenda address priorities for global development, the MAB Programme – with decades of experience in integrated sustainable development – can guide the local, regional and national implementation of the Agenda, by sharing generated know-how.

Holistic approaches around the Baltic Sea

Biosphere for Baltic provides a unique opportunity for UNESCO biosphere reserves around the Baltic Sea to network, to share experiences and results, and to find new opportunities for collaboration. The aim of Biosphere for Baltic is to facilitate learning and disseminate good practices from the Baltic Sea region, within and beyond the network of biosphere reserves. Also, Biosphere for

Baltic highlights the contribution of biosphere reserves to the UN Sustainable Development Goals and the 2030 Agenda, with particular emphasis on SDG 14 - Life Below Water.

The stories presented in this folder illustrate good practices from biosphere reserves around the Baltic Sea

UNESCO biosphere reserves in the Baltic Sea Region



Two themes: Introduction

Biosphere for Baltic focuses around two themes: **Source to Sea** and **Learning and Ocean Literacy**. Both themes are of great importance to sustainable development in the Baltic Sea and for the

implementation of SDG 14 – Life Below Water. The themes are also broad, in the sense that they cover many topics and can be interpreted widely.

Theme 1: Source to sea

Source to sea is highly relevant for the Baltic Sea, with its dynamic interface between land and ocean. Human activities upstream; on land and along rivers, affect the ecosystem downstream; in the coastal zone and the marine environment, with several associated environmental challenges, e.g. plastic pollution, water quality, eutrophication etc. Biosphere reserves around the Baltic Sea are incorporating these challenges in order to promote

local action towards a more sustainable marine environment. Thus, contributing to reduction of marine pollution (SDG 14.1), protection and restoration of marine and coastal ecosystems (SDG 14.2), as well as increasing the economic benefits from sustainable use of marine resources (SDG 14.7). They also play an important role as translators between traditional place-based knowledge, the scientific community and the public and private sector.

Theme 2: Learning and Ocean literacy

Ocean literacy is defined as “an understanding of the ocean’s influence on you and your influence on the ocean”. **Learning** is key to increase ocean literacy among people and in the society, and learning has also always been fundamental to the work in the biosphere reserves and is a part of their success stories. The biosphere reserves in the Baltic Sea region raise awareness and educate people on a daily basis – by connecting people to nature and by stimulating new knowledge development as well as education for

sustainable development. Around the Baltic Sea, several biosphere reserves offer learning programmes for younger generations to promote ocean literacy. Another approach used to increase awareness among the public is to communicate the value of local small scale fishery as a cultural heritage. One example here is promoting the value of sustainable use of the fish stock (SDG 14.4), finding markets for local fishermen and restoring fish stocks to ensure future recreational use (SDG 14.B).

THEME 1

#1: Better balance and biodiversity in The River Helge å and Hanöbukten Bay

A large proportion of the land use within the Kristianstads Vattenrike Biosphere Reserve in southern Sweden is intense agriculture, which leads substantial nutrient leakage to surface water. As a method to decrease the leakage of nutrients, wetlands are restored or constructed in the landscape.

Bringing together different stakeholders such as wetland experts, agency representatives, landowners, engineers and civil society organisations has been a fundamental part of the work for successful creation and restoration of wetlands in Vattenriket. The main strategy used is to educate landowners so as to build deeper

interest in water management actions, which has proved to be a successful path towards hands-on activities.



Restoring coastal areas and reducing nutrient leakage to the Baltic Sea (SDG 14.1, 14.2)

Method description

- 1. PROBLEM IDENTIFICATION**
Identify a problem, relevant to the goals of the biosphere reserve and to the experiences of stakeholders.
- 2. COORDINATION AND FUNDING**
The biosphere reserve organisation act as the coordinator, plan the overall project and apply for funding.
- 3. FIELD STUDIES** Initial fieldwork is done to find suitable sites, landowner meetings are held, information about the project is spread, a coalition of interested participants is formed.
- 4. CONTRACT AND AGREEMENTS**
Once the sites for activities are decided, a contract is written with the landowner that includes the agreed level of funding as well as the expected result of the construction.
- 5. PROJECT LAUNCH** The actual work starts, plans are made, permits secured, contracts established, and activities are designed. The landowner manages the project or refers it to a consultant.
- 6. PROJECT END AND EVALUATION**
When the agreed work is finished, the site is inspected. If results are satisfactory, the landowner is compensated according to the contract.



Photo: Åsa Pearce, Kristianstads Vattenrike Biosphere Reserve



Photo: Andris Soms/Nature Conservation Agency of Latvia

THEME 1

#2: Place a Stone in the Stream

This initiative was created with the broadest of aims. It includes increasing the biodiversity in rivers, better blue structures and self-purification capabilities, mitigating possible climate change impacts on the river ecosystem, raising citizen awareness, building community cooperation, and ultimately improving the state of the Baltic Sea.

In this initiative, activities are combined for each river based on the problems that exist in each site, such as increasing the biodiversity and self-purification capacity, helping fish stocks, maintain coastal stability, reducing sediment flow, improving the landscape, and so on. A booklet has been produced on processes in rivers and how to place stones, and the project that started in the North

Vidzeme Biosphere Reserve, is spreading throughout Latvia.

Everyone walking along the shoreline have most likely at least once thrown a stone into the water. From this very basic realization, the “Place a Stone in a Stream” initiative was created as a method for better local stakeholder involvement in river restoration and maintenance in the North Vidzeme Biosphere Reserve in Latvia. A low-cost and self-sustaining activity, these clusters of stones can help the waters and ourselves in many ways, if placed with knowledge in just the right spots, it can create ripple effects far beyond the local impact.

The Stone Phenomenon

When a stone is placed in the stream, the surface is quickly covered with a thin biofilm that acts as a diverse microhabitat. This bacterial and algal biofilm also function as a natural water micro treatment unit, accumulating nutrients from the flowing water.

Stones placed at shallow places in smaller streams act as a mechanical aerator, causing turbulence in the surface water that help oxygen sensitive species survive summer months with low water flow, high water temperature, and low natural oxygen saturation.



Protecting and restoring ecosystems to secure a healthy and productive Baltic Sea (SDG 14.2)

THEME 1

#3: Conservation for sustainable recreational fishing

In the River Landscape Nedre Dalälven Biosphere Reserve in Sweden, two projects are running that in different ways are targeting fishing conservation, namely the Sustainable hydroelectrical power Dalälven Project, and Migrating fish in the lower part of Dalälven. To strengthen dialogue and local engagement in relation to these two projects, Nedre Dalälvens Association initiated a project involving the entire biosphere reserve, called Fishery conservation for sustainable recreational fishing in River Landscape Nedre Dalälven.

This project works to increase the attractiveness of the area and is inspiring hydroelectric companies active in the biosphere reserve to invest more in migration and dam passages.

The strategy rests on networking, capacity building, and branding to build a strong coalition among stakeholders.



We take measures to secure a healthy fish population in the Baltic Sea (SDG 14.2)

Activities

1. Participation in the national and the regional projects.
2. Initiating restorations of the river's habitat for different fish species by active networking, increasing dialogue and bringing different stakeholders together.
3. Strengthening the network between fishery conservation associations (FVOF), municipalities, tourism companies and county administrations.
4. Branding efforts emphasizing the attractiveness and competitiveness of the area.
5. Initiating the process for a fishing management plan in close cooperation with the concerned FVOF organisations.



Photo: Henrik Thomke



Irrigation of a very dry pasture area
Photo: B Ekberg/Azote

THEME 1

#4: Optimal irrigation management – the water-food-energy nexus

Climate change can make up for big changes in weather types. Places that normally have regular rains can become drier or more wet depending on where they are and how these places relate to new winds, currents and sun exposure. In 2017, south Sweden suffered from an unusual drought, making ground water levels extremely low. In 2018, the month of July was the hottest recorded ever during 260 years of measurements, and impacts on the Swedish agricultural sector were severe.

The model for optimal irrigation will show how farmers may irrigate to avoid increase of nutrient infusion to the Baltic Sea during heavy rainfall. The model will also show how to use the water sources wisely if the season is dry.

In this way, the model will have economic, environmental and social benefits. Economically it will be possible to save electricity for water pumps and get an optimal growth in the crop. Environmentally, less nutrients in the sea will contribute to stop the blooming of algae and the growing dying, oxygen absent bottoms. Getting rid of algae close to the coast also has economic advantages since the archipelago in our area holds a big potential for revenue from nature and culture tourism. To use the water sources wise and to be careful with nutrients to the Baltic Sea is socially sustainable in the

long run. The opposite means potential conflicts on the resources of water, both sweet and brackish.

If the model becomes realized, Blekinge Archipelago sees an opportunity to initiate a project together with farming organisations and expertise to explore what other actions could be taken to prevent nutrients to flow to the sea.



**Reducing nutrient pollution
from land-based activities
for a healthier Baltic Sea
(SDG 14.1)**

THEME 2

#5: Sustainable angling tourism and protection of the fish populations

Møn Biosphere Reserve in Denmark include the shallow brackish coastal waters around the island of Møn, home to populations of brackish water pike and perch, attractive trophy fish for anglers.

Møn Biosphere Reserve collaborates with the organization Fishing Zealand for the protection and management of fish populations and species. The efforts for protection of the populations and improvement of the habitats includes watercourse and lake restoration, elimination of obstacles, information, no fishing zones, catch and release etc. Voluntary anglers organised in "the Zealand gravel gang" help the municipalities with monitoring and small restoration projects, to protect and improve the conditions for trout, perch, pike and other species.

The brackish living pike is especially vulnerable to fishing, to predators and to sudden change in the salt concentrations. To improve the conditions for the brackish water pike, Fishing Zealand has established a team consisting of anglers, scientists, commercial fishermen and civil servants from the municipalities. One of the main challenges is the lack of freshwater spawning areas. Several coastal meadows with high water levels in springtime, has disappeared. In addition, the water regime has changed.

The brackish water team work with different methods to re-establish former meadows. We gain our own experiences and hope that the establishment of pike factories is part of the solution of how to increase the population of the brackish water pike in the coastal waters of Møn. All stakeholders will benefit, if the pike factories become a success.



Restoring fish stocks to ensure future recreational use (SDG 14.B)



FN's organisation
for uddannelse, videnskabelig
kultur og kommunikation
og information



MØN
UNESCO
BIOSFÆROMRÅDE



Photo: Tiia Tänävsuu, Tuuli Tammla and Tiit Maran

THEME 2

#6: Baltic Sea Fish Mythbusters

Fishing is both a lifestyle and a livelihood for Estonian coastal fishermen. Fish stocks have been decreasing in recent years and therefore, the fish should be valued more locally. Also, it is necessary to bust a number of myths! For example, that eating a Baltic Sea fish would be dangerous to our health, that it contains harmful substances, or that children do not like fish.

In order to bust these myths, a number of very popular events have been launched, which highlight the healthiness and excellent taste of local fish. Different kinds of fish events are held, the biggest ones are Fishermen's Days and Sea Days. Fish festivals are also held, for example, the Flat fish festival "Lestafest" and the Garfish festival "Tuulekala Festival". Local fishermen get a lot of attention and have the opportunity to offer their own catch - smoked fish, dried fish, pickled fish and various fish dishes. Fish cooking competitions are held, and the best fish chef is annually announced.

The fish industry has undergone several crises, but recently small businesses have begun to explore fish processing.

A variety of fish products are offered, including a gourmet product made from the most common species, the Baltic herring (Estonian National Fish). These are more expensive, but they already have gained popularity all over Estonia.

Fish marketing has also become a major issue, especially in the way fish is offered for sale. This winter, a new and very fashionable fishing shop was opened in Kärddla (Hiiumaa island), where you can buy fishing accessories besides fish. The shop is so special in its architecture and interior design that people just like to go there, but no customer leaves the store without buying fish.



Promoting the value of sustainable use of the fish stock and finding markets for local fishermen (SDG 14.4, 14.B)

THEME 2

#7: Küstenputz – a Junior Ranger activity

EUROPARC Germany (EUOPRAC Deutschland e.V.) and the National Natural Landscapes (Nationale Naturlandschaften) want to protect valuable German landscapes. To assure that this is achieved, they want to get children and young people interested in nature and nature conservation as early as possible. Therefore, an education for sustainable development program called Junior Ranger Program for children and youth was established. Through different activities, excursions, and workshops young people learn about the ecosystem and gain hands-on nature experiences.

In the Southeast-Rügen Biosphere Reserve, a Junior Ranger Program was established in 2005. School kids (ages 8 to 10) can choose an elective school subject taught by Southeast-Rügen Biosphere Reserve Rangers. During one year, the children learn about all the landscapes of the biosphere reserve, the existing flora and fauna and the functioning of our ecosystem. In 2015 a Junior Ranger Plus Program was created to give teenagers aged 14 and older the chance to get more practical experiences in nature conservation activities. On a monthly basis the Junior Ranger Plus participants join a ranger in his daily work duties.

One focus of this educational program is an event series called “Küstenputz” or “coastal cleanup days”. During a two-week period, schools collect trash on different beaches and coastal cleanup pro-

ject days are held at the schools. The idea of the “Küstenputz” is to raise awareness about the habitat “coast”, the factors, which pose a threat to this habitat and the different species that live here, as well as to understand and learn how we can protect it. Thus, children gain an understanding of their own opportunities and possibilities for action. The “Küstenputz” is a collaborative project involving the Authority of the Southeast-Rügen Biosphere Reserve, as well as companies or spa administrations, that sponsor the trash bags, agree to dispose of the collected garbage, or organize the transportation of the children from the schools to the beaches. The “Küstenputz” is a great success, as it does not only reach children but all parties involved. Some spa administrations go as far as offering coastal cleanup days for tourists during these project weeks.



Raising awareness and educating children to promote Ocean Literacy. (SDG 14.A)



Photos: Bildarchiv Biosphärenreservatsamt
Südost-Rügen



THEME 2

#8: The Pike & the Gang concept

The Pike & the Gang in day care

Since 2011, The Pike & the Gang have regularly visited all kindergartens in the Archipelago Sea Biosphere Reserve in Finland. The Pike & the Gang are a bunch of soft toys that bring fun activities, with different themes on sustainability, to the children. Themes highlighted in previous years are:

- 2011 – Children's rights and the involvement of children in the new, fused municipality.
- 2013 – Sorting of waste
- 2015 – Below the surface - a story about the state of the Archipelago Sea
- 2018 – The food circle. As the Grand Finale a picnic was arranged, where nearly 600 children attended and danced to the new "Pike-song"

The Pike goes outer archipelago

The Island Expedition with the Pike & the Gang is an adventure route around the Archipelago Sea Biosphere Reserve. On the expedition, children learn about nature and culture on the islands, perform fun and educational challenges and collect stamps in their researcher passport. On each of the 15 islands along the route, there is a sign with information and assignments for children and others with a taste for adventure. By visiting several islands and performing more tasks, children get more stamps in their passports and reach a "higher level of

education" from assistants to professors. The passports are found in guest harbors and at the tourist information offices around the archipelago, and printable passports can be found on the project website, - expedition.foss.fi/en/.

The Pike goes Kid's Lab

The Kid's Lab is a marine science lab at the Korpoström Archipelago Centre, where children can be marine biologists for a day and use microscopes and equipment that real researchers use.



Inspiring and engaging children to secure a sustainable future for the Baltic Sea. (SDG 14.A)

THEME 2

#9: We care about clean beaches

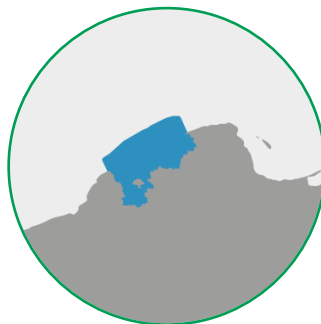
Every year, the Baltic Sea waves deposit a lot of rubbish on the beaches. Beaches are cleaned by National Park Service in Poland, which cooperate with the Social Integration Center. SIC employs people at risk of social exclusion, thanks to clean-up work they are provided with employment. Areas outside the National Park are organized by the Maritime Office and local initiatives such as the "Bare-foot" project of clean beaches in Łeba. The project aims at environmental education about the problem of littering and spreading the idea of responsible leisure. The project is co-organized by the Clean Poland Association, which undertakes a number of initiatives to protect the environment and actively counteracts the illegal storage of waste. The Authorities of Łeba City also supported the action in Łeba.

In 2018, the beaches were polluted by paraffin due to major littering from ships. Over 5 tons of paraffin was collected, but many small pieces remains in the sand.

Education

Education is one of the most important activities, because it generates increased understanding of environmental problems and stimulates good social attitudes in Słowiński Biosphere Reserve. Educational activities are arranged every year, such as environmental picnics with nature games are organized. One of them is the event Safe waves of adventure, which is to educate young people

about the seaside nature but also show the proper rules of rest and recreation on the water. Children can also take part in the first aid training. The service responsible for safety in waters, National Park Service, WWF and other organizations are involved in this event. Great fun and learning in the fresh air by the sea.



Co-operation and education for reduced supply of marine debris to the Baltic Sea (SDG 14:1)



Photo: A. Demczak and www.smoldzinskilascis.pl

How biosphere reserves contribute to SDG 14

Summary

With small means biosphere reserves inspire change processes within existing organisations and break up silo mentalities by connecting and mediating between actors, both vertically and horizontally. They complement the work by authorities and other organisations and constitute a collective and coordinating force in the transformation towards sustainable development, rather than being one interest among others. While other organisations target their piece of the puzzle, biosphere reserves have a cross-sectorial and holistic function.

Biosphere reserves generate learning processes through an inclusive approach where different stakeholders are approached in their learning environment (for example landowners in their fields). This inspires ownership in the solution to the sustainability challenge, and leads to increased sense of pride.

Biosphere reserves in the Baltic Sea region carries a lot of information and knowledge that can be shared, both between the biosphere reserves and with others, and a platform like Biosphere for Baltic is important to stimulate cooperation and sharing of ideas.

“It is valuable to be able to share activities – the wheel doesn’t have to be invented several times.”

Biosphere reserves themselves are interesting for scientists to study. Researchers often visit biosphere reserves to conduct

their research, but they also need to be encouraged to do research on the occurring biosphere reserve processes.

“There is a need to spread the word – more people need to talk about biosphere reserves, it should be the lifestyle of people.”

Within Biosphere for Baltic, there are several examples of how biosphere reserves combine local place-based knowledge with Baltic Sea research and monitoring. Such as regularly arranged meetings and workshops inviting local producers (i.e. farmers and fishermen), entrepreneurs, business sector and other relevant stakeholders in order to promote dialogue. Kristianstads Vattenrike, for example, arrange an annual conference open to the public where research projects in the area are presented. A similar event, the Archipelago Research Forum, is arranged by the Archipelago Sea every year. There are also good examples of how citizen science is promoted in biosphere reserves. In Mön for example, there is a program where local sports fishermen contribute to the research on pike by marking the fish and by reporting their fishing effort and catch to the researchers.

Biosphere reserves fill several important functions in the work towards SDG 14. In many of the cases, they become local-regional centres for transformation, bringing together key stakeholders and actors, and catalysing change.

Biopshere for Baltic has identified three main ways in which SDG14 is implemented by UNESCO biosphere reserves.

- Biosphere reserves inspire with good examples and empower people to contribute to change.
- Biosphere reserves have the possibility to inspire others and to strengthen cooperation between different stakeholders by including people, their thoughts and ideas. Biosphere reserves create a neutral, inclusive and uniting arena where important sustainability challenges are highlighted and where solutions to those challenges are developed and tested in a practical context.
- Biosphere reserves have an important role to generate learning processes by communicating with stakeholders and the public WHY it is important to address certain sustainability challenges, they are science translators and link new knowledge to local place-based knowledge.



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More information about Biosphere for Baltic:
www.biosfarprogrammet.se/projekt/biosphere-for-baltic

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