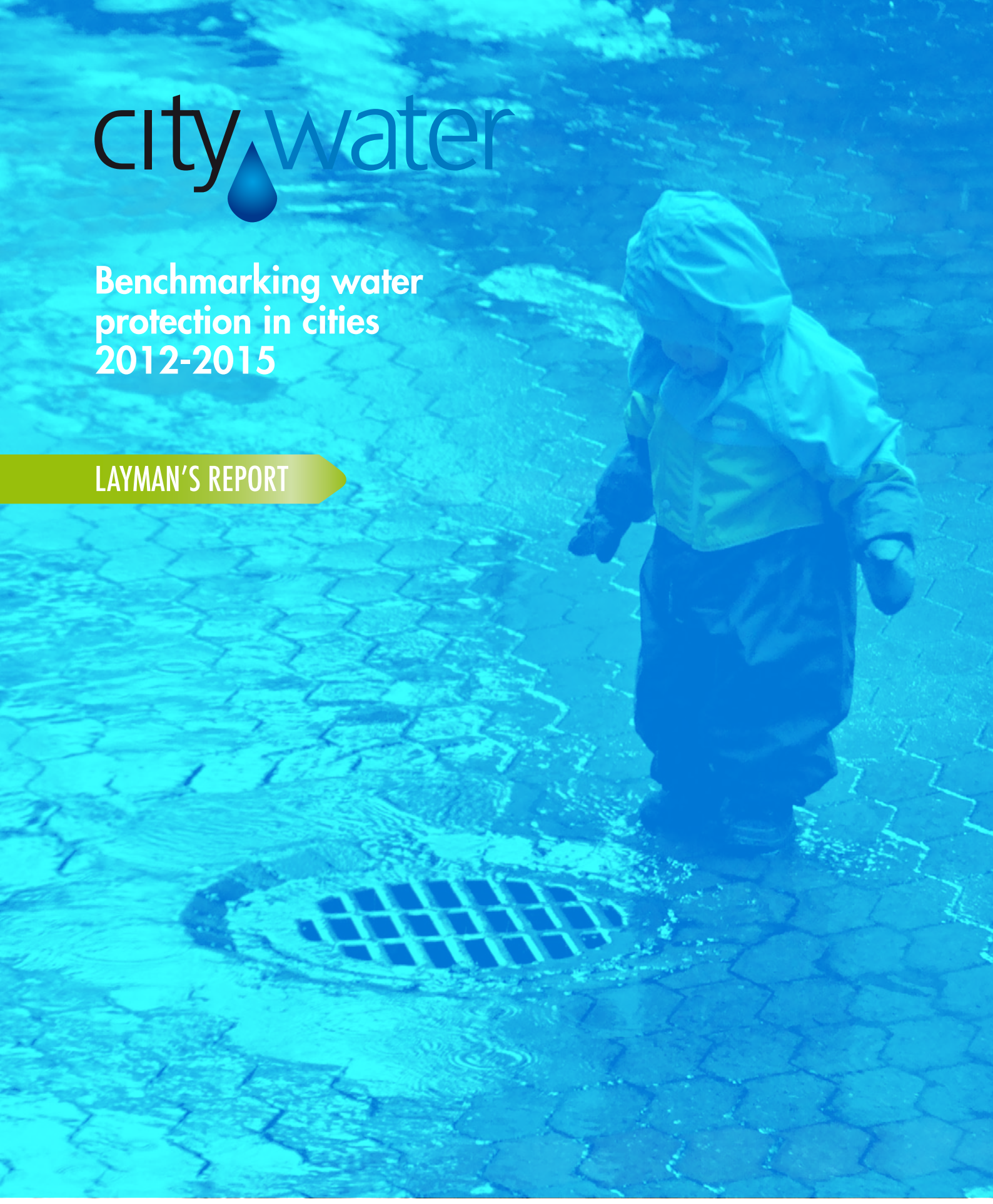


cityWater

Benchmarking water protection in cities 2012-2015

LAYMAN'S REPORT

LIFE11 ENV/FI/000909

Preface

CITYWATER – Benchmarking water protection in cities was a three-year (2012–2015) project led by the City of Helsinki. The City of Turku, Tallinn City and Tallinn University were partners in the project. The project was funded by the European Commission Life+ programme, the Finnish Ministry of the Environment and the partners.

CITYWATER aimed for better quality of local waters and the Baltic Sea by implementing and facilitating local water protection measures, especially within municipalities. The project also strove to change working procedures by increasing environmental communication and knowledge in municipalities in the Baltic Sea Region. The project was realized under the umbrella of the Baltic Sea Challenge network, a joint initiative of the Cities of Helsinki and Turku, Finland to save local waters and the Baltic Sea.

This Layman's Report contains the main findings and results from the project. Should you be interested in further reading, please visit **www.citywater.fi**, **www.balticseachallenge.net** and **www.waterprotectiontools.net.**

Photo: Niklas Sjöblom

Contents

The CITYWATER project
– Summary of objectives and actions

The objective of the CITYWATER project was to increase water quality of local waters and the Baltic Sea by implementing and facilitating local water protection measures. To meet this objective, the project worked with the following issues:

1) raising awareness on the part of civil servants and citizens by developing **environmental communication**
2) providing arguments by identifying the **costs and benefits** of water protection to the local actor
3) showing examples by implementing **sustainable storm water solutions**
4) increasing commitment by presenting **The Baltic Sea Challenge network**
5) collecting the results on a **Tools for water protection** web page

1. Environmental communication: Two questionnaires in the Baltic States, one for citizens and one for civil servants (also in Finland) where distributed on general knowledge and attitudes considering water protection: who do you trust, what do you know, which issues are important, who should take the responsibility in water protection? Based on the results, a Communication Strategy for local actors, especially municipalities, was compiled in order to support an active approach in implementing measures and raising awareness for water protection.

Photo: Cities for a healthier sea project Photo competition (Interreg Central Baltic)

2. Costs and benefits: A cost-benefit analysis was made of water protection measures implemented in Finland and Latvia relating to residential storm water wetlands, waste water reception facilities without a special fee in harbours, buffer zones next to agricultural fields and waste water treatment plants. The analysis was able to reveal all the costs and benefits associated with the measure for its entire lifespan, thus supporting local actors in decision-making considering favourable measures.

3. Sustainable storm water solutions: Sustainable urban storm water management solutions were built in Tallinn and Helsinki. These solutions comprise a water course restoration and a biofiltration area respectively. In Turku a residential wetland, which will be realized when the neighbouring housing area is built in the forthcoming years, was planned. All solutions are especially targeted on purifying and retaining storm water in urban environments. Besides the ecological effect of the solutions, a very important aspect of this work was to show case the implementation process and increase knowledge on the subject both within the own organisation and the city. Also a brochure describing the solutions was compiled.

4. Networking: Local actors have actively been invited into the The Baltic Sea Challenge network by organizing seminars or local meetings, raising discussions on topical issues, and providing individual support. By joining the Baltic Sea Challenge network, local actors can find support for water protection work and gain visibility. The network also provides a framework within which to work, and aims to strive for.

5. Tools for water protection:
The results of the CITYWATER project are collected on the Tools for water protection ***www.waterprotectiontools.net*** web page. The page provides information, examples and recommendations as well as tools on every theme in order to support civil servants in their work for better water quality in local waters and the Baltic Sea.

1. Environmental communication

Many municipal water protection measures, such as building or renovating treatment systems or promoting environmentally friendly everyday consumer choices, depend on the support and activity of citizens and other stakeholders. The success of the measure may thus largely depend on the awareness, knowledge and behaviour of the people involved. Communication and education are the main tools in achieving change in these respects.

Within the CITYWATER project, Tallinn University has compiled a communication strategy for local level water protection activities. The aim of the strategy was to enable and enhance the use of communication as a tool for local level organizations in order to increase knowledge and activate and inspire people to participate in environmental actions. The communication strategy is based on the problems and practices identified by two background surveys compiled within CITYWATER. One of these was looking at the water protection-related attitudes and activities among citizens in the Baltic countries. The other was directed at coastal municipalities in the Baltic countries and Finland.

EMPOWERING LOCAL ACTORS

The problems in local level water protection, as identified by the background surveys, largely stem from different visions of water protection, or from the fact that awareness and motivation do not necessarily translate into behaviour.

In order to empower local actors, communication tools presented in the communication strategy suggest using a combination of creating awareness, building motivation and giving nudges to change behaviour. This can, for example, be done by means of short-term campaigns, building infrastructure or organising public discussions. More important, however, is the general inclination to create trust and a shared vision between the actors. The most essential aspect for a municipality is to start with the analysis of the local situation: what are the problems, desired outcomes, important actors, current and desired resources etc.? Answering these questions will then help one to select relevant actions. Identifying the focal points where the local municipality, local citizen and environmental matters currently meet can provide the basis on which to start building new communication activities.

Photo: Karolin Kairo-Gasman

HIGHLIGHTS FROM THE BACKGROUND SURVEYS:

"Cannot do anything". People have low belief in their own capabilities in water protection, although they consider water protection to be necessary. When people were asked what they could do to protect the local water environment, half either answered that they cannot do anything or could not mention any activity.

"EU is the most important actor". People consider national governments, the European Union and industry as the most responsible actors in protecting the Baltic Sea. Local municipalities, however, see more responsibility for themselves and for the citizens.

"Municipality is the contact point". People regard the local municipality as the most important point of contact for environmental matters. As a way of influencing environmental decisions, people prefer notifying the local municipality or media.

"Municipalities want to raise awareness". Municipalities see pollution risks related to the citizens as substantial, and therefore raising the awareness of people as one of their main responsibilities in environmental protection. However, a lack of resources – money, knowledge, and human resources – often hinders the successful implementation of these activities.

*On the **www.waterprotectiontools.net** page you can find recommendations for strategic communication. This includes defining problems, setting goals, formulating possible messages to different stakeholder groups and selecting potential activities at the local community level.*

Publications by the CITYWATER project

Kaal, E., Olesk, A., Tampere, K. (2015a) Local actors and the Baltic Sea 1: attitudes towards water protection among the population of the Baltic countries. Tallinn University. Tallinn: Tallinn University & EU Life+ project CIYWATER – Benchmarking water protection in cities. http://www.waterprotectiontools.net/index.php/en/awareness-raisin-communication/communication/

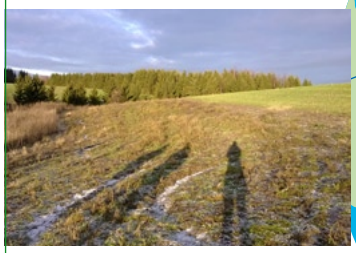
Kaal, E., Olesk, A., Tampere, K. (2015b) Local actors and the Baltic Sea 2: Water protection attitudes and activities in coastal municipalities. Tallinn University. Tallinn: Tallinn University & EU Life+ project CIYWATER – Benchmarking water protection in cities. http://www.waterprotectiontools.net/index.php/en/awareness-raising-communication/communication/

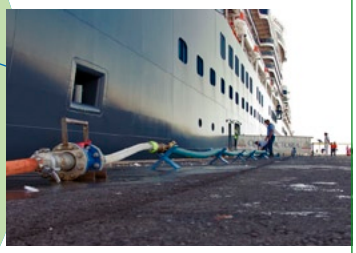
Tampere, K., Olesk, A., Kaal, E. (2015) Empowering local actors: communication strategy for local level water protection activities. Tallinn University. Tallinn: Tallinn University & EU Life+ project CITYWATER Benchmarking water protection in cities. http://www.waterprotectiontools.net/index.php/en/awareness-raising-communication/communication/

2. Costs and benefits

Why is water protection needed? What does it gain us and what does it cost? Often decision-making is focused only on the costs, ignoring the various benefits that water protection can provide both locally and at the Baltic Sea level. Decision-makers should, however, be aware of all the impacts of investment in order to make wise decisions from the societal perspective. The cost-benefit analysis is a method for comparing overall and long-term benefits and costs for a measure over its entire lifespan.

In the CITYWATER project, the City of Helsinki conducted a cost-benefit analysis study. The study covered five different measures within the themes of waste water treatment, sustainable storm water handling, agricultural measures and waste water reception in ports. The analysis aimed at providing information on the impacts of municipal water protection measures, the environmental benefits in monetary terms and the net benefits gained by society.





Pictures by:
Suomen Ilmakuva Oy &
Pori Water (Pori), Eliisa Punttila (Turku)
Vilmars Bogovics, Liepaja Water (Liepaja)
Eila Palojärvi, City of Lahti (Lahti)
Mikael Kaplar / Studio POiNT (Helsinki)

Wastewater treatment was centralized to the renovated Luotsinmäki plant in the Pori region. Old plants in the surrounding municipalities were run down, and the wastewater is lead via new transfer sewers. The investments improved treatment efficiency in the region.

The City of Turku owns and rents arable land to local farmers. Turku has included a special condition for rental contracts: farmers should establish extra wide buffer zones on riverside fields. This reduces nutrient leaching from fields.

Liepaja Water, a municipal company, invested in the replacement of new aerators and a PC-program in a municipal wastewater treatment plant. Aerators are important equipment in the biological treatment process, and the PC-program controls the whole process. The investment improved the treatment efficiency of the plant.

A sustainable storm water system was built in a new residential area by Lake Kymijärvi in the City of Lahti. Creeks, wetlands and ponds collect storm water from the residential area and retain and purify it before it flows into the lake. The storm water system also provides recreational benefits for the residents.

The Port of Helsinki has invested in reception facilities in harbours, which collect sewage water from passenger ships with no special fee in order to reduce dumping of waste water at sea. The waste water collected is treated in the municipal treatment plant.

LOCAL ACTIONS MATTER

The results of the cost-benefit analysis showed that local actors play a crucial role in protecting the Baltic Sea. Remarkable nutrient load reductions are achieved by technical solutions, but natural and sustainable solutions were also estimated to reduce the nutrient load rather efficiently. The measures studied also provided many other benefits, especially at a local level. In conclusion, all the measures were worthwhile implementing from a social welfare perspective (when comparing costs and benefits over the entire life span of the measure). The study encourages municipalities to implement different kinds of water protection actions, because diverse and well-planned water protection measures provide multiple benefits. If the state of the Baltic Sea remains poor, the long-term net benefits of all the measures will be substantial.

Photo: Cities for a healthier sea project Photo competition (Interreg Central Baltic)

*On the **www.waterprotectiontools.net** web page you can find a question list, which helps identifying the need to perform a cost-benefit analysis. The page also introduces briefly how the analysis should be performed, and which alternatives the method has. A summary of the full report is also downloadable here.*

Publications by the CITYWATER project

Punttila, E. (2014). Cost-benefit analysis of municipal water protection measures: Environmental benefit versus cost of implementation. City of Helsinki Environment Centre publications 21/2014. Helsinki: City of Helsinki & EU Life+ project CITYWATER Benchmarking water protection in cities. http://www.hel.fi/static/ymk/julkaisut/julkaisu-21-14.pdf

Punttila, E. (2015). Executive summary. Cost-benefit analysis of municipal water protection measures: Environmental benefits versus costs of implementation. Helsinki: City of Helsinki & EU Life+ project CITYWATER. http://www.waterprotectiontools.net/index.php/en/economics-financing/cost-benefit-analysis/

3. Sustainable storm water management solutions

The renewal of the current storm water management is a topical issue in the Baltic region, where several cities aim to shift from pipe solutions to sustainable management. At the same time, cities commonly feel a need for better coordination of storm water issues within the city organisation and among departments. General information on and experiences of sustainable management solutions are, however, still scarce, and examples of best practices are needed in support of decision-making, implementation and resource allocation.

Within the CITYWATER project, Tallinn City reconstructed a storm water course in Tallinn Botanic Garden and the City of Helsinki built a biofiltration area in the central park. The City of Turku planned a wetland, which will be connected to a future adjacent residential area in Hirvensalo. Also, a storm water brochure describing the solutions was compiled. As the overall aim of the project was to increase water quality, the solutions have primarily been planned on the basis of quality management, and secondarily based on quantity management.

STORM WATER?

Storm water is rain and meltwater collected in urban areas from hard surfaces such as asphalt and roofs where it cannot permeate the ground. Also, water from other sources such as firefighting or tunnel or street rinsing etc. may end up in the storm water management system.

IS THERE A PROBLEM?

Climate change predictions indicate that rainfall and cloudbursts are increasing. As urban construction becomes denser, green surfaces permeable to rainwater are decreasing in size and number. Traditional storm water management based on leading water through pipes is, therefore, insufficient, and urban flooding and wastewater overflows have become a common problem, causing safety risks and extensive damage with high repair costs. Furthermore, storm water is often contaminated by solids and harmful substances originating from e.g. erosion, traffic and various coatings and is, therefore, polluting local water systems. The diminishing infiltration of rain water further lowers the groundwater table, causing the soil to become brittle, which impairs constructional possibilities.

Photo: Eliisa Punttila

HOW TO HANDLE INCREASING RAINFALL?

Rainwater and meltwater can be turned into a resource by allowing the water to become a visible feature of urban environments instead of leading it away directly. Through sustainable storm water management, water can be used to create green and blue urban areas. Ponds, creeks, parks and green roofs are just a few examples of sustainable ways of handling water, while enhancing the comfort of the inhabitants and the value of urban areas.

Photo: City of Helsinki Public Works Department

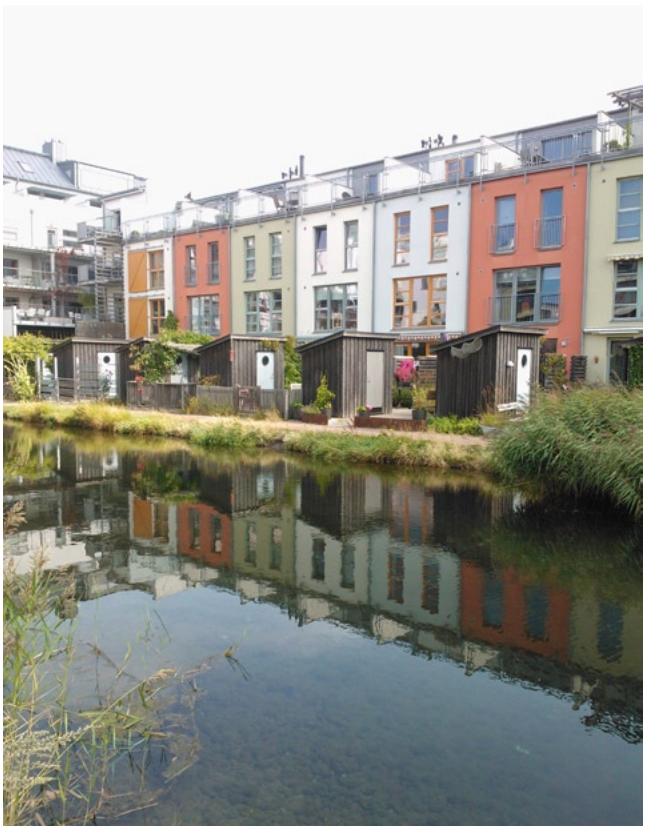


Photo: Satu Viitasalo-Frösén

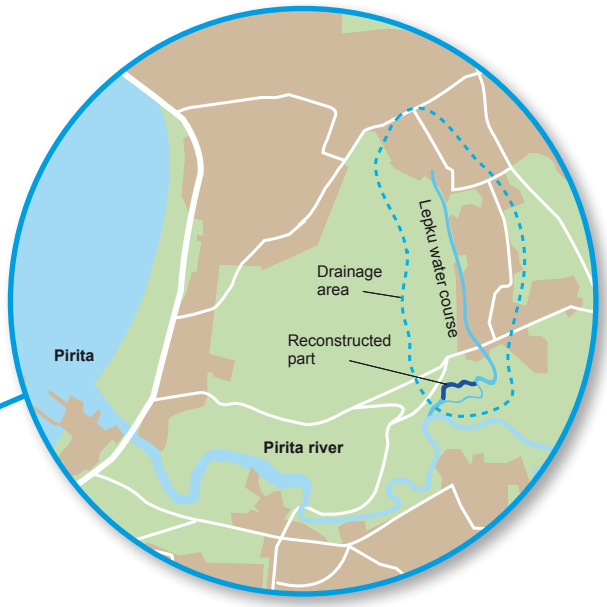
*On the **www.waterprotectiontools.net** web page you will find recommendations including planning, defining aims, budgeting etc. regarding how to implement sustainable storm water solutions. You will also find general information on storm water as well as examples of sustainable management as well as a storm water brochure compiled in the project.*

Publications by the CITYWATER project
Urban rain – wasted in drain. Sustainable storm water solutions for greener cities. Helsinki: City of Helsinki & EU Life+ project CITYWATER. Brochure, 2015. http://www.waterprotectiontools.net/index.php/en/decision-making-implementation/storm-water-solutions/

Reconstruction of a water course in Tallinn, Estonia

Recent residential development in the Lepiku area has increased the amount of water entering the local water course feeding River Pirita. This development has had a negative impact on water quality. In addition, the original limestone walls in the water course had collapsed, and the riverbed and culverts were blocked by sediment. The solids in the water were of particular concern, since they contain nutrients, heavy metals and other harmful substances.

Impact on storm water quality: the reconstructed water course will improve the quality of rainwater and meltwater and protect River Pirita. Meandering of the creek, shallow thresholds on the bed of the water course and extended flooding areas were used to retain the water flow and increase sediment settlement. Furthermore, solids are filtered out of the water by the wetland vegetation on the sides and bottom of the water course. In order to prevent erosion, the walls of the water course have been lined with limestone.



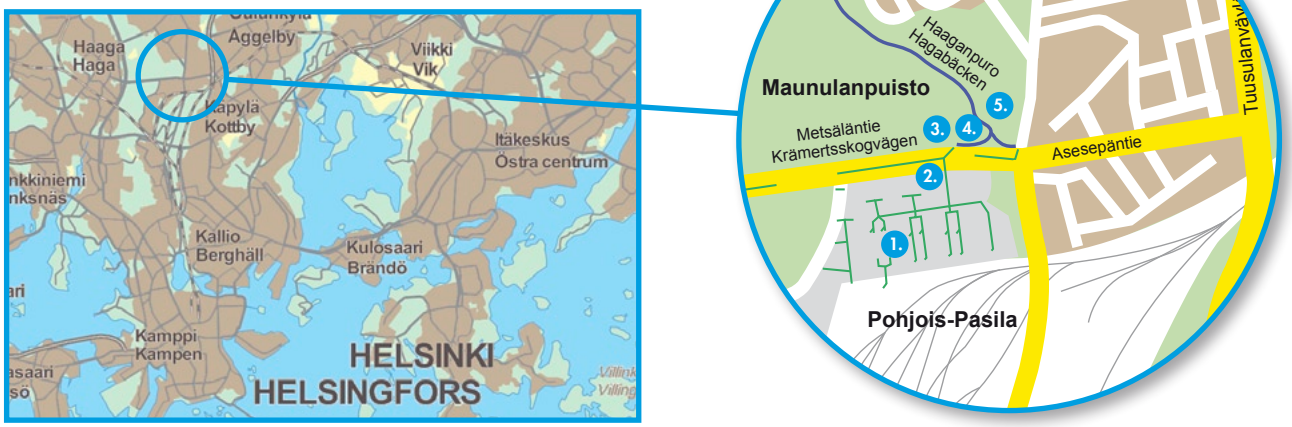
A 200 m section (dark blue line) of the Lepiku watercourse (bright blue line) was reconstructed. The water course runs through the Botanic Garden, collecting rainwater and meltwater from the drainage area (dotted line) and feeding River Pirita (light blue marking), which is a Natura 2000 site.

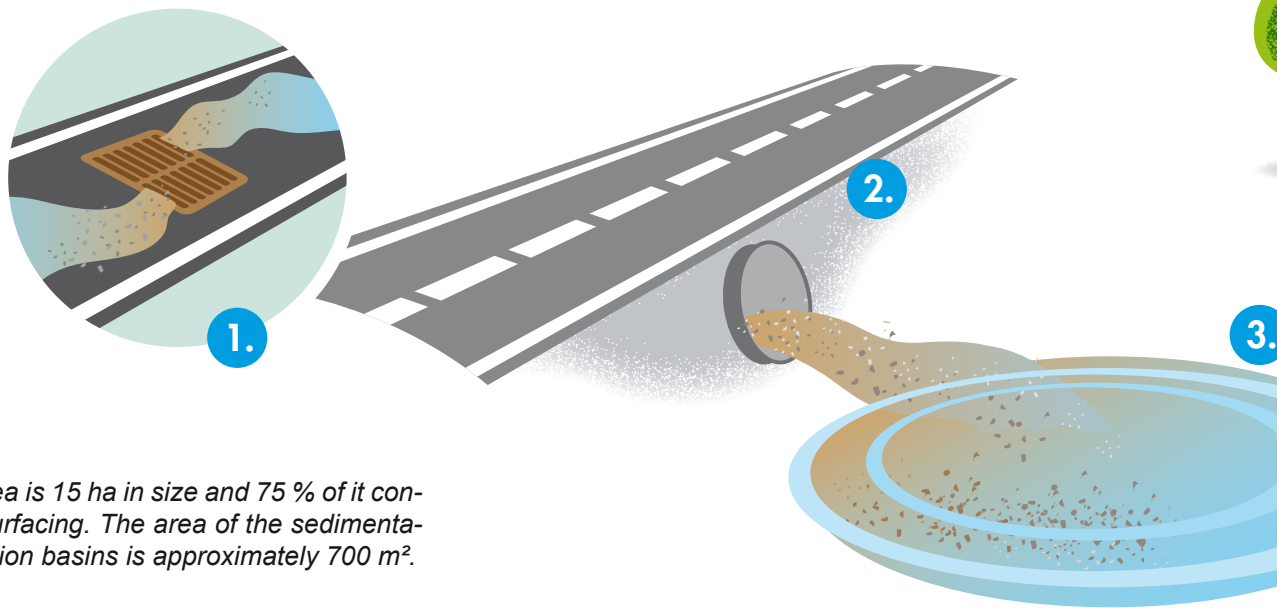
Before construction, without vegetation, and once the vegetation was in place. The water in the Lepiku water course is red in colour, due to naturally occurring iron. Photos Karolin Kairo-Gasman.

Biofiltration in Maunulanpuisto Park in Helsinki, Finland

Rain and meltwater from the Metsäläntie Road and the adjacent southern area are collected in storm water pipes and were previously led directly into a ditch feeding into the Haaganpuro Brook. As the drainage area is heavily trafficked and paved with asphalt, high sediment particle, nutrient and oil levels have occasionally been measured in the rainwater and meltwater entering the Haaganpuro Brook. Such contamination is harmful to the fish stocks (e.g. trout) and other organisms in the brook, which is why the storm water needs cleaning.

Impact on storm water quality: the biofiltration solution implemented will purify rainwater and meltwater originating from central parts of the city and improve the water quality in the Haaganpuro Brook. The basin, vegetation and sandy layers capture particles, bind nutrients and absorb harmful substances.



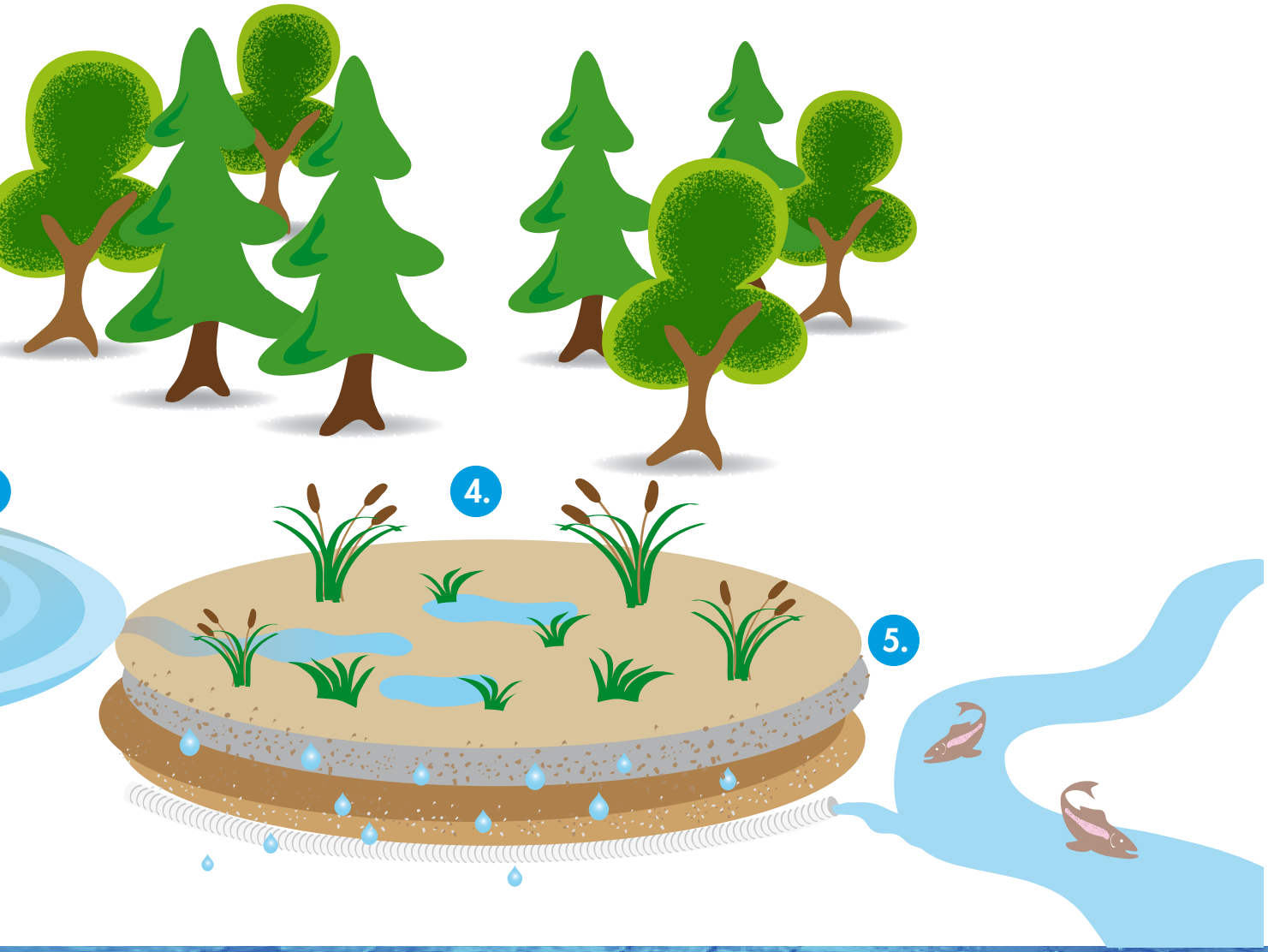


The drainage area is 15 ha in size and 75 % of it consists of paved surfacing. The area of the sedimentation and biofiltration basins is approximately 700 m².



Prior to construction, after trees were cut and during construction before vegetation was in place. The constructed biofiltration is the first of its kind in Helsinki. Photos: Kajsa Rosqvist

A biofiltration area was constructed in Maunulanpuisto Park. Rainwater and meltwater collected in drains from the drainage area (1) are channelled under the Metsäläntie Road (2). Instead of being lead to a ditch feeding the Haaganpuro Brook, the water enters a sedimentation basin (3), in which a large part of the suspended material sinks to the bottom. The water then continues its journey to the biofiltration area (4) where it is allowed to pool, giving the vegetation time to bind nutrients and heavy metals. After this, the water slowly permeates the filtrating sandy layers under the vegetation, during which harmful substances are absorbed by microbiological activity. Finally, the purified water is fed into the ditch via a drainpipe and onwards into the Haaganpuro Brook (5).



Planning a residential storm water wetland in Turku, Finland

Lake Illoistenjärvi in Hirvensalo is small and eutrophicated, and its catchment area is subject to major changes as nearby fields and forest will become residential areas in the future. Residential construction will enhance the amount of storm water being formed in the area due to increased surface pavements resulting from housing. Also, the quantities of sediment, nutrients and harmful substances which end up in the lake, will increase, particularly during phases of residential construction. Thus, to protect both Lake Illoistenjärvi as well as its outlet, the coastal areas of the Baltic Sea, the storm water needs management.

A construction plan has been created for a residential storm water wetland called Häppilännotko in Hirvensalo in Turku. The wetland will be constructed in the Peippolanoja ditch in future years, parallel with the construction of local infrastructure. Photo: Anna Räisänen

Impact on storm water quality: the wetland will purify rainwater and meltwater collected from a future residential area and protect Lake Illoistenjärvi. The vegetation in the wetland will bind nutrients from the water, slow down currents and capture particles.

The wetland will collect storm water from the drainage area (dotted line) where residential construction (blue lined areas) will increase substantially. From the wetland, the water will be fed into Lake Illoistenjärvi and further on into the Baltic Sea. The drainage area is approximately 1.7 km², and the planned wetland will be 2,700 m² in size.

4. Networking

Local actors commonly feel alone in their water protection work. Networking, however, enables exchange of experiences, encouragement and support among actors. It also enables interaction among peers – Mayor to Mayor, teacher to teacher, sewage plant operator to another operator. The Baltic Sea Challenge offers an international network for local actors. Here, actors committed to Baltic Sea protection by concrete actions can meet and share their challenges.

The CITYWATER project has actively invited local actors to the Baltic Sea Challenge network. Local actors have been engaged in seminars or local meetings in Estonia, Latvia, Lithuania, Sweden, Russia and Finland. The project has also raised discussions on topical issues and provided individual support for local actors. During project time, 15 new international partners have joined the network and over 700 contacts to people have been made. The project also initiated the Baltic Sea Challenge English Facebook page **https://www.facebook.com/TheBalticSeaChallenge/**

THE STRENGTH OF A NETWORK IS IN ITS MEMBERS

Together in the Baltic Sea Challenge network, members share best practices, organise events and produce materials in order to protect the waters. Thus the network brings many benefits to its members such as the expertise of the other network members, support for planning measures and a strong communication channel. Also, joint projects with external funding have been launched within the network.

During the CITYWATER project, the international network of the Baltic Sea Challenge has at the same time grown and shrunk. The number of members is substantially bigger than ever before, but at the same time the actors have come closer to each other and the step to act or make contact feels smaller. During CITYWATER several of the new members have also started their own new projects in support of local water protection work and have engaged their local networks. The Baltic Sea Challenge will also after CITYWATER continue to organise events and communicate actively, so please join!

Photo: Tina Nyfors

Photo: Jussi Karmala

Photo: Tina Nyfors

The Baltic Sea Challenge network is an informal, easy and direct co-operation tool for water protection. It enables learning new practices and building bridges between different organisations and operational models – private and public, large and small, local and national.

Photos: Jussi Karmala

THE BALTIC SEA CHALLENGE

The Baltic Sea Challenge initiative for the protection of the sea was launched in 2007 by the Mayors of the Finnish cities of Helsinki and Turku. Today, the network has over 230 members in the Baltic Sea Region, representing municipalities, NGOs, companies, educational institutions, universities and regional organisations in the Baltic Sea Region. These members are committed by their own actions to work for cleaner local waters.

THE BALTIC SEA CHALLENGE

Helsinki and Turku updated their joint Baltic Sea Action Plan for 2014–2018 with 75 water protection activities, and the new operating model was set out with the five priorities for the Baltic Sea Challenge network:

- Clear coastal waters
- Healthy marine habitat
- Clean and safe water traffic
- Systematic water area management
- Active Baltic Sea citizenship

www.balticseachallenge.net

Visit the ***www.waterprotectiontools.net*** *web page for information on how to join The Baltic Sea Challenge and for tips and support on local water protection measures to implement.*

5. Tools for water protection

Local actors promoting water protection often encounter several challenges. These might be related to the need for raising local awareness, finding economic or ecological arguments for the activity or finding examples of measures or funding instruments that have been realized or utilized by peers.

The CITYWATER project resulted in practical knowledge on the form and need of communication related to water protection, the benefits of applying a cost-benefit analysis at a municipal level, guidance on the implementation of a storm water solution, and the supportive function of a network (as described in earlier sections). The ***www.waterprotectiontools.net*** web page compiles all results in order to support the implementation of water protection activities at the local level in municipalities, associations, companies and other organisations. Here you will find background information and tools as well as examples and practical tips on water protection measures implemented.

Photo: Tina Nyfors

IN SHORT THE TOOLS FOR WATER PROTECTION PROVIDES:

- Information on water protection solutions and tools
- The Bank of actions, a map full of inspiring and useful examples of practical water protection actions.

  Network members can share their water protection measures on the map and obtain visibility for their work.

  The Bank of actions also includes water protection actions from the CITYWATER project: storm water solutions, cost-benefit analysis case studies, communication strategy and networking events.
- Guidelines and Recommendations for planning and implementing water protection actions
- Additional material for further reading, such as useful links and downloadable material

www.waterprotectiontools.net

6. Lessons learned – meeting the challenges

DIFFERING BACKGROUNDS

The relationship to the Baltic Sea varies among the citizens in the Northern countries and the Baltic States. One can identify several reasons. For instance, due to the historical background, people in the Baltic States do not spend as much leisure time along the Baltic Sea coast as people in the Northern countries do. Furthermore, the Baltic Sea coast looks very different, thus also expressing the environmental problems differently among countries. In a sheltered archipelago, as in the one in Finland, excess nutrient loading has a direct impact on the local water environment, and the effects of water quality deterioration are usually visible to the citizens. Along an exposed coast as the one in Latvia, effluents are more easily flushed further away, masking the problem. In addition, a poor economic or political situation or a lack of knowledge of how to apply for funding also impacts capabilities.

The above-mentioned circumstances have been suggested as diminishing people's affection for or adherence to the Baltic Sea, and thus reducing the priority of Baltic Sea-related environmental questions on the agenda. For instance, the majority of the inhabitants in the Baltic Sea countries tend to view it as a necessity that waste water treatment plants of their own city, professional fishermen, industry, sea transports and ports take actions to improve the Baltic Sea environment. However, there are great differences in statements considering the role of the inhabitants themselves, on the state of the sea as well as on their personal impact on the Baltic Sea (Söderqvist et al., 2010). A large group of the respondents in Finland and Sweden think that the state of the sea is poor and agree that they personally affect the state of the Sea, compared with citizens in Estonia, Latvia and the St Petersburg area. The background reports (Kaal et al., 2015a, b) compiled in the CITYWATER project support these earlier findings. The results show that people in the Baltic States feel that there is nothing they can do personally to save the sea, but ascribe international institutions such as the European Union or the state level government agencies such as the Ministry of the Environment the greatest role in saving the sea.

THE ROLE OF MUNICIPALITIES

In practice, nutrient reductions are brought about at a local level by local actors. The benefits from increased water quality are also primarily impacting the local level, as stated in the cost-benefit analysis compiled in the CITYWATER project (Punttila, 2014). As municipalities usually manage several of the most important local loading sources with significant reduction potential (Punttila, 2014), the responsibility and potential gain of municipalities in water protection are huge, even if ordinary people seem unaware of them (Kaal et al., 2015a). Thus, on the one hand, municipalities need to take the role they deserve, i.e. to take control of managing waste waters, land-use, planning, ports etc. in a responsible way. On the other hand, they need to tell citizens about their actions, as well as increase awareness regarding what ordinary people can do themselves (Tampere et al., 2015). **But, if there are significant benefits from clean coastal waters in forms of increased recreational opportunities and tourism to name a few, why have all municipalities not taken this responsibility? When asking this question at water protection events and discussions held during the CITYWATER project and within the Baltic Sea Challenge network, local grass root level actors especially in the Baltic States frequently mention the following challenges: there is no funding and we have weak monitoring or feasibility studies on starting points; we lack commitment and support, examples and guidelines.**

Photo: Cities for a healthier sea project
Photo competition (Interreg Central Baltic)

A common sea with common challenges and a common network

The CITYWATER project has been working with meeting the challenges that local actors experience in water protection in order to increase empowerment and activity. Below, the main recommendations are listed.

The Baltic Sea Challenge offers a network for tackling challenges together. It provides a concept within which to work, with common goals and themes and a great deal of material to use. It is easier to gain **commitment** at home when you have something to commit to and facts to present. Every partner in the Baltic Sea Challenge network can also share their measures on the Tools for water protection web page or in seminars and obtain visibility and acknowledgement. The compiled communication strategy can also offer methods and messages to improve communication in support of commitment.

Find peer **support** in an experienced partner to work with within the Baltic Sea Challenge network, and learn from carrying out your project! New project ideas and funding opportunities are continuously discussed and presented during international events organized by the network.

There are several European Union-supported **funding** programmes (e.g. EU Life+, Interreg programs, ERDF, Horizon2020) offering financial support for projects and investments as well as banks and corporations providing loans for environmental projects. Several EU-financed programmes support investments and related **feasibility studies** with **monitoring**. Here, the implementation of sustainable storm water solutions funded with the support of project money (EU Life+) within the CITYWATER project can be used as an example.

Use the argumentation and **guidelines** listed in the CITYWATER cost-benefit analysis study. Is the planned investment socially worthwhile, and is it in fact so that, without the investment, you will lose important benefits due to poorer water quality? Can you list the benefits and give them estimated monetary values?

Find **examples** and recommendations of water protection measures that have been implemented on the ***www.waterprotectiontools.net*** web page compiled in the CITYWATER project. Again, the implementation of sustainable storm water solutions may stand as one example. In the Tools for water protection web page, a step-by-step guideline for implementation is compiled.

In conclusion, every new actor and action within the Baltic Sea Challenge network will be a concrete indicator of a better future for the local waters and the Baltic Sea. Awareness and activity for the Baltic Sea is rising, but the speed should be accelerated. There is thus a need for more strong driving actors to inspire others. **Join us!**

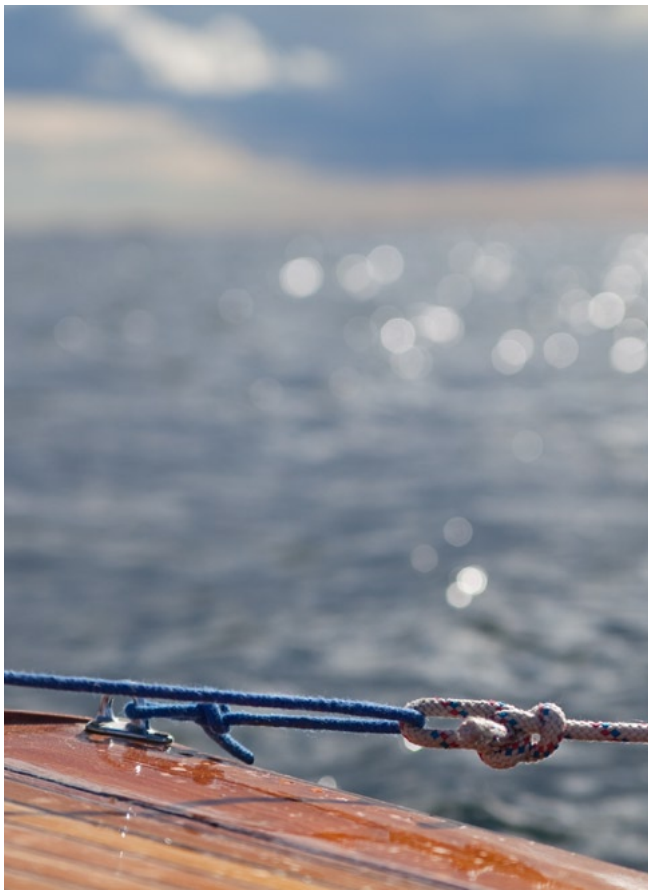


Photo: Mats Vuorenjuuri

7. Background

The Baltic Sea –Threats, services and benefits

The Baltic Sea is bordered by nine countries but has up to fourteen countries within its drainage area. For the 85 million inhabitants living here, the sea provides many kinds of benefits such as food and recreational opportunities. In many Baltic Sea countries as many as 80–90% of the people are used to spending their leisure time swimming or walking by the sea (Söderqvist et al., 2010).

At the same time, the Baltic Sea is an example of an environmental crisis on a multi-national scale. The sea suffers from severe threats due to a variety of human activities. Eutrophication is one of the main threats to the Baltic Sea, and has shown to have a devastating impact on ecosystem functioning and diversity. Thus, in an anthropogenic view, eutrophication is directly reducing food supply and recreational opportunities (SEPA, 2008).

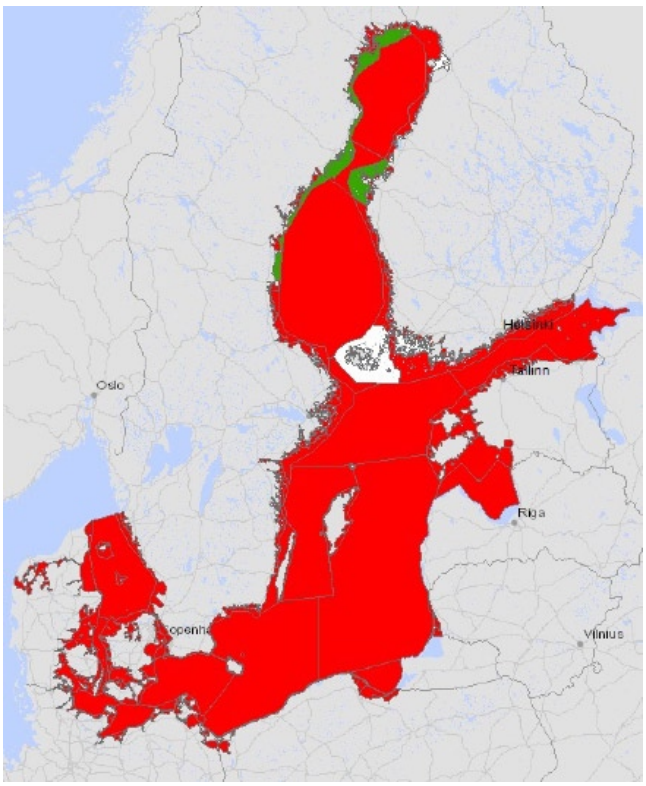
As the sea and its benefits are shared by several states, its problems should also be solved by shared efforts. Most topics are well investigated, and there is a common understanding of what should be done. However, so far international conventions together with national and intergovernmental legislation have not been binding or powerful enough to bring a satisfying improvement of the state of the sea. Joint protection is challenging for many reasons, not least because

Photos: Cities for a healthier sea project Photo competition (Interreg Central Baltic)

the impacts become apparent only later and the division of the benefits and costs of protection is asymmetric (BalticSTERN, 2013, Hyytiäinen and Ahlvik, 2014).

In order to achieve a good ecological status of the Baltic Sea in the future as described in the Baltic Sea Action plan by the Baltic Marine Environment Protection Commission (HELCOM), the total annual nitrogen load should be reduced by 118,000 tonnes, and the total annual phosphorus load by 15,000 tonnes (HELCOM, 2013). Although HELCOM sets state-level reduction targets, the reductions are in practice realised by water protection measures implemented at a local level.

Municipalities in the Baltic Sea watershed manage land-use planning, environmental services and several permits for local activities. Thus, they have a huge responsibility, but also an opportunity, in several decisions and actions that have a direct impact on the state of local waters and the sea. As the effects of nutrient loading influence local waters at first hand, municipalities and their citizen will be the first to benefit from improved water quality.



Eutrophication status of the Baltic Sea in open and coastal sea areas in 2007–2011 (green = good ecological status; red = less than good ecological status, based on EU classification) (modified from HELCOM, 2014). Photo: Cities for a healthier sea project Photo competition (Interreg Central Baltic)

THE BALTIC SEA

Nature
One of the largest brackish water bodies in the world. Stress-sensitive due to its shallow depths, low water replacement, low salinity and low number of species

Watershed
85 million people
14 states

Main threats
Nutrient loadings, hazardous substances, general littering, oil spills, microplastics, all kind of anthropogenic utilization related to constructions, traffic, over-fishing etc.

Eutrophication
Definition: A process where nutrient (nitrogen and phosphorous) over-enrichment in the water stimulate excessive plant growth.

Nutrient sources: Municipal waste water treatment plants, industry, fish farms and shipping produce point source loadings. Diffuse loading originate from agriculture, forestry, riverine inputs, atmospheric deposition and storm waters.

Problems: Excessive growth of algae and plants, algae blooms, oxygen depletion in bottom waters, reduced visibility and changes in the composition of species.

Guidelines and legal frameworks
EU Baltic Sea Region Strategy, the Water Framework Directive, the Marine Strategy Framework Directive, The Baltic Sea Action Plan by HELCOM

(HELCOM, 2011, 2014, Environment.fi)

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Photo: Niklas Sjöblom

The CITYWATER – Benchmarking water protection in cities project (2012-2015) was co-funded by the European Commission Life+ funding instrument, the Finnish Ministry of the Environment and its partners, the City of Helsinki, City of Turku, Tallinn City and Tallinn University. The CITYWATER project was realised under the umbrella of the Baltic Sea Challenge network, a joint initiative of the Cities of Helsinki and Turku, Finland, for saving local waters and the Baltic Sea. The total budget was MEUR 1.2.

www.citywater.fi
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THE BALTIC SEA CHALLENGE

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Ministry of the Environment

LIFE11 ENV/FI/
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Publication design: Unikuva.fi