

BALTIC SEA CHALLENGE – NETWORKING AND EXPERIENCE EXCHANGE ENHANCING THE IMPLEMENTATION OF CONCRETE WATER PROTECTION MEASURES

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ABSTRACT

Watercourses are affected by eutrophication, harmful substances, maritime traffic and leisure boating, dredging, littering and building of infrastructure. On the other hand, nature is an important factor for the well-being of coastal municipalities and industries. Monetary value of the ecosystem services produced by the Baltic Sea is about 5 billion Euros annually. These regulating services, natural resources and recreational services are responsible for e.g. recycling of nutrients, flood prevention, providing fish stocks and a framework for tourism. The protection of waters is governed by international and national laws, intergovernmental conventions and regional or local environmental permits. However, also the implementation of EU or HELCOM regulations is usually carried out on the local level. Municipalities, ports and water utilities are examples of local actors which can set their own, more ambitious goals and take further steps for being exemplary – not only complying with regulations but accomplishing voluntarily measures for water protection. Cities of Helsinki and Turku in Finland see the state of the Baltic Sea as a basis for their competitiveness. They decided in 2007 to launch the Baltic Sea Challenge initiative for the protection of the sea: they published a joint Baltic Sea Action Plan with almost 40 activities that were additional to legal requirements, and challenged other organisations to join. In 2014 the network includes 200 organisations around the Baltic Sea. Together, events are organised, materials produced and best practices shared, in order to protect the waters. The network is free of charge and open to all. Helsinki and Turku updated their joint Baltic Sea Action Plan for 2014–2018, and new operating model with priorities for the network were set out. Baltic Sea Challenge continues to provide benefits and function as a strong communication channel for members, while retaining its distinctive nature as a free-form, easy and direct network.

KEYWORDS

Baltic Sea, water protection, cities, municipalities, voluntary, cooperation, networking, network mobilization

1 INTRODUCTION

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The semi-enclosed Baltic Sea in northern Europe is one of the largest brackish water bodies in the world. It is very sensitive to human pressure due to its shallowness, low salinity and slow replacement of water. In wintertime part of the sea is covered by ice for several months, making it even more vulnerable. Eutrophication is the main threat to Baltic Sea ecosystems but also heavily contaminated sediments, adverse effects from hazardous substances, overfishing, intensive shipping and other pressures have caused e.g. ecosystem regime shifts, altered food web structures and decreased availability of sea areas for recreational purposes (special issues of *Ambio* 1990 and 2007). Baltic Sea even boasts the world's largest human-induced dead zone in its anoxic deep waters inducing further internal loading from the sediments, but the only way of improve the state of the sea is to reduce external loading to it (Conley, 2012). The Baltic Sea is presently bordered by nine countries; Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden and Russia. The sea covers 337,000 km², while its catchment area of 1.7 million km² extends over an area about four times as large as the sea itself and to another five countries (Figure 1).



Figure 1. Land cover, catchment area and sub-basins of the Baltic Sea. From HELCOM 2013.

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The regional work for the Baltic Sea environment to implement the Convention on the Protection of the Marine Environment of the Baltic Sea Area – Helsinki Convention, adopted in 1974 – is carried out by its governing body, the Helsinki Commission or HELCOM, established in 1980 (Backer and Leppänen 2012). For 40 years under the HELCOM umbrella the surrounding countries and later also EU commission have strived to reduce impacts of human pressures to the Baltic Sea marine environment, and e.g. the eutrophying phosphorus discharges have indeed decreased by about 50% (HELCOM 2011). The “ecosystem health” of the marine environment of the Baltic Sea was assessed by HELCOM in 2010, including effects of eutrophication, hazardous substances and biodiversity status (Figure 2a). Almost the entire Baltic Sea, both coastal waters and open sea areas are still suffering heavily from eutrophication, hazardous substances and declining biodiversity. Also the magnitude and distribution of cumulative impacts of anthropogenic pressures to the Baltic Sea have been quantified; fishing, inputs of nutrients and organic matter and inputs of hazardous substances comprised 25%, 30% and 30%, respectively, of the total cumulative impact (Korpinen et al. 2012, Figure 2b).

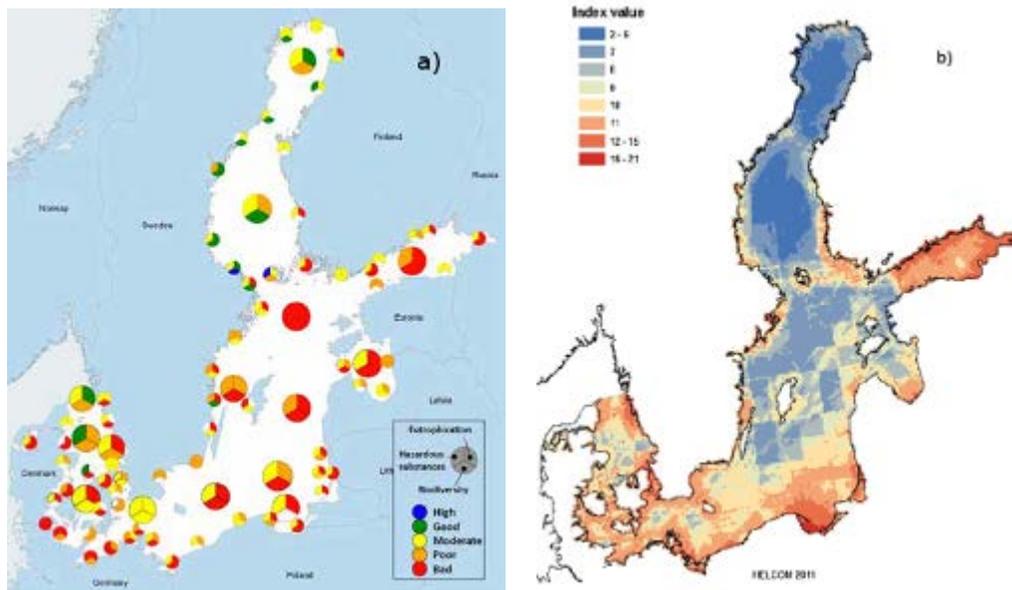


Figure 2 a. Presentation of the eutrophication status, hazardous substances status and the biodiversity status of the Baltic Sea. From HELCOM 2010. 2 b) Presentation of the sum of normalized 52 anthropogenic pressures, on the scale from 0 to 1. The assessment units are 5 km × 5 km squares. From Korpinen et al. 2012.

The Baltic Sea must be protected not only because it has intrinsic value, but also because it provides many kinds of benefits to human activities around, in and on it. Over 85 million people from 14 states live in the Baltic Sea catchment area, using inland waters on the watershed and the sea itself, and benefit from them (HELCOM, 2011). SEPA (2008a) has identified 24 different ecosystem services the Baltic Sea provides, of which only 10 are considered to be in good condition. These services consist of well-known ones like food production and recreational opportunities, but also supportive and regulative services – like breakdown of hazardous

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substances or recycling of nutrients – that are essential in sustaining the balance of marine ecosystems and supporting the human societies' activities. Eutrophication for example has shown to impact ecosystem functioning negatively by decreasing habitat provision, diversity and resilience of the sea. In an anthropogenic sense this means decreased food supply and recreational opportunities, for example (SEPA 2008a). In many Baltic Sea countries about 80–90 % of people spend their leisure time on the Baltic Sea or its shores by swimming or spending time by walking or picnicking (Söderqvist et al., 2010). The improvement of the state of the water environment would have direct impacts on coastal property values through recreational use improvements, for example. The total benefits in value of improved water quality capitalised in recreational property prices adjacent to the Baltic Sea, lakes and rivers would be 250-350 million Euros annually in Finland alone (Artell 2013). The whole value of the ecosystem services provided by the healthy Baltic Sea is about 5 billion Euros annually, which is almost twice as much as the total minimum cost of achieving the HELCOM targets for reduced nutrient inputs (SEPA 2008b). The Baltic Sea is thus heavily burdened by human activities but its recovery is possible and also cost-effective.



Figure 3. The cyanobacterial (blue-green algal) blooms in the northern Baltic Sea were significant again in summer 2014. Satellite image of the Baltic Sea from LANCE Rapid Response MODIS instrument on 25 July 2014. From Earth Observing System Data and Information System (EOSDIS), NASA.

2 LOCAL ORGANISATIONS IMPLEMENTING THE ACTIONS TO REDUCE LOADING

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The most severe problem, eutrophication of the Baltic Sea, is driven mainly by nitrogen and phosphorus over-enrichment in water due to external nutrient load from riverine inputs, atmospheric deposition, direct discharges to water and runoff from diffuse sources. Municipal waste water treatment plants, industry, aquaculture and shipping produce point source nutrient loading while diffuse nutrient loading sources are agriculture, forestry and storm waters from built-up areas (HELCOM, 2011). Nutrient loading causes excessive growth of algae and plants, algal blooms, oxygen depletion in bottom waters, decreased visibility and changes in composition of species (HELCOM, 2014).

Intergovernmental bodies agree upon many reduction schemes of loading or over-exploiting of resources as well as of definitions of good environmental status of marine environment. EU has directives and policies restricting, controlling or supporting the ways e.g. sewage treatment, agriculture or fishing are carried out in the Member States. However, Europe-wide regulations are usually not strict enough in the sensitive Baltic Sea area. HELCOM has thus set e.g. country-level nutrient reduction targets: to achieve a good ecological status of the Baltic Sea in the future as described in its nutrient reduction scheme, the Baltic Sea Action Plan (HELCOM, 2007), the total annual nitrogen load should be reduced by 118 000 tonnes and total annual phosphorus load by 15 000 tonnes (HELCOM, 2013). The nutrient loads to the Baltic Sea can be reduced both on coastal areas and inland, because all nutrient load reductions done in the Baltic Sea catchment area have an impact on the state of the Baltic Sea besides the local waters inland. However, the reductions in loading are realized through water protection measures implemented on the local level – by the sewage treatment plants, municipalities, ports, agricultural entrepreneurs and industries among others. HELCOM has also set over 200 individual recommendations during 40 years concerning e.g. shipping, sewage treatment, many industrial practices, construction of installations etc. in detail (e.g. HELCOM, 2007). The abovementioned local level actors can also have initiative and set their own targets to reduce loading or other pressures to the marine environment.

Local authorities, municipalities and cities, usually set their own targets and integrate the management of environmental matters as part of the city's core administration. The cities' environmental policies and management practices may be very ambitious, and the accomplishments peer-reviewed by other cities and external consultants. The peer review is a method used by cities to work together and critically review each other's environmental management system to improve the environmental performance against an ideal benchmark, and make suggestions for further progress – one example is the PRESUD method (Peer Review for European Sustainable Urban Development) (Dictus & Greedy 2009).

3 NETWORKING AS A MEANS TO ENHANCE IMPLEMENTATION

Important and complex societal issues, for example environmental problems, can only be solved by networking among different actors and by extensive cooperation. The formation of the intergovernmental Helsinki Convention already 40 years ago is an example of this (Backer and Leppänen 2012). However, more loosely built and diverse networks for saving the Baltic Sea have emerged during the last decade, including several different types of public and private actors interested in and committed to protecting the Baltic Sea. An issue network is a loose, temporary coalition of actors that emerges around a common issue to through collective action influence

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existing beliefs, norms, policies and practices (Dahan et al. 2006). Mobilisation of other network actors has been seen to form a key factor influencing network dynamics. Ritvala and Salmi (2009) investigated, how actors are being mobilized into acting towards a common goal of the clean Baltic Sea in practice. One of the three studied networks was the Baltic Sea Challenge.

The coastal cities Helsinki (capital, 621 000 inhabitants) and Turku (6th largest, 184 000 inhabitants) in Finland consider the state of the Baltic Sea and their local waters as a part of their competitiveness. Mayors of the cities decided in 2007 to launch the Baltic Sea Challenge initiative for the protection of the sea: they published a joint Baltic Sea Action Plan with almost 40 activities that were additional to legal requirements, to be implemented in different city departments. The two cities undertook to reduce their contribution to nutrient loading from point and diffuse sources, and the emissions from shipping and boating, in addition to developing their oil spill preparedness and response in order to improve the state of the coastal waters and the entire Baltic Sea. In addition to taking concrete action to protect the waters, the two cities committed themselves to invest in international environmental cooperation, research on water protection, and increasing general awareness of the state of the Baltic Sea and how to influence it. The Baltic Sea Challenge was incorporated in the cities' strategies on high level among the competitiveness issues (Helsinki 2009).

In addition to taking action themselves, Helsinki and Turku invited other actors to join the initiative. Between 2007 and 2014, over 200 organisations from Finland and other Baltic Sea countries have committed to the Baltic Sea Challenge. Almost half of these partners are associations that include interest groups, hobby associations, environmental associations and Rotary clubs, and approximately one third is made up of other cities and municipalities (Figure 4). Network partners also include small and medium-sized enterprises, large companies, and educational institutions from universities to elementary schools. Partners are required to draft a concrete Baltic Sea Action Plan of their own, and over half of the committed partners did that between 2007 and 2013. The network and its partners are provided with support and advice for creating partners' own concrete water protection measures, fora for exchange of experiences and learning new practices, visibility in communication materials and events, and possibilities to build bridges between different organisations and operational models – private and public, large and small, local and national. Also separate externally funded projects have emerged among the network partners. The network is free of charge and open to all, and the core activities and coordination are funded by the cities of Helsinki and Turku.

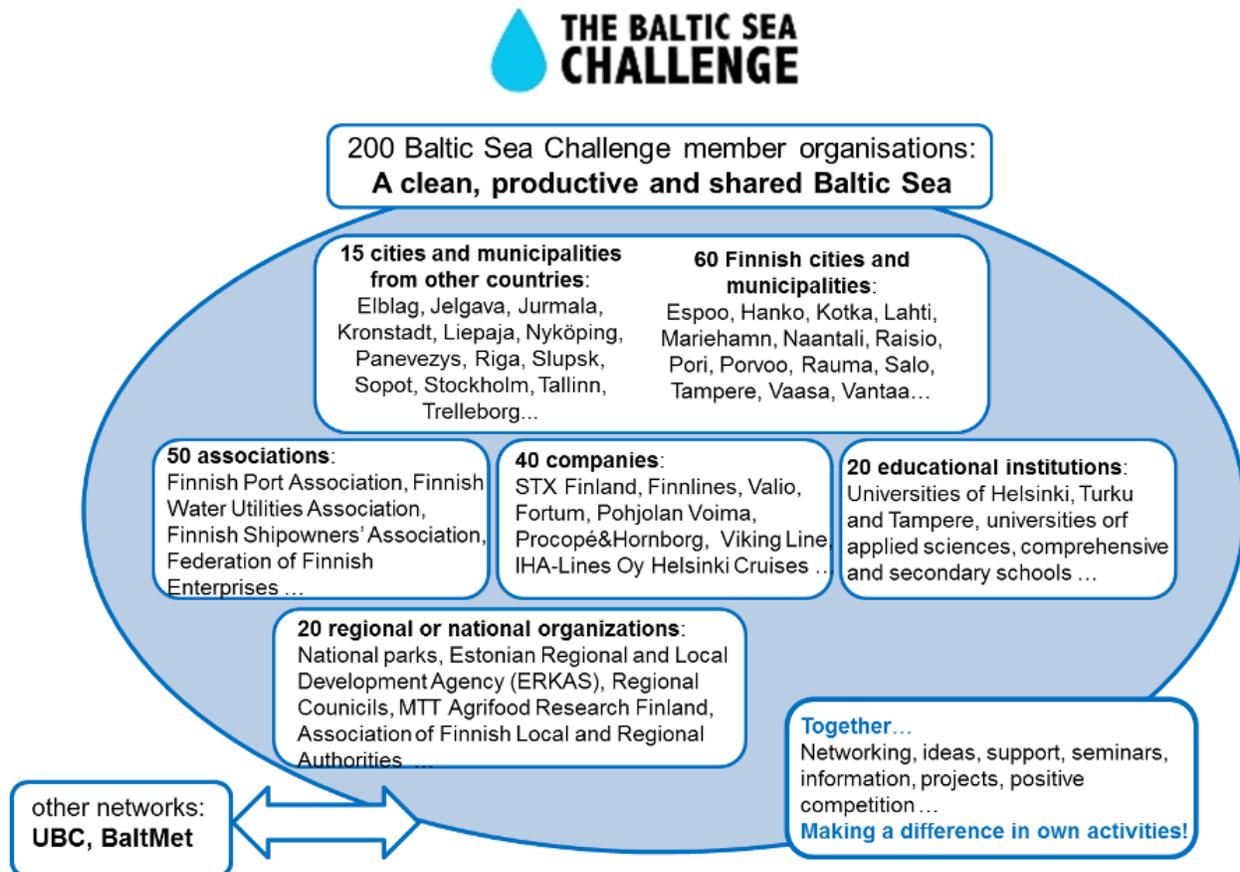


Figure 4. Chart of different organisation groups participating in the Baltic Sea Challenge network.

Following recommendations of evaluation studies and experiences during the first period of the implementation, Helsinki and Turku together updated their joint Baltic Sea Action Plan for 2014–2018, and a new operating model with priorities for the network were set out (Helsinki and Turku 2014). The vision for the cities and the whole network was set to be a clean, productive and shared Baltic Sea. The new action plan includes 75 actions (of which 25 continue from the previous period) under five goals that are clear coastal waters, healthy marine habitat, clean and safe water traffic, systematic water area management and active Baltic Sea citizenship. The existing members of the Baltic Sea Challenge network were invited in spring 2014 to renew their commitments according to the new goals. As the Baltic Sea Challenge is an ongoing initiative, also new organisations are continuously invited to join the network.

Ritvala and Salmi (2009) offer a case study of collective network development to better understand network mobilization: how an actively and widely presented interest in a common issue by very different types of actors becomes turned into concrete actions, using the Baltic Sea Challenge as one of their examples. The study describes the role of network mobilizers in promoting the issue and its solutions, and the mobilization mechanisms that the key players are using.

While the network of relationships possessed by an individual forms a critical precondition for successful network mobilization, Ritvala and Salmi suggest a particular precondition and driver for network mobilization: a shared value base that makes the protection of Baltic Sea a meaningful and important undertaking. This leads to *value-based mobilization*, where the shared value base appears to legitimize the use of one's relationships for the common goal (Figure 5). It also acts as glue that connects individuals with heterogeneous backgrounds. The most important parties to be mobilized seem to be the political decision makers who may affect the behaviour of both individuals and organizations, as well as companies whose behaviour may have a great impact on the environmental state of the Baltic Sea. Mobilizing such a broad group of actors necessitate that network mobilizers possess so called network capital, the form of social capital that makes resources available through interpersonal ties.

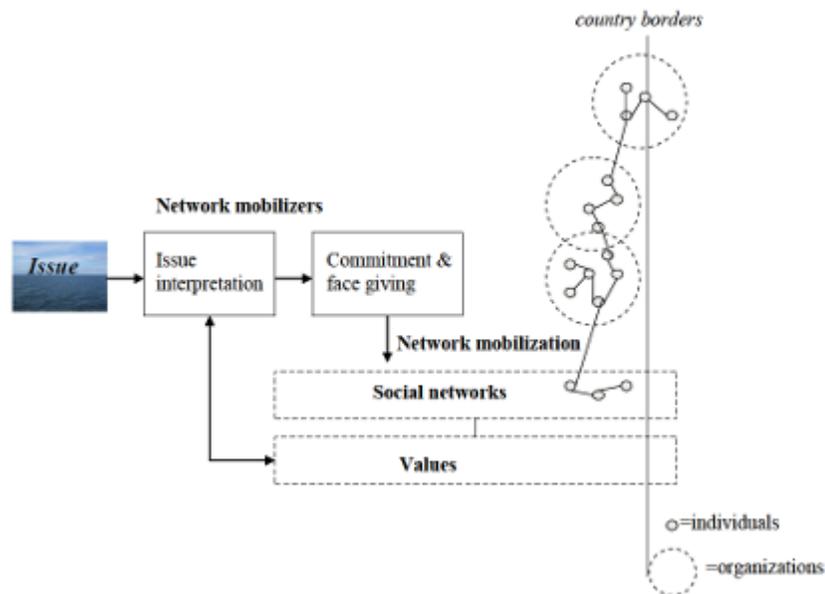


Figure 5. Value-based mobilization of issue networks in the Baltic Sea case. The initial network mobilizers had a strong emotional relationship with sea, and their strong will to protect the sea led them to search for meaningful and realistic ways to act on the issue. By showing their strong commitment through making financial investments and giving their “faces” to the projects, they could mobilize other individuals and organizations. From Ritvala and Salmi (2009).

In the task of mobilizing other individuals and organizations, the initiators heavily built on their existing social networks. The shared concern over the environmental state of the sea legitimized their exploitation of these old relationships. Interpersonal network sediments may act as key resources when activating other actors.

Intrinsic trust and social capital are very important for a network to function well. In most cases, co-operation in networks is initiated by people already trusting in each other and willing to work together, like was demonstrated e.g. by Ritvala and Salmi (2009). However, personal trust is not

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sufficient in the long run to sustain the cooperation within the network: more abstract systemic trust must also emerge. Korkala (2010) replaced this traditional systemic trust by the concept of '*trust in network as a system*', when studying three regional co-operation learning networks related to environmental issues, consisting of both private and public organizations. The networks with high structural equality and clear target setting enable building trust to the network as a system. When systemic trust is present, e.g. changes in personnel involved in the co-operation won't hinder the network from remaining operational. On the other hand, according to Korkala if the players are not well motivated to co-operate, if the network is extremely centralized structurally, or if the network has partners holding very much more beneficial position compared to the others, systemic trust won't develop: trust tends to remain at the personal level, and is directed to some partners only. Such networks won't generate results and benefits to its members, and most probably they won't live very long. In other words, for example learning networks cannot solely be based on willingness to learn, but also on willingness to co-operate.

4 SUCCESS OF THE BALTIC SEA CHALLENGE AS A NETWORK ENHANCING CONCRETE WATER PROTECTION ACTIVITIES

Already in 2009 the peer-review by the city of Rotterdam of Helsinki's environmental policies and management (Dictus & Greedy) considered that Helsinki was showing strong environmental leadership on both national and international levels: the Baltic Sea Challenge, for example, was regarded as a good example both for creating an innovative image and producing a good quality of life for the residents. The first evaluation of accomplishing the Baltic Sea Challenge activities in the city departments of Helsinki was carried out in 2010 (Harju) as a thesis work for a university of applied sciences. For the most part, the implementation had been a success and the actions progressed well. The Action Plan had supported the city's harbour, waterworks and divisions of sports, building, urban planning and education, as well as international operations, in paying attention to the impact their actions have on waters. Also awareness of the state of the Baltic Sea and the opportunities for influencing it increased amongst city's own employees, interest groups and customers. However, there had been problems in schedules and financing of some actions, and preparation and design of the practical implementation were recommended to be improved.

The success of the Baltic Sea Challenge in supporting network partners' water protection activities and as a functional network was first estimated by Leppänen (2011) among 144 Finnish partner organisations in the beginning of 2010. Among those, 57 organisations (municipalities, NGOs, companies, educational institutions and others) participated in an internet survey and nine organisations in deeper interviews. Most partners of the network were content with the work of the Baltic Sea Challenge, with having a positive effect both on their own water protection activities and the state of the Baltic Sea. The Challenge was experienced as an enabler in cooperation and information sharing. However, the visibility and communication issues were considered needing further development, as well as monitoring of the progress of the partners' activities.

During 2013 the city of Tampere representatives peer-reviewed the implementation of the old joint Baltic Sea action plan of 2007 until 2012 in both cities (Helsinki and Turku 2014). During

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spring 2013, three reviewers assessed the plan's contents and implementation by the cities' administrative branches by interviewing their representatives (10 city departments in Helsinki and 9 in Turku). The reviewers were also supplied with material packages: meeting memorandums of the cities' internal Baltic Sea working groups, annual summary tables of actions, theses and the websites of the Baltic Sea Challenge and various city departments. The Baltic Sea Challenge was found to have inspired the cities' internal actors to consider matters related to waters and the environment more often and in more depth. Connections between the internal operations of the cities had been formed, the departments had learned to see things holistically, and new actors had been involved in operations. A shared and structured way of operating with water protection issues had been created in both cities. The commitment of the top level management of the cities – i.e. Mayors – to the Baltic Sea Challenge had been a strong force in moving the work forward. The Baltic Sea Challenge had made it possible to carry out some actions early on in the process, and helped to ensure resources. The Challenge was regarded as a positive thing that helps reshape the cities' image.

However, administrative boundaries had hindered the cities' internal cooperation. The role of Baltic Sea Challenge network partners was unclear in some respects to the city departments and the possibility to invite other actors to join the Challenge had not been sufficiently utilised in cities' own work. In the absence of functional indicators, the effectiveness of some actions was difficult to measure. The Baltic Sea Challenge was seen as an administrative tool, although its elements could be utilised more extensively to increase the awareness of the cities' residents about the Baltic Sea.

The recommendations of the Tampere peer-review included adjusting some of the goals and actions so that they are more concrete and can be more easily measured in the future. Involving more actors from the drainage areas of the cities' local rivers to the partner network was considered important, as well as shifting the focus from increasing awareness to active participation. Also utilisation of the visibility and cooperation provided by important projects and big events could be improved.

These recommendations were incorporated to the new action plan for 2014-2018, e.g. there are many new specific activities, and drainage areas' water protection organizations are tied more closely to the cities' own water protection work. The fifth goal of the new plan, active Baltic Sea citizenship, refers to a range of activities directed to strengthening the participation of various interest groups and citizens to the water protection work, expanding their awareness and experiences of the Baltic Sea, and connecting this to influencing and financial opportunities.

5 CONCLUSIONS

For the cities of Helsinki and Turku, creation of the concept of the Baltic Sea Challenge has been a success. Already during the first couple of months after publishing the initiative, over 70 other organisations joined the Challenge network – and that was a vacation time in summer 2007. That was a surprise to Helsinki and Turku, and proved that there was and is a need to develop networking to enhance Baltic Sea protection work among different kinds of organisations. The initiative and continuing personal engagement of the highest decision-making level, mayors of the cities, has been of extreme importance. In the mobilization phase of the early stages the

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personal contacts of the mayors supported the collective network development. Also the fact that two cities started the Baltic Sea Challenge jointly and launched their joint action plan, probably helped to build trust in other organisations that were invited to join, and to overcome possible fears of a centralized network. This has probably also mitigated the practical implementation of the joint Baltic Sea action plan in the initiating cities' own departments, which have had the other city's participating departments as a kind of peer group to themselves.

Despite the importance of the personal commitment of the initiators, the change of person of the mayor of the city of Turku in September 2010 wasn't any problem to the Baltic Sea Challenge – the new mayor has carried on as committed as the previous one. Also there have been some changes in the operational level of the Baltic Sea Challenge coordination and contact persons in the cities, but the networks both among city departments and in the whole partner network of 200 other organisations have remained highly functional. Also systematic development of the concept, activities and practices of the network have been carried out continuously. All this has proved that the Baltic Sea Challenge as a network has the systemic trust and social capital that is needed for a successful network to function. The importance of the state of the Baltic Sea and local waters of both initiating cities and the network partners have gained more visibility and water protection work has intensified over the years. With the new Baltic Sea Action Plan for 2014-2018 including more topics and much more detailed activities to the cities of Helsinki and Turku, it will be possible in the future to monitor more closely the effectiveness of the activities, and the new concept supports better the functioning of the Baltic Sea Challenge network and the water protection work the network partners carry out.

REFERENCES

- Ambio 19 (3), 1990. Special issue: Marine Eutrophication.
- Ambio 36 (2-3), 2007. Special issue: Science and Governance of the Baltic Sea.
- Artell, J. 2013. Lots of value? A spatial hedonic approach to water quality valuation. *Journal of Environmental Planning and Management* 57, 862-882.
- Backer, H. and Leppänen, J.-M. 2012. The Helsinki Convention: 35 Years and Three Eras in Bridging Boundaries to Restore the Marine Environment of the Baltic Sea. In: Taniguchi & Shiraiwa (Eds.): *The Dilemma of Boundaries*, Springer.
- Conley, Daniel J., 2012. *Nature*, Vol. 486, 463-464
- Dahan, N., Doh, J., & Guay, T., 2006. The role of multinational corporations in transnational institution building: A policy network perspective. *Human Relations*, 59(11), 1571-1600.
- Dictus, J. and Creedy, A. (eds.), 2009. *Towards Environmental Sustainability - Report of the Peer review of the city of Helsinki*. Publications by City of Helsinki Environment Centre 5/2009
- Harju, I., 2010. *Helsingin kaupungin Itämerihaaste-toimenpiteiden toteutumisen arvointi (Evaluation of the implementation of the city of Helsinki Baltic Sea Challenge activities)*. In Finnish. Publications of the city of Helsinki Environment Centre 8/2010.
- HELCOM, 2007. *Baltic Sea Action Plan*. Extraordinary Ministerial Meeting of the Helsinki Commission.
- HELCOM, 2010. *Ecosystem Health of the Baltic Sea 2003-2007: HELCOM Initial Holistic Assessment*. *Balt. Sea Environ. Proc.* No. 122.
- HELCOM, 2011. *The Fifth Baltic Sea Pollution Load Compilation (PLC-5) Baltic Sea Environment Proceedings* No. 128.

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Kalmar, Sweden, November 24-26, 2014

- HELCOM, 2014. Eutrophication status of the Baltic Sea 2007-2011 - A concise thematic assessment Balt. Sea Environ. Proc. No. 143.
- HELCOM, 2013. Review of the Fifth Baltic Sea Pollution Load Compilation for the 2013 HELCOM Ministerial Meeting. Balt. Sea Environ. Proc. No. 141
- Helsinki, city of, 2009. Strategiaohjema 2009-2012 (Strategy programme 2009-2012). In Finnish. City of Helsinki Economic and Planning Centre.
- Helsinki and Turku, 2014. Communiqué and Baltic Sea Action Plan of the Cities of Helsinki and Turku for 2014–2018.
- Korkala, S., 2010. Luottamuksen ilmeneminen alueellisissa yhteistyöverkostoissa (Appearance of trust in regional, co-operative networks). In Finnish. Ph. D. thesis, University of Turku.
- Korpinen S., Meski L., Andersen, J. H., Laamanen M., 2012. Human pressures and their potential impact on the Baltic Sea ecosystem. Ecological Indicators 15, 105–114.
- Ritvala, T. and Salmi, A., 2009. Networking around a common issue - From words to action in the case of clean Baltic Sea. 25th IMP conference in Marseille, France.
- SEPA, 2008a. What's in the Sea for Me? Ecosystem Services Provided by the Baltic Sea and Skagerrak. The Swedish Environmental Protection Agency. Report 5872.
- SEPA, 2008b. Costs and benefits from nutrient reductions to the Baltic Sea. The Swedish Environmental Protection Agency. Report 5877.
- Söderqvist, T., Ahtiainen, H., Artell, J., Czajkowski, M., Hasler, B., Hasselström, L., ... Volchkova, N., 2010. BalticSurvey – a study in the Baltic Sea countries of public attitudes and use of the sea. The Swedish Environmental Protection Agency. Report 6348.