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Master's Thesis

FINNISH NEWSPAPER PORTRAYAL OF THE BALTIC SEA ENVIRONMENTAL PROBLEM – Environmental Coverage of the Baltic Sea in Helsingin Sanomat 2008–2017

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This thesis examines how the environmental problems of the Baltic Sea have been reported in Helsingin Sanomat, the most widely distributed Finnish newspaper. The empirical data consists of 510 newspaper articles from ten years' time, from 2008 to 2017. The aim of this thesis is to analyse the Baltic Sea environmental news coverage and the portrayal of the Baltic Sea environmental problem, which is essential because the media portrayal influences the public opinion and political agenda for example through creating awareness to certain problems. Longitudinal content analysis allows considerations on shifts and trends in environmental coverage in ten years' time, as well as the examination on the introduced attributes and solutions to the environmental problem.

The changes in the portrayal of the Baltic Sea environmental problem are analysed through the main theme analysis. The study found that from 2008 to the late 2010 the emphasis has been on various maritime activities, from 2012 to the mid-2014 the wastewater discourse has largely stigmatised the news coverage, and in 2011 as well as after the mid-2014 the portrayal has been somewhat more diverse. During this time, eutrophication has been the most raised main theme, but there has been more even concentration between different themes. The overall amount of the news coverage on the Baltic Sea environment has decreased substantially in ten years' time.

Considered main attributes to the Baltic Sea environmental problem are old Soviet countries, especially Russia and Poland and somewhat also the Baltic States, and structural problems that are accentuated in the discourse on intensive production. Both discourses are present in the news coverage for the whole timeline of study, but more and more focus has been on the faults in the system as the point sources in the polluter countries have mostly been halted. In addition, there has been more emphasis on the individual choices in the last years of analysis.

Environmental news coverage on the Baltic Sea has not been comprehensively studied and this thesis enhances the knowledge on the raised themes, attributes and preferred solution. Results indicate that there have been distinct shifts in the news coverage in ten years' time. Acknowledging the portrayal is essential, because media attention is one of the essential factors in constructing some issues as serious environmental problems and highlighting some solutions while attenuating other problems and remedies.

Keywords: mass media, news reporting, newspaper, Helsingin Sanomat, Baltic Sea, Finland, environmental problems, environmental communication, environmental journalism, content analysis

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Tämä tutkielma tarkastelee sitä, miten Itämeren ympäristöongelmia on uutisoitu Helsingin Sanomissa. Tutkimusaineisto sisältää 510 sanomalehtiartikkelia kymmenen vuoden ajalta vuodesta 2008 vuoteen 2017. Tutkimuksen tavoite on tarkastella Itämeren liittyvää ympäristöuutisointia ja Itämeren ympäristöongelman muotokuvaa, sillä uutisointi vaikuttaa yleiseen mielipiteeseen sekä poliittisiin päätöksiin esimerkiksi luomalla tietoisuutta ongelmista. Pitkän aikavälin sisällönanalyysi mahdollistaa uutisoinnin muutosten ja trendien sekä esitettyjen syiden ja ratkaisujen tarkastelun kymmenen vuoden ajalta.

Muutoksia Itämeren ympäristöongelman muotokuvassa on tarkastelu pääteemojen analyysin kautta. Vuodesta 2008 vuoden 2010 loppuun huomio on ollut erilaisissa merenkulkuun ja merialueen käyttöön liittyvissä teemoissa. Vuodesta 2012 vuoden 2014 puoliväliin jätevesidiskurssi on ollut laajasti hallinnut uutisointia. Vuonna 2011 sekä 2014 vuoden puolivälistä eteenpäin uutisointi on ollut jossain määrin monipuolisempaa. Tällöin uutisointi on keskittynyt tasaisemmin eri teemoihin, vaikka rehevöityminen onkin ollut eniten nostettu yksittäinen teema. Itämeren ympäristöön liittyvän uutisoinnin kokonaismäärä on laskenut huomattavasti kymmenen vuoden aikana.

Ympäristöongelmien pääaiheuttajaksi on määritelty vanhojen neuvostomaiden, etenkin Venäjän ja Puolan ja jossain määrin myös Baltian maiden, saastuttaminen sekä järjestelmän ongelmat, jotka korostuvat Itämeren saastumiskeskustellussa erityisesti tehotuotannossa. Molemmat keskustelut ovat esillä koko tutkimuksen ajan, mutta pistekuormittajien vähennyttyä huomio on entistä enemmän suuntautunut järjestelmän ongelmiin. Yksilön vastuuta on lisäksi alettu korostaa etenkin analyysin viimeisinä vuosina.

Itämereen liittyvää ympäristöuutisointia ei ole kattavasti tutkittu, joten tutkimus auttaa lisäämään ymmärrystä teemoista, syyllisistä ja ratkaisuista, joita uutisoinnissa nostetaan esille. Tuloksen osoittavat, että uutisoinnissa on ollut selkeitä muutoksia kymmenen vuoden aikana. Ongelmankuvaus on tärkeä, koska median huomio on välttämätön tekijä jonkin asian käsitteellistämisessä vakavasti otettavaksi ympäristöongelmaksi. Joitain ongelmia ja ratkaisuja korostetaan ja toisia jätetään vähemmälle huomiolle.

Asiasanat: joukkoviestimet, uutisointi, sanomalehti, Helsingin Sanomat, Itämeri, Suomi, ympäristöongelmat, ympäristöviestintä, ympäristöjournalismi, sisällönanalyysi

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1. INTRODUCTION

1.1. Research objective and research questions

This thesis focuses on the environmental coverage in a newspaper, and more precisely on how the themes related to the Baltic Sea environment, and environmental problems that the Baltic Sea faces, have been reported in Helsingin Sanomat, the largest Finnish newspaper. Research material consists of ten years of news coverage from 2008 to 2017. Longitudinal content analysis allows considerations on possible shifts and trends in environmental coverage in ten years' time. Additionally, environmental reporting can, with certain limitations, be compared against the background of previous and ongoing discussions and events in the region with the purpose of perceiving, which themes have been highlighted and which have been downplayed, and how has the environmental state of the Baltic Sea been presented.

The environmental state of the Baltic Sea has recently been subject to substantial and lively debates among scientists, politicians and not least the media. Newspapers, as a form of mass media, are an essential contributor in this discourse and in the conceptual framing of the Baltic Sea and its environment. The Baltic Sea, as a semi-closed sea area, is constantly under environmental pressures and challenges, and therefore many of the debates revolve around various environmental concerns from eutrophication to hazardous chemicals and invasive species. According to Elmgren et al. "The Baltic Sea is often portrayed as an environmental disaster area, by the media, by non-governmental environmental organisations, and by some scientists" (Elmgren, Blenckner and Andersson 2015, 339).

The media can be considered having its own agenda, which "interacts with the public and the policy agenda". (Lyytimäki 2012, 7) The role of the media in influencing decision-making has been widely acknowledged in communication studies and other research literature. (see for example: Anderson 1997, 142; Hansen 2011, 18; Hannington 2014, 100) According to Lyytimäki "Partly as a result of media debate, some issues are considered serious environmental problems, some risks are amplified while others are attenuated, and some proposals for remedies are highlighted and others downplayed." (Lyytimäki 2012, 7) Furthermore, environmental problems are characterised by relative

invisibility and long-time progression, which emphasises the importance of mediated information in comparison to personal experience. (Hansen and Cox 2015, 1)

The research objective of this thesis is to analyse the Baltic Sea environmental news coverage and the portrayal of the Baltic Sea environmental problem, which is essential because the media portrayal influences the public and political agenda for example through creating awareness to certain problems. The agenda-setting theory has proven the role of the media in deciding what is on the agenda, and the awareness of some certain problems by the public and the decision-makers is the first step towards the society reacting to the certain concern (Hansen 2010, 19; Priest 2015, 301). Thus, enhanced knowledge and better comprehension of the environmental coverage, can be considered as a prerequisite in understanding the Baltic Sea concerned environmental decision-making, as well as Finnish people's attitudes towards the protection of the sea and their preferred strategies for so doing. However, this influence can also be considered as circular, since people's perceptions and political decisions inevitably have an influence on the content of the newspaper articles as well.

Objective can be achieved by analysing the main themes present in Helsingin Sanomat articles, as well as by mapping the evolution and trends of the Baltic Sea environmental news coverage during the chosen timeframe of ten years. In order to understand and evaluate the media portrayal of the Baltic Sea environmental problem, the following research questions have been imposed:

1) Has the portrayal on Baltic Sea environment and environmental problems facing the Baltic Sea changed somehow in ten years and if so, how?
2) What issues have been raised as the main attributes to the Baltic Sea environmental problem, and what solutions have been presented with regard to this?

Main theme analysis is conducted to further illustrate the transitions in the news coverage from highlighting some aspects of the environmental problem to emphasising others. Basic assumption behind the evaluation of the portrayal is that certain environmental concerns are evaluated more pressing at a time, but these perceptions can change even in ten years' time for example due to increased scientific information on a certain matter or due to changing geopolitical situation. Conceived main attributes, as well as perceived solutions can further elucidate what has been presented as the main obstacles to effective

protection and how these obstacles could be removed or their negative impacts reduced, according to Helsingin Sanomat news coverage.

1.2. Newspaper analysis

News media includes both mainstream media and newer online media. In addition to newspapers, mainstream media includes television and cable news, news magazines and radio news. Online media that consists of internet sources, currently poses challenges to more traditional mainstream media. The mainstream media no longer has the control over information, and the loss of control extends to the environmental information (Cox 2010, 151) that is being examined within this thesis.

There are at least three motives behind choosing the newspaper as primary data. Firstly, newspapers are an important source of information for many Finnish people, even though the circulation of newspapers has been decreasing recently. Reason for this diminished demand is the increased use of internet-based information especially among younger generations. However, regardless of the more fragmented media sector, newspapers are still highly valued as a source of information. Secondly, newspapers are a traditional source of information and as a printed material their content remains unaltered as opposed to the information that exists solely online and can be rather easily modified or deleted. Thirdly, newspaper is rather easily available and sufficient primary source for the Master's thesis.

There are various motives for choosing Helsingin Sanomat for the analysis. Helsingin Sanomat is a Finnish daily newspaper that has its headquarters in the capital of Finland, Helsinki, a coastal city by the Baltic Sea. In addition to feasibility and my personal interest, Helsingin Sanomat has a wide circulation and readership. Due to the location of the headquarters, the focus of the study is on the southern parts of Finland, although it should be noted that Helsingin Sanomat is widely circulated all throughout Finland. Furthermore, Helsingin Sanomat has no political affiliations. All Helsingin Sanomat articles are easily accessible through Sanoma arkisto website with UTU credentials. Analysis does not include photos and pictures that are included in the articles due to the feasibility factor: Sanoma arkisto website only consists of written parts of the articles, and therefore, including visuals would have greatly complicated the execution of the study.

The reach of a newspaper can be measured with the circulation and the number of readers. Helsingin Sanomat is the most widely distributed Finnish newspaper, whose total circulation in 2014 was 331,551 copies according to the circulation statistics of Media Audit Finland. For comparison, the second largest Finnish newspaper Aamulehti (the regional newspaper of the city of Tampere) only had a total circulation of 108,572 copies in the same year thus having less than third of the total circulation of Helsingin Sanomat. Additionally, Helsingin Sanomat has readers all over Finland as well as a popular news website; therefore it can be considered as a nationwide newspaper.

System of referencing in this thesis is twofold for the purpose of easily discerning the primary sources from secondary sources. In-text citations are used for academic and other secondary sources and footnotes are used for the primary source, Helsingin Sanomat newspaper articles. With regard to the citations from Helsingin Sanomat articles, it is also necessary to underline that any citations from article headings and article contents are my own translations from Finnish to English and other translator might have used different expression or words that the ones used in this thesis.

1.3. Previous research and relevance

Systematic environmental research on the Baltic Sea environment and the impacts of human induced pollution on its vulnerable ecosystem dates back for about 60 years to the late 1950s. (Feistel, Nausch and Wasmund 2008, 3)[1] In the investigations concerning the Baltic Sea ecosystem in the late 1960s, various pressing environmental concerns were discovered simultaneously by marine scientists. These concerns included widespread eutrophication, the high quantities of toxic chemicals as well as oil pollution. As a consequence of these scientific findings, the environmentalist concern about the Baltic Sea environment was accentuated. (Räsänen 2009, 49–50) In the Finnish mainstream media, the deteriorating state of the Baltic Sea was accepted as a newsworthy topic in the early 1970s. (Räsänen 2009, 51)

Recently, Anna Maria Jönsson has studied the environmental coverage of newspapers concerning the Baltic Sea. In her article “Framing Environmental Risks in the Baltic Sea:

[1] According to the authors, in 2008 the Baltic Sea has been systematically investigated for about 50 years.

A News Media Analysis" (2011) Jönsson examines the framing of environmental risks related to the Baltic Sea in the news media. She analyses the articles of Dagens Nyheter, the largest newspaper in Sweden, with the purpose of examining how the Baltic Sea and its different environmental risks are represented. Her specific focus is on the case of eutrophication.

This thesis is adding to Jönsson's research from various angles. Firstly, in the context of Finland, research on environmental newspaper coverage related to the Baltic Sea has not yet been conducted. Secondly, my question setting differs from Jönsson's since her study focuses on the framing of environmental risks, whereas my objective is to map out the evolution and trends in the news coverage. Thirdly, and perhaps most importantly, Jönsson analysis covers years from 1992 to 2009, whereas this thesis focuses on the more recent development and trends in the news reporting by analysing articles from 2008 to 2017. Thus, two studies can be conceived complementing each other. There are certainly differences in the news coverage of Dagens Nyheter and Helsingin Sanomat, but the overall developments in the Baltic Sea region have affected Finland and Sweden rather similarly, and therefore some comparisons can be made between the two countries' news reporting.

Other thematically related research has been conducted by Jari Lyytimäki. His dissertation "The environment in the headlines: Newspaper coverage of climate change and eutrophication in Finland" (2012) analyses Finnish environmental coverage in Helsingin Sanomat from 1990 to 2010. In particular, Lyytimäki scrutinises representations concerning eutrophication and climate change. Lyytimäki's research has a close connection to this study, via his case of eutrophication, although the focus of this thesis is on the Baltic Sea environment in general, and eutrophication is only one of the various environmental themes that are being raised within the Baltic Sea environmental coverage.

Lyytimäki defines eutrophication as an environmental challenge with more tangible regional and local level effects compared with climate change that entails more global and complex challenges. (Lyytimäki 2012, 15) As in the case of eutrophication, other environmental problems related to the Baltic Sea can be considered having predominantly local effects. This can have implications for the portrayal of the Baltic Sea environment in newspapers and the ways of communicating about environmental concerns.

Most studies on environmental media coverage have concentrated on western and English-speaking countries. Furthermore, most environmental media content analyses focus on a single environmental problem. (Lyytimäki 2012, 15) There are few studies on certain geographical areas and their environmental concern representations. (Jönsson 2011, 123) Longitudinal studies are conceived as essential in perceiving the long-term shifts in environmental coverage. (Hansen 2015b, 209) Thus, this study adds to research on the environmental coverage outside English-speaking countries. Additionally, this study provides a wider perspective by focusing on multiple environmental hazards on a longer time scale but in a limited geographical area, in this study on the Baltic Sea.

2. BALTIC SEA ENVIRONMENTAL PROBLEM

The Baltic Sea is highly vulnerable to harmful human activities due to its geographical characteristics. It is one of the largest brackish water areas connected with other sea areas only through the shallow sounds between Denmark and Sweden. More than one third of the Baltic Sea is shallower than 30 meters, thus the total water mass being small in comparison with its whole surface area of 420,000 km^2. Regardless of its relatively small water mass, it can take around 30 years for the whole water mass of the Baltic Sea to be fully exchanged due to the slow exchange of water through the Sound and the Belt Sea. In addition, around 85 million people inhabit the Baltic Sea drainage area whose surface is about four times larger in size than surface area of the Baltic Sea itself. (HELCOM 2018b, 12). Small water mass and slow exchange of water together with the large-scale human activities in the drainage area contribute to the general problem discourse concerning the Baltic Sea: any discharges to the Sea must be reduced to minimum, since it might take years if not decades before their harmful effects on the Baltic Sea ecosystem dissipate.

One special characteristic of the Baltic Sea is its low salinity. Low salinity conditions enable the Baltic Sea being populated by both freshwater and marine species, but the number of species is relatively low, since the distribution of species is affected by low salinity water conditions. Stratification is common in many sub-basins when more saline water accumulates to the bottoms while less saline water remains nearer the surface. (HELCOM 2018b, 12–13) Stratification can cause, and has already caused, oxygen deficiency in deep bottom waters (Elmgren, Blenckner and Andersson 2015, 335) but the main driver for widespread hypoxic conditions in many areas of the Baltic Sea are nutrient discharges (Carstensen et al. 2014, 5631). Deoxygenation in bottom waters has harmful impacts on the Baltic Sea ecosystem and biodiversity, since the most marine life is unable to survive in areas with oxygen deficiency. (Carstensen et al. 2014, 5628)

There are various environmental threats that the Baltic Sea currently faces, but in numerous instances eutrophication is referred to as the major persistent threat to the Baltic Sea ecosystem. (see for example: HELCOM 2018b; HELCOM 2007; European Court of Auditors 2016; Ympäristöministeriö 2016; Andersson et al. 2015, 345; Lyytimäki 2012, 46) Eutrophication is a process leading to the dysfunctions in the system, such as the intense growth of green-blue algae, as well as increase in oxygen consumption and the

following oxygen depletion. The main cause of eutrophication is confirmed to be excess nutrient loads to the sea from various human activities, mainly in the form of nitrogen and phosphorus. (HELCOM 2007, 7; European Court of Auditors 2016, 8) Sources of nutrients include point sources like municipal wastewater treatment plants, diffuse sources like nutrient run-offs from agriculture and atmospheric inputs from various processes related to transportation, energy production and agriculture. (HELCOM 2018b, 42) There have been great reductions in the amount of nutrient releases, which has halted further eutrophication, but the Baltic Sea is still affected by eutrophication and the consequences of earlier releases are still visible for example in the form of green-blue algae blooms and oxygen deficiency in deep bottoms. (Elmgren 2015, 432; Andersson et al. 2017, 147)

Other often raised threat is hazardous substances, such as man-made chemicals and heavy metals, and their high concentrations in the Baltic Sea. (HELCOM 2018b, 59; Ympäristöministeriö 2016) Sources of toxic pollutants include industrial and municipal wastewater, industrial depositions and leaching from waste deposits. (HELCOM 2018, 59) Hazardous substances are persistent and once released they can remain in the marine environment for long periods. They have various negative effects on the ecosystem, since they can impair the health or reproduction of animals, as well as cause increased pollutant levels in fish. (HELCOM 2007, 13) The loads of hazardous substances have been greatly reduced over last 40 years but there are still concerns related especially to new toxic pollutants and still existing high levels of concentration in some fish and wildlife in general. (Elmgren, Blenckner and Andersson 2015, 342)

The Baltic Sea is one of the most heavily trafficked seas in the world and the extensive maritime traffic is causing various negative environmental effects to the Baltic Sea. (HELCOM 2007, 23) Harmful effects from shipping include emissions from ships to air and sewage, as well as the risk of shipping incidents, which can lead to oil or chemical discharges. (HELCOM 2018a, 38, 50, 62) There have been only a few oil spills in recent years, but the risk might have even increased due to increases in the total volume of oil transports. (Hassler 2010, 489) Furthermore, small and often deliberate discharges remain common. (Elmgren, Blenckner and Andersson 2015, 338) Ship' ballast water is also the main pathway to the invasive species to the Baltic Sea. These non-indigenous species can pose threat to the Baltic Sea ecosystem but currently this risk has been rather poorly managed, and little has been done to prevent the emanation of alien species. (HELCOM

2018a, 76–77; Elmgren et al. 2015, 338) Furthermore, also other maritime activities than shipping can raise environmental concerns, and these activities include for example offshore platforms and installations, underwater pipelines, fishing and aquaculture. (HELCOM 2018c 132, 144, 158; HELCOM 2007, 23)

Marine litter is a visible problem at the shores and under the surface of the Baltic Sea. Larger, macro size marine litter can cause direct harm to animals through entanglement and being swallowed and smaller litter can reach the food chains through animal digestion. Litter on the shores can also reduce recreational value of the coastal areas. Around 70% of the litter in the Baltic Sea is plastic, which degrades extremely slowly causing harm to the marine ecosystem. (HELCOM 2018b, 73) Marine litter as an environmental problem has received increased attention in recent years after the studies increasing awareness related to vast amounts of microplastics in marine environments. For example, EU and HELCOM have recently prioritized marine litter high in their environmental agendas. (Strand et al. 2015, 9. See also: HELCOM 2015 and EU Directive 2008/56/EC)

Climate change is projected to worsen the environmental problems that the Baltic Sea faces, by making the Baltic Sea ecosystem even more vulnerable as well as by undermining the earlier achievements and current environmental efforts. (Andersson et al. 2015, 345; Elmgren 2012, 342). Reusch et al. even assert regional seas as "potential time machines where impacts of regional and global change are accumulating faster than in the coastal oceans." (Reusch et al. 2018, 11) The uncertainty of the whole impact of the climate change to the Baltic Sea ecosystem remains but the projected changes include the increased land runoff of nutrients, decreased salinity and more widespread anoxia in bottom water, which have negative influence also to fish production and species in general. (Andersson et al. 2015, 345)

Singular problems have various interconnections to other problems. Due to the complexity of the environmental problems, it is impossible to outline exact boundaries between certain conceived problems. One major challenge in the Baltic Sea and in its coastal areas is ensuring viable populations and the balanced communities of mammals, water birds, fish and other species in the food web. (HELCOM 2007, 18; HELCOM 2018b, 9) Biodiversity and nature conservation are strongly dependent on the questions - species. (HELCOM 2007, 18) Nature conservation objectives are for example strongly

affected by algae blooms and anoxic bottoms caused by eutrophication, as well as by hazardous substances in wildlife and in their habitats, maritime activities such as oil spills and alien organisms as well as fisheries management. (HELCOM 2007, 18–19; Elmgren et al. 2015, 337, 340) Similar complex causal relationships are discovered also between and within other environmental problems.

These complex causal relationships between various environmental problems and multifactorial environmental stressors as well as holistic impacts of the climate change to the Baltic Sea underline the importance of the ecosystem-based management approach. (Elmgren, Blenckner and Andersson 2015, 335) The ecosystem-based management as a principle is already widely agreed on (See for example: Elmgren et al. 2012; Elmgren at al. 2015; Reusch et al. 2018; Kononen et al. 2014) but in practice the lack of scientific knowledge and governance structures tend to hamper the attempts to manage environmental problems together instead of a more "traditional" sectorial management. (Elmgren, Blenckner and Andersson 2015, 335; Reusch et al. 2018, 10)

The discourse on the environmental condition of the Baltic Sea is multifaceted, but it often focuses on the remaining problems instead of advancements, which is also the topic in this thesis. As the overview above demonstrates the environmental pressures and threats to the Baltic Sea environment are numerous. Regardless of the extensive problem discourse, it is essential to remember the Baltic Sea is also a natural resource with great value to millions of people living around it. Furthermore, scientific evidence supports the fact that there has been overall improvement in the Baltic Sea ecosystem status owing to the environmental investments on the protection of the Sea. (Reusch et al 2018, 10; Elmgren et al. 2015, 339) Achievements include substantial reductions in the amount of hazardous substances, as well as nutrients from industry, and the partial recovery of some fish and top predators. (Reusch et al. 2018, 10) Elmgren (2015) further argues that without the work of HELCOM and ICES, the ecosystem of the Baltic Sea would have been in a much worse state than it currently is. (Elmgren et al. 2015, 339) Elmgren (2012) also underlines that if the progress is forgotten the crucial support of the public towards protecting the Baltic Sea environment can be pivotally diminished (Elmgren et al. 2012, 432)

3. RESEARCH FRAMEWORK

3.1. Media and the environment

"Communication is central to how we come to know, and to know about, the environment and environmental issues, and the major communications media are a central public arena through which we become aware of environmental issues and the way in which they are addressed, contested and resolved." (Hansen 2011, 9)

'The environment' as a concept has been largely defined by the media in the aftermath of the 1960s environmental movement. The mass media has had a huge impact on the issues and aspects covered. It has largely defined which the environmental concerns have been published and which ideas have been introduced and contested in the public area. Hansen goes as far as suggesting that much or even most of our knowledge about 'the environment' comes from some media source. (Hansen 2011, 8)

The media and the environment can be approached from various viewpoints depending on the discipline. This thesis is interdisciplinary, and it capitalises theories, which are developed in various traditional disciplines and largely utilised in the field of environmental communication. Environmental communication refers to a separate subfield or strand of wider media and communication research, which has been rooted to the communication studies in recent decades (Hansen 2011, 9). Research on the environmental communication is by characteristics, interdisciplinary, since it has borrowed from more traditional disciplines e.g. social and political sciences, media studies, geography, cultural studies and linguistics. (Hansen and Cox 2015, 3)

The research on media and environment was initiated in the 1970s following by the thematical research on related issues in the 1980s and the more comprehensive view on the field in the 1990s. The 2000s saw the publishing of more and more books on related issues as well as journal articles both in other journals, like environmental or communication journals, but also the establishment of journals for environmental communication, in particular. Nowadays environmental communication is a label which covers a broad field of research. (Hansen and Cox 2015, 2–3)

The social, political and cultural roles of environmental communication can be further understood by examining the theories and perspectives that relate to environmental

communication. (Hansen 2011, 9) Hansen (2011) divides environmental communication research into three main categories: research on production, content and social impacts.

3.2. Social construction of environmental problems

"Research on media coverage of environmental issues has contributed considerably to our understanding of why some environmental issues are successfully constructed as issues for public concern, while others – seemingly equally serious or important – quickly vanish from the media agenda and from public view." (Hansen 2011, 13–14)

Social constructionism is a concept, which examines the evolution of social problems and their development dynamics. The basis of the theory is that the definition of something as a problem not only depicts reality but also creates new reality. (Väliverronen 1996, 40) According to constructionist perspective that was compounded in sociology in the 1960s and early 1970s, what is being said about some problem or issue has an influence, because social problems are not objective conditions but rather recognised as problems through communication and discourse definition. (Hansen 2015a, 26–27)

Sociological theory on the construction of social problems has been applied to environmental problems as a result of environmental sociology, which first appeared in the 1970s when the environment was also otherwise largely discussed and theorised in various academic fields. According to Hannigan "Environmental problems are similar to social problems in general" even though there remains a concise difference: environmental problem arguments can be considered more factual and more tied to scientific findings due to their physical basis, whereas general social problem arguments are more typically moral arguments, with the usual basis on personal trouble that has become a public issue. (Hannigan 2014, 50)

Instead of perceiving environmental news coverage as 'a mirror of reality/society' or as 'a window on the world' as it has sometimes been described, news coverage can be defined as 'constructed'. This implies that there are active processes of 'construction', which highlights the importance of examining the processes as well as the factors, such as agents or institutional settings, that can set constrains to the news construction. (Hansen 2010, 76) The news media does not mirror the reality, but rather the news coverage is selective depending on the news sources and on cultural, economic and political factors. (Anderson 2015, 180) Media attention is one of the essential factors in constructing

environmental problems since it frames the problem as important. Furthermore, the problem might be dramatized to appear more symbolic and visual, which is the prerequisite for the construction process. (Hannigan 2014, 66) According to Hansen there are "complex processes involved in the social 'construction' of the environment as an issue for public concern." and these processes are increasingly understood within recent environmental communication research. (Hansen 2011, 20)

Social constructionist perspective has been criticised for forgetting true nature and concreteness of environmental problems by perceiving them only through cultural and societal changes. However, as Väliverronen states, the idea of constructivism is not denying the actual occurrence of environmental problems but rather admitting their interconnection with societal power structures when it comes to their definition and decisions on possible solutions. (Väliverronen 1996, 43)

Hannigan has identified three key processes when constructing environmental problems: assembling, presenting and contesting claims. He further considers mass media as communicator and as the central forum in the process of presenting environmental problems, whereas assembling of the problem depends mainly on science and contesting claims on politics. The role of the mass media in this model is to command attention to a problem and to legitimate the claim. (Hannigan 2014, 55–56) Commanding attention is the first starting point but in order to have an actual influence on the public discussion, the problem also needs to be legitimated in various areas, not only the media but also within science, governance and the public. (Hannigan 2014, 62)

This process can also be described as passing the threshold of legitimacy. (Hannigan 2014, 63) The idea of "threshold-passing" asserts that some environmental risk, which has been rarely or not at all reported can, due to some incident, become of major interest in the news media. Certain issue must 'pass the threshold' and make it to the news agenda, and afterwards the media will continue to follow the situation and is able to better contextualise future incidents with regard to the first incident. (Jönsson 2011, 127) Thus, once an issue or concern is introduced, it has a tendency to remain in the public sphere, even though there might be ups and downs in the amount of attention and altered meanings given to the issue. (Hansen 2015b, 216)

Threshold-passing does not automatically mean that an action on the issue initiates, but rather after the legitimation environmental claim will be contested in politics. (Hannigan

2014, 63) “While scientific support and media attention continue to constitute an important part of the claim package, the problem is principally contested within the arena of politics.” Whether some environmental solution to the emerged environmental problem is being implemented depends on various instances, for example on the perceived neutrality of the problem (mirrored with whether possible solution is conceived as ideologically oriented) and the assumed financial costs have influence on political contestation over the problem and its perceived solutions. (Hannigan 2014, 64) “Not all environmental problems, of course, are solvable through legislative action but it is difficult to secure effective environmental improvements bypassing the legal and political systems.” (Hannigan 2014, 70)

Hannigan considers one potential pitfall of the mass media representing some environmental problem lying in the question of how to gain enough visibility to a problem. He considers other potential pitfall to be the decreasing novelty of the emerging problem, which might even diminish interest on the issue. In order to successfully present the environmental problem, Hannigan suggests linking an emerging environmental problem to issues that are already popular, using dramatic visuals, being verbally imaginary and using other rhetorical strategies. (Hannigan 2014, 55–56) According to Hannigan, in order to avoid these pitfalls, certain factors are essential in the construction of the environmental problem and when it comes to the media, its attention is deemed as necessary, since the media has the power to ‘frame’ problems as important and novel, as well as to dramatize it to visually and symbolically appeal to its audience. (Hannigan 2014, 66) Audience is essential since public opinion can give certain claim support and, thus, lift it in the policy agenda. (Hannigan 2014, 67)

In making decisions about the severance of a certain environmental risk, scientific evidence can be of assistance, but the evaluation is further complicated by various conflicting proofs such as legal, scientific and moral proofs. (Hannigan 2014, 142, 146) Restrictions in time is one factor influencing all risk perceptions and evaluations. The audience has a limited time to process an issue for example when they heard or read about the possible risk on the Internet, television or a newspaper and this also applies to the risks connected with the environment. (Hannigan 2014, 140)

3.3. News production and news content

Understanding some basic principles in the news production is essential when considering the news content. The general journalistic practices can assist in understanding why some issues have been raised extensively by the media whereas some issues have not been widely raised. Furthermore, environmental news coverage has its own characteristics compared with other news coverage, which also has influence on the content of news articles, and it is thus important to acknowledge these respective characteristics.

In general, newsworthiness, news value and event orientation guide the news production. Newspapers and other media content tend to be event oriented and environmental issues are no exception in contesting with the newsworthiness. The environmental issues are characteristically rather invisible in a way that the effects are not always perceptible to the eye and they develop over the long term, and are therefore difficult to visualise (Hansen 2010, 95–96). This is one of the reasons behind media's tendency to highlight and even "over-report" dramatic and sudden environmental disasters such as chemical spills, since constituting a "good" news story is conceived as crucial for the news value by the media and journalists. (Anderson 1997, 134)

The environmental risk does not necessarily contain enough news value itself without a trigger such as stakeholder conflict over an issue, an incident or political controversy involved. This kind of incident ensures the timeliness of the news. Timeliness can be conceived as one prerequisite of reporting an environmental risk, since reporting on all environmental risks according to their potential impacts could make some news coverage repetitive and endless, such as reporting about global warming. (Miller and Riechert 2000, 48) However, this can also cause biases in the news reporting of some environmental risks at the expense of others and is therefore necessary to acknowledge.

In addition to dramatic disasters, event orientation signifies that environmental issues are often linked to some certain event such as international meetings, forums or negotiations, in which the date is published beforehand, and the news organisations can ensure their presence. (Hansen 2010, 96) Also Hannigan distinct three types of environmental events: milestones, catastrophes and legal or administrative happenings (Hannigan 2014, 107) Various studies for example indicate that major reports and international summits, and even major campaigns and popular culture related to climate change have caused significant peaks in the amount of climate change news coverage (Hansen 2011, 14)

Climate change has probably been most widely studied and discussed environmental issue in the field of environmental communication (see for example: Carvalho and Burgess 2005; Boykoff and Boykoff 2007; Boyce and Lewis 2009) but it can be assumed that similar patterns can be detected in other environmental news coverage.

Hansen claims that this kind of event linking in news coverage is effective if conducted routinely and visibly. If not, it might even have negative effects, since day-to-day, already established news might limit the space for the event oriented environmental news due to 'issue competition'. (Hansen 2010, 97; Hansen 2011, 14). According to him, diverging environmental news to its own distinct subject area (for example from agriculture, technology, science and economics) might better ensure the existence of environmental news coverage even without event orientation and conflict-driven coverage. (Hannigan 2014, 117)

Downs (1972) has researched the cyclical nature of news coverage and claims that there is so called "issue-attention cycle", which refers to problems systematically arising and fading from the public attention, such as environmental concern in general and some environmental problem in particular. (Downs 1972, 38) He has identified five stages of the cycle: the pre-problem stage, alarmed discovery and euphoric enthusiasm, realizing the cost of significant progress, gradual decline of intense public interest and the post-problem stage. (Downs 1972, 39–41) Downs's model cannot be considered as the only explaining factor in the amount of attention that certain environmental concerns receive over time, but it can certainly give valid insights into the amount of attention in certain time periods.

Environmental news tends to have controversial and complex character, which might have an influence on how they are reported. Often disregarded in the criticism of inaccuracy of environmental reporting is that the issues considering environment can be uncertain and controversial, and there might be disagreement on the phenomena. These features complicate the unbiased coverage of the controversial environmental issues and journalists often have difficult 'balancing act' when assessing various and conflicting views on some environmental question. (Hansen 2010, 89–90) Objectivity might be implemented according to the 'equal time' principle, where both ecological claim-makers and opponents are given space without the attempt to clear who is correct on the issue,

but this can complicate convincing the public on the concreteness of an emerging problem. (Hannigan 2014, 110–111)

Journalists face various restrictions, which might complicate the delivery of the environmental news story. As stated, the environmental journalists or other news workers working in environmental cases constantly face various competing claims, which much be evaluated in order to compile a news story. (Hannigan 2014, 116) One main contradiction in environmental coverage is that the environmental articles would increasingly require space for complex stories, but the news hole has shrunken due to challenges brought about the fact that the media ownership has centralised, and traditional media has lost revenues partly due to new media platforms. (Friedman 2004, 188) In addition to restrictions in space, there are restrictions in time, which might have an influence on journalistic practices. Journalism norms include objectivity, but difficulties might arise for example when stakeholders 'facts' are accepted as truth. Background information is collected but restrictions on time to complete the news article and the expertise, or the lack of it, in a certain issue can have an influence on the outcome. (Miller and Riechert 2000, 49–50)

There have been rapid changes in news production and in the roles of media professionals in recent decades due to the developments in communications technology as well as economic pressures (Hansen 2011, 10) Cuts in traditional media has led to the decreasing ability of reporters to cover complex environmental issues, more passive conduction, interest groups better equipped than before, pre-packaged material etc., shifting through different information channels instead of active news seeking. (Anderson 2015, 177) Many newspapers have recently struggled economically, due to the increased use of internet-based information, even though adaptation has happened in terms of online newspapers, and for example Helsingin Sanomat has a widely read internet page in addition to the 'more traditional' published newspaper.

3.4. Social and political impacts: the agenda-setting theory

The social impacts of media content can be examined through the concept of media effects. Robert Cox defines media effects as "the influence of different media content, frequency, and forms of communication on audiences' attitudes, perceptions, and behaviors." (Cox 2010, 174) To this date, there are controversies on how the media is

conceived to impact on the comprehension of environmental concerns. (Cox 2010, 174) Most research on news content recognises the influence of the media portrayal on the public opinion and the political decision-making, but views are still diverging views on the relationship between them. (Hansen 2011, 18) Different approaches examine the issue from different perspectives, but no approach has managed to provide evidence on the direct causal effects between media coverage and audiences' attitudes. The environmental media coverage rather functions as "a part of a wider context of social influence that helps to construct our interest in and understanding of the environment". (Cox 2010, 174) The lack of direct effects does not however obviate the relevance of news coverage to public opinion and decision-making.

In research literature, social impacts are often further considered through the theory of agenda-setting. Communication research and political science theory on agenda-setting has similarities with social construction theories. (Hansen 2010, 19) However, the focus of the constructionist perspective is on the role of media in creating means to understand environmental problems whereas the agenda-setting theory focuses more on explaining why some problem is important to the public. (Cox 2010, 176) Thus, two theories can be considered complementing each other.

The focus of this thesis is on the content of the Helsingin Sanomat news coverage, and not on the impacts that the content has on its reader or on how the coverage has been perceived by the audience. Thus, the agenda-setting theory that is introduced is not tested or utilised as such within the thesis, but rather it serves as a starting point of this study. The purpose of the theory is to endorse to the importance of the topic and provide support to the statement that it is essential to analyse the content of the Baltic Sea environmental news coverage. The theory demonstrates that the news coverage has influence on the public opinion and to the political decision-making, which highlights the importance of examining how certain issue has been presented by the media.

The agenda-setting theory is not tested within the study, but the earlier studies have argued for the agenda-setting role of the media. The idea behind the agenda-setting theory is that the media agenda has a strong role in setting the public agenda, which in turn affects what is on the political agenda. Influence of the mass media on the public opinion and that way to political decisions is therefore acknowledged, and the question of what issues are covered by the media is thus considered as essential (Lyytimäki 2012, 16).

According to Bernard Cohen (1963) who first defined the agenda-setting theory, news coverage "might not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about." (Cohen 1963, 13)

The first empirical study on the agenda-setting was conducted by McCombs & Shaw in 1972 examining the American presidential campaign of 1968 and the study discovered the agenda-setting function in the media. (McCombs and Shaw 1972) Agenda-setting has been one of the prominent approaches to the role of media since the 1960s or early 1970s up to this day. (Hansen 2010, 168) Studies combining communication content and surveys have been essential in measuring the effects of certain content (such as news coverage) and causalities between content and audience's attitudes. (Riff, Lacy and Fico 2014, 14)

Even though there have been some controversies over the agenda-setting, most empirical studies have proven agenda-setting effects both in societal research in general and in environmental research. Examples of empirical studies that confirm agenda-setting effects include Walgrave's (2008) study on Belgian media, parliament and government interactions. The study has even attested that from different mediums, newspapers assert more agenda-setting influence that television and that the agenda-setting effect is more influential in some issues, including the environment, than in others such as in social policy issues (Walgrave 2008, 457). From the studies related to the environment issues, Ader (1995) has empirically investigated the amount of media attention to pollution and the public salience on the matter and discovered distinct correlation between the two.

According to Hansen "the 'power' of the media to influence public and political processes is based on signalling what society and the polity should be concerned about and in setting the framework for the definition of and discussion about such issues." (Hansen 2010, 19) Hansen even goes as far as arguing that the earlier political decision-making, which was more largely based on scientific evidence, has shifted towards being more heavily influenced by how the presentation of the environmental problems has been perceived by the public. Thus 'winning hearts and minds' when communicating an issue might prove to be as important as scientific evidence when it comes to public debates. (Hansen 2011, 8) In other words, society's response to certain environmental problems is dependent on the awareness of the public and decision-makers that the certain problem exists. The recognition of the problem does not, however, depend solely on the media but also from

other societal institutions such as research centres, advocacy groups and governmental agencies. (Priest 2015, 301)

However, the influence of the media on public opinion is not linear, but rather dynamic and interactive with other forums in society. Therefore, news coverage and public opinion can be considered as both having an influence on the other. Longitudinal research allows for the investigation on how certain environmental problems have been approached and developed in the media setting compared with changing political setting and can therefore considerably add to the research on the role of media. (Hansen 2015b, 216)

4. MATERIALS AND METHODOLOGY

4.1. Methods

The approach to the topic is interdisciplinary combining environmental studies and communication studies to societal and political research. This allows for wider perspective, through which societal phenomena can be better comprehended. In his study Lyytimäki emphasises the role of other disciplines (than communication studies) in the meaningful interpretations of the media content (Lyytimäki 2012, 14).

Method of analysis in this thesis is content analysis, which is one of the most commonly utilised research methods in media and communication research (Berger 2000, 173). In content analysis, analysed text units are fragmented with a certain procedure into smaller units, in order to examine their purposes, implications and co-occurrence. (Hansen et al. 1998, 123–124) Content analysis can be defined as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use." (Krippendorff 2013, 24) Analysis can assist in finding pattern or characteristics from the analysed texts, as well as in mapping out relationships that are discernible in the analysed content. (Riff, Lacy and Fico 2014, 3)

Media content analysis has various advantages considering the research setting of this thesis. It is suitable for the analysis of a large body of text, as well as for a systematic mapping of the trends and changes of media coverage (Hansen et al. 1998, 123). Furthermore, content analysis allows for both quantitative and qualitative approaches. Content analysis has been perceived as an important tool in understanding the effects that mass communication has on the audience, regardless of how researchers have conceived these effects. (Riff, Lacy and Fico 2014, 4–5)

This study used both quantitative and qualitative methods. Quantitative methods have been utilised in the main theme analysis, in which the articles are categorised by their main theme to provide a baseline for the study regarding the themes connected with the Baltic Sea environmental problem as well as their trends and changes over ten years' period. The thesis is, however, utilising mostly qualitative methods since it enables the further immersion in the subject in order to more comprehensively understand Helsingin Sanomat depiction on the Baltic Sea environmental problem.

4.2. Helsingin Sanomat articles and choosing criteria

Helsingin Sanomat is the only Finnish newspaper with the searchable online database. All the newspaper articles published in Helsingin Sanomat can be found and accessed online with UTU-credentials through the Sanoma arkisto website, which allows for longitudinal analysis. Results do not include photos and other pictures of the articles, and thus, my analysis will be solely text based. Searches were conducted with the keywords Itämer* (the Baltic Sea) and ympärist* (environment). The Finnish language is using inflection instead of prepositions and therefore, the end of the Finnish keywords is marked so that also conjugated forms of the words will be included in the searches.

The Baltic Sea and *environment* were chosen as keywords, because they provided most relevant hits from various Baltic Sea environment related topics. Other key words such as the *Gulf of Finland* and *nature* were experimented during the process, but the number of hits was considerably lower, and most articles were the same than with the chosen keywords. Additionally, thematical key words such as *eutrophication* were tested together with *the Baltic Sea* to see whether thematical words would produce more hits on certain themes, in this case on eutrophication. However, this was not the case since there were very few articles present in thematical searches but not with the chosen keywords. Furthermore, searching with thematical keywords could unevenly emphasise some aspects of news coverage, which could be problematic when assessing the overall portrayal of the Baltic Sea environmental problem.

Finnish word *ympäristö* is usually translated as environment, but in Finnish language the word can be used on various instances; it can for example be connected with security or politics. This led to various hits being related to, for example, security issues especially after the 2014 due to the increased military tensions in the Baltic Sea Region. However, the word *luonto* (nature in English) is not as widely used when talking about environmental risks or problems. Thus, the use of word environment as a keyword is more justifiable when examining the environmental news coverage and nonrelevant hits were manually removed.

As Jönsson also noticed in her study, it is rather simple to find articles on the Baltic Sea and the environment, but when it comes to environmental risks keywords are rather difficult to identify, since the concept of risk or problem are not always used regarding otherwise suitable articles. (Jönsson 2011, 124) Thus, all the articles with the chosen

keywords (the Baltic Sea and environment) were evaluated but only those concerning some environmental problem were collected for analysis.

Overall criterion for choosing the articles for analysis is that the article concerns some environmental problems, risk or concern that relates to the Baltic Sea. This overall criterion can be divided into two sub criteria:

1) Environmental problem

First criterion is that the article introduces an environmental viewpoint on some certain conceived problem and includes the problem definition of some environmental concern, threat, risk or problem related to the Baltic Sea. In many articles environmental risks were mentioned shortly but the article itself concentrated more on, for example, security, economics, politics, culture, travel, health, transport, technology or energy. In some occasions it was rather difficult to determine, which viewpoint was most pressing, since some articles were considering some Baltic Sea related issue from various angles, such as in the case of Nord Stream gas pipe constructions or in the case of fishing quotas. In these cases, it was further considered whether article was sufficiently focused on the environmental issues.

2) The Baltic Sea related news

Second criterion is that the focus of the article is on the Baltic Sea. If the Baltic Sea was mentioned only shortly, and the main focus was on some other area, the article was left out from the analysis. If there was rather even concentration on the Baltic Sea and other sea areas, the heading, the first chapter and ending of the article were analysed with the purpose of identifying the main point of the article, and then the decision was made on whether article focuses sufficiently on the Baltic Sea to be included in the analysis. For example, in the case of microplastics in the seas, the Baltic Sea was mentioned in some articles, but the main attention was in the other sea areas, and thus these articles were omitted. On the other hand, an article was included in the analysis if it distinctly discussed the Baltic Sea and its challenges connected with microplastics.

Some articles concerned the waterways or the water system in general, for example articles that were discussing municipal wastewater treatment. In most of these articles, the Baltic Sea is separately mentioned, but in some the concentration was more on inland waterways or rivers. In these cases, the extent to which the content relates to the Baltic

Sea ecosystem was further considered and the decision to incorporate or omit certain article from analysis was made from this basis. Other particular case to consider was migratory fish in the Baltic Sea and its rivers. Articles discussing the issue were included in the analysis if problem definition existed and there was some focus on the Baltic Sea and not only on certain river. Furthermore, articles discussing the issues related to the ecosystem of the Baltic Sea archipelago are included in the analysis provided that the article includes problem definition.

Certain kind of new coverage was deliberately omitted from the material. Opinion writings were not included since they are not produced or edited by the news media in question. Personal profile stories were also left out, since they tended to focus more on the person than on the environment, even if a person would have large influence when it comes to the Baltic Sea environmental issues. In addition, cultural news such as reviews about books, documents or art exhibitions, as well as special type news like questionnaires were not included in the analysis. On the other hand, Vieraskynä columns were included in analysis because they provide significant and interesting material for the study. Vieraskynä columns are written by experts but approved and edited by Helsingin Sanomat editorial staff. In addition, the articles in HS viikko are included in the analysis if an article has some differences with regard to the original news story. HS viikko is a weekly additional newspaper, which assembles the best articles from the same week and it has been published since the beginning of 2016.

4.3. Possible limitations of the study

One main limitation of this study is to have only one newspaper as a primary source. Helsingin Sanomat is one newspaper from many in Finland, as well as a minor component in the larger conception of the Finnish media. The main reason behind choosing one newspaper as the primary source was willingness to conduct longitudinal analysis. The redeeming feature in the longitudinal analysis is its ability to perceive longer-term development instead of short-term analysis, which would have been inevitable if the research would have examined various newspapers or mediums.

Helsingin Sanomat is the largest Finnish newspaper, which also has a popular and widely read internet news site. The newspaper can even be considered as national and mainstream media and can thus be considered portraying the wider national discourse. In

the study Helsingin Sanomat serves as a case, which cannot be used to describe the whole discourse without reservations, but these limitations can be diminished through profound familiarisation to relevant secondary sources in order to acquire deep understanding about the earlier research on newspapers, environmental communication and the Baltic Sea environment.

Jönsson has deliberated the issue of comparability of her research to other countries surrounding the Baltic Sea, and came to the conclusion that her study is best seen in the national context of Sweden, but there also is regional and transnational discourses related to cooperation and the roles of different countries and the EU. (Jönsson 2011, 130) Similarly, the premise of this thesis is the national context of Finland. When it comes to possible similarities in the news coverage with other countries, the presumption is that the closer the country is geographically, mentally, politically and economically, the more similar would the news coverage regarding the Baltic Sea be. Jönsson has come to the same conclusion with her assumption that the media image of the Swedish newspaper has more similarities with Western European Baltic Sea countries that Eastern ones (Jönsson 2011, 130).

5. BALTIC SEA ENVIRONMENTAL COVERAGE

5.1. Articles and their categorisation

5.1.1. Overall amount of the news coverage

Search with the key words produced altogether 1641 hits from which 510 articles were chosen for analysis using the introduced choosing criteria and after possible duplicates were removed. Therefore, the overall selection percentage of the articles for analysis from total hits is around 31 percent. The bar chart below demonstrates the number of total hits and relevant articles selected for analysis by each year of analysis:

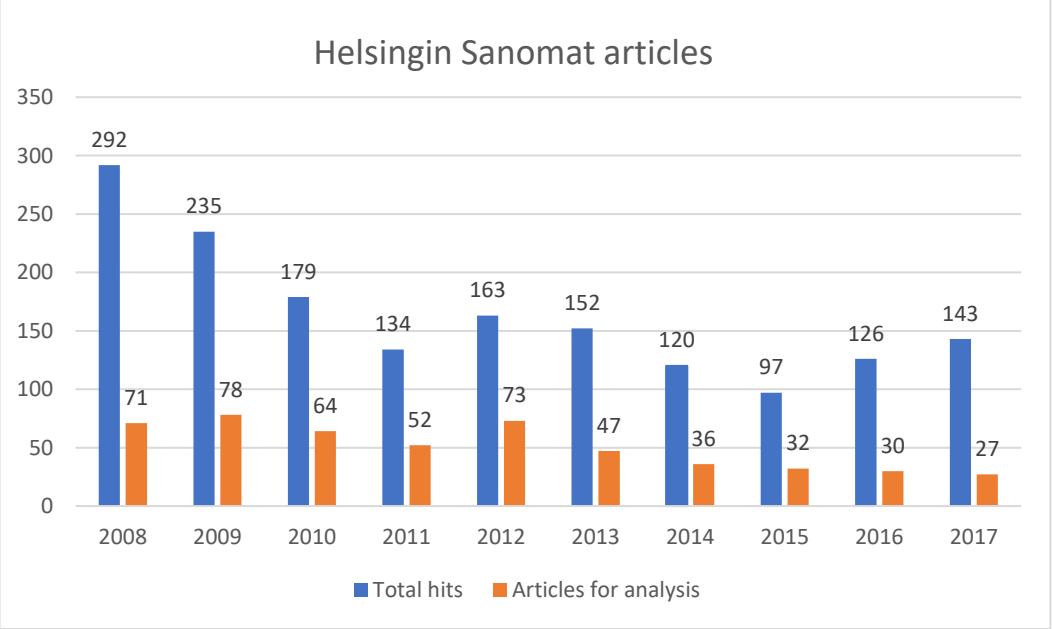

Chart 1: The number of total hits and relevant articles on Helsingin Sanomat 2008–2017

The bar chart indicates that both the number of total hits and the number of relevant articles has decreased in Helsingin Sanomat over ten years' time. Of most interest in this thesis is the overall decrease in the number of relevant articles except for the peaks in news coverage in 2009 and 2012. Whereas in 2008 there are 71 articles raising concerns for the Baltic Sea environmental state, in 2017 there are only 27 articles. In the first five years of analysis, the number of relevant articles is 338, whereas in the last five years there are 172 relevant articles. Thus, the number of relevant articles is almost double in the first five years of analysis compared with the last five years. This indicates that there

has been an apparent downward trend in the amount of news coverage regarding the Baltic Sea environmental problem.

There are two other matters that need to be acknowledged when comparing the amount articles. Firstly, the number of articles is affected by the tendency of Sanoma arkisto website to separate wider news stories with various news items to separate articles on their online archive. However, this seems to have been conducted systematically regardless of the year in question and it is therefore not of great importance when comparing the number of articles. The second matter to consider is the divergence in the size of the articles. The articles can vary significantly in their size from two sentence news articles to a thousand words news stories. In this instance word count can give further verification to whether the amount of news coverage has also been decreasing according to this indicator and not only in the number of articles.

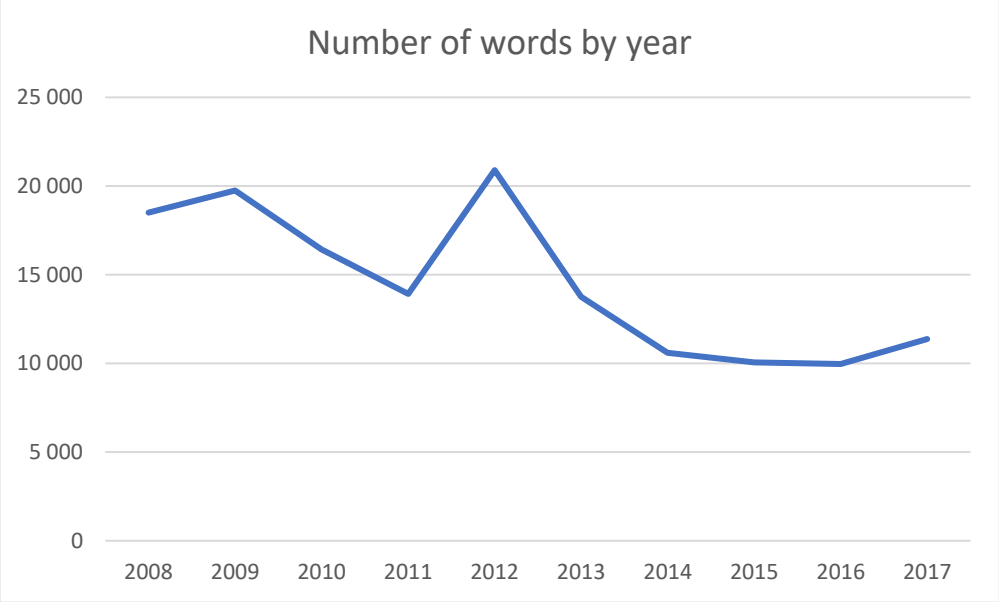

Chart 2: The number of words in relevant articles 2007–2018

The line chart above demonstrates the number of words in relevant articles for each year of analysis. Word count provides support for the statement that the magnitude of news coverage concerning the Baltic Sea environmental problem has decreased in ten years' time. Furthermore, the word count demonstrates similar peaks in coverage in 2009 and in 2012 as the number of articles. The chart further illustrates the decrease in the amount of coverage in 2010 and 2011 compared with previous and subsequent year and discerns a

minor increase in the number of words on news coverage from 2016 to 2017, even though the number of articles has diminished.

In the overall, the amount of news coverage in Helsingin Sanomat on the Baltic Sea environment has decreased by half from 2007 to 2018. Jönsson noticed a similar trend in the news coverage regarding the Baltic Sea from the 1990s to the 2000s. She assesses that the Baltic Sea was more topical in the 1990s than in the 2000s and raises political and environmental initiatives in the Baltic Sea regional context as one explanation for this decrease, referring to the issues of importance to the region like the establishment 1992 of the Council of Baltic Sea States (CBSS) and a new HELCOM convention both in 1992 and a declaration in 1996 on a Baltic 21 initiative in 1997 (Jönsson 2011, 125–126). It needs to be considered that Jönsson is examining the news coverage in Sweden, not in Finland, but the amounts could nevertheless be assumed to have trends of a similar kind due to the closeness and similarities of two countries.

There are various possible explanations for the overall downward trend in the amount of news coverage. The explanations for the diminished news coverage could be found on the procedures of the news production. The news coverage tends to be event oriented and there might have been less environmental events such as catastrophes, milestones or less legal or administrative happenings (Hannigan 2014, 107) to report related to the Baltic Sea environment during the later years of analysis. Thus, other news topics can have taken space from the Baltic Sea environmental coverage due to the limited space in the newspaper and the following "issue competition" (Hansen 2011, 14).

On the other hand, Hannigan has assessed that the decreased novelty of the problem might diminish the interest towards some certain concern (Hannigan 2014, 55), which could be one possible explanation for the diminished amount of news coverage. There might also be a larger pattern, for example Downs "issue-attention cycle", is describing the arising and fading of the problems from public attention. This theory would imply that the environmental problems related to the Baltic Sea have reached the stage where the cost of significant progress have been realised and there has been gradual decline in the interest to the matter and the problem might even have reached the post-problem stage (Downs 1972, 39–40).

5.1.2. Main theme categorisation

For the further examination of the news articles and their themes, the analysed articles have been divided into categories according to their main theme. The main theme is used, in this instance, to indicate the theme most present in the article even though other aspects of the Baltic Sea environmental problems would also have been mentioned. In cases where an article referred to many themes and issues concerning the Baltic Sea environmental problem, the decision on the main category was based on the headline, on the content of the first and the last chapter, as well as on the amount of attention given to each conceived problem. In most articles, one theme was distinctly raised above others, but in some cases, there was more deliberation on the most suitable category. In the cases where an article considered various problems without particularly raising any above others, or alternatively discussed the Baltic Sea environmental problem in a more general or ecosystem-based manner, the article has been categorised under the theme *General concern*.

Categorisation of the articles is complicated by the varying risk and problem definitions. The categorisation process of the articles is based on a conceived environmental risk, threat, concern or problem that the Baltic Sea faces, but this categorisation is hindered by the fact that parting the problem itself and its causes is not always a straightforward process due to the complexity of environmental problems. In her study Jönsson has also recognised that "an issue being identified as a risk area in one article can be framed a cause of another risk in another article" (Jönsson 2011, 127). Regardless of the intricacies in the categorisation process, the examination of the main themes provides valuable information when examining the overall picture of the news coverage in ten years' time, as well as when mapping the trends and changes in the news coverage.

It is necessary to acknowledge that conscious decisions are included in the categorisation process. Wastewaters are strongly linked to the main themes of *Eutrophication* and *Hazardous substances*, but they cannot be linked to either directly and therefore, the decision is made to consider them as their own main theme. Furthermore, the sewage from ships as well as discharges from agriculture are considered as separate from the wider notion of wastewaters, even though they could also have been considered suitable under the *Wastewaters* main theme. Discharges from agriculture are in most articles extensively linked to eutrophication, and therefore articles concerning agriculture are

under that main theme. Both airborne emissions and sewage from ships are categorised under the *Pollution from ships* main theme but these sub-categories are also analysed separately later in the study.

Some maritime activities, such as *Nord Stream* and *Dredging* are deliberately categorised as their own main themes, even though these issues are not necessarily problems themselves, but rather raising various environmental concerns among the countries surrounding the Baltic Sea and various stakeholders. Reason for this decision derives from multiple environmental concerns raised within these articles often simultaneously, making it rather impossible to relate these themes to any certain environmental concern but to various, and thus constructing its own problem dialogue under the theme.

Furthermore, the decision is made to include articles discussing endangered species under the main theme *Loss of biodiversity*, which also includes other news coverage directly related to biodiversity and nature conservation. However, the articles discussing overfishing are their own main theme, even though an issue is strongly linked to the biodiversity. This decision is due to the tone differences in the news coverages between the two. Within the *Overfishing* main theme, the problem is described being precisely overfishing and the solution to the problem is rather straightforwardly suggested to be smaller fishing quotas, the complexity is deriving mainly from the conflicts between the various stakeholders due to the varying interests on the matter. The discourse concerning biodiversity and nature conservation is rather different, since causes and solutions to the loss of biodiversity are more complex by nature being influenced by various factors and other environmental problems. Thus, within the later main theme, causes and solutions can be considered as the most crucial, the stakeholder dialogue being also essential but not as fundamental.

5.2. Main theme analysis

The bar chart below demonstrates categories present in the articles when the relevant articles are categorised by their main theme:

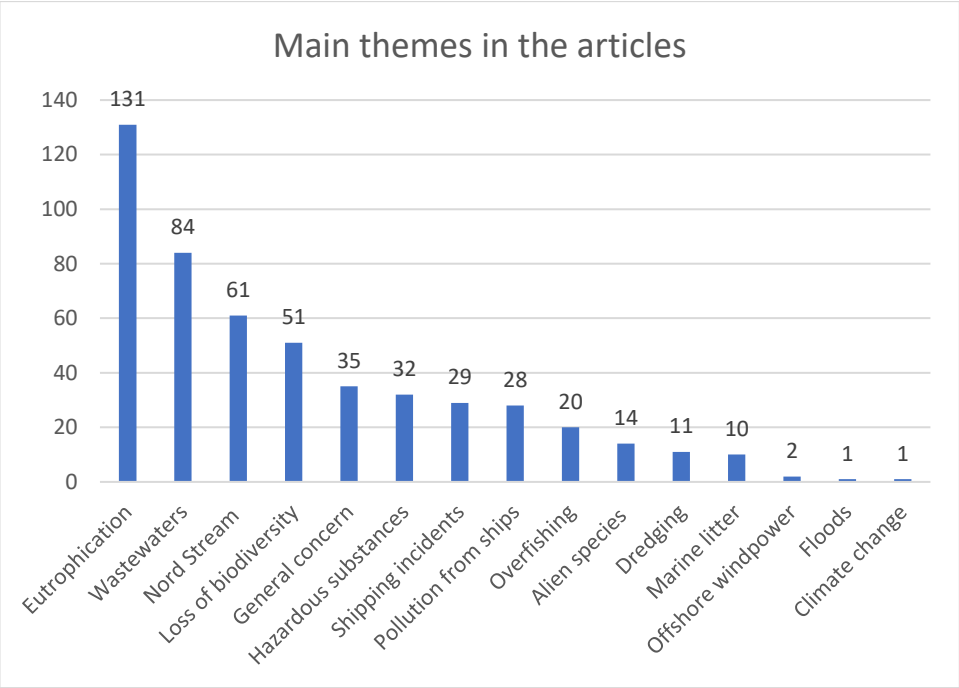

Chart 3: The main themes in Helsingin Sanomat articles

Eutrophication

As the bar chart above demonstrates, eutrophication is outstandingly the most popular main theme. 131 articles from the total of 510 articles have eutrophication as the main theme and many more articles mention eutrophication or issues related to the theme, even though it would not have been raised as the main issue in the article. Extensive coverage on the issue further reinforces the impression of eutrophication as the most pressing environmental problems threatening the Baltic Sea ecosystem. Eutrophication news coverage is wide-ranging, including assessments on the state of eutrophication in various areas in the Baltic Sea, as well as news on the conceived causes, symptoms and possible solutions.

The approaches introduced within the eutrophication news coverage range from strongly pessimistic views to careful optimism. Some articles introduce pessimistic and even miserable view on the future trends, for example a heading from 2008 highlights the urgency of the matter stating that "The Baltic Sea will die without fast actions."[2] Other articles consider the state of the Baltic Sea as similarly unsatisfactory but the urgency of actions is less determined, for example a heading from 2017 assesses that "The pitiable condition of the Baltic Sea is visible at the Gulf of Finland"[3].

[2] Riitta Vainio, "Itämeri kuolee ilman nopeita toimia," *Helsingin Sanomat*, May 18, 2008.
[3] Heli Saavalainen, "Itämeren surkea tila näkyy Suomenlahdella," *Helsingin Sanomat*, September 2, 2017.

Regardless of the overall problem discourse, some articles represent a more positive although still somewhat careful stance on the eutrophication issue. These articles focus on the advancements like reductions in the total nutrient load, and for example an article heading from 2009 evaluates that "The Gulf of Finland is feeling better than in the past ten years"[4] and another from 2017 states that "The load to the Baltic Sea is diminishing piece by piece."[5] These pessimistic and more optimistic views on the eutrophication exist side by side, and sometimes even provide a somewhat contradicted view on the recent development. With regard to this, it could be concluded that the conceived contradictions are strongly influenced by the stance taken, and whether the focus is on the accomplishments or on the issues that are yet to be solved.

Symptom type news articles within eutrophication include seasonal news on the blooms of green-blue algae on summertime as well as news on the oxygen depletion at the sea bottom. Altogether 17 of the articles are considering solely algal growth for example heading from 2013 asserts that "There are less green-blue algae in the sea than usually" whereas article from 2015 notes that "The green-blue algae are blooming in waterways more than on average".[6] Oxygen depletion is most commonly discussed under the larger eutrophication discourse, but in some articles it is also recognised as a threat on its own, for example an article heading from 2009 informs that "The Gulf of Finland is threatened by oxygen depletion".[7]

According to news coverage, conceived main cause to eutrophication is mainly nutrients from agriculture including both domestic and foreign agricultural practices, and both crop cultivation and livestock production.[8] This view has been rather consistent, since it is explicitly stated in numerous headings that agriculture is the main cause for eutrophication and that agriculture, agricultural policies and farmers are crucial in solving the issue of eutrophication.[9] Even though the agriculture is the most distinctly raised cause

[4] Milka Sauvala, "Suomenlahti voi paremmin kuin kymmeneen vuoteen," *Helsingin Sanomat*, August 26, 2009.
[5] Heli Saavalainen, "Itämereen päätyvä lasti kevenee pala kerrallaan," *Helsingin Sanomat*, June 11, 2017.
[6] Annika Nuotto, "Meressä on tavallista vähemmän sinilevää," *Helsingin Sanomat*, August 4, 2013; Sanni Mattila, "Sinilevää kukkii vesissä keskimääräistä enemmän", *Helsingin Sanomat*, August 21, 2015.
[7] Milka Sauvala, "Suomenlahtea uhkaa happikato" *Helsingin Sanomat*, March 26, 2009.
[8] Heli Saavalainen, "Syyssateet huuhtovat peltoja", *Helsingin Sanomat*, October 10, 2011; Heli Saavalainen, "Naudanliha, maito ja hevoset rehevöittävät", *Helsingin Sanomat*, February 3, 2017; Seppo Knuuttila and Marjukka Porvari, "Lannan käyttö Venäjällä uhkaa Suomenlahtea," *Helsingin Sanomat* Vieraskynä, June 22, 2011.
[9] Jouni Mölsä, "Maatalous pahin vesistöjen rehevöittäjä," *Helsingin Sanomat*, December 11, 2009; Jukka Harju, "Maatalous on Itämeren suurin rehevöittäjä," *Helsingin Sanomat*, February 5, 2017; Heli Saavalainen, "Maatalous keskeinen vähennettäessä Itämeren kuormitusta," *Helsingin Sanomat*, October

for eutrophication, also other issues like phosphorous from industrial and domestic wastewaters and fish farming have been raised as causes for the eutrophication.[10] With regard to wastewaters it has been noted that raw sewage like human faeces and nutrients from chemicals are rinsed to the Baltic Sea and cause eutrophication[11] and industrial wastewaters have also been raised. Wastewaters leaking from the phosphorous deposits of fertilizer factories are assessed as particularly harmful, since their phosphorous can be directly used by cyanobacteria resulting in the increased green-blue algae blooms.[12] Fish farming has been conceived as a cause for eutrophication because the fish feed is usually imported from oceans, and it introduces new nutrients to the Baltic Sea.[13]

Suggested measures and solutions to halting the eutrophication are naturally connected with the identified causes and various suggested measures are targeted at reducing the nutrient flows from agriculture. Measures that are aimed at preventing the nutrient releases from agriculture include buffer zones and gypsum treatment of fields.[14] With regard to wastewaters, the projects targeted at improving the wastewater treatment especially in Russia and in Poland have been on the agenda.[15] In addition to preventive measures, solutions include measures targeted at nutrient loads that have already occurred. These measures have included for example artificial oxygenation of the bottom sea areas and clarification of water with chemicals.[16]

10, 2011; Timo Tanninen, ”EU:n maatalouspolitiikalla voidaan kohentaa Itämeren tilaa,” *Helsingin Sanomat* Vieraskynä, August 16, 2008; Matti Huuskonen, ”Maanviljelijä ratkaisee miten Itämeri voi,” *Helsingin Sanomat*, May 11, 2008.

[10] Juhani Saarinen, ”Pietarin jätevesien puhdistuminen antaa toivoa rehevöityneelle Suomenlahdelle,” *Helsingin Sanomat*, May 4, 2008; ”Jätevesien ravinteet kulkevat kauas”, *Helsingin Sanomat*, February 3, 2017; Jyrki Räikkä, ”Kirjolohen kuormitus keveni,” *Helsingin Sanomat*, April 26, 2012.

[11] Saarinen, ”Pietarin jätevesien puhdistuminen antaa toivoa rehevöityneelle Suomenlahdelle.”; Katja Kuokkanen, ”Suomi kieltää fosforin kotien pyykinpesuaineissa,” *Helsingin Sanomat*, January 29, 2010.

[12] Heli Saavalainen. ”Jättipäästöt Suomenlahteen,” *Helsingin Sanomat*, January 18, 2012.

[13] Unto Eskelinen and Jouni Vielma. ”Kehittynyt kalanviljely säästää ympäristöä,” *Helsingin Sanomat* Vieraskynä, November 12, 2012.

[14] Tapio Mainio, ”Pellon ja vesistön väliin jätetään valtatien levyisiä suojavyöhykkeitä,” *Helsingin Sanomat*, August 19, 2009; Tapio Mainio, ”Laineen tila palkittiin ylileveistä suojakaistoista,” *Helsingin Sanomat,* October 1, 2013; ”Kipsi voi lievittää Itämeren rehevöitymistä, ” *Helsingin Sanomat*, December 13, 2010. Heli Saavalainen, ”Kipsiä peltoon - päästöt kuriin,” *Helsingin Sanomat*, September 4, 2016.

[15] See for example: Saarinen, ”Pietarin jätevesien puhdistuminen antaa toivoa rehevöityneelle Suomenlahdelle.”

[16] Anna-Maria Talvio, ”Suomenlahdella kokeillaan hapetusta,” *Helsingin Sanomat*, February 14, 2009; Heli Saavalainen, ”Voisiko Itämerenkin kirkastaa kemikaalein?” *Helsingin Sanomat*, November 11, 2017.

Wastewaters

The second most popular main theme is wastewaters with 84 articles. The theme raises concerns related to the various forms of wastewater draining to the Baltic Sea. As noted before, the issues regarding wastewaters are strongly linked to eutrophication and hazardous substances and some articles could be suitable for two categories. For example, an article from 2008 whose heading asserts that "The purification of the wastewaters in Saint Petersburg gives hope to the eutrophicated Gulf of Finland"[17], is categorised under eutrophication, although the heading also mentions wastewaters. This is due to the problem definition, which stresses the eutrophication. Another article from 2011 states in its heading that "Even purified wastewaters contain toxins"[18]. This article is categorised under hazardous substances since the conceived main problem is toxins.

Wastewater category is, however, necessary because many wastewater related news articles do not explicitly raise eutrophication or hazardous substances as the main conceived problem, but the conceived problem is wastewater itself. Strong associations between these three themes are nonetheless acknowledged whilst conducting the analysis. Examples of the articles that are categorised under wastewaters are an article from 2009 whose heading argues that "Wastewater related solutions in Finland are legitimate but unsustainable"[19] and another from 2010 in which states that "92 percent of the wastewaters of Saint Petersburg are now being purified"[20].

Types of news articles within wastewaters vary from domestic wastewaters to wastewaters from other countries in the drainage area and from industrial and municipal wastewater treatment to wastewaters produced in scattered settlements. Wastewaters leaching from the waste deposits are also included in this category. Some articles address issues related to the wastewater treatment in Finland, but the majority of the articles raise wastewaters issues related to other countries in the drainage basin, especially Russia and Poland. One particular type of wastewater news coverage is catastrophe type coverage, which in this case refers to the sudden discoveries of pollutant leakages to the Baltic Sea from waste deposits. The discovery of the problem can lead to the quick problem

[17] Juhani Saarinen, "Pietarin jätevesien puhdistuminen antaa toivoa rehevöityneelle Suomenlahdelle," *Helsingin Sanomat*, May 4, 2008.
[18] Heli Saavalainen, "Puhdistetuissakin jätevesissä myrkkyjä," *Helsingin Sanomat*, January 16, 2011.
[19] Antti Iho and Markku Ollikainen, "Suomen jätevesiratkaisut ovat luvallisia mutta kestämättömiä," *Helsingin Sanomat* Vieraskynä, November 14, 2009.
[20] Johanna Mannila, "Pietarin jätevesistä puhdistetaan 92 prosenttia," *Helsingin Sanomat*, August 27, 2010.

identification and increased attention on the issue for the time being, even though the leakage itself might have been polluting for long time before the discovery and consequently becoming a public issue.

Wastewater treatment in Russia, in particular, has received long-term attention in news coverage. Issues like wastewater treatment in Saint Petersburg and Kaliningrad have frequently been raised in Helsingin Sanomat, which is partly due to their character as environmental issues where solutions have been delayed not only once but various times. For example, in Kaliningrad the wastewater treatment plan was under construction for forty years[21] and only as late as in 2017 could it finally be stated that the wastewater treatment plant in Kaliningrad was purifying its wastewaters[22].

With respect to the wastewater treatment in Finland, there are relatively few articles and mainly politically controversial issues have been raised. Especially the decree on wastewater treatment outside the sewer network has been widely discussed. The decree first came into force in 2004 but it has since been moderated various times due to being conceived as unreasonable by many who live in the scattered settlement. (For more information on the legislation see: FINLEX 542/2003; 209/2011; 343/2015, and 157/2017) The issue can be considered as politically controversial, which can also be noticed from an article heading from 2014 assessing that "The gyration on the decree on wastewaters causes unnecessary bother on the countryside"[23]

The shift from more cynical views to somewhat more optimistic views can be denoted in wastewater discussions especially with regard to phosphorous load. It is confirmed that the emissions from the coastal cities and the industry have now mostly been halted and that various successful projects have proven that individual organizations can improve the state of the Baltic Sea[24]. Wastewater treatment renovation in Saint Petersburg and halting the Kingisepp leakage in 2012 have been assessed having influence on the state of the Gulf of Finland, since it the amount of algal blooms has decreased, and water has become clearer.[25]

[21] Heli Saavalainen, "Myrkkyongelma odottaa ratkaisua," *Helsingin Sanomat*, August 4, 2017.
[22] Heli Saavalainen, "Kaliningrad puhdistaa jätevesiään," *Helsingin Sanomat*, June 10, 2017.
[23] "Poukkoilu jätevesiasetuksessa aiheuttaa maalla turhaa vaivaa," *Helsingin Sanomat*, December, 23, 2014.
[24] Kaius Niemi, "Itämerellä on pitkä muisti," *Helsingin Sanomat,* August 6, 2014.
[25] Heli Saavalainen, "Venäläisen lannoitetehtaan fosforivuoto Suomenlahteen oli jättimäinen," *Helsingin Sanomat*, December 3, 2015.

Various maritime activities

Maritime activities constitute a large part of the news coverage ranging from various risks and problems related to maritime traffic to the marine construction projects and fisheries related activities. Maritime traffic is conceived to create threats and problems in the form of possible and realised shipping incidents, pollution from the ships and risk of alien species that are carried to the Baltic Sea via the ballast waters of ships. One especially visible and largely covered theme under maritime activities in the earlier years of analysis is the construction of Nord Stream gas pipeline. Other themes that have been discussed and relate to the construction at the seaside are dredging and offshore wind power.

Nord Stream is the third most raised main theme with 61 articles concentrating on the numerous environmental concerns connected mainly to the construction of the Nord Stream pipeline. Nord Stream contains two parallel gas pipelines running from Russia to Germany and the construction process lasted from April 2010 to April 2012. (Nord Stream, n.d.) The plan for another twin pipeline referred to as Nord Stream 2 was introduced in 2012, the construction commenced in September 2018 and the operation is projected to start before the late 2019. (Gazprom, n.d.)

Before the required national permits for the first pipeline, the environmental impact assessments were implemented, and these assessments and their results were largely covered in Helsingin Sanomat. The overall message in this news coverage appears to be the uncertainty about the actual environmental consequences of the pipeline and the need for more research on the impacts before the construction. For example, an article heading from 2009 asserts that "The risks of the Baltic Sea pipeline must be researched in detail before permissions."[26]. The possible environmental harms caused by the construction of the pipeline are distinctly described in two headings: "The Baltic Sea pipeline would turn sea bottom and hamper fishing" and "Local inconvenience to fish and birds" although various other harms were also deliberated by the press.

Within shipping incidents, oil pollution was considered as the most pressing issue, since 24 articles considered the discharges of oil and only five articles considered the discharges of other chemicals. Common characteristics within the news coverage on shipping incidents include the need to cooperate and the need to enhance readiness at the Baltic Sea, for example the heading from 2008 states that "Oil destruction measures need to be

[26] "Itämeren kaasuputken riskit selvitettävä tarkasti ennen lupia," *Helsingin Sanomat*, July 3, 2009.

enhanced at the Baltic Sea".[27] and other article from the same year assesses that "The oil crosses boundaries and the cooperation follows."[28]

Pollution from ships includes airborne emissions and sewage. In total, 11 articles were considering airborne emissions, 16 articles sewage from ships and one article raised equally both. Airborne emissions include nitrogen and sulphur emissions to air. For example, in 2008 it was denoted that "The nitrogen emissions from ships are larger than the whole emissions from Finnish road traffic"[29]. Sulphur emissions from ships were especially topical due to the heated discussion on the EU's sulphur directive (Directive 2012/33/EU) in Finland. However, most news coverage regarding the sulphur restrictions was solely economical regardless of the environmental basis of the directive. Various news articles on the matter were highlighting the disadvantages that the directive caused to the economic life and business in Finland without contemplating the environmental side of the issue and these articles were not suitable under the environmental news coverage. Even when the news coverage included an environmental viewpoint, a somewhat negative undertone can be discerned, for example an article heading from 2012 notes that "Finland had to settle for the sulphur directive."[30] Nevertheless, some articles expressed more positive or at least neutral remarks, for example an article heading from 2015 states that "The sulphur emissions from the ship in the Baltic Sea are tamed."[31]

The sewage from ships was slightly more discussed than airborne emissions from ships and it covered emissions from small size boats to large cruisers. Sewage from smaller boats was acknowledged in a few articles about waste management and composter latrines in these boats, but the waste management in ships and especially in large cruisers was receiving most attention. This is mostly due to the International Maritime Organisation (IMO) decision in 2011 to designate the Baltic Sea as a special area, the initiative that was advocated by the surrounding countries including Finland, and the following decision to prohibit the dumping of sewage to the Baltic Sea especially from

[27] "Öljyntorjuntavalmiutta tehostettava Itämerellä," *Helsingin Sanomat*, July 26, 2008.
[28] Varpu Kiviranta, "Öljy ylittää rajat, yhteistyö tulee perässä," *Helsingin Sanomat*, July 25, 2008.
[29] Jukka Perttu, "Laivojen typpipäästöt suuremmat kuin Suomen koko maantieliikenteen," *Helsingin Sanomat*, January 11, 2008.
[30] Olli Pohjanpalo, "Suomi joutui tyytymään rikkidirektiiviin," *Helsingin Sanomat*, May 30, 2012.
[31] Heli Saavalainen, "Itämeren laivojen rikkipäästöt kuriin," *Helsingin Sanomat*, January 23, 2015.

cruisers.[32]" The issue was further discussed during the following years due to the opposition of Russia towards the ban.[33]

Loss of biodiversity and climate change

Loss of biodiversity is the fourth most raised issue after eutrophication, wastewaters and Nord Stream with 51 articles. Loss of biodiversity comprises any articles on the threats to biodiversity or functioning of the ecosystem, which are not suitable under other themes like eutrophication, hazardous substances or overfishing. There are various species that are being raised repeatedly within news coverage such as harbour porpoises, white-tailed eagles and great cormorants. Some articles introduce the endangered species to the reader, such as an article from 2008 whose heading states that "The harbour porpoise is an endangered whale"[34] and sightings on the harbour whale are also requested various times.[35] Some articles discuss the state of the protection of species and threats to the species, for example an article heading from 2008 informs that "the threats to the white-tailed eagle have changed from toxins to electric shocks."[36]

Most news coverage on biodiversity focuses on some certain species or is otherwise more routine type news coverage, and there are not many articles that examine the issues related to biodiversity and ecosystem from a broad perspective. One reason for the lack of the broader perspective can be the complexity of the ecosystem functions, as well as insufficient knowledge and varying perceptions that can make the theme difficult to approach. This view is reinforced in the news coverage where the need for more information on the biodiversity in order to better govern the Baltic Sea has been raised. It has for example been stated that the insufficient knowledge and varying perceptions on the underwater biodiversity and the functioning of the ecosystem are causing disputes between various stakeholders on the proper usage of the sea area.[37]

[32] Jarkko Hakala, "Ulosteiden lasku risteilijöistä Itämereen loppuu," *Helsingin Sanomat*, July 22, 2011; Suvi Vihavainen, "Itämeri säästyy risteilijöiden jätevesiltä," *Helsingin Sanomat*, April 29, 2016.
[33] See for example: Vihavainen, "Itämeri säästyy risteilijöiden jätevesiltä."; Heli Saavalainen, "Itämeren EU-maat hakevat sopua jätevesikieltoon," *Helsingin Sanomat*, March 5, 2015.
[34] "Pyöriäinen on uhanalainen valas," *Helsingin Sanomat*, January 31, 2008.
[35] See for example: Pyry Lapintie, "Merellä liikkujien toivotaan tarkkailevan uhanalaisia pyöriäisiä," *Helsingin Sanomat*, June 22, 2012.
[36] "Merikotkan uhat vaihtuneet myrkyistä sähköiskuihin," *Helsingin Sanomat*, June 12, 2008.
[37] Markku Viitasalo and Kirsi Kostamo, "Meriensuojelu vaatii tietoa ja yhteistyötä," *Helsingin Sanomat* Vieraskynä, July 4, 2012.

Similarly, the news coverage on the complex question of climate change and its effects on the Baltic Sea ecosystem in Helsingin Sanomat has been almost non-existent. There is only one article within the overall discourse of the Baltic Sea environmental problem that considers climate change as its main theme. In this article from 2012, the mitigation ability of the Baltic Sea to the climate change has been examined[38]. The possible explanation for the relative absence of climate change in the Baltic Sea related news coverage can be the uncertainty of the consequences of the climate change to the Baltic Sea environment among scientists and even more so in the media.

When the climate change has been mentioned in an article, it is usually conceived as a factor contributing to the worsening of some other environmental problem: "Our common sea is not doing well, and the climate change does not ease its situation at all."[39] Thus, the climate change is mirrored through other environmental problems within the context of the Baltic Sea with the considerations on how climate change can negatively affect achieving the set environmental goals. Only the 2010s have there been scientific studies on the predicted effects of climate change to the Baltic Sea and the researchers have consistently begun to consider climate change as a major threatening factor for the Baltic Sea environmental recovery. (See for example: Andersson et al. 2015; Reusch et al. 2018)

Restrictions of time and space in news production, and the decreasing ability of news reporters to cover complex environmental issues due to cuts in traditional media (see: Anderson 2015, 177), have most likely been influential in limiting the amount complex new stories like those considering the issues of biodiversity and climate change, and can be one reason why these themes have not been more widely on the agenda.

General concern

The main theme General concern covers the news articles that either include two or more of the main themes equally or examine the Baltic Sea environmental problem from a more general perspective. A descriptive example on the first type of news coverage where various problems are being raised equally, is an article heading from 2010 asserting that "The problems (of the Baltic Sea) include eutrophication, hazardous substances and busy

[38] Pyry Lapintie, "Jättikassit mittaavat meren kykyä selviytyä ilmastonmuutoksesta," *Helsingin Sanomat*, June 13, 2012.
[39] "Itämeren aika," *Helsingin Sanomat*, April 13, 2008.

traffic".[40] The second type, the more general perspective includes ecosystem-based management news coverage related to the Baltic Sea, as well as news on actors, cooperation and common commitments to the protection of the sea.

The second type of general news coverage can be considered constituting the "transnational and regional discourse" where the concentration is on the cooperation, and especially in the cooperation within EU and HELCOM for example in the form of the HELCOM Baltic Sea Action Plan (HELCOM 2007). An article heading from 2008 on the other hand describes rather well this news type stating that "The protection of the Baltic Sea must be made common issue for the whole Europe"[41] This is opposed to a more nationalistic character, which otherwise tends to prevail in the mainstream media news coverage (Jönsson 2011, 130) As described by Hansen (2010) environmental issues are often linked to international meetings, forums or negotiations where the date is published beforehand, and the news organisations can ensure their presence. (Hansen 2010, 96) This is usually the case in various general type news coverage articles.

There are various pessimistic views expressed towards cooperation and these views contest the current state of the intergovernmental cooperation. This trend would seem to prevail during the ten years of analysis although there have also been some more positive remarks. The most pessimistic views on cooperation denote that the goal of the Baltic Sea region cooperation would seem to be creating new programs and cooperation itself for the good impressions, and not solving the actual environmental issues as it should be[42]. Similarly, there are considerations on networking and festivities, which are assessed to override the concrete commitments.[43] There are views denoting that the protection of the Baltic Sea has remained intangible and the implementation of the action plans has not been efficient.[44] The general message in the news coverage highlighting cooperation appears to be the need for political will to make the pressing and binding decisions, commitment at every level and involving all the countries in the protective measures.[45]

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[40] Heli Saavalainen, "Ongelmina rehevöityminen, myrkyt ja vilkas liikenne," *Helsingin Sanomat*, February 8, 2010.
[41] "Itämeren suojelusta on tehtävä koko Euroopan yhteinen asia," *Helsingin Sanomat*, May 17, 2008.
[42] "Valkopesua venäläiseen tapaan," *Helsingin Sanomat*, June 8, 2012.
[43] Heli Saavalainen, "Itämeren ravinnepäästöjä vähennettävä tuntuvasti," *Helsingin Sanomat*, October 4, 2013.
[44] "Itämeren suojelu etenee kangerrellen," *Helsingin Sanomat*, August 29, 2008.
[45] Olli Kivinen, "Poliittinen tahto puuttuu," *Helsingin Sanomat*, May 6, 2008; Heli Saavalainen, "Leväpuuroa ja samppanjaa," *Helsingin Sanomat*, July 1, 2011; "Itämeren hyväksi kaikilla tasoilla," *Helsingin Sanomat*, May 25, 2009; Valtteri Skyttä, "Seminaari: Itämeren suojeluun tarvitaan sitovia sopimuksia," *Helsingin Sanomat*, June 3, 2009.

5.3. Trends and changes in the news coverage

Classification of the main themes by the year allows for the further examination of trends and changes in news coverage. The table below presents the number of main themes in articles by the year:

Main theme	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Eutrophication	14	13	16	22	15	15	10	8	6	11	130
Wastewaters	2	4	6	0	37	17	12	4	1	2	85
Nord Stream	15	32	8	4	1	0	0	0	0	1	61
Loss of biodiversity	10	8	7	4	3	2	6	5	5	1	51
General concern	7	4	11	4	2	2	2	2	0	1	35
Hazardous substances	3	3	0	11	3	1	1	0	5	5	32
Shipping incidents	7	5	6	2	1	2	0	2	2	2	29
Pollution from ships	6	4	7	2	2	1	1	2	3	0	28
Overfishing	1	0	0	1	7	7	1	0	2	1	20
Alien species	6	4	0	1	1	0	0	0	2	0	14
Dredging	0	1	1	0	0	0	0	8	1	0	11
Marine litter	0	0	1	0	0	0	2	1	3	3	10
Offshore windpower	0	0	1	1	0	0	0	0	0	0	2
Floods	0	0	0	0	0	0	1	0	0	0	1
Climate change	0	0	0	0	1	0	0	0	0	0	1

Table 1: The main themes in articles by the year

The area chart below further illustrates the changes and trends in the news coverage over ten years' time:

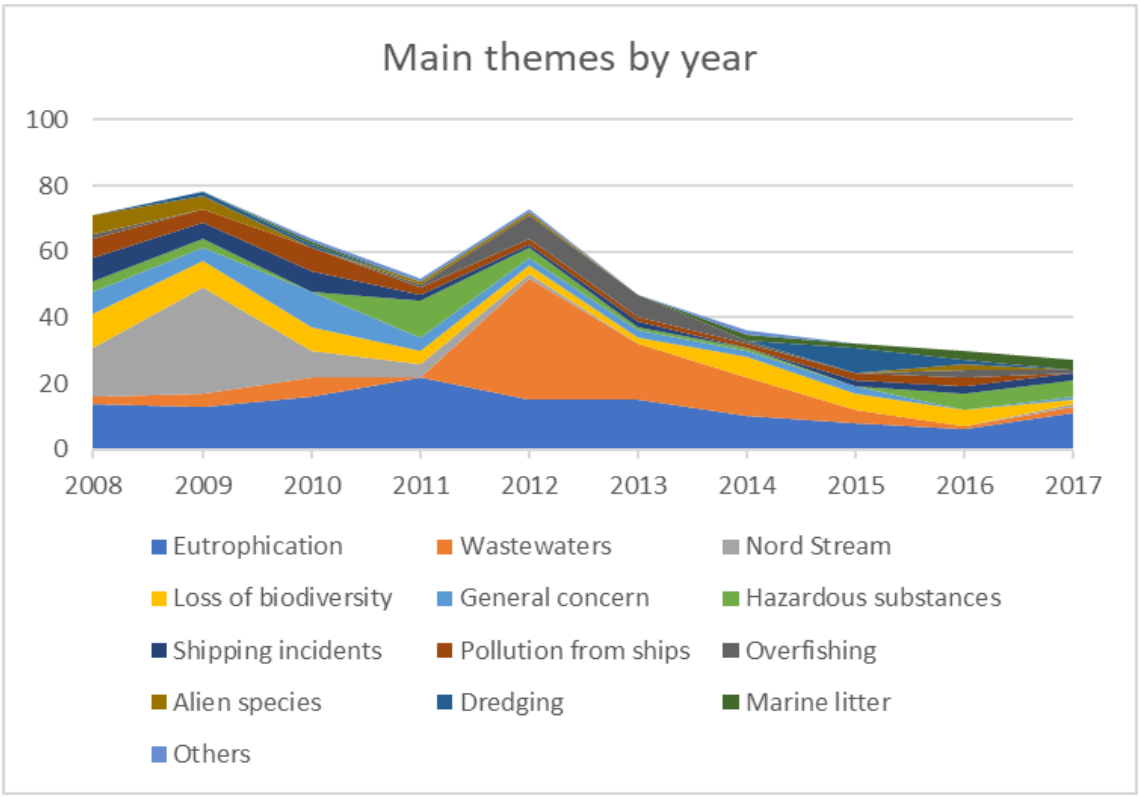

Chart 4: The main themes in articles by the year

Division of articles by the year indicates that there have been distinct shifts in news coverage in ten years' time and certain transitions from highlighting some aspects of the larger environmental problem of the Baltic Sea to highlighting other aspects can be distinguished even in ten years' time. As some themes have been increasingly raised at certain times, others have been less discussed, and thus not considered as pressing at the time. Some main themes would appear to have rather established news space, whereas other themes have strong yearly variations. Most persistent main themes have been eutrophication and loss of biodiversity. These themes appear to have rather established news slots, since they have been discussed continuously during the ten years' time. On the other hand, there have been distinct variables such as the news coverage on Nord Stream and wastewaters that have undergone substantial variations in their yearly quantities.

There are some trends that are discernible. During the first years of analysis various maritime activities and their possible negative effects on the Baltic Sea have been under limelight. From the beginning of 2012 to the mid-2014, the wastewater discourse has largely stigmatised the news coverage. In 2011 and after the mid-2014, the portrayal can be considered somewhat more diverse. During these years, eutrophication has been the most raised main theme, but there has been more even concentration between the different themes. It needs to be noted, however, that there has also been less news coverage in total during these years.

5.3.1. Focus on maritime activities

During the first years of analysis, the focus of the news coverage has been on various maritime activities. Nord Stream has been the most visible theme during this time, and especially in 2009, but also other maritime activities have been more widely raised than in the later years of analysis. Other distinctly covered themes include maritime traffic and shipping incidents, and in this regard especially oil pollution, pollution from the ships and risk of alien species.

The number of articles can assist in illustrating of the focus on maritime activities. In 2008 34 from the total of 71 articles covered some maritime activity as the main theme, in 2009 46 from 78 articles and in 2010 21 from 64 articles. As a comparison, in 2011 8 articles from 52 articles were related to the maritime activities, in 2012 the same amount

was 4 from 73 articles and in the last year of analysis 2017, 2 from 27 articles discussed maritime activities. In the overall, in any year of analysis after 2010 there were 10 or less articles focusing on maritime activities. Thus, after the first years of analysis the maritime activities have been considerably less on the agenda.

There are certain patterns to be distinguished within the first years of analysis. Special focus would appear to be in possible future threats and risks. This is rather typical for the maritime news coverage, which usually examines the increased maritime traffic in the Baltic Sea and the possible risks this can inflict. Furthermore, there are various views expressed towards taking precautions against the perceived future threats. These opinions urge to the mapping of risks and create possible scenarios for future catastrophes especially within shipping but also otherwise. Regarding this, the demands for more investigation and research, as well as conceived need for more regulation are highlighted in various articles. In addition, the need for cooperation has been highlighted as a crucial component in solving the environmental risk arising from maritime activities.

Nord Stream discourse has been influential in creating the overall maritime discourse and in creating risk scenarios. Nord Stream was a significant topic in the environmental discourse of the earlier years of analysis especially before 2011, but the issue has hardly been discussed in the environmental context after that. In 2008, Nord Stream was the most raised single main theme with 15 articles from the total 71 articles. In 2009, the theme was dominant with 32 articles from 78 articles and in 2010 8 from 64 articles concerned Nord Stream pipeline. After these years there has been more balance between the themes discussed, before Nord Stream was eventually dropped out of the agenda after 2012. The peak in the overall news coverage in 2009 implies that the Nord Stream was so widely covered that is also increased the amount of the overall news coverage.

From the total of 61 articles raising environmental concerns related to the Nord Stream, 59 articles discussed environmental concern related to the first pipeline and only two articles the environmental concerns in relation to Nord Stream 2. Thus, in the case of the first pipeline the environmental viewpoint was widely on the news agenda, whereas in the case of the second pipeline there is a distinct absence of environmental news coverage. Illustratively, an article heading from 2017 concerning Nord Stream 2, despite its environmental content, states that “The gas pipe is also other than environmental issue”[46].

[46] ”Kaasuputki on muutakin kuin ympäristöasia,” *Helsingin Sanomat*. May 9, 2017.

There has been a distinct shift in the news coverage on Nord Stream, since whereas the first pipeline was extensively considered as environmental threat the second one was not.

News coverage on the first Nord Stream pipeline has transformed from the uncertainty discourse to the evaluation of the possible impacts, and after the construction, to the certainty and summarization of the realised impacts. Uncertainty of the final environmental impacts as well as worst-case scenario thinking are visible in an article heading from 2008 stating that according to Russian reporter "--The negative impacts of the gas pipe on the nature have been underestimated"[47] even though the temporality of the environmental concerns was also somewhat noted already in an article from 2009 whose heading noted that "The negative impacts of the Baltic Sea gas pipe are partly temporary."[48] There were also concerns expressed by environmental authorities on the project being personified to the highest political administration in Germany and in Russia, since this might induce the environmental concerns being overridden by politics.[49]

Nord Stream was most widely discussed in 2009 after which the amount of the news coverage diminished in 2010 and in 2011. After that the topic has dropped out of the agenda altogether. Wide discussion on the matter in 2009 concerned especially the results of the environmental impact assessment of the pipeline. The media was introducing and evaluating the emerging concerns like the upheaval of the seafloor, the need to detonate mines on the planned route of the pipeline and negative impacts of the construction on the fish, seals and birds[50]. There were still persistent views that the environmental impacts remained insufficiently investigated and that the environmental impact assessment was deficient.[51]

In 2010 once Nord Stream had received permits, the articles concentrated more on the developments in the construction process, even though there were still some continued

[47] Juutilainen, Ville, "Venäläistoimittaja: Kaasuputken haittaa luonnolle aliarvioitu," *Helsingin Sanomat*, April 15, 2008.
[48] Saavalainen, Heli, "Itämeren kaasuputken haitat osin tilapäisiä," *Helsingin Sanomat*, March 10, 2009.
[49] Kirsikka Moring and Ilkka Ahtiainen, "Venäjä ja Saksa haluavat runnoa kaasuputken vaatimat luvat nopeasti läpi," *Helsingin Sanomat*, June 6, 2008.
[50] See for example: Heli Saavalainen, "Itämeren kaasuputki mylläisi merenpohjaa ja haittaisi kalastusta," *Helsingin Sanomat*, March 10, 2009; Heli Saavalainen, "Suomenlahdessa olevat miinat räjäytettävä kaasuputken tieltä," *Helsingin Sanomat*, November 25, 2008; Heli Saavalainen, "Kaloille ja linnuille paikallista haittaa," *Helsingin Sanomat*, May 10, 2009; Heli Saavalainen, "Kaasuputken reitillä miinoja, hylkyjä, kalastus- ja hyljealueita," *Helsingin Sanomat*, March 15, 2009.
[51] "Itämeren kaasuputken riskit selvitettävä tarkasti ennen lupia," *Helsingin Sanomat*, July 3, 2009; Heli Saavalainen, "Kaasuputken ympäristöarviossa Venäjän osalta yhä aukkoja," *Helsingin Sanomat*, September 4, 2009.

opposition to the pipeline.[52] In 2011, the tone of the news coverage accentuates relief, since as stated in one heading in 2011 "Pipeline came, The Gulf of Finland was preserved"[53] and other headings confirm that the environmental impacts of the pipeline were minor as well as remaining within the expected impacts.[54] However, even though the impacts remained local and contemporary, the wide discussion on environmental impacts had influence on how the environment was acknowledged during the construction process. At the Gulf of Finland, anchorless ships were used when the pipe was sunk to the bottom of the sea, which decreased the turning of the seabed. Furthermore, the planned passageway of the pipeline in Bornholm, Denmark was moved in order to avoid the conservation areas and immersions points of chemical weapons.[55]

When examining the news coverage of Helsingin Sanomat, the construction of the first pipeline seems to have removed some of the environmental concerns related to the construction of the pipeline. Nord Stream 2 was not similarly contemplated as an environmental risk. This can result from the increased certainty on the environmental impacts of the underwater pipeline but also from the focus on geopolitical concerns.

It needs to be acknowledged that the concerns regarding the construction of the Nord Stream pipelines have not been solely environmental. As Jönsson (2011) noticed, the first planned pipeline between Russia and Germany received attention in Sweden especially in 2008 and the framing was two-fold, since concern was either on the military safety or on environment issues, and in some articles even on both. (Jönsson 2011, 125) Interestingly in Finland, it is concluded that the pipeline has been discussed foremost as an environmental issue, as opposed to neighbouring countries in which the discussions have covered also other concerns, and there has even been criticism to the Finnish government for treating the issue as solely environmental and not taking security and political aspects into consideration.[56]

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[52] See for example: Anna-Riitta Sippola, "Kaasuputken teko alkaa Suomenlahdella kesäkuussa," *Helsingin Sanomat,* February 13, 2010; "Nord Stream saa jatkaa miinanraivausta Suomenlahdella," *Helsingin Sanomat*, March 19, 2010; Jussi Konttinen, "Ympäristöjärjestöt vastustavat Itämeren kaasuputken rakentamista," *Helsingin Sanomat*, January 6, 2010.
[53] "Kaasuputki tuli, Suomenlahti säästyi," *Helsingin Sanomat*, June 28, 2011.
[54] "Kaasuputken ympäristövaikutukset odotetun kaltaisia," *Helsingin Sanomat,* August 26, 2011; "Nord Streamin ympäristöhaitat jäivät vähäisiksi," *Helsingin Sanomat*. October 11, 2011.
[55] Heli Saavalainen, "Kaasuputki laskettaisiin ilman ankkureita Suomenlahdelle," *Helsingin Sanomat*, May 1, 2009; Heli Saavalainen, "Reitti muuttui Bornholmissa," *Helsingin Sanomat*, March 15, 2009.
[56] Jouni Mölsä, Hannele Tulonen and Paula Lehtomäki, "Kaasuputkihanke on kehittynyt ympäristölle suotuisammaksi," *Helsingin Sanomat*, August 30, 2009; Anna-Riitta Sippola, "Suomen hallitukselta tänään lupa Itämeren kaasuputkelle," *Helsingin Sanomat*, November 5, 2009.

Decreased uncertainty is probably not the only explanation for the decreased environmental news coverage when it comes to second pipeline. Sanoma arkisto website provides 35 hits in Helsingin Sanomat on the keyword *Nord Strea** in 2016 and 55 hits in 2017. It needs to be remembered that non-relevant articles have not been removed from these amounts, but the number of articles can still give some retrospect, and can be compared with 78 hits in 2008, 141 hits in 2009 and 41 hits in 2010 with the same keyword. The amount of the overall news coverage about Nord Stream is still rather high even though there has not been environmental news articles on the pipeline, and this further indicates that Nord Stream 2 has been discussed in Helsingin Sanomat, but no longer as an environmental issue.

The probable reasons for the decreased environmental concern on the construction of the second pipeline are, thus, not only increased information on the final impacts of the pipeline on the Baltic Sea environment after the completion of the first pipeline but also the increased interest on the political and security issues due to increased tensions in the region. An article from 2016 assesses that the first pipeline was strictly inspected in Finland as an environmental and economic question even though political aspects would have been carefully observed, but within the second pipeline security and political aspects are further considered, even though still more cautiously than for example in Sweden.[57] In the same article it is further evaluated that the project itself is highly political instead of environmental, since it is unlikely that the environmental impact assessments on the Nord Stream 2 would greatly diverge from those of the first Nord Stream assessments in 2009 and 2010.

The attention given to the pipeline does not necessarily imply that it has been considered as the most pressing environmental problem that the Baltic Sea faces at the time, but the amount of attention given to the issue constitute it as especially topical and the great amount of news coverage ensures that the topic is well introduced to the readers of Helsingin Sanomat. On the other hand, the issue was indisputably considered pressing, and an article from 2015 (concerning dredging) assessed that Nord Stream caused uproar among the large group of environmental officials and organisations, politicians and researchers, and there was even talk of "a downright ecocatastrophe".[58]

[57] "Turhaa hyssyttelyä kaasuputkesta," *Helsingin Sanomat*, December 22, 2016.
[58] Heli Saavalainen, "Jättiruoppaus samentaa Suomenlahtea," *Helsingin Sanomat*, October 1, 2015.

In addition to Nord Stream discourse, the risk scenarios are especially distinct in the news coverage concerning oil pollution. It is concluded that the risk of the oil accident is especially high at the Gulf of Finland, which is narrow and congested, and but the amount of oil transportations has been increasing enormously from earlier 40 million tons in 2000 to the current 150 million tons (of 2009) and is projected to be 250 million tons in 2015.[59] Worst-case scenarios have been highlighted in 2009 when it is concluded that "the increased transports of oil create gloomy nightmare scenarios"[60] and in 2010 it is stated that "in transporting 150 million oil ton a year a great danger of environmental catastrophe is inhered".[61] Furthermore, the oil destruction readiness in the Baltic Sea is evaluated as inadequate and having serious shortcomings because oil destruction measures have not been improved at the same speed as the amount of oil transportations.[62] The need for cooperation has been highlighted within shipping incidents where the collaboration in marine surveillance and exchange of information is essential for the incident prevention.[63]

5.3.2. Pollution from the seashores

Wastewater news coverage has been other main theme with rather impermanent character. The issues related to wastewaters have been largely discussed especially from 2012 to mid-2014, but in the years before and after that it has not been discussed to the same extent. During this time, the pollution from the seashores was extensively reported due to two phosphorous leakage cases from gypsum waste deposit sites to the Luga river in Kingisepp, Russia and to the Vistula river in Gdansk, Poland. The phosphorous leak in Kingisepp has been the main theme in the total of 37 articles extending mainly from January 2012 to June 2012 and leakage from the phosphogypsum site in Gdansk has been the main theme in 20 articles extending from the end of 2012 to the mid-2014. In 2012 35 articles from the total of 73 articles considered leakage cases, in 2013 13 articles from 47 and in 2014 7 articles from 36 articles, from which all situated in the first half of 2014.

These cases were extensively raised in Helsingin Sanomat from 2012 to 2014, which timely suits the overall increase in the amount of news coverage regarding wastewaters.

[59] Heli Saavalainen, "Itämeren turvallisuutta pyritään kohentamaan merivalvontayhteistyöllä," *Helsingin Sanomat*, March 5, 2009.
[60] "Itämeren hyväksi kaikilla tasoilla," *Helsingin Sanomat*, May 25, 2009.
[61] "Itämeri sai lupaukset, nyt on tekojen aika," *Helsingin Sanomat*, February 11, 2010.
[62] "Öljyntorjuntavalmiutta tehostettava Itämerellä," *Helsingin Sanomat*, July 26, 2008.
[63] Saavalainen, "Itämeren turvallisuutta pyritään kohentamaan merivalvontayhteistyöllä."

Leakage news coverage is especially strongly linked to eutrophication, since leakages in Kingisepp and Gdansk are phosphorous leaks, but the problem dialogue reinforces the wastewater issue as the concern to be addressed and, thus this coverage is categorised under wastewaters.

Due to the vast amount of news articles on the leakage cases, the news coverage is rather strongly stigmatised by the catastrophe type news coverage in these years. Timely first case was placed in Kingisepp, Russia. At the beginning of 2012 Helsingin Sanomat reported on "The massive emission to the Gulf of Finland"[64]. It was concluded that "The large source of emission was discovered in Russia"[65] Second case was a phosphorous leak from the gypsum site near Gdansk, Poland, which was discovered in 2013 and reported as "A large emission from Poland to the Baltic Sea"[66] and in 2014, it was reported that the "Gdansk gypsum site is still leaking."[67]

In accordance with the leakage cases, the magnitude of the leakages has been raised in numerous articles. Kingisepp phosphorus leakage is described as enormous and it is stated that the amount of phosphorous is comparable to the untreated wastewaters of a million people[68]. In Poland leakage case, the amount of leakage was estimated to be 220 tons a year, which is concluded to be more than the yearly phosphorous load from all the Finnish cities combined.[69] Various references to the volume of these leakages in the news coverage highlight the importance of halting the leakages to the overall pollution situation of the Baltic Sea.

In addition to the magnitude of the leakages, there are various other explanations for the high amount of news coverage that the leakage cases received. Helsingin Sanomat samples revealed the leakage in Poland[70], which assumedly is a part of the explanation why this case was so prominent in Helsingin Sanomat. Furthermore, the leakage cases are a prime example of the catastrophe type environmental news coverage. (Hannigan's three types of environmental events 2010, 96) There is a tendency in the media to

[64] Heli Saavalainen, "Jättipäästöt Suomenlahteen," *Helsingin Sanomat*, January 18, 2012.
[65] Heli Saavalainen, "Venäjältä löytyi iso päästölähde," *Helsingin Sanomat*, January 18, 2012.
[66] Heli Saavalainen, "Puolasta iso päästö Itämereen," *Helsingin Sanomat*, June 15, 2013.
[67] Heli Saavalainen, "Gdanskin kipsivuori vuotaa yhä," *Helsingin Sanomat*, April 25, 2014.
[68] Saavalainen. "Jättipäästöt Suomenlahteen."; Heli Saavalainen and Seppo Knuuttila, "Lannoitetehtaalta jättipäästöt," *Helsingin Sanomat*, January 19, 2012.
[69] Saavalainen, "Puolasta iso päästö Itämereen."
[70] "HS:n näytteet osoittivat vuodon," *Helsingin Sanomat*, April 25, 2014; Heli Saavalainen, "HS:n näytteet paljastivat vuodon," *Helsingin Sanomat*, May 18, 2014.

highlight these kinds of environmental disasters, since they are constituting a good news story. They are considered having more news value than the environmental issues that develop over a long time and are difficult to visualise. (Anderson 1997, 134; Hansen 2010, 95–96)

Special focus during this time is on the realised emissions and their effects on the protection of the Baltic Sea. Due to the leakage cases and decreased interest on maritime activities, the tone of the overall portrayal has shifted from earlier future scenarios to the concentration on the current situation and even in the past. Certain impacts of the leakage cases for the other news coverage can be perceived, since the overall tone in the discourse implies that other improvements are inconsequential until the leakages have been halted. The thought of the triviality of other sources of pollution until the leakages have been halted is well defined in an article from 2013 where it is being inquired that "If the leakages of the hundreds of tons of phosphorous are left untreated, what is the point of fixing the minor emissions?"[71]

This idea of triviality is especially discernible in the comments regarding the agricultural practises and other wastewater management. For example one article emphasises that halting the emissions from single fertilizer factories is much more cost-effective than reducing diffuse discharges like those in the agriculture[72] Same discourse can be distinguished in an article from 2012 concerning foreign agricultural practices, since there have been ongoing discussions on the emissions from the huge chicken farms near Saint Petersburg, but regarding these it is noted that their emissions are small in comparison with the loading from Kingisepp.[73] Furthermore, agriculture is less discussed during Portrait 2 than in the earlier years, for example in 2012 when Kingisepp incident was taking the majority of the news space, the first article concerning discharges from domestic agriculture is in July.[74] In an article from 2014 that discusses wastewater treatment in Finland, it is admitted that the wastewaters from domestic properties are

[71] Saavalainen, Heli. "Merta ei voi suojella, jos tieto ei kulje," *Helsingin Sanomat*, June 16, 2013.
[72] Marita Laukkanen, "Itämeren suojelu on myös politiikkaa," *Helsingin Sanomat* Vieraskynä, April 27, 2012.
[73] Saavalainen, Heli. "Kipsivuoren päästö pois fosforin saostuksella," *Helsingin Sanomat*, January 19, 2012.
[74] "Maatalouden päästöt saatava kuriin," *Helsingin Sanomat*, July 6, 2012.

causing eutrophication and their emissions should be diminished, but in the next sentence it is also highlighted that the largest stressor to the Baltic Sea is nevertheless Poland.[75]

Especially in 2012, Kingisepp incident appears to have taken space from other Baltic Sea related environmental coverage, since for example agricultural practices, maritime activities and hazardous substances have been less on the agenda than before and after. There is 'issue competition' between the news due to the limited space (Hansen 2010, 97; Hansen 2011, 14) and the news that have not got established news slots might have to make space to news that is considered more pressing at the time.

5.3.3. Other themes with varying popularity

Hazardous substances are the main theme in 33 articles. This number can be considered rather low at least in comparison to the number of articles on eutrophication. One part of the explanation could be the decision of categorising wastewaters as their own main theme, but this explanation is not adequate by itself, since regardless of this decision the number of articles on eutrophication has remained high. Other possible reason for the comparably low amount of news coverage on hazardous substances can be the improved status of the problem, since it was concluded that the situation had improved with regard to some substances. (Elmgren, Blenckner and Andersson 2015, 342) However, the concentration levels have remained high in some toxins and that the situation might have even worsened when it comes to some new toxic pollutants (Elmgren, Blenckner and Andersson 2015, 342) and an article heading from 2011 notes that "New environmental toxins are a growing threat"[76]

News coverage on hazardous substances raise issues like toxic levels in fish and fauna and threats linked to toxic basins. For example, an article heading from 2008 reports that "The dioxin concentrations in salmon and Baltic herring remain at high levels"[77] and other heading from 2011 that "The toxins are accumulating into aquatic organism, fish and humans."[78] In 2012 there were a few articles concerning the threats linked to Krasnyi Bor

[75] "Poukkoilu jätevesiasetuksessa aiheuttaa maalla turhaa vaivaa," *Helsingin Sanomat*, December, 23, 2014.
[76] Jouko Juonala, "Uudet ympäristömyrkyt ovat kasvava uhka," *Helsingin Sanomat*, January 26, 2011.
[77] Jukka Perttu, "Lohen ja silakan dioksiinipitoisuudet pysyttelevät korkealla tasolla Itämerellä," *Helsingin Sanomat*, August 4, 2008.
[78] Heli Saavalainen, "Myrkyt kertyvät vesieliöihin, kaloihin ja ihmiseen," *Helsingin Sanomat*, January 17, 2011.

toxic basins in Russia. The question fell out of the agenda and was raised anew more extensively in 2016."[79] The news coverage on Krasnyi Bor somewhat resembles the catastrophe type news coverage of the pollutant leakage incidents from waste deposits. However, the news coverage concerning the toxic basins is less covered in comparison with two leakage incidents.

Even though hazardous substances are a well-recognised problem facing the Baltic Sea being for example one of the four main segments in the HELCOM's Baltic Sea Action Plan (HELCOM 2007), the nature of the news coverage related to the hazardous substances would appear to be less established than those of eutrophication and biodiversity. In the case of hazardous substances, there are yearly variations in the news coverage of hazardous substances and the theme would seem to fall in and out of the news agenda depending on the year of analysis. There has been news coverage regarding hazardous substances especially in 2011 and after 2016, but in 2010 and 2015 there are not articles whose main theme is hazardous substances, and the main theme is also considerably less raised than eutrophication.

The total of 20 articles are raising concerns related mainly to overfishing from which 14 news articles are published in 2012 and 2013. Thus, overfishing has been discussed especially in those years and it has not been much on the agenda before or after that. In both years, seven articles discussed issues related to overfishing in both years, and reasons for this were the political discussions on fishing quotas and WWF recommendation that people would avoid Baltic wild salmon. Within overfishing fish stocks and their sustainability has been under discussion especially with Baltic salmon and cod, which are significant for the fisheries, but whose catching quotas have been under dispute due to the consequent endangered state of the fish species, as well as the conceived unsustainability of fishing quotas and political discussions on the matter.[80] WWF's Seafood guide, which is published yearly, has also raised heated debate within stakeholders especially in 2012 when WWF recommended that people should avoid

[79] Heli Saavalainen, "Myrkkyaltaissa muhii ympäristökatastrofi," *Helsingin Sanomat*, February 28, 2016; Heli Saavalainen, "Jätealtaista valuu myrkkyjä luontoon," *Helsingin Sanomat*, March 13, 2016.
[80] See for example: Matti Huuskonen, "YM korottaisi Itämeren lohen ja meritaimenen alamittaa," *Helsingin Sanomat*, June 30, 2013; "Itämeren ahtaalla oleva turskakanta kaipaa turvaa," *Helsingin Sanomat*, October 16, 2016; Jussi Niemeläinen, "Kiista turskan kiintiöistä alkoi taas," *Helsingin Sanomat,* July 16, 2017.

Baltic wild salmon due to its unsustainable catching quotas, which infuriated the fishermen.[81]

Overfishing has not been framed as a problem in the first years on analysis. In an article from 2008 it is noted that EU has determined yearly fishing quotas in Finland for Baltic herring, sprat, salmon and cod, and these quotas are conceived to prevent overfishing. It is also stated in the article that, unlike in some other EU countries, in Finland overfishing is not a problem.[82] An environmental researcher Seppo Knuuttila has a differing view on the matter. He estimated in an article from 2010 that the issues of biodiversity have the tendency to be forgotten in comparison with the eutrophication and hazardous substances, even though overfishing is a problem in the Baltic Sea, and the fishing should be made more sustainable. He notes that in the current situation (as in 2010) merely environmental organisations are concerned on the matter and hopes that the politicians would implement the recommendations of the researchers on fishing quotas.[83]

With regard to overfishing one explanation for the emerging interest in 2012 and 2013 could be that the risk itself has not been conceived to contain enough news value by the media but the stakeholder conflict and political controversy over an issue has ensured the timeliness of the issue and it has been more widely covered. As Miller and Riechert (2000) have assessed the environmental risk does not necessarily contain enough news value itself without a trigger such as stakeholder conflict over an issue, and incident or political controversy involved. (Miller and Riechert 2000, 48)

After the year 2014, the main themes of dredging and marine litter have slightly augmented their popularity although both have remained minor themes. The news type, and thus also the reason for the increased attention, in these two themes differ largely. News coverage on dredging has been more contemporary news coverage and case type news coverage, since 8 articles of the total of 11 articles have concentrated on the large dredging in the port of Bronka near Saint Petersburg, Russia in October 2015. The main concern about dredging includes the harmful substances from the seabed, which are

[81] Jyrki Räikkä, ”WWF kehottaa välttämään Itämeren lohta,” *Helsingin Sanomat*, February 29, 2012; Outi Väisänen, ”WWF suututti Suomenlahden kalastajat,” *Helsingin Sanomat*, October 13, 2012.
[82] Jyrki Alkio, ”Suomessa ei huolta ylikalastuksesta,” *Helsingin Sanomat*, February 17, 2008.
[83] Miska Rantanen, ”Tärkeimmät Itämeri-sitoumukset tutkija Knuuttilan mukaan,” *Helsingin Sanomat*, February 9, 2010.

released as well as decreasing the quality of water and increased algal blooms[84]. Main issue in news coverage regarding dredging in Russia was the fact that there was no notification in advance from Russia and, thus, no possibility for the international and transboundary environmental impact assessment.[85] The augmentation in the popularity of dredging as a theme is, thus, mostly case-based and the popularity of the theme in the years to will most probably be dependent on the actualised dredging in the region as well as whether their impacts are conceived as local or transboundary.

Marine litter, on the other hand, appears to be less case-dependent. Within marine litter it is noteworthy that marine litter in the Baltic Sea has been covered first as a theme in only in 2010 but after 2014 there has been at least one article each year concerning marine litter, and news articles consider the problem from various viewpoints. When issues related to the marine litter have been discussed in the later years of analysis, the focus has been either on the untidiness of the beaches and or on the plastic in the Baltic Sea. For example, an article heading from 2014 states that "The beaches in Finland are the filthiest of the Baltic Sea"[86] whereas an article heading from 2015 notes that "There is an invisible plastic sea floating in the Baltic Sea".[87] Jönsson (2011) and Hannigan (2014) have referred to "passing the threshold of legitimacy or "threshold-passing" and this process could be considered having realised in the case of microplastics in the seas. (Hannigan 2014, 63; Jönsson 2011, 127) Topic has "passed the threshold" and made it to the news agenda, and after the media has continued to follow the development, and this awakening to the problem would appear to be both global and regional.

Hannigan (2014) has identified three processes when constructing an environmental problem: assembling, presenting and contesting claims. After the science has 'assembled' the problem of microplastics in the sea areas, the media has functioned as the main central forum presenting the problem for the public, and commanded attention to the problem. (Hannigan 2014, 55–56) The problem of microplastics appears to have been legitimated also in governance and the public (Hannigan 2014, 62), since marine litter has been high on the environmental agenda (Strand et al. 2015, 9), and the actions have initiated, for example HELCOM's regional action plan on marine litter was adopted in 2015. The

[84] "Ruoppaukset saavat haitta-aineet liikkeelle," *Helsingin Sanomat*, October 1, 2015; Heli Saavalainen, "Venäjän ruoppaukset lisäsivät leväkukintoja," *Helsingin Sanomat*, October 7, 2015; "Samea yllätys Suomenlahdella," *Helsingin Sanomat*, October 2, 2015.
[85] Saavalainen, "Venäjän ruoppaukset lisäsivät leväkukintoja."; "Samea yllätys Suomenlahdella."
[86] Heli Saavalainen, "Suomen rannat ovat Itämeren sottaisimpia," *Helsingin Sanomat*, February 8, 2014.
[87] Johanna Junttila, "Itämeressä lilluu näkymätön muovimeri," *Helsingin Sanomat*, July 4, 2015.

objective of the action plan are the reductions in the amount as well as prevention of harms caused by the marine litter to marine environment. (HELCOM, 2015)

6. CONCEIVED ATTRIBUTES AND SOLUTIONS TO THE PROBLEM

6.1. Poland and Russia as main offenders

Construction of blame

As Jönsson (2011) noticed in her study, there is a tendency for "us against them" thinking where Russia, Poland and the Baltic states are framed as part of the Baltic Sea environmental problem (Jönsson 2011, 128). This conception of the main offenders is also distinctly present in the articles analysed in this thesis. The reliability of authorities in Poland and Russia has been questioned, and the poor surveillance, corruption and lack of motivation for environmental protection in these countries have been repeatedly identified as the main obstacles to the effective environmental protection. There is also a distinct juxtaposition between the conceived polluters and environmental protectors. With regard to Russia it has been noted that its reluctance in environmental protection is critical to Finnish "environmental protection since "the currents at the Gulf of Finland eddy from east to west"[88].

The poor surveillance and faults in monitoring systems have been raised on various occasions. It has been noted that the Russian monitoring on emissions is inefficient and in one article, the poor state of the environmental surveillance in Russia has even been raised as the largest problem in Russia with regard to the Baltic Sea environment.[89] It is assessed that the factories in Russian and in the "new EU-countries" are not always aware of their emissions and that even governmental research institutes lack personnel and proper equipment.[90] However, the main conceived reason for the poor surveillance in most articles has been assessed to be lack of motivation investing in the environmental protection at the state level and the corruption that is rampant in the country.[91] For example, the process of constructing the Kaliningrad wastewater treatment plant is described as a disgrace due to "the overall indifference, the inefficient usage of money and running away from liability".[92] The construction process of the wastewater treatment

[88] Heli Saavalainen, "Hyvää ja huonoa Suomenlahden perukasta," *Helsingin Sanomat*, June 8, 2011.
[89] Heli Saavalainen, "Pietarissa kohotettiin Itämeri-henkeä," *Helsingin Sanomat*," April 6, 2013; Heli Saavalainen, "Suomenlahti-vuosi jättää päästöt sivuun," *Helsingin Sanomat*, January 18, 2013; Heli Saavalainen and Seppo Knuuttila, "Lannoitetehtaalta jättipäästöt," *Helsingin Sanomat*, January 19, 2012.
[90] Saavalainen and Knuuttila, "Lannoitetehtaalta jättipäästöt."; "Kirjoitussarja Itämerestä," *Helsingin Sanomat,* May 18, 2008;
[91] Saavalainen and Knuuttila, "Lannoitetehtaalta jättipäästöt."
[92] Kaius Niemi, "Itämerellä on pitkä muisti," *Helsingin Sanomat,* August 6, 2014.

plant in Kaliningrad, as well as the processing of the Gdansk leakage case in HELCOM meeting are being described as a farce.[93]

The poor surveillance is identified to be mostly due to the lack of motivation and indifference. It is being assessed that in Russia and Poland, the environmental protection is far from top priority within the elite, and that the public image appears to be much more important than the environmental protection.[94] Due to the environment being low in the order of priority, these countries are considered lacking concrete measures and even indulging in 'greenwashing'. Thus, the environmental actions have proceeded slowly in the decision-making bodies of the respective country.[95] Even though there would be strict legislation on certain environmental matter, its application might not be efficient.[96]

Distrust between countries is apparent and the reservation towards Russian and Polish authorities, from local to high-level, is discernible in Helsingin Sanomat articles, since the reliability and the integrity of the authorities have been questioned. Local authorities have been described as reluctant and avoiding liability, and it is being noted that the authorities are on the defensive and deny the problems[97]. It is being noted that the Kingisepp leakage was being denied (by the Russian government) even though both Finnish and Russian researchers were agreeing on the leakage.[98] Also with regard to Gdansk leakage it has been confirmed that there has been suspicion on the leakage for a long time, and that whereas Polish authorities claimed that the gypsum site was not leaking, the samples taken by Helsingin Sanomat proved the opposite.[99] With respect to Russian government, the close connections of the business life and governance in the Russian system are conceived as challenges the environmental protection.[100] Political and

[93] Heli Saavalainen, "Puolan fosforivuodon käsittelystä tuli farssi," *Helsingin Sanomat,* May 17, 2014; Heli Saavalainen, "Jätevesifarssi Itämerellä," *Helsingin Sanomat*, July 20, 2014.
[94] Olli Kivinen, "Poliittinen tahto puuttuu," *Helsingin Sanomat*, May 6, 2008; Heli Saavalainen, "Muistio: Itämeri-aloite oli viherpesua," *Helsingin Sanomat*, March 07, 2015.
[95] Saavalainen, "Muistio: Itämeri-aloite oli viherpesua,"; Heli Saavalainen, "Venäjä perustaa vihdoin suojelualueen Suomenlahdelle," *Helsingin Sanomat*, March 6, 2009; Heli Saavalainen, "Myrkkyongelma kaipaa ratkaisua," *Helsingin Sanomat*, March 8, 2017.
[96] "Venäjän järjestelmä joutuu testiin," *Helsingin Sanomat,* January 23, 2012.
[97] Heli Saavalainen, "Kaliningrad puhdistaa jätevesiään," *Helsingin Sanomat*, June 10, 2017; Heli Saavalainen, "Myrkkyongelma odottaa ratkaisua," *Helsingin Sanomat*, August 4, 2017; Samuli Laita and Heli Saavalainen, "Päästöseuranta takertelee Venäjällä," *Helsingin Sanomat*, March 8, 2012; Heli Saavalainen, "Fosforipäästö varmistui," *Helsingin Sanomat*, July 18, 2013.
[98] Heli Saavalainen, "Kipsivuori vuotaa - tieto ei," *Helsingin Sanomat*, January 28, 2012.
[99] Heli Saavalainen, "Merta ei voi suojella, jos tieto ei kulje," *Helsingin Sanomat*, June 16, 2013.
[100] Heli Saavalainen, "Vesinäyte, joka muutti maailmaa," *Helsingin Sanomat*, April 20, 2012.

economic interests have close connections to the environmental issues and other interests are conceived to override environmental protection.[101]

The defiance of the Russia and Poland to commit to common goals has been conceived to set constrains to the whole environmental protection of the Baltic Sea by halting, or at least delaying, the measures that would enable the more comprehensive protection of the Baltic Sea ecosystem. It is conceived that Russia and Poland are opposing HELCOM decisions that require unanimity and, thus, causing inconvenience when attempting to impose new effective environmental measures.[102]. The insufficiency of reporting with regard to HELCOM Convention as well as an overall reluctance to report have also been raised with regard to Russia.[103] It is conceived that, since Poland is EU country, more could and should be expected of it in terms of environmental protection.[104]

"The main offender" discourse differs not only between the conceived polluter countries but also somewhat within the countries themselves. There are even optimistic views expressed towards Saint Petersburg progress in wastewater treatment, whereas rural areas around Saint Petersburg as well as Leningrad province are conceived as more old-fashioned and more defiant to implement protective measures[105]. There is a wish expressed that the example of the "more advanced" Saint Petersburg, in which the authorities of the city are on board improving the wastewater treatment, would reach other regions in Russia where administration is still reluctant to cooperate.[106] However, even the optimistic views expressed in the articles highlight the need for more measures, as well as emphasise the juxtaposition in which "the more advanced" western countries can assist Russia in the right direction.

As opposed to the conception of the main polluters, there is a conception of the main protectors, which includes other countries surrounding the Baltic Sea, the EU and the

[101] Kirsikka Moring and Ilkka Ahtiainen, "Venäjä ja Saksa haluavat runnoa kaasuputken vaatimat luvat nopeasti läpi," *Helsingin Sanomat*, June 6, 2008; "Julkikuva kärsi, Itämeri voitti," *Helsingin Sanomat.* June 20, 2012.
[102] Anna-Riitta Sippola, "Itämeren suojelu laahaa," *Helsingin Sanomat*, May 21, 2010; Heli Saavalainen, "Laivojen käymäläpäästöjen kiellosta ei sopua Itämerellä," *Helsingin Sanomat*, March 7, 2009; Heli Saavalainen, "Itämeren ravinnepäästöjä vähennettävä tuntuvasti," *Helsingin Sanomat*, October 4, 2013.
[103] Anneli Ahonen and Ossi Mansikka, "Venäjä kiistää laajat ruoppaushaitat," *Helsingin Sanomat*, October 9, 2015; Heli Saavalainen, "Käymälävesien lasku Itämereen uhkaa jatkua," *Helsingin Sanomat*, December 11, 2014.
[104] Heli Saavalainen, "Merta ei voi suojella, jos tieto ei kulje," *Helsingin Sanomat*, June 16, 2013.
[105] Heli Saavalainen, "Hyvää ja huonoa Suomenlahden perukasta," *Helsingin Sanomat*, June 8, 2011; Heli Saavalainen, "Pietarin jätevesiremontti on valmistumassa," *Helsingin Sanomat*, October 11, 2013.
[106] Saavalainen, "Pietarin jätevesiremontti on valmistumassa."

environmental organisations in the respective countries and in other countries as well as international environmental organisations. The better practices of the EU have been raised with regard to the distribution of manure to the fields and Russia is raised in the same regard as an example of poor practices[107]. With respect to the environmental organisations, the juxtaposition within the country has been raised. It has been concluded that Russian environmental organisations as well as local activist criticise Russia for its uncommunicativeness, downright wrong information and lack of actions[108].

The focus on Eastern counties has somewhat distracted attention away from Finland and its targets for development. There are views expressed in the articles on the irrelevance of improvements in Finland as long as certain countries pollute more. Within the discourse on agriculture, for example, there are some views expressed stating that in Finland the necessary measures have been conducted to decrease the runoff of nutrients from fields and the attention should be directed towards Poland and the Baltic states whose agricultural practices are considered as more decisive when decreasing the overall amount of nutrient discharges.[109] It is for example denoted that Poland has most to do in reducing both its phosphorous and nitrogen loads to the Baltic Sea and that the revival of agriculture in Poland and the Baltic states along with their EU-membership threatens to increase phosphorous and nitrogen loads by half. [110]

Removing the obstacles to the effective protection

There are various possible solutions considered with regard to improving the environmental protection in Russia and Poland. Poland and the Baltic states are EU-countries and can thus be tied to EU regulation on water protection. On the other hand, it is noted that the protection measures cannot be constituted solely within the EU, since it is essential to have Russia to participate in the protective measures.[111] The limited

[107] Seppo Knuuttila and Marjukka Porvari, ”Lannan käyttö Venäjällä uhkaa Suomenlahtea,” *Helsingin Sanomat* Vieraskynä, June 22, 2011; Heli Saavalainen, ”Liika lanta lokaa Itämeren,” *Helsingin Sanomat*, April 17, 2013.
[108] Anneli Ahonen, ”Jätepommi tikittää Pietarissa,” *Helsingin Sanomat,* June 11, 2016; ”Kaksi miljoonaa tonnia vaarallista teollisuusjätettä,” *Helsingin Sanomat*, February 28, 2016.
[109] Anna-Riitta Sippola, ”Ympäristövaliokunta vaatii tehoa Itämeren suojeluun,” *Helsingin Sanomat*, February 26, 2010; Tapio Mainio, ”Laineen tila palkittiin ylileveistä suojakaistoista,” *Helsingin Sanomat,* October 1, 2013; ”Itämeren suojelusta on tehtävä koko Euroopan yhteinen asia,” *Helsingin Sanomat*, May 17, 2008.
[110] ”Itämeren suojelusta on tehtävä koko Euroopan yhteinen asia.”; Heli Saavalainen, ”Itämeren ravinnepäästöjä vähennettävä tuntuvasti,” *Helsingin Sanomat*, October 4, 2013.
[111] Valtteri Skyttä, ”Seminaari: Itämeren suojeluun tarvitaan sitovia sopimuksia,” *Helsingin Sanomat*, June 3, 2009.

possibility to influence internal matters of Russia has been noted, and it has been assessed that Finland does not have mediums to force Russia to do anything.[112] Also with regard to the Kaliningrad wastewater treatment plant it has been noted that financiers have no alternatives but to remind on the commitments.[113] However, certain possible solutions from the subtle cooperation to coercive measures have been introduced especially with regard to decreasing the conceived problematic situation in Russia.

Both bilateral cooperation and cooperation through HELCOM have been conceived as crucial. More comprehensive local cooperation with Russia is considered as one medium that could improve the environmental protection in the country. Especially bilateral collaboration between Finland and Russia has been praised on various occasions. Bilateral cooperation is conceived to improve the environmental consciousness in the coastal areas in Russia and to have potential when resuming the halted environmental projects as well as Finland providing Russia with technological expertise[114]. HELCOM projects in improving the Russian monitoring of emissions have also been raised as essential in improving the environmental protection in Russia.[115] On the other hand, the cooperation between EU and Russia in environmental matters has not been raised as a medium.

Respectively, scientific data, flow of information and transparency are considered as mediums that can prevent certain environmental incidents. It is for example stated that within Kingisepp leakage, the scientific data and the following public discussion were central in solving the issue[116]. However, the concrete suggestions on how to improve the transparency are absent in the news coverage and the articles have mostly focused on highlighting the need for transparency and further cooperation.[117] However, once some environmental shortcoming has emerged, it is concluded that Finland should react "quickly and explicitly – as well as publicly."[118]

[112] Heli Saavalainen, "Päästöseuranta takertelee Venäjällä," *Helsingin Sanomat*, March 8, 2012.
[113] Heli Saavalainen, "Puhdistamo viivästyy taas," *Helsingin Sanomat*, July 5, 2014.
[114] Johanna Mannila, "Pietarin jätevesistä puhdistetaan 92 prosenttia," *Helsingin Sanomat*, August 27, 2010; Jorma Palovaara, "Itämeri puhutti virtuaalipuolueen kokousta," *Helsingin Sanomat*, July 8, 2011; Heli Saavalainen, "Itämeri-sitoumukset jäivät laihoiksi," *Helsingin Sanomat*, February 11, 2011.
[115] Heli Saavalainen, "Suomenlahti-vuosi jättää päästöt sivuun," *Helsingin Sanomat*, January 18, 2013.
[116] Heli Saavalainen, "Päästöt pienenevät askel kerrallaan," *Helsingin Sanomat*, January 22, 2014.
[117] See for example: "Valkopesua venäläiseen tapaan," *Helsingin Sanomat*, June 8, 2012; "Suomalaistutkijan pidätys Venäjällä selvitettävä pian," Helsingin Sanomat, April 17, 2012.
[118] "Suomalaistutkijan pidätys Venäjällä selvitettävä pian."

Public pressure has been presented as one possible solution which can create political pressure in Russia and force the country to focus more on the environmental issues.[119] As noted before the public image is usually conceived as more important by the Russian authorities and companies than the environmental protection. One example of the importance of the public image is the construction of the Kaliningrad wastewater treatment plant, since the plant was only completed once the city was chosen to be one of the venues for the FIFA World Cup in 2018 and the city was also otherwise renovated for the World Cup[120]. In addition, once the environmental pollution of some company has been brought into the public attention, the company involved will suffer from the hindrance to their image in international markets especially if the pollution continues.[121] It is noted that even in Russia the large companies cannot afford to ignore the environmental issues, and once some environmental shortcoming of the company's activities have been introduced publicly, the quick solutions will probably follow.[122] When the importance of the public image is acknowledged, it can even be benefited from, but the possible environmental violations first need to be introduced to the public.

In addition to the subtle cooperation, the more coercive measures have been suggested. There have been propositions on sanctions if some country does not conform to the set reduction to its emissions. The possibility of withdrawing from cooperation in some other field has also been suggested should the environmental requirements not have been conformed to.[123] For example with regard to Kingisepp leakage, Greenpeace and The Finnish Association for Nature Conservation were insisting that the environmental authorities in Finland to use any political leverage to halt the leakage.[124]

On the other hand, it is being argued that accusing others is useless.[125] Avoiding the blame is considered as one possible medium, since it is noted that the local authorities are on the defensive and it is highlighted that also with regard to companies, agreements on the reductions are more important than looking for guilty ones. With regard to this, the

[119] Olli Kivinen, "Poliittinen tahto puuttuu," *Helsingin Sanomat*, May 6, 2008.
[120] Heli Saavalainen, "Kaliningrad puhdistaa jätevesiään," *Helsingin Sanomat*, June 10, 2017.
[121] Minna Nalbantoglu, "Varovaista toiveikkuutta," *Helsingin Sanomat*, August 6, 2014.
[122] "Julkikuva kärsi, Itämeri voitti," *Helsingin Sanomat.* June 20, 2012; Heli Saavalainen and Igor V. Schelkunov, "Lannoitetehdas siivoaa päästöjään," *Helsingin Sanomat*, June 17, 2012.
[123] Marita Laukkanen, "Itämeren suojelu on myös politiikkaa," *Helsingin Sanomat* Vieraskynä, April 27, 2012.
[124] Anneli Ahonen, Anna-Liina Kauhanen, and Jaana Savolainen, "Venäläiset ympäristöjärjestöt: Viranomaisia on painostettava," *Helsingin Sanomat*, January 20, 2012.
[125] Heli Saavalainen, "Diplomatiaa puolalaisittain," *Helsingin Sanomat*, May 20, 2014.

representative of Greenpeace in Russia evaluated that the country administration has the tendency to blame EU and "the west" for causing inconvenience to the Russian industrial sector, when the environmental shortcomings have been registered.[126] Political cooperation in the situation where authorities or management of the corporation are on the defensive is conceived as essential in ensuring that the crucial environmental decisions are being implemented."[127] However, there would seem to be thin line between avoiding blame and withholding information. For example, HELCOM was criticised for publishing the results of the Gdansk leakage only in January (2012) due to political contradictions, even though researchers already knew earlier that the emissions originated from the fertilizer factory.[128]

One introduced solution to improving the protection of the Baltic Sea is to even the costs of the protection between the surrounding countries, since the unjustness of the system with regard to payments has been introduced in the news coverage as one reason for the reluctance of some countries towards the protection of the Baltic Sea.[129] With regard to Poland it has been noted that fulfilling the HELCOM recommendations as well as the EU environmental regulation needs effort as well as investments in costly technology.[130] It has also been calculated that Russia would need to pay twenty times as much than Finland to conform to BSAP targets of emission reductions, as well four times as much by a citizen. In Finland the cost of reduction would be around 5 euro per year per person and in Russia 20 euro per person per year.[131]

6.2. Structural problems

Faults in the larger system

Structural problems approach emphasises the faults in the larger system as the fundamental basis of the environmental problems. This interpretation has increased

[126] Anneli Ahonen, Anna-Liina Kauhanen, and Jaana Savolainen, "Venäläiset ympäristöjärjestöt: Viranomaisia on painostettava," January 20, 2012.
[127] Heli Saavalainen, "Puolan kipsivuoret tarkkailussa," *Helsingin Sanomat*, October 1, 2013; Heli Saavalainen, "Venäjän päästöstä etsitään sopua," *Helsingin Sanomat*, January 28, 2012.
[128] Heli Saavalainen, "Tutkimus paljasti päästön," *Helsingin Sanomat,* April 14, 2012.
[129] Marita Laukkanen, "Itämeren suojelu on myös politiikkaa," *Helsingin Sanomat* Vieraskynä, April 27, 2012.
[130] Pilvikki Kause, "Puola kuroo umpeen 20 vuoden viivettä," *Helsingin Sanomat*, April 11, 2012.
[131] Marita Laukkanen, "Itämeren suojelu on myös politiikkaa," *Helsingin Sanomat* Vieraskynä, April 27, 2012.

popularity in the overall environmental discourse in the recent years. Within environmental sociology, for example, it has been acknowledged that the current liberal institutional framework has difficulties in overcoming long-term environmental problems due to the structures creating incentive to lowering the costs and exploiting natural resources instead of making long-term responsible and sustainable decisions (Siebenhüner et al. 2013, 1).

Within the discourse on the Baltic Sea environmental problem there has also been a shift towards focusing on the structural problems. Interest towards the conceived main polluting countries has decreased due to the improvements in the wastewater treatment in these countries and since the known leakages have been halted. Consequently, the discourse has moved towards emphasising decisions that are more complex by nature and require long-term actions. There would seem to be the conception that when the more easily manageable point sources have been halted, the more difficult and time-consuming decisions are required in order to decrease the amount of scattered loading at the Baltic Sea.

In the context of the Baltic Sea, the discourse on structural problems is particularly conspicuous in the discussion on agricultural practices. The core reason for the dysfunctions in the system is considered being the intensive production that is conducted at the expense of the environment. As noted earlier, the agriculture in polluting the Baltic Sea has been raised as the main attribute to eutrophication. This has been consistent in the whole timeline of ten years, but increasingly in the last few years of the analysis. Increased emphasis on agriculture in the later years of analysis is noticeable from the use of word *agriculture*, since the search on the relevant articles indicates that word has been mentioned more times in the last few years of analysis than in the first ones, even though the overall amount of news coverage has decreased[132].

The discussion on structural problems has at least somewhat directed more attention to Finland and its domestic practices. In 2014, it is assessed that the blame on the pollution of the Baltic Sea has been on others for a long time and that it would be time to consider Finland's own actions critically as well.[133] With regard to the pollution from agriculture, the role of Russia, Poland and the Baltic states has been acknowledged but is has also

[132] Search was conducted with Finnish equivalent for the word agriculture *maatalou**.
[133] Katja Boxberg, "Itämeri on myös Suomen häpeä," *Helsingin Sanomat*, July 18, 2014.

been noted that in Finland, the largest contributor to the eutrophication of the Baltic Sea is agriculture, since around 60% of the phosphorous 50% of nitrogen in Finland comes from agriculture. When comparing the amount of nutrients from agriculture and the population, it is also noted that the agriculture in Finland is eutrophicating even more than in Poland and the Baltic states.[134] It has been stated that, even though phosphorous load has been diminished, the agriculture is still the largest stress factor to the Baltic Sea. Furthermore, meeting HELCOM the targets on decreasing nutrient loads in Finland are described being "concerningly far away".[135]

Even though there has been more focus on domestic practises within the news coverage, the main focus has remained elsewhere. The problems in the general wider system are highlighted as the core reason for the continued pollution. Finnish agricultural policies are considered as inefficient in ensuring the environmental protection, but the discussion is strongly linked to EU that has been criticised for its agricultural policies, which are considered undermining environmental politics[136]. EU common agricultural policies have been claimed steering the farming towards intensifications in the production, which is impoverishing the biodiversity and increasing the runoffs from the fields.[137] The circulation of nutrients is still conceived as inefficient, since the animal manure is not utilised in farming as a fertilizer nearly as much as it could be, and instead artificial fertilizers are applied to the fields in large quantities.[138]

The EU environmental grant is widely conceived as having failed, since it provides environmental subsidies on the basis of the measures instead of concrete results, and the efficient actions are further hampered by the bureaucracy.[139] Politicians, on the other hand, have been blamed for ignoring the problems in the system. With regard to farmers, it has been stated that they should not be blamed for the eutrophication, since their role is merely to adapt to the support systems that the politicians have created.[140] The protection

[134] "Maatalous on Itämeren heikko kohta," *Helsingin Sanomat*, June 8, 2009; "Itämeren suojelusta on tehtävä koko Euroopan yhteinen asia," *Helsingin Sanomat*, May 17, 2008; Riitta Vainio, "Itämeri kuolee ilman nopeita toimia," *Helsingin Sanomat*, May 18, 2008; Jussi Sivenius, "Pietarin fosforipäästöt vähenemässä merkittävästi," *Helsingin Sanomat*, September 1, 2010.
[135] Kaius Niemi, "Itämerellä on pitkä muisti," *Helsingin Sanomat,* August 6, 2014.
[136] "Maatalous on Itämeren heikko kohta."
[137] Timo Tanninen, "EU:n maatalouspolitiikalla voidaan kohentaa Itämeren tilaa," *Helsingin Sanomat* Vieraskynä, August 16, 2008.
[138] Heli Saavalainen, "Ravinteiden kierrätys ontuu pahasti," *Helsingin Sanomat*, September 7, 2017.
[139] Heli Saavalainen, "Syyssateet huuhtovat peltoja" *Helsingin Sanomat*, October 10, 2011; "Maatalouden päästöt saatava kuriin," *Helsingin Sanomat*, July 6, 2012.
[140] Tanninen, "EU:n maatalouspolitiikalla voidaan kohentaa Itämeren tilaa."

of the waterways by farmers is mostly dependent on whether it is "profitable of at least not highly unprofitable"[141].

Technological solutions and changes in the system

Discussion on the structural problems has been rather multifaceted especially during the last few years of analysis and the presented solutions vary accordingly. Mediums for remedying the faults in the system vary from technological solutions to adjustments and more radical changes in the system. Technological solutions generally tend to provide a more positive outlook with the belief in technology in solving the environmental problems compared with the other introduced solutions, which rather emphasise that the easy solutions have already been made and more effort is required in order to ensure the wellbeing of the Baltic Sea ecosystem.

Various articles express the belief that the novel developing technology has potential to solve the problems arising from the structural faults. Recently, especially the gypsum treatment of the fields has been considered as the potential solution to the runoffs from the fields and has even been described in 2015 as a "Novel ground-breaking remedy" which can improve the miserable condition of the Archipelago Sea[142]. In an article from 2016 gypsum treatment is also described as a possible "salvation" for the Baltic Sea and it is asserted that the treatment can be a key to effective and rapid cuts in nutrient loading from agriculture that have not been feasibly attainable with other solutions.[143] On the other hand, it has been acknowledged that the new technology is not necessarily applicable in every case, and that the ultimate cause, the excessive nutrient loading, needs to be diminished alongside.[144]

In the overall, the definition of solutions to the faults in the system would appear to be large scale, and in addition to adopting the new technology, the system itself would need to change. Voluntary measures by farmers that decrease the runoffs have been praised, but similarly it has been noted that the voluntary actions are not solving the underlying

[141]Matti Huuskonen, "Maanviljelijä ratkaisee miten Itämeri voi," *Helsingin Sanomat*, May 11, 2008.
[142] Juha Nurminen, "Peltojen kipsikäsittely pelastaisi Saaristomeren," *Helsingin Sanomat* Vieraskynä, April 18, 2015.
[143] Heli Saavalainen, "Kipsiä peltoon - päästöt kuriin," *Helsingin Sanomat*, September 4, 2016.
[144] Heli Saavalainen, "Voisiko Itämerenkin kirkastaa kemikaalein?" *Helsingin Sanomat*, November 11, 2017.

structural problems.[145] It is noticed that the system, and especially the agricultural policies would need to be renewed so that they would support sustainable agriculture and cease to pollute the Baltic Sea.[146] Somewhat contrary to the 'ground-breaking' technological solutions, it has been noted that the solutions will take time and the society should accept this fact[147].

Suggested system changes include making reforms to the system so that it would better accommodate environmental requirements. Reforms with respect to agricultural practises within the Baltic Sea Region include adjusting the EU subsidies system to better acknowledge the environment. It has been noted that current environmental subsidy focuses on mere implementation instead of assessing concrete impacts, and the positive environmental outcome should be ensured by basing the environmental subsidies on achieved environmental impacts instead of completed measures.[148]

Reforms in the system usually relate to the EU agricultural policy, since the agricultural policy with the environmental subsidy system has even increased the runoffs from the fields regardless of substantial financial investments in the programme.[149] The farm subsidy system is based on acreage and it encourages increasing the areas under cultivation regardless of environmental effects.[150] It has been noted that there should be more counselling directed at farms and environmental subsidiaries should be targeted at farms in which the measures are the most effective.[151] Targeting the measures in risk areas and areas with the most nutrient load has gained support in news coverage[152] and this view support the individualisation evaluation of cases in which different measures are needed for different cases. The farmers have noted that the diffuse and complex system does not prompt initiating environmental actions[153] and it has also been expressed that

[145] See for example: Tapio Mainio, "Pellon ja vesistön väliin jätetään valtatien levyisiä suojavyöhykkeitä," *Helsingin Sanomat*, August 19, 2009.
[146] Timo Tanninen, "EU:n maatalouspolitiikalla voidaan kohentaa Itämeren tilaa," *Helsingin Sanomat* Vieraskynä, August 16, 2008.
[147] Saavalainen, "Voisiko Itämerenkin kirkastaa kemikaalein?", November 11, 2017.
[148] "Maatalouden typpipäästöt lisääntyivät," *Helsingin Sanomat*, May 17, 2009; Heli Saavalainen, "Syyssateet huuhtovat peltoja" *Helsingin Sanomat*, October 10, 2011.
[149] Saavalainen, "Syyssateet huuhtovat peltoja."; Jarkko Hakala, "Ympäristötuki ollut tehoton," *Helsingin Sanomat*, June 10, 2011;
[150] Jarkko Hakala, "Tuki pitäisi kohdentaa siihen, mikä vaikuttaa", *Helsingin Sanomat*, June 10, 2011.
[151] Jorma Palovaara, "Itämeri puhutti virtuaalipuolueen kokousta," *Helsingin Sanomat*, July 8, 2011.
[152] See for example: Juha-Pekka Raeste, "Hallitus: Itämeri pelastetaan kohdennetuilla maataloustuilla," *Helsingin Sanomat*, June 6, 2009; Anna-Riitta Sippola, "Ympäristövaliokunta vaatii tehoa Itämeren suojeluun," *Helsingin Sanomat*, February 26, 2010.
[153] Saavalainen, "Syyssateet huuhtovat peltoja."

farmers have the tendency to experience that they have been blamed for the pollution.[154] The questions are highly controversial due to the agriculture being livelihood for the many, and thus the changes in the subsidiary system and environmental demands can understandably arouse suspicion.

There are views expressed towards altering the whole system of subsidies and environmental subsidy are considered only as an intermediate state towards moving to the sustainable farming[155]. For example, WWF has suggested replacing the subsidy system with the common environmental and rural politics where the subsidies would be detached from production and connected with the objectives of sustainable land use. In this system financial aid would be directed at preserving the healthy and dynamic countryside and ensuring working places in sparsely populated areas. In addition to agriculture money would be directed at the public goods like clean environment.[156]

6.3. Individual liability

Even though individuals are not conceived as the main attribute to the Baltic Sea problem, the emphasis on the individual choices has been more on the agenda during the last few years of analysis. At the same time, the polluter discourse as such has become more diversified with the idea of individual liability. Before the 2010s there would not seem to be clear consensus within news coverage on the role of the individuals in polluting the Baltic Sea. On the one hand, Vieraskynä column from 2010 highlights the individual's role denoting that the "Poor condition of the coastal waters is "the fault of a million people from Uusimaa""[157]. On the other hand, the role that humans have to the Baltic Sea pollution in general has been entirely put to question in another Vieraskynä column.[158] Furthermore, the role of the individuals and their choices in polluting the Baltic Sea has rarely been raised in the news coverage before the last few years of analysis.

The portrayal of the agriculture as a polluter has undergone certain changes, since the cultivation of soil and raising livestock have been more distinctly separated from each

[154] Heli Saavalainen, "Itämeri-jalanjälki kuvaa kulutusta," *Helsingin Sanomat*, February 14, 2017.
[155] Ilkka Herlin, "Typpi ja fosfori otettava talteen," *Helsingin Sanomat* Vieraskynä, November 18, 2008.
[156] Timo Tanninen, "EU:n maatalouspolitiikalla voidaan kohentaa Itämeren tilaa," *Helsingin Sanomat* Vieraskynä, August 16, 2008.
[157] Johanna Mannila, "Rannikkovesien huono laatu on "miljoonan uusmaalaisen syytä"," *Helsingin Sanomat*, June 12, 2010.
[158] Petri Huovila, "Ihmisen vaikutus Itämeren tilaan on vähäinen," *Helsingin Sanomat* Vieraskynä, February 24, 2010.

other in the discourse. For example, an article from 2014 assesses that reductions in discharges are complicated by the intensification of agriculture and especially the production of meat. It is being introduced to the reader in 2014 that the production of meat requires a lot of area under cultivation as well as increases the runoff of nutrients.[159] It has been further noted in 2017 that the largest part of nutrient load comes from the production of feed for animals and that 70 per cent from Finnish area of cultivation is in use of livestock production.[160] The role of the individuals in polluting the Baltic Sea has been connected with the agricultural practices, since it has been assessed that the most effective medium for the individual to influence the protection of the sea is through dietary choices.[161]

Emphasis on individual choices is especially visible in the Helsingin Sanomat news coverage in 2017. Helsingin Sanomat together with Finnish Environment Institute, Natural Resources Institute Finland, John Nurminen Foundation, the Ministry of the Environment and the Ministry of Agriculture and Forestry formulated Baltic Sea counter, which counts the nutrient load of one Finnish consumer to the Baltic Sea for one year, the so-called Baltic Sea footprint. The counter focused solely on individual choices and how much certain ways of live pollute the Baltic Sea. It is confirmed that the largest single issue affecting one's Baltic Sea footprint is dietary habits, and that especially the dairy products and the consumption of meat cause eutrophication. Other issues that were considered increasing the nutrient load of the individual were their share of the water going through the wastewater treatment and hobbies such as riding, golf and yachting.[162] In her column in 2017, Helsingin Sanomat journalist Heli Saavalainen was also emphasising the importance of the consumer choices, regardless that they might appear small on the scale of the whole Baltic Sea.[163]

The discussion of microplastics in the sea areas is another example on the increased emphasis on the individual. The issue of marine litter has received increased attention during the last few years of analysis due to the increased research and interest on the matter both globally and regionally. It has been noted that marine litter derives from the

[159] Tiina Rajamäki, Janne Toivonen and Meeri Ylä-Tuuhonen, "Toivo leviää idästä," *Helsingin Sanomat*, August 6, 2014.
[160] Heli Saavalainen, "Naudanliha, maito ja hevoset rehevöittävät", *Helsingin Sanomat*, February 3, 2017.
[161] Rajamäki, Toivonen and Ylä-Tuuhonen, "Toivo leviää idästä."
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[163] Heli Saavalainen, "Itämereen päätyvä lasti kevenee pala kerrallaan," *Helsingin Sanomat*, June 11, 2017.

overall society influenced by consumerism, the so called 'throwaway society' and that global regulation is needed[164]. However, the definition of the problem highly emphasises the individual liability and choices. It has for example been stated that the prevention of marine litter begins from the individual who can affect the amount of plastic with their consumer behavior and that the most direct way for the consumer to influence the state of the environment is by stopping littering and by reducing the number of disposable plastic containers that they use[165].

[164] Heli Saavalainen, "Muovit kiertoon, ei mereen," *Helsingin Sanomat*, January 29, 2017.
[165] Saavalainen, "Muovit kiertoon, ei mereen,"

7. RESULTS AND DISCUSSION

The research objective of this thesis is to analyse the Baltic Sea environmental news coverage and the portrayal of the Baltic Sea environmental problem, which is essential because the media portrayal influences the public and political agenda through creating awareness to certain problems. In order to reach the objective, the following research questions have been imposed: Has the portrayal on Baltic Sea environment and environmental problems facing the Baltic Sea changed somehow in ten years and if so, how? and What issues have been raised as the main attributes to the Baltic Sea environmental problem, and what solutions have been presented with regard to this?

The study ascertains that the portrayal on the Baltic Sea environment and environmental problems has changed in ten years' time. Main themes analysis indicates that the overall portrayal of the Baltic Sea environmental problem has gone through changes in the themes covered, and there have also been changes within the themes themselves. There are some discernible shifts in the overall news coverage. During the first years of analysis various maritime activities and their possible negative effects on the Baltic Sea have been under limelight. From the beginning of 2012 to the mid-2014, the wastewater discourse has largely stigmatised the news coverage. In 2011 and after the mid-2014, the portrayal can be considered somewhat more diverse. During these years, eutrophication has been the most raised main theme, but there has been more even concentration between the different themes.

Some concerns would appear to be rather persistent and have established news slots, while others seem to fall in and out of the agenda. There are also catastrophe type concerns that receive substantial attention to a limited amount of time and novel, or at least seemingly new, problem of microplastics has emerged. In addition, the overall amount of news coverage has decreased substantially even though there has also been peaks in the news coverage. Changes in the news coverage reinforce the perception that the portrayal of the Baltic Sea environmental problem although having some persistent characteristics, is constantly adjusting to the surrounding society and its requirements and conceptions.

Some concerns like eutrophication and biodiversity would appear to be rather persistent and have established news slots, and they have been discussed continuously over a time span of ten years. The widely accepted conception of the eutrophication as the worst threat

to the Baltic Sea ecosystem is supported by the news coverage, since it is the most raised theme. Even with the more established themes, the overall developments and the increased information has shifted the focus inside the theme. Within the eutrophication, the focus has been more and more on the agricultural practices. With regard to the biodiversity, it is concluded that the wide articles assessing the state of the Baltic Sea ecosystem are few and the theme would seem to focus more on issues like some certain endangered species. Issues of biodiversity are intricate by nature and covering complex issues might be even further compromised in the future due to the cuts in media sector and less time for background investigation when creating the news story.

In addition to persistent topics, there are topics that seem to fall in and out of the agenda or have been covered only a limited amount of time. Concerns like hazardous substances and overfishing seem to fall in and out of the agenda depending on the year in question. This would imply that the topics are not necessarily passing the demands of timeliness and newsworthiness and are thus not considered as appealing enough to the reader without a stakeholder controversy over some issue, a catastrophe type case or a meeting type event that has connections to the topic.

Catastrophe type cases have taken some space away from other coverage. The distinct cases of Nord Stream and two leakage cases that have largely stigmatised the news coverage and have also had strong influence on how the Baltic Sea environmental problem has been portrayed. They have been extensively on the agenda during certain years but rarely before or after that and are thus typical catastrophe type news coverage. It has been noted that sudden environmental disasters have good news value unlike the environmental problems that develop over a long time period and can be difficult to visualise. It is evaluated that certain problems or concerns are highlighted whereas others are attenuated, and it has been noted that during the catastrophe type cases there has been less coverage for example on agriculture. Limitation of space in the newspaper further compels the journalist to decide between different themes, since all cannot be covered.

Climate change with regard to the Baltic Sea ecosystem, has been rarely on the agenda. One reason for this can be that climate change is usually examined as a global environmental problem instead of examining the problem from a regional viewpoint. There is an inconsistency in the matter, since the harmful effects of the climate change can even accumulate in the context of the Baltic Sea, as noted in the recent research on

the matter. The absence of the news coverage on the climate change in the context of the Baltic Sea can be due to the lack of scientific information and knowledge on the matter until recently. In the research literature on social constructionism it has been noted that if something has not been researched it is neither on the agenda and the first extensive studies on the impacts of the climate change to the Baltic Sea have been conducted only in the late 2010s. It remains to be seen whether the coverage will increase in the future as a consequence of the increased knowledge on the matter, but the complexity of the issue might limit its coverage such as in the case of news coverage covering the issues of biodiversity.

It is further concluded that the overall amount of the news coverage of the Baltic Sea environment has diminished substantially in ten years' time. In addition to the identified issue attention cycle, the mere lack of cases can also be part of the explanation why the news coverage has been decreasing over a ten years period. The news coverage of the environmental issues would appear to be rather event-driven and thus, the established wider themes like security might take space away from environmental news coverage when there are no clear-cut cases to cover due to the identified 'issue competition'. The decrease in the amount of news coverage provides support for the views that in order to ensure the extensive environmental coverage without the catastrophe of other kind of dramatic events, it should be its own subject area instead of having been covered within other subject areas such as agriculture or economics.

The construction of blame in the news coverage is multifaceted but there are two identified main attributes to the Baltic Sea environmental problem: the pollution from old Soviet countries, Russia and Poland and somewhat also the Baltic states and structural problems that have been raised especially in the discussion about the pollution from agricultural practices. There has been partial transition from a more traditional blame on Russia and Poland to highlighting the faults in the larger system when the point sources of pollution in these countries have mostly been halted. In the future, it could be predicted that there is even more focus on structural problems, but this depends heavily on the developments in the conceived main polluter countries. Similarly, there has been more emphasis on individual liability in the news coverage. Individual choices like dietary choices and usage of plastic containers have been raised, and this has diversified the traditional portrayal of the polluter of the Baltic Sea since in addition to countries also individuals have been acknowledged in the discourse.

The main problem with old Soviet countries is conceived to be lack of motivation investing in the environmental protection and overall indifference due to the environmental issues being low on the agenda within the elite. Since it is conceived that the public image appears to be much more important than the environmental protection, other interests are suspected to override environmental protection. Therefore, what is said does not denote what is being done and environmental actions process slow in decision-making bodies. Consequently, the reliability of the authorities, the poor surveillance and corruption have been identified as the main obstacles to the effective environmental protection.

Suggested solutions with regard to main polluting countries vary regarding the country in question. It is concluded that Poland and the Baltic states are EU-countries and part of EU regulation whereas the possibilities to influence the internal matters of Russia are extremely limited. Therefore, the protective measures cannot be constituted solely within the EU, since it is essential to have Russia to participate in the protective measures and the cooperation between Russia and EU has not even been considered as a plausible solution. Thus, bilateral cooperation between Russia and Finland, and cooperation through HELCOM have been conceived as crucial mediums when enhancing the environmental protection.

In addition to subtle cooperation, creating public pressure and more coercive measures are suggested. Public pressure has been presented as one possible solution, since it can create an incentive for Russian authorities or companies to act on the matter. It is noted that even in Russia the large companies cannot afford to ignore the environmental issues and suffer from the hindrance to their image and sells in international markets. Once some environmental shortcoming in the activities of the company has been introduced publicly, the quick solutions will probably follow. Thus, the scientific data and flow of information are essential. Possibility of sanctions has also been raised as an option if some country does not conform to the set reduction to its emissions, as well as the possibility of withdrawing from cooperation in some other field of cooperation.

In the discourse on the main polluters, us against them thinking is distinct and the focus on Eastern counties has somewhat distracted attention away from domestic targets for development. There are, for example, views expressed in the articles on the irrelevance of improvements in Finland as long as certain countries pollute more although this is not

always the case. Debate on structural problems has directed more attention to domestic practices, but the main focus has remained elsewhere, since the problems in the general wider system are highlighted as the core reason for the continued pollution and most solutions are conceived to be at the EU level.

Structural problems as the second main attribute raise the faults in the system as the fundamental basis of the environmental problems of the Baltic Sea. This discourse emphasises the difficulties of the current liberal institutional framework in overcoming long-term environmental problems since the structures create incentive to make short-term and unsustainable decisions. In the context of the Baltic Sea, the discourse on structural problems is particularly visible in the discussion on agricultural practices and the intensive production that is conducted at the expense of the environment.

In the discourse on the main polluting countries, the EU has been set as a good example in comparison to the polluters even in agricultural practises, but in the discourse on structural problems the EU that has been strongly criticised especially for its agricultural policies. EU policies are considered undermining environmental politics having steered the farming towards intensive production, as well as being too bureaucratic by nature. Politicians are blamed for ignoring the problems in the system, but farmers are merely conceived to adapt to the support systems that the politicians have created.

When it comes to the possible solutions on structural problems, there are three main solutions presented: technological solutions, reforms to the system and altering the whole system. From three solutions, the first one offers a more optimist outlook on the matter with the belief that adopting new technology has potential to solve the environmental problems. It is however acknowledged that the new technology is not necessarily applicable in every case, and that the problem of excessive nutrient loading needs to be diminished alongside.

Reforms to the system endorses changes that it would better accommodate the system to meet the environmental requirements. This includes adjusting the EU subsidies system, for example by basing the environmental subsidies on achieved environmental impacts instead of completed measures as before, offering more counselling directed at farms and targeting the environmental protection measures in risk areas. Altering the whole system, on the other hand, endorses subsidies only as an intermediate state towards moving on to the sustainable farming and the common environmental and rural politics. In this system

it is suggested that the subsidies could be detached from production and connected with the objectives of sustainable land use. In addition to agriculture money would be directed at the public goods like clean environment, preserving the healthy and dynamic countryside and ensuring working places in sparsely populated areas.

In the overall, the solutions to structural problems emphasise decisions that are complex by nature and require long-term actions. It is noted that the system would need to be renewed so that they would support sustainable agriculture and cease to pollute the Baltic Sea, and that solutions will take time. Whereas technological solutions still somewhat rely on the easy solutions, there would seem to be the common conception that when the more easily manageable point sources have been halted, difficult decisions remain if the amount of scattered loading at the Baltic Sea is to be further decreased.

The research method in this study is content analysis, which allows for the longitudinal study. Longitudinal studies are considered as essential in perceiving the long-term shifts in environmental coverage within the environmental communication research. The portrayal of the Baltic Sea environmental problem has not been extensively studied, and thus this study succeeds in enhancing the knowledge on the portrayal of the Baltic Sea environmental problem in the Finnish media. Acknowledging the portrayal is essential, because media attention is one of the essential factors in constructing some issues as serious environmental problems and highlighting some solutions while attenuating other problems and remedies.

It has been noted in the research literature that the environmental problems, despite their concreteness, are also socially constructed in a way that there are active processes of ‘construction’ when some environmental issues have been defined as issues for public concern. Thus, the media attention is framing the problem as important. In Helsingin Sanomat, for example, Nord Stream 1 is constructed as environmental concern whereas Nord Stream 2 is defined as an issue of security and political concern.

It is necessary to note that there is always some subjectivity when decisions on research setting have been made. In this study there are decisions made regarding the articles that have been considered as relevant for the study, as well as in the categorisation process of the articles have by their main theme. Some other person might have made some different decisions with regard to relevant articles and main themes, and thus the repeatability of research setting might prove to be difficult. However, the decision processes have been

extensively introduced in the study in order to enhance the transparency of the study. Decision of articles for the analysis is introduced in chapter 4.2. and the decision process of the main themes has been in chapter 5.1.2.

When conducting the main theme analysis and in the analysis on the main attributes and solutions, the generalisations are being made. There are various overlapping discourses and every aspect of the problem description cannot be raised equally. However, it is necessary to note that the simplifications are a requisite in creating a comprehensible portrayal. The simplifications are needed in order to demonstrate the wider image of the problem, which enhances the understanding of how the problem has been portrayed.

8. CONCLUSIONS

The Baltic Sea environmental news coverage in Helsingin Sanomat is analysed for the purpose of examining the portrayal of the Baltic Sea environmental problem, which is essential because media portrayal influences the public and political agenda through creating awareness to certain problems. This aim is acquired through the main theme analysis and by further analysing the conceived attributes and solutions to the environmental problem. It is concluded that the portrayal has shifted from the focus on the maritime activities to wastewater and leakage discourse and to a more diverse portrayal, which raises eutrophication as the main cause of the environmental problem. The news coverage suggests that the eutrophication is the main environmental concern that the Baltic Sea faces and this is a common conception in the research literature as well. The two considered main attributes are pollution from old Soviet counties and structural problems. Introduced solutions range from technological improvements and adopting novel technology to improvements in cooperation and to the changes in the whole system. In the overall there is more and more support on the conception that the problems that the Baltic Sea faces are complex by nature and that the remaining solutions will take a long time and require a lot of effort.

Environmental news coverage on the Baltic Sea has not been comprehensively studied, and thus the analysis on the media portrayal has created insights on the themes that have been highlighted and attenuated as well as on the preferred attributes and solutions to the problem. Results indicate that there have been distinct shifts in the content of news coverage in ten years' time. The portrayal is in constant change and according to social constructionism and the agenda-setting theory it 'constructs' certain image deciding not what people think but what they think about. What people think or know about, on the other hand, has influence on the Finnish people's attitudes towards the protection of the sea and their preferred strategies for so doing.

The overall amount of news coverage about the Baltic Sea environmental problem has decreased. Reduced news coverage can be considered as somewhat unsettling, since it suggests that the issues related to the Baltic Sea environment are less on the agenda than before. Consequently, the concern towards the vulnerable ecosystem of the Baltic Sea can be considered having diminished although the Baltic Sea is facing various problems that are even accentuated due to the climate change. From another perspective, less news

coverage can be considered as positive, since it can suggest that there has not been as much catastrophe type news to cover than before. Scientific knowledge is a prerequisite for the problem or solution being presented by the media. For this to happen an issue needs to be assembled in a way that is understandable and simple enough for the journalist to write about the issue and for the reader to understand. One reason for the decreased new coverage on the Baltic Sea environment could be the struggle to present complex problems in the news articles when journalists face strict time limits and are constrained by news space.

This thesis functions best in the context of Finland. There are assumably similarities in the news coverages of other counties surrounding the Baltic Sea due to the common sea and somewhat similar environmental concerns, and since various happenings and cases are common to many countries. However, the geographical features of the country in question also influences the news coverage. Typically, the countries with the archipelago areas are most concerned on the pollution due to the recreational use of the sea as comparison with the countries where the seashores are mostly considered as industrial areas. In addition to geography, what is being covered is a cultural and political question, as well as dependent on the media or newspaper in question. For example, in Helsingin Sanomat, the leakage in Gdansk was probably more extensively covered because Helsingin Sanomat samples revealed the leakage, but the leakage was so significant that it would most probably have received significant attention in the newspaper even without Helsingin Sanomat playing a part in the case.

There are various interesting possibilities for future research on the Baltic Sea environment regarding newspapers and other media. One interesting issue to consider could be the visuals in the newspaper articles and in other media sources. It could be interesting to examine how the pictures and graphics introduced in the news articles portray the environmental problem. On the other hand, comparative studies between different newspapers in Finland could provide interesting results, as well as comparative studies between the largest newspapers of the Baltic Sea surrounding countries. Moreover, the analysis on the portrayal of the Baltic Sea environmental problem in other media sources such as social media, television or tabloids would certainly provide interesting results that would add to this study. The large-scale study on the portrayal on various mediums could further establish the overall portrayal and reinforce the comprehension of the portrayal of the Baltic Sea environmental problem.

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