RIGA GRADUATE SCHOOL OF LAW

BACHELOR THESIS

The Protection of the Baltic Sea Marine Environment from Land-Based Pollution in Light of International and EU Legal Frameworks

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DECLARATION OF HONOUR:
I declare that this thesis is my own work, and that all references to, or quotations from, the work of others are fully and correctly cited.

(Signed) …….

RIGA, 2020

Abstract:

The following thesis focuses on the legal mechanisms and norm adopted within the EU and international legal frameworks in order to protect the Baltic Sea marine environment from land-based pollution. As the Baltic Sea is one of the most polluted seas in the world, the specific and strong actions are crucially needed in order to restore the good ecological status of its marine environment. Thus, the main objective of the study is to determine whether the current international, regional and EU legal mechanisms are stringent enough in order to contribute to the Baltic Sea land-based pollution prevention. In case not, what are their limits. The course of the study revealed that existing legal mechanisms are mostly of a general nature and States are often unwilling to limit their level of discretion, thus, are reluctant to agree on a more stringent actions and mechanisms on an international and EU levels.

Summary:

The thesis at hand is aimed at tackling a growing concern in the world – the pollution of marine ecosystem. And, within this concern, an issue with one of the most polluted seas in the world, namely the Baltic Sea. The thesis will be focused on analyzing relevant legal mechanisms which are aimed at preventing Baltic Sea marine pollution and protecting its marine environment within the international and EU legal frameworks.

Furthermore, the author will aim to confirm or disprove the following hypothesis of the research: If the Baltic Sea countries will not develop more stringent Baltic Sea land-based pollution prevention mechanisms within the international and EU legal frameworks, the quality of the Baltic Sea marine ecosystem will continue to decrease.

In this regard, the research consists of four main parts.

Part I is focused on the overview of The Baltic Sea Environmental State. The subsequent chapter reveals the ecological state of the Baltic Sea marine environment presenting that it is extremely vulnerable and indicating the need for the development of cooperative and active measures to control and prevent pollution actions from Baltic Sea countries in order to protect its marine ecosystem and prevent further pollution.

Furthermore, Part II is analyzing the international legal framework for the regulation of land-based Baltic Sea pollution. Namely provisions of the UN Convention on the Law of the Sea, and identifies their general nature. Thus, determining that due to a number of limitations, the development of more specific and stringent legal norms at the international level is challenging.

On the other hand, Part III is dedicated to the regional legal framework concerning the regulation of land-based Baltic Sea pollution. The Part evaluates strengths and limits of legal techniques and approaches enshrined in Helsinki Convention and reveals that those can indeed serve to enhance the regulation of land-based Baltic Sea pollution. However, it can be successful only in case if the application of those techniques and approaches will be interconnected with the social, economic and political factors of the implementing State.

Additionally, the Part at hand evaluates an ambitious tool of the HELCOM, namely the Baltic Sea Action Plan and points out that it lacks enough binding commitments and strong actions, which are crucially needed to prevent Baltic Sea marine pollution. Which is proved by the failure of Contracting States to achieve initially set objectives in a timely manner.

Lastly, Part IV focuses on the role of the EU in the protection of the Baltic Sea environment from land-based pollution. The chapter confirms the importance of the role which EU is playing in order to regulate the issue at hand. It is justified by a number of adopted directives aimed at preventing and regulating Baltic Sea land-based pollution, as well as by participation of the EU in Helsinki Convention, which allows it to control implementation of Convention's provisions in the Member States. However, the example of political disagreements on the content of the Water Framework Directive clearly shows that an issue of reluctance of States to agree on a more stringent pollution prevention measures is also existent at the EU level.

Concludingly, the research reveals the limitations to develop more stringent Baltic Sea land-based pollution prevention mechanisms at the EU and international level, thus, confirming the initial hypothesis of the thesis.

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INTRODUCTION

The ecological state of the Baltic Sea is one of the most discussed political issues in the Baltic Sea region.[1] For a very long time, due attention was not given to the protection of the marine environment. With the rapid development of industry and human activities at sea, the state of the marine environment of the Baltic Sea began to gradually deteriorate. Over a long period of time, it was perceived that the ability of the sea to assimilate and neutralize discharges is unlimited. In this regard, it was often used as storage for various kinds of waste.[2] At the moment, many marine ecosystems are not in a healthy state. Biological, chemical, oil, and physical pollution sometimes cause irreparable harm to the seas and oceans.[3] Thus, the topic of protecting the marine environment from pollution currently is more relevant than ever.

The Baltic Sea is considered as one of the most polluted seas in the world and land-based pollution (especially eutrophication, which is a result of it) is seen as its greatest challenge. The Baltic Sea region consists of nine countries: eight of them are EU Member-States (Estonia, Latvia, Lithuania, Germany, Poland, Denmark, Finland and Sweden) and Russia.[4]

Due to the fact that the issue of pollution of the Baltic Sea from land-based sources has a transboundary nature, progress on its settlement cannot be achieved by the efforts of only one State. Accordingly, in order to successfully resolve and further prevent pollution, close international cooperation between the Baltic Sea region States is of particular importance. Thus, an effective international legal framework regulating pollution of the Baltic Sea from sources on land is a significant factor in solving the pollution problem. However, the provisions adopted at the international level are quite general. Consequently, the first issue to be addressed in this research relates to the pollution prevention mechanisms adopted within the international legal framework. Namely, why the legal regulation of land-based Baltic Sea pollution remains quite generic at the international level and which limits it possesses in order to adopt more stringent pollution prevention mechanisms.

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[1] S. VanDeveer, "Networked Baltic environmental cooperation", *Journal of Baltic Studies* 42, no.1 (2011): 37–55.
[2] D. Hassan, *Protecting the Marine Environment from Land-based Sources of Pollution: Towards Effective International Cooperation* (Routledge, 2006), 13.
[3] UNESCO. Intergovernmental Oceanographic Commission: New global data on High Seas and Large Marine Ecosystems to support policy makers. Available on: http://www.unesco.org/new/en/media-services/single-view/news/new_global_data_on_high_seas_and_large_marine_ecosystems_to-1/. Accessed April 10, 2020.
[4] European Court of Auditors. Combating Eutrophication in the Baltic Sea: further and more effective action needed (2016), p. 8. Available on: https://www.eca.europa.eu/Lists/ECADocuments/SR16_03/SR_BALTIC_EN.pdf . Accessed March 20, 2020.

Further, as will be analyzed in the course of the study, States often do not want to take strict measures to regulate land-based activities within their territory. In this regard, legal approaches and techniques, which can contribute to limiting the margin of discretion of States should be at the heart of protecting the Baltic Sea marine ecosystem from land-based pollution. As well as, it should be noted that legal approaches aimed at strengthening the regulation of land-based pollution of the marine ecosystem of the Baltic Sea are developed mainly at the regional level under the Helsinki Convention. Thus, within the framework of the research, it is necessary to analyze whether these approaches enshrined in the Helsinki Convention 1992 can serve for enhancing the regulation of land-based Baltic Sea marine pollution within the international legal framework.

Moreover, since HELCOM is one of the main bodies to the Convention, which issues recommendations that clarifies necessary measures that should be taken by the Contracting States in order to fulfil obligation provided in Helsinki Convention 1992, it is necessary to analyze to what extend these recommendations, especially those implemented in Baltic Sea Action Plan, contribute to protection of the Baltic Sea.

The European Union plays an important role in preventing pollution of the Baltic Sea from sources on land. The EU not only adopts the relevant directives but is a direct participant to the Helsinki Convention 1992. Thus, it is necessary to analyze what is the significance of the role which EU plays in Baltic Sea pollution prevention.

Thus, mechanisms to prevent Baltic Sea pollution from land-based sources have been adopted at both the EU and international levels. However, the Baltic Sea still remains one of the most polluted seas in the world. Hence, it might be argued that the great resonance between the formally successful governance system and the actual state of the Baltic Sea ecosystem. Consequently, after analyzing all the above-mentioned aspects, the author will seek to confirm or disprove the initial hypothesis of the research: If the Baltic Sea countries will not develop more stringent Baltic Sea land-based pollution prevention mechanisms within the international and EU legal frameworks, the quality of the Baltic Sea marine ecosystem will continue to decrease.

Accordingly, the research will consist of the four Parts. After the introduction, Part one will review current environmental state of the Baltic Sea marine environment. Part two will consider legal mechanisms regarding the prevention of land-based pollution implemented within the UN Convention on the Law of the Sea 1982 and examine limits of international legal framework. Part three will focus on regional legal framework, namely on the development of legal approaches and techniques to the examining issue within the Helsinki Convention, as well

as HELCOM contribution to prevention of the Baltic Sea land-based pollution. Subsequently, Part four will analyze the Role of the European Union in regulation of the Baltic Sea marine pollution from land-based sources. Finally, will be drawn a general conclusion.

For the purposes of the research, the author shall use doctrinal methodology, accompanied with the interdisciplinary approach, using a qualitative type of research. In particular, the analysis of international and EU legal provisions and case-law along with the study of relevant scholarly opinions and works for creating a more defined picture of legal development in the examining field.

I. OVERVIEW OF THE BALTIC SEA ENVIRONMENTAL STATE

The subsequent chapter is devoted to review the ecological state of the Baltic Sea marine environment and thus indicate the crucial need for the development of cooperative and strong actions from Baltic Sea countries in order to protect the Baltic Sea marine ecosystem and prevent further pollution.

For many years, the environmental situation in the Baltic Sea did not cause any concern. It was used for shipping, fishing, and even for the burial of chemical weapons. However, the marine ecosystem could not withstand such pressure, its condition began to rapidly deteriorate, which started to cause concerns of the coastal states.

The Baltic Sea is an extremely sensitive ecosystem due to some of its natural features.[5] Firstly, the Baltic Sea is shallow. Its average depth is not more than 55 meters. However, in the Baltic Sea, there are several deep basins, the maximum depth of which reaches 440 meters.[6]

Secondly, the Baltic Sea is one of the largest brackish seas in the world. This is due to the fact that the waters of about 200 rivers mainly replenish its water area.[7] Saltwater only flows through narrow straits from the North Sea. However, due to the shallow water of these straits, the water flow is difficult and largely depends on meteorological conditions. In this regard, the renewal of saltwater in the deep basins of the Baltic Sea is possible only with strong winds.[8] It is this feature that limits the ability of the Baltic Sea to decompose pollutants entering its water area, since this process directly depends on the salt content in the sea waters - the lower the salt level, the lower the ability of the sea to decompose incoming pollution.[9]

Thirdly, in the Baltic Sea water is divided into layers. The upper layers consist of lightly salted water, which contains a lot of oxygen. However, at depth layer, water becomes saltier, and the oxygen content in it decreases. Such a phenomenon is due to two factors: 1. The flow of water into the sea directly depends on meteorological conditions; 2. The temperature of the saltwater coming from the North Sea is much lower than the temperature of the water coming

[5] HELCOM. Baltic Sea Environment Proceedings No. 122 (2003-2007), p. 6. Available on: https://www.helcom.fi/wp-content/uploads/2019/08/BSEP122-1.pdf. Accessed March 15, 2020.
[6] L. Viktorsson, "Hydrography and Oxygen in the Deep Basins", Baltic Sea Environment Fact Sheet 2017 *(*2018). Available on: https://helcom.fi/baltic-sea-trends/environment-fact-sheets/hydrography/hydrography-and-oxygen-in-the-deep-basins/. Accessed March 17, 2020.
[7] P. Snoeijs-Leijonmalm, H. Schubert and T. Radziejewska, *Biological Oceanography of the Baltic Sea* (Springer Nature, 2017), 43.
[8] B. Gustafsson, "Interaction between Baltic Sea and the North Sea", *Deutsche Hydrografische Zeitschrift* 49, no. 1 (1997): 165–183. Available on: https://link.springer.com/article/10.1007%2FBF02764031. Accessed March 17, 2020.
[9] R. M. Sunardi, "Prospects for Sub-Regional, Regional, and International Cooperation in Implementing Article 43 of UNCLOS", *Singapore Journal of International & Comparative Law* 2, no. 2 (1998): 443.

from the rivers. In this regard, warmer, slightly salted water rises to the surface, and heavy cold salty water sinks to a depth. Thus, the contact of two layers of water is created, which prevents vertical circulation, and the flow of oxygen from the upper layer to the deep is limited.[10]

All of the aspects mentioned above contribute to the susceptibility of the deep waters of the Baltic Sea to stagnation, which entails negative consequences. Firstly, if for a long time the necessary weather conditions for water renewal do not add up, the formation of hydrogen sulfide compounds begins at depth, in connection with which occurs the extinction of living resources. Secondly, pollutants that enter the sea remain there for a very long time, since the complete renewal of water in the Baltic Sea takes about 30 years.[11] Moreover, if nutrient organic substances, such as porcelain and nitrogen, enter the water, then eutrophication begins, which causes enormous changes in aquatic ecosystems and causes a deterioration in water quality. This, in turn, leads to oxygen deficiency.[12]

About 15% of world industrial production is concentrated in the countries surrounding the Baltic Sea. Additionally, the Baltic Sea region is well known for its developed agricultural activity.[13] Often industrial facilities are located on the banks of rivers that flow into the Baltic Sea. With river waters, both organic and inorganic substances enter the sea. Thus, more than 95% of phosphorus and approximately 75% of nitrogen enters the Baltic Sea through rivers flowing into it.[14] A high concentration of nutrients in the sea contributes to an increase in the number of algae. Since their lifespan is short enough, very quickly they begin to sink to the bottom, where the process of their decomposition starts, during which oxygen is consumed and hydrogen sulfide is released. As mentioned earlier, the release of hydrogen sulfide is extremely detrimental to the marine ecosystem. At the moment, life has already "stopped" in some areas of the Baltic Sea, which have already turned into "dead" hydrogen sulfide zones. [15]

Eutrophication from increased nutrient content in the sea is only the part of the issue coming from agricultural and industrial activities. The water area of the sea is also susceptible to pollution by toxic substances used in agriculture for fertilizing and pollinating plants from insects. Besides, heavy metals such as mercury, lead, and copper that do not decompose in the

[10] E. Ojaveer, *Ecosystems and Living Resources of the Baltic Sea: Their assessment and management* (Springer, 2017), 16-20.
[11] HELCOM. Thematic Assessment of hazardous substances (2011-2016), p. 12. Available on: http://stateofthebalticsea.helcom.fi/in-brief/our-baltic-sea/. Accessed March 12, 2020.
[12] *Ibid*, p. 41.
[13] D. D. Chiras, *Environmental Science: Creating a Sustainable Future* (Jones & Bartlett Publishers, 2001), 522.
[14] HELCOM. Baltic Sea Environment Proceedings No. 127 (2011), p. 31. Available on: http://helcom.fi/Lists/Publications/BSEP127.pdf. Accessed March 18, 2020.
[15] *Ibid*, p. 17.

water fall into the sea.[16] As a result, metals enter the food chain of marine species, making them unsuitable for human consumption. In the near future, due to this aspect, the Baltic Sea might become unsuitable for fishing.

Considering all of the above aspects, it becomes clear that the environmental situation in the Baltic Sea is extremely vulnerable, which determines the relevance of this research. Without close cooperation between coastal states and active concrete measures to control and prevent pollution, the situation will worsen every year, making the Baltic Sea not only unsuitable for exploitation but also destroying the marine ecosystem.

[16] HELCOM. Baltic Sea Environment Proceedings No. 115B (2009), p. 5-6. Available on: https://helcom.fi/media/publications/BSEP115B-1.pdf. Accessed March 18, 2020.

II. International Legal Framework for the Regulation of Land-Based Baltic Sea Pollution

The following chapter will address the issue of the pollution prevention mechanisms adopted within the international legal framework, namely will seek to determine why the legal regulation of land-based Baltic Sea pollution remains quite generic at the international level and which limits it possesses in order to adopt more stringent pollution prevention mechanisms. Under the chapter three sub-chapters are formed. First sub-chapter is dedicated to the evolution of "pollution" principle in light of international conventions. Second sub-chapter will seek to analyze provisions of the UN Convention on the Law of the Sea 1982 aimed at protecting the Baltic Sea marine environment from land-based pollution. Subsequently, third sub-chapter discusses the limits which international legal framework possesses.

1. Definition of «Maritime Pollution» in an International Legal Context

In order to understand what can be considered as pollution in an international legal context, it is necessary to assess the development of pollution concept in light of international conventions.

The concept of "pollution" was first considered in 1969 by a group of UN experts specializing in the scientific aspects of marine pollution - GESAMP. Pollution was characterized as the introduction by a person into the marine environment, directly or indirectly, of substances that degrade water quality, damage living resources and pose a danger to human health, as well as interfere with subsequent activities in the marine area.[17]

Subsequently, this justification was repeatedly supplemented; however, the question of what exactly can be considered "pollution" was still open. At the Third UN Conference on the Law of the Sea, a more specific definition of "pollution" of the marine environment was established, which was enshrined in Part 1 Art. 1(4) of the UN Convention on the Law of the Sea 1982 and stated:

> 'Pollution of the marine environment' means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including

[17] GESAMP. Report of the 1st Session of GESAMP (1969), p. 5. Available on: www.gesamp.org/data/gesamp/files/media/Publications/Report_l_session/gallery_l 182/object_l 18 l_large.pdf. Accessed March 16, 2020.

> fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.[18]

A similar definition was formed based on approaches proposed by GESAMP experts, however, with some additions. In the UN Convention on the Law of the Sea 1982, the concept of marine pollution is quite extensive. It includes all types of pollution, which allows it to be applied to new types of pollution that the world community is currently facing.

The approach to pollution established in the UN Convention on the Law of the Sea was also implemented in regional conventions. An example is the Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992. In Art. 2 of the Convention, the following definition is given:

> 'Pollution' means introduction by man, directly or indirectly, of substances or energy into the sea, including estuaries, which are liable to create hazards to human health, to harm living resources and marine ecosystems, to cause hindrance to legitimate uses of the sea including fishing, to impair the quality for use of sea water, and to lead to a reduction of amenities.[19]

However, in Convention on the Protection of the Marine Environment of the Baltic Sea Area 1974, it was pointed out that, to state pollution, at first is necessary to determine the causal relationship between the pollutant that has entered the water area and its harmful effects. In Art. 2 of the Convention, the concept of pollution was formulated slightly differently. Namely, it was emphasized that the entry of substances into the sea should

> …result in such deleterious effects as a hazard to human health, harm to living resources and marine life, hindrance to legitimate uses of the sea including fishing, impairment of the quality for use of sea water, and reduction of amenities.[20]

It should be noted that in the current version of the Convention 1992, the wording "resulting in such deleterious effects" was replaced by "which are liable to create". Thus, at the moment, the entry of potentially hazardous substances to the marine ecosystem is enough to ascertain the pollution of the marine environment. Accordingly, to establish the fact of the pollution there is no need to determine the causal relationship between the pollutant and its harmful effect.

To specify the concept of "pollution" in the Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992, Annex I provides a list of substances that are harmful

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[18] United Nations Convention on the Law of the Sea, 10 Dec. 1982, 1833 U.N.T.S. 397, 21 I.L.M 1261 (1982), *entered into force* 1. Nov 1994; art. 1(4). Available on: https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf. Accessed March 20, 2020.

[19] Convention on the Protection of the Marine Environment of the Baltic Sea Area*,* 1992 (Helsinki Convention), art. 2.
Available on: https://helcom.fi/media/publishingimages/Helsinki-Convention_July-2014.pdf. Accessed: March 22. 2020.

[20] Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention), art. 2. Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:21994A0316(01). Accessed March 22, 2020.

to the marine ecosystem, such as: radioactive substances, oil products, compounds of phosphorus and nitrogen, and others. Additionally, it states the list of features that these substances possess - the tendency to bioaccumulation, resistance and toxicity. In relation to all such substances, the Baltic Sea States need to take a series of preventive measures, which will be further assessed below. [21]

Moreover, the Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992 identifies a number of characteristics inherent in substances harmful to the marine ecosystem:

- the ratio between observed concentrations and concentrations having no observed effect;
- anthropogenically caused the risk of eutrophication;
- transboundary or long-range significance;
- risk of undesirable changes in the marine ecosystem and irreversibility or durability of effects;
- radioactivity;
- serious interference with harvesting of sea-foods or with other legitimate uses of the sea;
- distribution pattern (i.e. quantities involved, use pattern and liability to reach the marine environment);
- proven carcinogenic, teratogenic or mutagenic properties in or through the marine.[22]

Along with all the above-mentioned features of hazardous substances, Annex I identifies a separate category of substances, the use of which contracting parties agree to reduce to a minimum or eliminate. Moreover, it prescribes to minimize the use of pesticides. However, this formulation is abstract.[23] Thus, the question arises - to which extent such "minimization" should occur in relation to these substances?

In an international context, pollution is classified according to its source. Thereby, in the UN Convention on the Law of the Sea 1982, pollution is divided into categories: from ships; caused by activities on the seabed within national jurisdiction; dumping; from or through the atmosphere; caused by activities in the Area; from land-based sources.[24]

According to statistics compiled by a GESAMP expert group in 1990, more than 44% of substances hazardous to the marine ecosystem enter the sea from land-based sources. 33%

[21] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, annex I.
[22] *Ibid.*
[23] *Ibid.*
[24] A. Bernaerts, *Bernaerts' Guide to the 1982 United Nations Convention on the Law of the Sea: Including the text of the 1982 UN Convention & Agreement Concerning Part XI of 1994* (Trafford Publishing, 2006), 126-127.

of pollutants enter from the atmosphere, 12% from ships and 10% of hazardous substances enter from dumping. Less than 1% of pollutants enter the water area due to the development of the bowels of the seabed.[25] Unfortunately, over time, statistics began to deteriorate. At the moment, more than 80% of pollution enters the marine environment from sources on land, which currently makes the regulation of this category of pollution the most relevant.[26] Moreover, if considering the Baltic Sea, then according to the Stockholm International Water Institute, more than 90% of pollution enters from land-based sources.[27]

Thereby, it can be concluded that a common interpretation of the concept of "pollution" is embodied in international conventions, which implies the introduction by a person of a substance into the sea that can harm the marine ecosystem, worsen the condition of the water, or interfere with the further use of the sea, including for fisheries. Furthermore, pollution is divided into categories according to the source of their entry into the sea. Accordingly, most of the pollution that enters the Baltic Sea – namely pollution resulting from industrial and agricultural activities should be classified as pollution from land-based sources.

2. The UN Convention on the Law of the Sea (1982)

As it was revealed earlier, most of the pollution entering the Baltic Sea stems from land-based sources. Thus, in order to understand how such type of pollution is regulated at the international level, it is necessary to analyze provisions of the most significant international treaty applicable to pollution of the Baltic Sea from land-based sources - the UN Convention on the Law of the Sea 1982 (hereafter the LOSC 1982). The Convention includes some provision which are dedicated to protection of the marine environment from land-based sources.

Thus, Art.194 (1) LOSC 1982 prescribes to States to take all necessary measures in accordance with this convention, necessary to prevent, reduce and control pollution entering the sea from any source. Accordingly, pollution entering the sea from sources on land is regulated by this provision. Further, Art.194 (2) imposes on States obligation to implement necessary measures to ensure that activities within their jurisdiction are conducted in a manner that will not cause any damage to other countries environment. Additionally, in case if pollution

[25] GESAMP. Report of the 20th Session of GESAMP (1990), p. 88.
[26] UNESCO. Facts and Figures on marine pollution. Available on: http://www.unesco.org/new/en/natural-sciences/ioc-oceans/focus-areas/rio-20-ocean/blueprint-for-the-future-we-want/marine-pollution/facts-and-figures-on-marine-pollution/. Accessed March 28, 2020.
[27] Stockholm International Water Institute. Water pollution data in the Baltic Sea basin – a local to regional approach (2018), p. 1. Available on: https://www.siwi.org/publications/water-pollution-data-baltic-sea-basin-local-regional-approach/. Accessed March 27, 2020.

arises from incident under their jurisdiction, States have to make sure that such pollution will not go beyond their territories and bring any harm to other States and their environment. [28] Moreover, Art.194 (3)(a) emphasizes that actions taken in accordance with Part XII should include all necessary measures aimed at minimizing emissions of toxic and harmful persistent substances from land-based sources.

Additionally, LOSC 1982 provides prescriptive and enforcement jurisdictions related to land-based pollution. Prescriptive jurisdiction refers to authority of a State to develop legal norms, while enforcement jurisdiction refers to authority of a State to enforce and ensure compliance with its laws.[29]

Concerning prescriptive jurisdiction, Art. 207 LOSC 1982 enshrines that States must adopt appropriate rules and measures to prevent, reduce, and control pollution entering the sea from land-based sources. In this article is indicated that such sources include "…rivers, estuaries, pipelines and outfall structures…".[30] However, it does not provide a clear indication of a specific international standard that must be applied to pollution. In Art. 207(1) without specifying, reference is made to "…internationally agreed rules, standards and recommended practices and procedures" that States should follow in the process of preventing and controlling pollution entering the marine environment from land-based sources.[31]

With respect to enforcement jurisdiction, Art. 213 LOSC 1982 states that States Parties to the Convention should enforce their regulations and laws adopted under Art. 207, as well as take all necessary measures in order to implement international regulations and rules. Additionally, States are obliged to undertake other measures related to prevention, reduction and control of pollution in accordance with Art. 207(2). [32] Thus, as one can see, those provisions prescribe to States very general obligations in regards to enforcement of laws concerning land-based pollution.

Further, Art. 207(5) imposes on States an obligation to introduce in their national law measures to minimize emissions of toxic, harmful or poisonous substances into the sea. However, it is not specified which precisely these measures should be and at what level they should be established. Accordingly, the issue of the emissions of which substances should be clearly regulated and controlled is left to the discretion of each State. However, when resolving

[28] United Nations Convention on the Law of the Sea (1982), *supra note* 18, art. 194.
[29] C. Ryngaert, The Concept of Jurisdiction in International Law (2014), p. 4-7. Available on: https://unijuris.sites.uu.nl/wp-content/uploads/sites/9/2014/12/The-Concept-of-Jurisdiction-in-International-Law.pdf. Accessed April 10, 2020.
[30] United Nations Convention on the Law of the Sea (1982), *supra note* 18, art. 207.
[31] *Ibid,* art. 207(1).
[32] *Ibid,* art. 213.

this issue, States should proceed from whether the emissions of these substances will provoke pollution of the marine ecosystem, in a sense described in Art. 1(4) LOSC 1982.[33] Perhaps this is the reason that the list of harmful substances differs in many regional conventions, even though the approach to the definition of the concept of "pollution of the marine environment" is identical.[34]

According to Professor Alan Boyle, the establishment of such a vague regime for regulating marine pollution from land-based sources was, first of all, due to the unwillingness of States to establish more clear formulations during the development of the LOSC 1982. Of course, each participating State of the Third UN Conference was guided in the first place by the economic needs of its country. Accordingly, the main goal of each State was to preserve, as far as possible, the greatest amount of freedom of action in the matter of regulating measures to protect the Baltic Sea marine environment from land-based pollution.[35] Thus, Art. 193 emphasizes the sovereign right of each State

> …to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment,

and Art. 207, in turn, does not establish clear standards in this regard.[36]

However, Art. 194(1) LOSC 1982, which prescribes to Contracting Parties to reduce and control pollution of the marine environment from any source, slightly softens the obligation mentioned above by allowing the best practicable means available to the State to prevent pollution.[37] Further, for a more specific definition of the obligations of States to protect the marine environment of the Baltic Sea from land-based pollution, Art. 207(4) prescribes that when developing both global and regional standards and norms to prevent, reduce and control the entry of polluting substances into the sea, States should take into account "…regional features, the economic capacity of developing States and their need for economic development".[38] This Article once again emphasizes that the obligation of States to protect the marine environment of the Baltic Sea from land-based pollution in its nature is relatively

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[33] P. Birnie, A. Boyle, and C. Redgwell, *International Law and the Environment* (Oxford University Press, 2009), 379.
[34] *Ibid,* p. 453.
[35] A. Boyle, "Further Development Of The Law Of The Sea Convention: Mechanisms For Change", *International and Comparative Law Quarterly* 54, no. 3 (2005): 563-584. Available on: https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/further-development-of-the-law-of-the-sea-convention-mechanisms-for-change/6339DCDF09611F7695DE4EE6885C66B6. Accessed March 25, 2020.
[36] M. L. McConnell and E. Gold, "The Modern Law of the Sea: Framework for the Protection and Preservation of the Marine Environment", *Case Western Reserve Journal of International Law* 23, no. 1 (1991): 92-93. Available on: https://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=1637&context=jil. Accessed March 22, 2020.
[37] United Nations Convention on the Law of the Sea (1982), *supra* note 18, art. 194(1).
[38] *Ibid,* art. 207(4).

flexible and mostly depends on economic needs and priorities of each country, as well as State's willingness to limit certain types of production, that pollute the sea environment with dangerous substances.

State obligations outlined in Art. 207 is further developed in Art. 213 LOSC 1982, which focuses on the implementation of rules and laws regarding the prevention of marine pollution from land-based sources. Thus, this Article does not only oblige States to enforce national regulations and laws adopted in accordance with Art. 207, but also instructs States to take all necessary measures aimed at implementing international norms and standards established by competent international bodies to prevent pollution of the marine environment from sources on land.[39]

Furthermore, following Art. 207(3), States should cooperate in undertaking the necessary measures and agreeing to "…harmonize their policies in this connection at the appropriate regional level". Moreover, this Article prescribes the need for States to cooperate on the development and adoption of

> …global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources….[40]

Thus, one can see that one of the main principles of LOSC 1982 is the principle of cooperation between States in the implementation of actions to keep pollution of the marine environment under control, as well as to prevent the entry of hazardous substances into the sea.

Moreover, it can be noted that in LOSC 1982 obligations to prevent pollution from sources on land are weaker than those related to pollution from other sources. In relation to pollution entering the sea from ships or in connection with activities on the seabed, States are required to establish rules and laws, as well as take the necessary measures that will be no less effective than current international regulations and standards. However, with regard to pollution coming from land-based sources, States are only required to take into account the norms and rules adopted at the international level when establishing the necessary laws and measures at the national level. Thus, the nature of measures which should be taken remains at the discretion of each State.[41]

Taking into consideration all the above mentioned, it can be noted that under the LOSC 1982, there is an imbalance between measures prescribed to regulate land-based pollution,

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[39] *Ibid,* art. 213.
[40] *Ibid,* art. 207(3).
[41] A. Boyle, "Land-based Sources of Marine Pollution: Current Legal Regime", *Marine Policy* 16, no. 1 (1992): 20-21.

which is the main source of maritime pollution discussed above, versus pollution from other sources. Thus, it was observed, that provisions which regulate land-based pollution are of a general nature.

3. Limits of the International Legal Framework

As previously stated, the UN Convention on the Law of the Sea 1982 is the most significant international treaty applicable to the Baltic Sea to prevent pollution from sources on land. After analyzing the provisions of this Convention, one main conclusion was formed. Even though the LOSC 1982 obliges States to take the necessary measures to prevent and maintain control over the entry of hazardous substances into the sea, the provisions of the Convention on land-based pollution are generalized hence States have almost complete freedom of action in this matter. The question arises, why the legal regulation of land-based Baltic Sea pollution remains quite generic at the international level and which limits it possesses in order to adopt more stringent pollution prevention mechanisms.

In order to answer the above-mentioned question, it should be noted that pollution from land-based sources is mostly the result of industrial or agricultural activities and comes from the territory of a sovereign State. Accordingly, such activities are often directly related to national social, economic and industrial programs aimed at the development of these countries. Moreover, the high financial costs necessary to prevent and maintain control of pollution resulting from land-based activities, inevitably have a direct impact on the economic development of the country.[42] This leads to a conclusion that often States do not want to agree to voluntarily limit their economic development through the introduction of a tight framework at the international level. States will accept a more precise legal regulation only if the international legal instrument is, in the first place, consistent with their national economic interests.[43]

Further, it should be noted that the regulation of pollution from sources on land is more complicated than the regulation of pollution from other sources, primarily because of its nature. In the case of pollution that occurs as a result of shipping activities, both the source and the hazardous substance can be easily identified. For the most part, the vessel is the source, and the substance is oil or an oil mixture. However, there are much more sources and substances related

[42] Boyle, *supra* note 35, p. 26.
[43] Birnie, Boyle, and Redgwell, *supra* note 33, p. 409-410.

to land-based pollution, and it would be challenging to define each of them in an international legal context, which is another reason of why more stringent measures to prevent land-based pollution are not adopted at the international level.

Moreover, continuing the comparison with pollution from shipping discussed above - sea courts are the only actor, and the shipping industry in this case is the only sector of the economy in need of restrictions and regulation. While pollution from sources on land is the result of many industries, including industrial, municipal and agricultural. Accordingly, the regulation of this type of pollution affects various sectors of the economy. It follows that it is much more challenging to deal with pollution from land-based sources at the international level than any other type of pollution since it is difficult to achieve a positive balance with various national economic, industrial and social policies.[44]

Furthermore, over time, land-based sources are subject to change by nature. Some of them are constant in putting pressure on the marine ecosystem. Others, in turn, are episodic, like heavy rainfall that has contributed to the release of polluting substances into the sea. Since for each substance and source it is necessary to take separate measures to prevent pollution of the marine environment, the process of resolving this problem is significantly more complicated.[45]

The next limit to adopting more stringent land-based pollution prevention norms is the environmental and geographical differences of the various seas and oceans. The marine environment is not homogeneous, and the movement of sea winds and currents is a complex structure and is largely different. This affects the degree of pollution of the marine ecosystem, which varies from region to region. Land-based pollution in the shallow semi-enclosed Baltic Sea is much more harmful to the marine environment than in oceanic areas.[46] In this regard, on more vulnerable water bodies such as the Baltic Sea there is a need to apply a more stringent preventive regime against pollution from sources on land. Thus, it creates another challenge to compile a set of specific provisions that would act equally effective on both the Baltic Sea, which is shallow semi-enclosed sea, and on the Pacific Ocean, the ecological and geographical features of which differ significantly from the characteristics of the Baltic Sea.

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[44] M. Qing-Nan, *Land-Based Marine Pollution: International Law Development* (Martinus Nijhoff Publishers, 1987), 16; D. J. Attard, D. M. Ong, and D. Kritsiotis, *The IMLI Treatise On Global Ocean Governance: Volume I: UN and Global Ocean Governance* (Oxford University Press, 2018), 240.

[45] A. L. Dahl, "Land-Based Pollution and Integrated Coastal Management", *Marine Policy* 17, no. 6 (1993): 567.

[46] Birnie, Boyle, and Redgwell, *supra* note 33, p. 410-411.

Lastly, the final limitation is related to technological and economic gaps between States. Some countries do not have such vast financial and technical capabilities to deal with marine pollution at the same level as countries with more significant capabilities.

Thus, the establishment of uniform and specific rules and measures to prevent pollution from sources on land at the international level can face some difficulties. Consequently, land-based pollution prevention measures and rules must be tailored to the needs and capabilities of each country and region.[47]

[47] T. A. Mensah, "The International Legal Regime for the Protection and Preservation of the Marine Environment from Land-based Sources of Pollution", in *International Law and Sustainable Development: Past Achievements and Future Challenges,* ed. A. Boyle and D. Freestone (Oxford University Press, 1999), 332.

III. Regional Legal Framework Concerning the Regulation of Land-Based Pollution

The following chapter will be focused on the protection of the Baltic Sea environment from land-based pollution at the regional level. Special emphasis will be on the legal techniques and approaches within the Convention on the Protection of the Maritime Environment of the Baltic Sea, in order to determine whether those approaches and techniques can serve for strengthening the regulation of the Baltic Sea marine pollution from land-based sources. Additionally, the chapter will analyze the HELCOM Baltic Sea Action Plan and to what extend recommendations of the Helsinki Commission, especially those implemented in the plan, contribute to protection of the Baltic Sea.

Subsequently, the chapter is divided into two sub-chapters. First sub-chapter will seek to analyze such techniques and approaches within the Helsinki Convention as identification of harmful substances, precautionary approach, best available techniques and the best environmental practice, as well as monitoring and environmental impact assessment. Further, second sub-chapter will be dedicated to assessment of the HELCOM Baltic Sea Action Plan, which is one of the main tools of Helsinki Commission for restoring good ecological status of the Baltic Sea.

1. Convention on the Protection of the Maritime Environment of the Baltic Sea (Helsinki Convention)

Currently, at the regional level, pollution of the Baltic Sea from land-based sources is regulated by provisions of the Convention on the Protection of the Maritime Environment of the Baltic Sea 1992 (hereinafter Helsinki Convention 1992). The Convention provides a list of principles and obligations which relate to pollution from land-based sources. Thus, in order to prevent Baltic Sea pollution States are required to develop and adopt Best Available Techniques and Best Environmental Practice, use precautionary approach and conduct Environmental Impact Assessment along with monitoring.

A. Identification of Harmful Substances under the Helsinki Convention

Establishment of measures to prevent Baltic Sea pollution from sources on land starts with identification of substances, which can be harmful to the marine environment. Thus, it is

necessary to assess the development of identification of the harmful substances under Helsinki Convention.

Initially, harmful substances entering the Baltic Sea were identified using the black/grey list approach, first introduced in Art. 4 and Art. 6 of the Helsinki Convention 1974. Such method divided hazardous substances into two categories - grey and black. In relation to substances in the blacklist, States needed to take a number of strict measures to completely exclude their entry into the Baltic Sea. As for the substances in the grey list, the obligations of States concerning them were simplified - it was only necessary to reduce the release of such substances into the sea.

However, this method was criticized for two main reasons. Firstly, the very essence of such method directly contradicts the fundamental goal of preventing pollution of the Baltic Sea. In the case of substances in the grey list, States were not obliged to take serious measures to prevent their entry into the sea. Hence, the very fact of the presence of such "grey" substances confirms their negative impact on the marine ecosystem. Secondly, such a separation method is extremely subjective in determining the degree of "harmfulness" of a substance. The substances cadmium and mercury were blacklisted in the Paris Convention 1974. While in the Helsinki Convention 1974 they were in the grey list, which allowed the Baltic Sea States to neglect their entry into the water area.[48] Taking into account all of the above, it can be concluded that substances in the grey list were classified as moderately hazardous, and substances in the black list as very dangerous. However, both very ultimately harmful for the Baltic Sea marine environment.

In connection with the criticism that the black/grey list approach has repeatedly been subjected to, the new version of the Helsinki Convention, which entered into force in 1992, has changed its focus to the so-called uniform approach. The new method regulates the flow of hazardous substances from land-based sources without dividing the obligations of States and without classifying substances into very dangerous and moderately dangerous. Thus, for all substances included in the Helsinki Convention 1992 equally stringent preventive measures must be taken as for under Art. 2.[49]

Further Art. 6 prescribes to the Convention Contracting Parties to

[48] D. J. Attard, *The IMLI Manual on International Maritime Law: Marine environmental law and Maritime Security Law* (Oxford University Press, 2016), 152-153.
[49] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, art. 2.

> … prevent and eliminate pollution of the Baltic Sea Area from land-based sources by using, inter alia, Best Environmental Practice for all sources...[50]

Moreover, Art. 5 prescribes to the Contracting Parties to

> … prevent and eliminate pollution of the marine environment of the Baltic Sea Area caused by harmful substances from all sources, according to the provisions of this Convention, and, to this end, to implement the Procedures and measures of Annex I.[51]

It should be noted that those substances that are in Annex I in the Helsinki Convention 1992 were included in the Helsinki Convention 1974 in the grey list and were not considered as dangerous for complete control of their release into the marine environment.[52] Which shows the evolution of identification approach of hazardous substances.

However, there is an exception. According to Art. 6 (3) with the appropriate special permit issued by the national authority, hazardous substances from point sources are allowed to enter the marine environment.[53] Thus, even in the 1992 version of the Convention, the dumping of hazardous substances is possible. Despite that, Regulation 3 of Annex III clearly establishes the parameters and the necessary package of information on the basis of which national authorities can issue such permits, but only after a full assessment of the potential negative impact on the environment in general and the marine ecosystem in particular.[54]

Moreover, in light of transparency, at the request of one of the Contracting Parties or the Helsinki Commission, the State is obliged to provide all available information on the state of the environment, data on permits for the emission of hazardous substances, as well as statistics on the degree of sea pollution from sources on land.[55]

Thus, the introduction of uniform approach contributes to strengthening the regulation of Baltic Sea pollution prevention in terms of resolving the problem of land-based pollution in a more extensive manner, as well as limiting the discretion of the States Parties to the Helsinki Convention 1992 more than before on that matter.

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[50] *Ibid*, art. 6.
[51] *Ibid*, art. 5.
[52] Attard, *supra* note 48, p. 153-154.
[53] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, art. 6(3).
[54] *Ibid*, annex III, regulation 3.
[55] *Ibid.*

B. Precautionary Approach Embodied in Helsinki Convention 1992

The Precautionary approach or principle is a new approach to environmental protection, and the marine ecosystem of the Baltic Sea in particular, which is becoming an increasingly important element in this area.[56]

In a legal context there is no uniform understanding of precautionary principle. One of the definitions describes this principle as:

> When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. [57]

This approach is interesting in that it combines preventive measures against pollution of the marine environment, and reduces the need for scientific data. Thus, the precautionary principle should be adopted when there is a reason to assume that the environment can be harmed. Precautionary approach does not emphasize that harm to nature must be "serious and irreversible", which leads to criticism of overregulation and a kind of difficulty in observing this principle in practice.[58]

The Helsinki Convention 1992 considers the precautionary approach to be fundamental and instructs Contracting Parties to the Convention to use it as a preventive measure, if there is a reason to believe that energy or substances entering the Baltic Sea ecosystem can cause

> …hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea even when there is no conclusive evidence of a causal relationship between inputs and their alleged effects. [59]

In the Helsinki Convention 1992, this principle is a legally binding obligation for all Member States, as well as an integral part of the Best Available Technology (BAT) and Best Environmental Practice (BEP) guidelines.[60]

Additionally, it is assumed as positive obligation for Contracting States to take all necessary measures to prevent pollution of the marine environment of the Baltic Sea from sources on land, even if in those circumstances there is lack of full scientific evidence.[61]

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[56] S. Marr, *The Precautionary Principle in the Law of the Sea* (Martinus Nijhoff Publishers, 2003), 46-99.
[57] The Wingspread Conference Center. Wingspread Statement on the Precautionary Principle (1998). Available on: http://www.gdrc.org/u-gov/precaution-3.html. Accessed April 3, 2020.
[58] S. A. Atapattu, *Emerging principles of international environmental law* (Brill, 2007), 44-45.
[59] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, art. 3(2).
[60] *Ibid*, annex II, regulation 2; annex II, regulation 3.
[61] L. de La Fayette, "The OSPAR Convention comes into force: continuity and progress", *International Journal of Marine and Coastal Law* 14, no. 2 (1999): 247–297.

Therefore, following the precautionary approach, States Parties to the Convention are required to take preventive measures before the potential damage is done.

On the other hand, certain issues may arise in the interpretation of "reason to assume" mentioned above, since States can interpret this concept based on their interests, which does not always happen in the direction of protecting the environment.[62]

Additionally, it is worth noting that the application of this principle may be complicated due to the following points.

First of all, by its nature, the application of this principle relates to potential risks. However, often, a serious potential risk is not so easy to determine due to lack of information or the inability to determine such a risk with the help of science.[63] Moreover, the results of the assessment of the alleged serious hazardous effects on the marine environment may change with the continuous development of scientific technology. Thus, such uncertainties can lead to disagreements between States or scientists. Therefore, it should be noted that at the moment in the international community there is no compulsory dispute settlement mechanism that could establish the presence of potential risks for the environment as a whole, and for the Baltic Sea marine ecosystem in particular. Due to the uncertainty of the concept of potential risks, the lack of a mechanism to resolve such disputes might lead to instability in international law.[64]

Second of all, another issue is the differences between the application of the precautionary approach and the interests of the State. It is possible that the application of this principle may limit the industrial, agricultural and economic activities of the State. Particularly acute such restrictions affect land-based activities. Accordingly, for the application of the precautionary approach in practice, it is necessary to coordinate environmental protection measures with the economic interests of the State.[65] Thus, when applying the precautionary principle, it is necessary to take into account not only scientific data, but social, political and economic factors as well. Moreover, in the application of this principle of particular importance is cost-effectiveness.[66]

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[62] E. Hey, "The precautionary concept in environmental policy and law: institutionalizing caution", *Georgetown International environmental Law Review* 4, no. 2 (1992): 303–305.
[63] D. M. Dzidzornu, "Four Principles in Marine Environment Protection: A Comparative Analysis", *Ocean Development & International Law* 29, no. 2 (1998): 99.
[64] P. Martin-Bidou , "Le principe de precaution en droit international de l'environnement", *Revue Générale de Droit International Public* 13, no. 3 (1999): 651.
[65] L. Lucchini, "Le principe de précaution en droit international de l'environnement: ombres plus que lumières", *Annuaire Français de Droit International* 45, no. 1 (1999): 727-729.
[66] *Ibid*.

Consequently, based on the above, it is evident that precautionary principle can enhance the regulation of the Baltic Sea pollution from land-based sources as it requires States to undertake preventive measures if there is a reason to believe that damage can be caused. Nevertheless, to apply the precautionary approach it is necessary to coordinate environmental protection measures with the economic interests of the State, and take into account not only scientific data, but social, political and economic factors as well.

C. The Use of the Best Available Techniques and The Best Environmental Practice

The next aspect that needs to be considered in the analysis of the regional legal framework is the application of specific measures aimed at preventing pollution of the Baltic Sea from sources on land.

Article 6(1) of the Helsinki Convention 1992 obliges Contracting Parties to use the "Best Available Techniques" (hereinafter BAT) and the "Best Environmental Practice" (hereinafter BEP).[67] A more detailed definition of what should be attributed to the BAT or BEP is prescribed in Annex II to the Helsinki Convention 1992.

Thus, it outlines the minimum list of BEP measures required for use:

- provision of information and education to the public and to users about the environmental consequences of choosing particular activities and products, their use and final disposal;
- the development and application of Codes of Good Environmental Practice covering all aspects of activity in the product's life;
- mandatory labels informing the public and users of environmental risks related to a product, its use and final disposal;
- availability of collection and disposal systems;
- saving of resources, including energy;
- recycling, recovery and re-use;
- avoiding the use of hazardous substances and products and the generation of
- hazardous waste;
- application of economic instruments to activities, products or groups of products and
- emissions;
- a system of licensing involving a range of restrictions or a ban.[68]

[67] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, annex II, regulation 2(1); annex II, regulation 3(1).
[68] *Ibid*, annex II, regulation 2.

When determining the BEP, States must be guided by the precautionary principle so as not to harm either the interests of other States or the Baltic Sea marine ecosystem. Thus, the list of measures taken can be recognized as Best Environmental Practice only if these measures include the abandonment of environmentally harmful activities or replacement with less dangerous and polluting activities, as well as if the latest scientific evidence was taken.[69]

Regarding the definition of BAT, Helsinki Convention 1992 Annex II determines those as

> …the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges.[70]

Furthermore, professor Rüdiger Wolfrum states that the use of BAT and BEP to some extent can limit the margin of discretion of States in relation to the application of necessary measures to prevent environmental pollution.[71] Moreover, the need to use BEP and BAT can be regarded as an extremely useful tool for concretizing the "due diligence" standard.[72] Thus, it is possible that such an obligation could be a strengthening element to the regulation of land-based Baltic Sea pollution.

Despite the noted positive aspects, the use of BEP and BAT may cause certain problems that need to be addressed in more detail.

Firstly, there is no clear definition of BEP and BAT as they are a subject to temporary changes in the light of the development of advanced technologies and scientific knowledge, as well as social and economic factors.[73] Subsequently, States have more discretion, and the BEP and BAT cannot be objectively defined .[74] Moreover, the standard that defines BEP or BAT cannot be uniform for all States due to differences in economic, political, environmental and technological spheres, which are developed at different levels in different regions and countries.[75]

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[69] K. Tsukikawa, *Protection of the Marine Environment and the Prevention of Pollution* (Tokyo, 1997), 112.
[70] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, annex II, regulation 3(1).
[71] R. Wolfrum, "Precautionary Principle", in *New Technologies and Law of the Marine Environment*, ed. J. P. Beurier, A. Kiss, and S. Mahmoudi (Kluwer International Law, 2000), 203.
[72] Birnie, Boyle, Redgwell, *supra* note 33, p. 113.
[73] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, annex II, regulation 4.
[74] E. Hey, T. IJlstra and A. Nollkaemper, "The 1992 Paris Convention for the Protection of the Marine Environment of the North East Atlantic: A Critical Analysis", *International Journal of Marine and Coastal Law* 8, no. 1 (1993): 16.
[75] A. Nollkaemper, "Balancing the Protection of Marine Ecosystems with Economic Benefits from Land-Based Activities: The Quest for International Legal Barriers", *Ocean Development and International Law* 27, no. 2 (1996): 159.

Secondly, application of BEP and BAT might be problematic due to political and economic circumstances. Thus, it is necessary to answer the question: is it possible to balance the economic interests of the State and the application of BEP and BAT? Scholar J. Ebbesson provides the following opinion on the issue. He states that the main factor is "economic feasibility" of the technology, [76] namely, the economic advantage of this technology should be greater than the economic costs of it. Despite that this factor acts as a balance between the economic interests of the State and the use of BEP and BAT, if the States focus only on their short-term economic interests, this can lead to a reluctance to take expensive, but in the long term, effective measures to prevent pollution of the marine ecosystem.[77]

Thirdly, it should be noted that even when using BAT, the environment can be negatively affected. Accordingly, its use does not always lead to the complete prevention of pollution.[78] With this in mind, Article 3(3) of the Helsinki Convention 1992 requires States to take additional preventive measures if the use of BEP and BAT does not have positive environmental effects, which in turn may lead to another layer of economic costs.

D. Monitoring and Environmental Impact Assessment

When introducing certain measures aimed at preventing pollution of the marine environment from land-based sources, it is necessary first of all to analyze not only the impact of planned activities on the marine ecosystem but also the effectiveness of measures taken to control and prevent pollution. Thus, monitoring and assessment of the environmental impact of certain actions (hereinafter EIA) play an extremely important role in the process of pollution prevention. Judge Weeramantry noted that the EIA

> …is gathering strength and international acceptance, and has reached the level of general recognition at which this Court [ICJ] should take notice of it.[79]

Following the "Goals and Principles of Environmental Impact Assessment" adopted by UNEP, EIA stands for "…an examination, analysis and assessment of planned activities with a view to ensuring environmentally sound and sustainable development".[80] Article 206 of the LOSC

[76] J. Ebbesson, "A Critical Assessment of the 1992 Baltic Sea Convention", *German Yearbook of International Law* 43, no. 1 (2000): 47.
[77] L. Fayette, "The OSPAR Convention Comes into Force: Continuity and Progress", *International Journal of Marine and Coastal Law* 14, no. 2 (1999): 256-257.
[78] Ebbesson, *supra* note 76, p. 48.
[79] ICJ Reports. Dissenting Opinion of Judge Weeramantry, p. 344. Available on: https://www.icj-cij.org/files/case-related/97/097-19950922-ORD-01-05-EN.pdf. Accessed April 3, 2020.
[80] P. Birnie and A. Boyle, *Basic Documents on International Law and Environment* (Oxford University Press, 1995), 27-30.

1982, in relation to the protection of the marine ecosystem, prescribes the use of environmental impact assessment:

> When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205.[81]

Moreover, since marine pollution is often transboundary, international cooperation in the EIA is an extremely important aspect. In this regard, the Helsinki convention 1992 imposes obligations on Contracting States in this area: not only to conduct an EIA, but to cooperate on this issue as well. Thus, Article 7(1) of the Helsinki Convention 1992 requires States to conduct EIAs of an activity, which is likely to cause damage to the Baltic Sea environment in accordance with international law or supra-national regulations and inform the Commission and any Contracting Party to the convention which might be affected by such activity.[82] While Article 7(3) calls on states to cooperate:

> Where two or more Contracting Parties share transboundary waters within the catchment area of the Baltic Sea, these Parties shall cooperate to ensure that potential impacts on the marine environment of the Baltic Sea Area are fully examined within the environmental impact assessment referred to in paragraph 1 of this article.[83]

It should be noted that according to Judge Weeramantry in the Gabčíkovo-Nagymaros case EIA is not just an assessment before the start of the project, it is a constant monitoring while the project is exists and ongoing.[84] Thus, establishment of the monitoring system of the Baltic Sea is extremely important to protect the marine environment from land-based pollution.

Under Helsinki Convention 1992 monitoring refers to two activities. The first type of monitoring refers to the HELCOM recommendations accepted by the States, as well as to the national reports of the Contracting Parties on the measures adopted to implement the provisions of the Convention and its Annexes for the purposes of protecting the Baltic Sea marine environment from pollution. Such type of monitoring is called monitoring sensu stricto.[85] In turn, the second type of monitoring is related to scientific research of the Baltic Sea marine environment, the essence of which is "to follow the long-term (annual and long-term periods) change (trends) of selected determinants".[86] Under Helsinki Convention 1992 this type of

[81] United Nations Convention on the Law of the Sea (1982), *supra* note 18, art. 206.
[82] Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), *supra* note 19, art. 7(1).
[83] *Ibid*, art. 7(3).
[84] ICJ Reports. Separate Opinion of Vice-President Weeramantry, p. 111. Available on: https://www.icj-cij.org/files/case-related/92/092-19970925-JUD-01-03-EN.pdf. Accessed April 4, 2020.
[85] P. Ehlers, "Marine Issues: From a Scientific, Political and Legal Perspective" (Springer, 2002), 76.
[86] HELCOM. Guidelines for the Baltic Sea Monitoring Programme or the Third Stage (1988), p. 1.

monitoring has undergone significant changes and revisions - it combines both monitoring of compliance and monitoring of marine scientific research. This type of monitoring is called monitoring sensu largo.[87]

Monitoring sensu stricto is regulated under Art. 16 of Helsinki Convention 1992. All recommendations accepted by HELCOME are non-binding. Therefore, these recommendations are binding to a Contracting State only in case if they are accepted by a decision adopted at municipal level. Accordingly, only when recommendations become a part of the domestic legal system of the State, they have to be implemented at the national level. It follows that States need to submit annual reports only on those recommendations that have been implemented at the national level.

It should be noted that under the Helsinki Convention 1974, the content of annual reports covered only the status of incorporating recommendations in national legal systems. While the scope of the annual reports under the Helsinki Convention 1992 is more extensive and includes a practical aspect, namely, how these recommendations implemented in national legal system operate in practice.[88] Thus, it is necessary to emphasize the evolution of the sensu stricto monitoring concept in the framework of the Helsinki Convention 1992.

As for monitoring sensu largo, this type of monitoring was first reflected in the Baltic Sea Monitoring Program ("BMP") adopted under the Helsinki Convention 1974. The purpose of this program was to research the marine environment of the Baltic Sea and track its changes. This program was established by HELCOM in accordance with Article 16 of the Helsinki Convention 1974. Subsequently, in 1999 the HELCOM MONAS group was created, the main task of which is to monitor and evaluate the protection of the marine environment of the Baltic Sea and advise the Commission on the implementation of its duties in accordance with Helsinki Convention, prescribed by Articles 7,11,3, 6,16 and Annex V of the Convention. [89]

At the moment, within the framework of HELCOM, there are 12 monitoring programs that cover, among other things, pollution from sources on land and control their impact on the ecosystem of the Baltic Sea.[90]

Based on the analysis it can be concluded that both monitoring as well as EIA are reflected in Helsinki Convention. Thus, in accordance with Helsinki Convention 1992 arguably

[87] Ehlers, *supra* note 85, p. 77.
[88] *Ibid*, p. 77-78.
[89] *Ibid*, p. 79-81.
[90] HELCOM. Monitoring and Assessment. Available on: https://helcom.fi/action-areas/monitoring-and-assessment/. Accessed April 25, 2020.

a State who carries out activities that cause significant land-based pollution of the marine ecosystem could not refuse responsibility for such pollution on grounds of unforeseeability if the EIA was not conducted.[91] In this regard, it can be assumed that the EIA is able to limit the margin of discretion of States Parties to the Convention in their policy making, and thereby strengthen the obligations of States to prevent and regulate land-based pollution of the Baltic Sea.

Moreover, the relationship between the EIA and the precautionary approach should be noted. As it was revealed earlier, one of the main difficulties in applying this principle is the identification and assessment of potential risks. Thus, it can be assumed that the precautionary approach in combination with EIA and monitoring can be an effective tool for identifying potential risks, which may stimulate the application of the precautionary approach. It should be noted that on the issue of pollution of the marine environment, monitoring and the EIA can also stimulate the application of a precautionary approach, which will more effectively prevent the entry of pollutants into the marine environment.[92]

2. HELCOM Contribution to the Baltic Sea Pollution Prevention: Baltic Sea Action Plan

Today, HELCOM is one of the main bodies which, in the recommendations adopted on the basis of Article 20 of the Helsinki Convention 1992, clarifies the list of measures necessary for the fulfillment by the Contracting States of the obligation under Art. 6 of the Helsinki Convention. Moreover, HELCOM is an extremely important regional center for political and scientific activity.[93] HELCOM's policy is to issue "Recommendations," which include both technical, scientific, and political procedures and standards. Despite the fact that these recommendations are not legally binding, it is supposed that the Member States of the Helsinki Convention 1992 will use them in drafting national legislation and taking appropriate measures to prevent pollution of the marine environment of the Baltic Sea. [94]

Currently, the main and most ambitious tool of HELCOM in order to prevent Baltic Sea pollution from land-based sources is Baltic Sea Action Plan (hereinafter BSAP), signed by The

[91] A. Boyle, "Land-based Sources of Marine Pollution: Current Legal Regime", *Marine Policy* 16, no. 1 (1992): 23.
[92] K. Ishibashi, "Environmental Impact Assessment", in *International Environmental Law*, ed. C. Mizukami (Tokyo 2001), 212-213.
[93] S. D. VanDeveer, "*Normative Force: The State, Transnational Norms and International Environmental Regimes*" (PhD diss., University of Maryland, 1997).
[94] HELCOM. Recommendations. Available on: https://helcom.fi/helcom-at-work/recommendations/. Accessed April 5, 2020.

HELCOM Contracting States and the EU with the goal of preventing pollution of the marine ecosystem of the Baltic Sea and returning to it the good ecological status by 2021.

The path to adopting the Baltic Sea Action Plan began in 1987 when a seminal report by the World Commission on Environment and Development was released. This report examined the most significant problems associated with environmental protection and proposed certain measures to combat these problems.

In particular, one of the proposals was a recommendation on the use of the ecosystem approach for sustained use of marine resources.[95] Thus, the ecosystem approach has become the main concept of environmental management in the Baltic Sea, which requires "integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way".[96]

Thus, in 2003 at the HELCOM ministerial conference it was decided that such an approach is necessary to protect the ecosystem of the Baltic Sea, namely, the need to draw attention to such pressing problems as oxygen depletion, eutrophication, releases of hazardous substances and nutrients into the water area was emphasized.[97] Given the seriousness of the suppression of environmental stability in the region, the Helsinki Convention Contracting States have taken certain measures to promote the ecosystem approach, culminated in the signing of the Baltic Sea Action Plan.

The understanding and importance of the ecosystem approach are highlighted in the BSAP preamble:

> ACKNOWLEDGING that the ecosystem approach is based on an integrated management of all human activities impacting on the marine environment and, based on the best available scientific knowledge about the ecosystem and its dynamics, identifies and leads to actions for improving the health of the marine ecosystem, thus supporting the sustainable use of ecosystem goods and services.[98]

[95] WCED. Report of the World Commission on Environment and Development: Our Common Future (1987). Available on: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf. Accessed April 10, 2020.
[96] Convention on Biological Diversity. Ecosystem Approach. Available on: https://www.cbd.int/ecosystem/. Accessed April 4, 2020.
[97] HELCOM Ministerial Declaration (HELCOM Bremen Declaration) adopted on 25 June 2003 in Bremen by the HELCOM Ministerial Meeting. Available on: http://archive.iwlearn.net/helcom.fi/ministerial_declarations/en_GB/helcomdeclaration/index.html. Accessed April 10, 2020.
[98] HELCOM Baltic Sea Action Plan adopted on 15 November 2007 in Krakow, Poland by the HELCOM Extraordinary Ministerial Meeting, p. 4. Available on: https://www.helcom.fi/wp-content/uploads/2019/08/BSAP_Final.pdf. Accessed April 10, 2020.

Based on the monitoring and assessment of the state of the Baltic Sea ecosystem, HELCOM identified the most acute environmental problems that formed the basis for the adoption of four goals to improve the state of the Baltic Sea.

Firstly, that the Baltic Sea does not suffer from eutrophication.[99] Secondly, that the ecosystem of the Baltic Sea is not exposed to the negative influence of hazardous substances.[100] Thirdly, for marine activities to be carried out exclusively in an environmentally friendly way.[101] Fourthly, that this activity leads to the conservation of biodiversity of the Baltic Sea.[102]

The objectives listed were incorporated into the Baltic Sea Action Plan as four thematic areas: eutrophication, hazardous substances, maritime activities and biodiversity. Each of the four areas has specific goals and objectives. Thus, for example, for eutrophication, the goal is "Baltic Sea unaffected by eutrophication", and the objective is the natural level of oxygen, pure water, the natural level of algae bloom, as well as the natural distribution and occurrence of plants and animals. Particular importance is given to assessing the implementation of the necessary measures to achieve the goal, which occurs using "appropriate" indicators that measure the process.[103]

As eutrophication occurs due to the ingress of nutrients into the sea, the maximum allowable amount of these substances for each bay of the Baltic Sea was established within the BSAP framework. Additionally, a norm was established to reduce the use of nutrients, which was divided between all coastal states of the Baltic Sea. [104]

However, Nina Tynkkynen, Paula Schönach, Mia Pihlajamäki, and Dmitry Nechiporuk in their study argue that socioeconomic differences between the states of the Helsinki Convention 1992 can affect the effective governance of the Baltic Sea environment. The authors of the work argue that the existing policy to prevent pollution of the Baltic Sea does not take into account the socioeconomic differences of States properly. In their opinion, first of all, this statement refers to BSAP, since the highest requirements for reducing nutrients are set for Poland, Russia, Lithuania and Latvia. However, with regard to Estonia and Finland, the smallest

[99] *Ibid*, p. 7.
[100] *Ibid*, p. 13.
[101] *Ibid*, p. 23.
[102] *Ibid*, p. 18.
[103] *Ibid*, p. 7.
[104] *Ibid,* p. 8-9.

requirements are established, despite the fact, that those countries are more economically developed.[105]

Moreover, for the implementation of the plan per year, the estimated costs reach up to 4.7 million Euros, which is an extremely uneven and unfair distribution compared to national GDP of countries.[106] In this regard, it is quite evident that less developed States will be reluctant to participate in the implementation of this plan, and the incentive, for example, in Poland may decrease.[107]

In order to assess the results of BSAP objectives the Contracting Parties agreed to conduct their assessment and monitor its implementation based on agreed indicators. Assessment of the implementation of concrete measures is carried out by HELCOM and is recorded in official reports. Thereby, in the 2018 report, HELCOM noted that not a single State at that time achieved its goal of reducing phosphorus, and only one country (Finland) achieved its goal of reducing nitrogen.[108]

BSAP goals to improve the environmental status of the Baltic Sea should be achieved before 2021. Accordingly, based on the 2018 assessment results, it can be assumed that the high ambitions set out in the plan were not feasible in practice.

Non feasibility of BSAP in practice was commented by Pauli Merriman, Policy Manager for WWF, which claims that BSAP is short on actions due to a lack of clear obligations to protect one of the most vulnerable seas. Merriman explains that the original version of the plan included ambitious actions and tough decisions, which were so urgently needed to prevent pollution. However, subsequently, these actions were excluded due to economic and political disagreements between the European Community and HELCOM governments, thereby BSAP was significantly weakened. At the moment, the plan is "high on rhetoric", but lacks significant commitments and actions that were the original reason for the creation of BSAP. Thus, there is

[105] N. Tynkkynen, P. Schönach, M. Pihlajamäki, and D. Nechiporuk, "The Governance of the Mitigation of the Baltic Sea Eutrophication: Exploring the Challenges of the Formal Governing System", *AMBIO A Journal of the Human Environment* 43, no. 1 (2014): 109-110.
[106] F. Wulff, O. Savchuk, A. Sokolov, C. Humborg, and C. M. Mörth, "Management options and effects on a marine ecosystem: Assessing the future of the Baltic", *AMBIO A Journal of the Human Environment* 36, no. 2 (2007): 243–249. Available on: https://www.researchgate.net/publication/6311754_Management_Options_and_Effects_on_a_Marine_Ecosystem_Assessing_the_Future_of_the_Baltic. Accessed April 12, 2020.
[107] B. Dmochowska and A. Szaniawska, "Poland—Looking for a higher environmental awareness", in *Governing the blue-green Baltic Sea*, ed. M. Pihlajamäki and N. Tynkkynen (Finnish Institute of International Affairs, 2011), 66–77.
[108] HELCOM. Implementation of the Baltic Sea Action Plan 2018: Three years left to good environmental status, p. 13. Available on: https://helcom.fi/wp-content/uploads/2019/06/Implementation-of-the-BSAP-2018.pdf. Accessed April 12, 2020.

another plan that promises to save the Baltic Sea from pollution; however, does not include enough binding commitments.[109]

Furthermore, Jochen Lamp, head of the Baltic Sea Office of WWF, claims that almost all activities included in the plan were already agreed in one way or another in other fora. The Baltic Sea Action Plan is aimed at the effective implementation of existing EU directives and international conventions, by which it supports and underlines their importance. However, in connection with this, the unique value of BSAP as a whole is not as significant. Lamp further emphasizes that

> Without the support of the highest level of government of each Baltic Sea state the environmental challenges of the Baltic Sea cannot be tackled by the BSAP in a comprehensive and integrated way. Ministers from Denmark, Germany, and Latvia didn't even attend the meeting, indicating just how prioritized this process is for their governments.[110]

Concludingly, ambitious HELCOM BSAP, which aimed to deliver strong actions necessary to restore a good ecological status of the Baltic Sea, was seen as a plan, fulfilling a critical need to implement ecosystem-based management in the region of the Baltic Sea. However, the high ambitions set out in the plan were not feasible in practice. According to the data for 2018, most of the States have not reached the goal of reducing phosphorus and nitrogen. As noted by Policy Managers for WWF, BSAP lacks of clear obligations to protect the Baltic Sea ecosystem from pollution. Moreover, due to political disagreements, the plan was significantly weakened. It is clear that not sufficiently strict actions agreed in the plan give a certain political advantage to Contracting Parties as not limiting their margin of discretion. However, it is arguable whether such actions can effectively contribute to Baltic Sea pollution prevention on practice.

[109] WWF. Baltic Sea action plan short on actions. Available on: https://wwf.panda.org/?117500/Baltic-Sea-action-plan-short-on-actions. Accessed April 10, 2020.
[110] *Ibid.*

IV. Role of the EU in the Protection of the Baltic Sea Environment from Land-Based Pollution

The following chapter will be dedicated to the role of the EU in settlement of the issue under concern. Since the European Union is a direct participant to the Helsinki Convention 1992, it plays a significant role not only in the organization itself but also in the conduct of preventive measures to protect the Baltic Sea from pollution from land-based sources. Moreover, eight out of nine States in the Baltic Sea Region are EU members. Thus, in order to draw up a complete picture of mechanisms, developed to protect the Baltic Sea marine environment, it is necessary to analyze the significance of the EU role on this matter.

According to the Treaty on the Functioning of the European Union, environmental issues are the joint responsibility of the European Union and its Member States.[111] Thus, at the EU level, a number of directives have been adopted aimed at preventing pollution and reducing the discharge of hazardous substances from sources on land, primarily those resulting from the chemical industry and agriculture.

Firstly, one of the most important directives for the regulation of emissions of hazardous substances on the EU level is Directive 91/676/EEC (hereinafter the Nitrates Directive), which sets standards for the emission of nitrates. The Nitrates Directive emphasizes the need to protect the aquatic environment from pollution from dispersed sources, which include, but not limited to, the agricultural industry.[112] The definition of "pollution" in this directive is very similar to that defined in LOSC 1982.

The Nitrates Directive by pollution defines:

> …the discharge, directly or indirectly, of nitrogen compounds from agricultural sources into the aquatic environment, the results of which are such as to cause hazards to human health, harm to living resources and to aquatic ecosystems, damage to amenities or interference with other legitimate uses of water.[113]

To prevent such pollution of the aquatic environment, EU Member States are instructed to identify the most vulnerable land areas on their territory, which are the catchment area and pose a potential or real threat of nitrate pollution of the aquatic environment.[114] Every four years, countries are required to review the list of these areas and, if necessary, make changes.

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[111] Treaty on the Functioning of the European Union (Consolidated version 2012), *OJ C* 326*,* 26.10.2012; art. 4(2). Available on: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:326:FULL:EN:PDF. Accessed April 2, 2020.

[112] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, *OJ L* 375, 31.12.1991, p. 1-8. Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:1991:375:FULL&from=EN. Accessed April 2, 2020.

[113] *Ibid*, art.2.

[114] *Ibid,* art. 3.

Moreover, in order to best ensure the prevention of water pollution, all Member States need to develop codes that define the rules of agricultural practice that will be applied by farms. In accordance with this, Annex II to the Directive prescribes that these codes should determine the minimum standards for the use of fertilizers, as well as all the necessary parameters related to the prevention of nitrates from entering groundwater or surface water.[115] In addition to this, the Directive requires States to organize training programs, if necessary, aimed at encouraging the application of codes for agricultural practices. In general, the main task that 91/676/EEC poses on States is to develop appropriate programs for designated vulnerable areas using up-to-date scientific information and to take into account the state of the environment.

Secondly, the following Directive 2000/60/EC (hereinafter Water Framework directive) establishes the general framework for the adoption of water policy measures.[116] The directive emphasizes the need for cooperation among EU Member States on action in such areas as tourism, regional politics, agriculture, transport, energy and fisheries.

When developing the necessary measures, States should take into account the sensitivity of the marine ecosystem, which largely depends on the quality of the water coming from the land area. Thus, the need to prevent pollution and maintain the proper condition of river waters is emphasized. The directive applies to groundwater and surface water. At the same time, the coastal waters of the seas at a distance of one nautical mile belong to surface waters as well.[117] Thus, based on the concept of river basin planning, 2000/60/EC establishes a framework for environmental protection and water management.

One of the main objectives of the directive was to improve the environmental status of surface and ground waters by 2015, namely, to reduce emissions of harmful substances into water resources, as well as to stop emissions of those pollutants that pose the greatest danger to surface, inland sea and ground waters. In identifying such harmful substances, States should be guided by the precautionary principle and take into account any potential threat.

Within the framework of 2000/60/EC, Member States need to develop appropriate action programs to protect and prevent pollution of river waterways from the ingress of hazardous substances. Some EU Member States of the Baltic Sea Region have taken the necessary measures in accordance with provisions of directive. These include Sweden, which identified 5 districts, including river basins. Sweden was followed by Estonia, Germany and

[115] *Ibid*, annex II.
[116] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, *OJ L* 327, 22.12.200, p. 1-72. Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32000L0060. Accessed April 25, 2020.
[117] *Ibid,* art. 2(7).

Finland. Despite this, representatives of many other EU countries note that the application of provisions of the directive has not yet led to significant results.[118]

Additionally, it should be noted that according to P. Quevauviller, P. Balabanis and other scholars, Water Framework directive is quite complex and, possibly, might create certain challenges. [119] Although the significance of governance system to ensure effective implementation of 2000/60/EC and efficient water management is widely recognized, the directive did not prescribe the need for specific structures that are necessary for its implementation. In this regard, many Member States of the European Union face organizational and technical challenges when implementing provisions of the directive. Often river basin management is carried out through existing water governance structures, which vary greatly across Member States. Thus, a lot of effort and time is required to form appropriate government agencies.[120]

Furthermore, it should be pointed out that the context of the directive, as well as the severity of the measures prescribed therein, were influenced by political disagreements. Water Framework directive was the result of intense political negotiations, which were characterized by gradual internal shifts in the governance structures of the European Union. Due to that the European Parliament was left with additional power in negotiations, while the environmental Non-Governmental Organizations gained an increasing influence in the discussion process.[121]

The steps involved in drafting and adopting Water Framework directive were accompanied by strong disagreements and political maneuvers. Thus, due to the resistance of some EU member states during the negotiation process, some important elements of 2000/60/EC were weakened, in particular:

- Protection of all EU water was severely limited in the case of groundwater;
- The overall objective of good status became a mere statement of aspiration ("Member States shall aim to achieve the objectives ... with the aim of achieving good water status");

[118] I. Andersson, M. Petersson and J. Jarsjo, "Impact of the European Framework Directive on local-level water management: Case study Oxunda Catchment, Sweden", *Land Use Policy* 29, no. 1 (2012): 79-80.
[119] P. Quevauviller, P. Balabanis, C. Fragakis, M. Weydert, M. Oliver, A. Kaschl, G. Arnold, A. Kroll, L. Galbiati, J. Zaldivar and G. Bidoglio, "Science-policy integration needs in support of the implementation of the EU Water Framework Directive", *Environmental Science & Policy* 8, no. 3 (2005): 203–211. Available on: https://www.sciencedirect.com/science/article/abs/pii/S1462901105000353?via%3Dihub. Accessed April 15, 2020.
[120] T. Moss, "Spatial fit, from panacea to practice: implementing the EU Water Framework Directive", *Ecology and Society* 17, no. 2 (2012). Available on: https://www.ecologyandsociety.org/vol17/iss3/art2/. Accessed April 16, 2020.
[121] M. Kaika and B. Page, "The EU water framework directive: Part 1. European policy-making and the changing topography of lobbying", *European Environment* 13, no. 6 (2003): 314–327. Available on: https://www.researchgate.net/publication/227521330_The_EU_Water_Framework_Directive_Part_1_European_Policy-making_and_the_changing_topography_of_lobbying. Accessed April 15, 2020.

- The non-deterioration principle was weakened;
- Environmental objectives became subject to wide-ranging exemptions and derogations; introduction of the concept of heavily modified waters (with lower environmental objectives);
- Less stringent river basin planning (with competent authorities limited to national boundaries);
- Introduction of new and wide-ranging exemptions and derogations in the programme of measures;
- Full-cost recovery became limited to water services and became the mere statement of a principle without effective provisions;
- Most deadlines extended by several years. [122]

For instance, due to the perseverance of the Austrian delegation, a special status was introduced for "heavily modified waters", while the German delegation was against the creation of independent bodies for river basin management. Moreover, almost all government delegations opposed time limits to achieve the goal of good status for all waters. In this regard, 10 years originally proposed by the Commission to achieve a good water condition turned into 16 years with the possibility of extension for 18 years. Accordingly, a total of up to 34 years.[123]

As a result, Directive 2000/60/EC did not fully meet the expectations of the European Parliament regarding the water policy of the European Union, as well as the expectations of European environmental organizations. The insufficient level of protection, the long periods for achieving good water status, the ambiguous and insufficiently specific provisions, as well as the significant extension of the time frame[124] raise doubts as to whether Water Framework directive is able to contribute to the protection of the Baltic Sea marine environment.

Thirdly, on the European Union level was adopted Directive 2008/56 / EC, establishing the EU framework legislation in the field of marine environmental policy.[125] The main objective of this directive is to achieve the good environmental status of waters by 2020. In the content of the directive, sea waters include both coastal waters and water bodies

> on the seaward side of the baseline from which the extent of territorial waters is measured extending to the outmost reach of the area where a Member State has and/or exercises jurisdictional rights.[126]

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[122] K. Lanz and S. Scheuer, *EEB handbook on EU water policy under the Water Framework Directive* (European Environmental Bureau, 2001), 54. Available on: https://www.rivernet.org/general/docs/handbook.pdf. Accessed April 20, 2020.
[123] *Ibid,* p. 54-55.
[124] *Ibid*, p. 49.
[125] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) Text with EEA relevance, *OJ L* 164, 25.6.2008, p. 19-40. Available on: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF. Accessed April 20, 2020.
[126] *Ibid,* art. 3.

Creation and implementation of a marine strategy should aim at preserving marine ecosystem. The necessary measures should be taken in relation to protected areas and apply to all human activities that might affect the marine ecosystem. Article 1 of the directive indicates the need for an ecosystem-based approach in relation to the management of human activities. It is assumed that the ecosystem-based approach is able to provide a level of collective anthropogenic impact on the marine environment, which will be within the level compatible with achieving good environmental status and the ability of marine ecosystems to respond to changes caused by human activities, ensuring sustainable use of marine resources by current and future generations .[127]

Under 2008/56/EC, States should develop their own marine policy strategies, taking into account the particularities of their waters. In addition, the attention of States is drawn to the fact that sea waters located in the territory of their jurisdiction are also an integral part of marine regions. In Art. 4 provides a list of these regions, which includes Baltic Sea region. First of all, in relation to each marine region, EU Member States need to assess the state of the marine ecosystem.[128] Further, the results of this assessment determine which state of the marine ecosystem should be considered good.[129] Thus, on the basis of the assessment, States need to formulate both the goal of marine policy with respect to each maritime region[130] and a specific set of measures[131] that will be aimed at achieving this goal.

Furthermore, it should be emphasized that the special role of the EU in the protection of the marine environment of the Baltic Sea is due to the fact that the European Union, along with its Member States, is a Contracting Party to the Helsinki Convention 1992. Accordingly, the EU can control the implementation process of the Helsinki Convention in Member States.

In the practice of the Court of the European Union, there are precedents where is recognized the direct effect of the provisions of the mixed agreement (agreement in which both the European Union and its member states are contracting parties).

For instance, the case on pollution of the Mediterranean Sea region from emissions of substances hazardous to the marine ecosystem by an energy company. In this case, the EU Court pointed out that The Convention for the Protection of the Mediterranean Sea Against Pollution 1976 and its protocols have direct effect, i.e. individuals may invoke the provisions

[127] *Ibid*, art. 1.
[128] *Ibid*, art. 8.
[129] *Ibid*, art. 9.
[130] *Ibid,* art. 10.
[131] *Ibid,* art. 13.

of the Convention to protect their rights, including in national courts.[132] Member States participating in such agreements are required to take certain measures to implement the provisions of the agreements. Specifically considering the pollution of the Mediterranean Sea, then following Art. 6 and Annex VI of The Convention for the Protection of the Mediterranean Sea Against Pollution 1976, the State had to formulate criteria that must be taken into account when issuing permits for the minimum release of hazardous substances into the sea. However, such criteria have not been developed. In this regard, the Court considered it necessary to recognize the direct effect of the above provisions. At the same time, the EU Court ruled that this convention, as well as its protocols, are part of the European Community, despite the fact that the convention has not yet been implemented at EU level. Thus, both individuals and the Commission of the European Union can refer complaints about non-compliance with the provisions of such regional conventions. [133]

In addition to the above-mentioned directives, a Strategy for the Baltic Sea Region has been developed to protect the Baltic Sea marine environment and prevent pollution from land-based sources at the EU level. The main goal of this strategy is to achieve a sustainable environmental condition in the Baltic Sea region. To achieve this goal, it is planned to reduce emissions of nutrient organic substances into the marine area, which provoke the biggest problem of the Baltic Sea - eutrophication, as well as reduce the use of harmful substances.[134]

Thus, it can be concluded that the European Union plays a significant role in protecting the Baltic Sea marine environment from land-based pollution. At the EU level, a number of directives have been adopted and the Strategy for the Baltic Sea Region has been developed to combat this problem. Additionally, since the European Union is a Contracting Party to the Helsinki Convention 1992, it can control the implementation of the provisions of the Convention by Member States.

However, there are some limits which have to be highlighted. An example of the political disagreements during the adoption of 2000/60/EC shows that many Member States do not want to agree to implement more stringent measures at the European level, in order not to limit their level of discretion. Moreover, despite the fact that all EU directives are binding, they leave the question of taking specific measures to protect the Baltic Sea at the discretion of each State. Thus, it can be the case that serious measures that can have a significant impact on

[132] Judgment of the Court (Second Chamber) of 15 July 2004, Syndicat professionnel coordination des pêcheurs de l'étang de Berre et de la région v Électricité de France (EDF), Case C-213/03, EU:C:2004:464.
[133] H. Ringbom, *The EU Maritime Safety Policy and International Law* (Brill - Nijhoff, 2008), 120-121.
[134] Ministry of Education and Science of Latvia. The European Union Strategy for the Baltic Sea region (2009). Available on: https://www.izm.gov.lv/en/international-cooperation/the-eu-strategy-for-the-baltic-sea-region. Accessed April 20, 2020.

improving the condition of the Baltic Sea marine environment and prevent pollution from land-based sources may not be taken at the national level.

CONCLUSION

The Baltic Sea environmental state has decreased to a level that it has been considered as one of the most polluted seas in the world to which the major factor is pollution from land-based sources. Due to its ecological features, Baltic Sea has a highly sensitive ecosystem, which requires specific and precise actions in order to prevent pollution.

In this regard, the protection of the Baltic Sea is carried out both at the international level by the UN Convention on the Law of the Sea 1982, and at the regional level by the Helsinki Convention 1992. The activity to develop the necessary measures to protect the Baltic Sea marine environment is carried out precisely at the regional level within Helsinki Convention and with the help of HELCOM recommendations. As well as the activities of the European Union are gaining importance in ensuring the protection of the marine ecosystem of the Baltic Sea.

Firstly, the research of Part II is aimed at tackling the issue of whether the legal regulations of the Baltic Sea pollution from land-based sources possess a general nature, if so, it is necessary to understand the limits for adopting a more stringent pollution prevention mechanisms at the international level. As a result, it should be noted that the provisions under LOSC 1982 for the prevention of pollution from land-based sources were found to be of a general nature. Moreover, under the Convention obligation of States to protect the marine environment from land-based pollution in its nature was determined as a relatively flexible and mostly dependent on economic needs and priorities of each State.

Subsequently, the following aspects were determined during the research that possess a limit to the adoption of more stringent measures at the international level. These aspects include the unwillingness of States to voluntarily limit their economic development, since to prevent pollution it is necessary to impose restrictions on the activities of industrial and agricultural sectors, which are usually closely connected to State's social, economic and industrial programs. Further, adoption of more stringent measures is limited due to the complex nature of sources, substances, and actors to be regulated in order to prevent pollution. Additionally, such aspects as environmental and geographical differences in the seas are another challenge. Pollution in the shallow semi-enclosed Baltic Sea is much more harmful than in oceanic areas. Thus, on the international level it is challenging to take into account all ecological features and needs of such sensitive ecosystem of the Baltic Sea. Lastly, the issue of technological and economic gaps between different States reveal that some countries do not have such vast

financial and technical capabilities to deal with marine pollution at the same level as countries with more significant capabilities.

Secondly, Part III was dedicated to the analysis of the regional legal framework. As it was determined, the pollution of the marine environment of the Baltic Sea from sources on land is more regulated at the regional level. In this regard, within Helsinki Convention 1992 were developed legal techniques and approaches aimed at strengthening the regulation of land-based pollution of the marine ecosystem. Thus, it was necessary to determine whether those approaches and techniques can serve for enhancing the regulation of land-based Baltic Sea pollution.

Consequently, it was determined that the uniform approach rather than the black/grey list approach aims to resolve the problem of land-based pollution in a more extensive manner, while the precautionary approach requires Contracting Parties to use it as a preventive measure if there is a reason to believe that damage can be caused. Further, the use of BEP and BAT might indicate regulatory measures which States are required to perform in order to prevent land-based pollution. Additionally, the obligation to conduct monitoring and EIA may to some extent limit the margin of discretion of Contracting States in environmental policy making.

However, the application of the above mentioned is determined by social, political, as well as economic elements of each Contracting State. To apply the precautionary approach, it is necessary to coordinate environmental protection measures with the economic interests of the State, and take into account not only scientific data, but social, political and economic factors as well which creates challenges. Moreover, in the use of the BEP and BAT one of the main factors is "economic feasibility" of the technology. However even despite this balancing factor between State economic interests and the application of BEP and BAT, as mentioned by L. Fayette, State might choose its short-term economic interests over expensive, but long-term effective measures to prevent pollution of the marine ecosystem.

Additionally, at the regional level an important role plays HELCOM Baltic Sea Action Plan, which was perceived as an ambitious tool to restore good ecological status of the Baltic Sea. However, the initial plan was significantly weakened due to political disagreement of the Parties. Thus, the plan does not include enough binding commitments and strong actions, which was indeed proved in practice – according to data of 2018 no State had reached the goal of reducing phosphorus, and only one country (Finland) achieved the goal of reducing nitrogen. In this regard, not sufficiently strict actions agreed in the plan gave a certain political advantage to Contracting Parties as not limiting their margin of discretion. However, it is arguable whether such actions can effectively contribute to Baltic Sea pollution prevention on practice.

Lastly, Part IV analyzes the role of the EU in settlement of Baltic Sea pollution problem. The aim of the chapter was to define the significance of the EU role in preventing the Baltic Sea land-based pollution. As determined, being a party to the Helsinki Convention 1992, the European Union is a significant player in organizing the protection of the Baltic Sea from land-based pollution and controlling the implementation of Convention's provisions at the Member States national level.

Furthermore, at the EU level, a number of directives have been adopted aimed at reducing emissions of harmful substances from sources on land, primarily those resulting from industrial and agricultural activities. However, despite the fact that all directives of the European Union are legally binding on Member States, they leave the issue of taking specific measures at the discretion of each State. Accordingly, it makes it possible that these measures may not be taken at the national level.

Moreover, the example of political disagreements on the content of the Water Framework Directive clearly shows that an issue of reluctance of States to agree on a more stringent pollution prevention measures is also existent at the EU level.

Thus, the course of the research clearly showed that despite existing legal mechanisms, Baltic Sea environmental state remains in an inadequate condition. Mechanisms and provision adopted at the international, regional and EU levels were identified as not specific enough. However, adoption of a more stringent legal mechanisms which are strongly needed to protect the Baltic Sea marine environment is limited by a number of issues. Those issues include, but are not limited to ecological and environmental differences of seas, technological and economic differences of States, but mainly political disagreements which are justified by reluctance of States to limit their margin of discretion.

Concludingly, the initial hypothesis of the research can be confirmed, as to prevent Baltic Sea pollution and restore its good ecological status more stringent mechanisms are required to be developed mainly at the regional and EU levels, as on the international level, despite the general nature of pollution prevention norms, it is challenging due to the specificity of the Baltic Sea marine ecosystem as well as economic and technological differences between countries.

BIBLIOGRAPHY

Primary Sources

1. Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention). Available on: https://helcom.fi/media/publishingimages/Helsinki-Convention_July-2014.pdf. Accessed: March 22. 2020.

2. Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention). Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:21994A0316(01). Accessed March 22, 2020.

3. Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, *OJ L* 375, 31.12.1991, p. 1-8. Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:1991:375:FULL&from=EN. Accessed April 2, 2020

4. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, *OJ L* 327, 22.12.200, p. 1-72. Available on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32000L0060. Accessed April 25, 2020.

5. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) Text with EEA relevance, *OJ L* 164, 25.6.2008, p. 19-40. Available on: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF. Accessed April 20, 2020.

6. HELCOM Baltic Sea Action Plan adopted on 15 November 2007 in Krakow, Poland by the HELCOM Extraordinary Ministerial Meeting. Available on: https://www.helcom.fi/wp-content/uploads/2019/08/BSAP_Final.pdf. Accessed April 10, 2020. ?

7. HELCOM Ministerial Declaration (HELCOM Bremen Declaration) adopted on 25 June 2003 in Bremen by the HELCOM Ministerial MEETING. Available on:

http://archive.iwlearn.net/helcom.fi/ministerial_declarations/en_GB/helcomdeclaration/index.html. Accessed April 10, 2020. ?

8. Judgment of the Court (Second Chamber) of 15 July 2004, Syndicat professionnel coordination des pêcheurs de l'étang de Berre et de la région v Électricité de France (EDF), Case C-213/03, EU:C:2004:464.

9. Treaty on the Functioning of the European Union (Consolidated version 2012), *OJ C* 326*,* 26.10.2012. Available on: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:326:FULL:EN:PDF. Accessed April 2, 2020.

10. United Nations Convention on the Law of the Sea, 10 Dec. 1982, 1833 U.N.T.S. 397, 21 I.L.M 1261 (1982), *entered into force* 1. Nov 1994.

Secondary Sources

1. Atapattu, S. A. *Emerging principles of international environmental law.* Brill, 2007.

2. Attard, D. J. *The IMLI Manual on International Maritime Law: Marine environmental law and Maritime Security Law*. Oxford University Press, 2016.

3. Attard, D. J., Ong, D. M., and D. Kritsiotis. *The IMLI Treatise On Global Ocean Governance: Volume I: UN and Global Ocean Governance*. Oxford University Press, 2018.

4. Bernaerts, A. *Bernaerts' Guide to the 1982 United Nations Convention on the Law of the Sea: Including the text of the 1982 UN Convention & Agreement Concerning Part XI of 1994.* Trafford Publishing, 2006.

5. Birnie, P. and Boyle, A. *Basic Documents on International Law and Environment.* Oxford University Press, 1995).

6. Birnie, P., Boyle, A., and C. Redgwell. *International Law and the Environment.* Oxford University Press, 2009.

7. Boyle, A. "Further Development Of The Law Of The Sea Convention: Mechanisms For Change." *International and Comparative Law Quarterly* 54, no. 3 (2005): 563-584.

Available on: https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/further-development-of-the-law-of-the-sea-convention-mechanisms-for-change/6339DCDF09611F7695DE4EE6885C66B6. Accessed March 25, 2020.

8. Boyle, A. "Further Development Of The Law Of The Sea Convention: Mechanisms For Change." *International and Comparative Law Quarterly* 54, no. 3 (2005): 563-584. Available on: https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/further-development-of-the-law-of-the-sea-convention-mechanisms-for-change/6339DCDF09611F7695DE4EE6885C66B6. Accessed March 25, 2020.

9. Boyle, A. "Land-based Sources of Marine Pollution: Current Legal Regime." *Marine Policy* 16, no. 1 (1992): 20-35.

10. Boyle, A. "Land-based Sources of Marine Pollution: Current Legal Regime." *Marine Policy* 16, no. 1 (1992): 20-35.

11. Chiras, D. D. *Environmental Science: Creating a Sustainable Future.* Jones & Bartlett Publishers, 2001.

12. Dahl, A. L. "Land-Based Pollution and Integrated Coastal Management." *Marine Policy* 17, no. 6 (1993): 561-572.

13. Dmochowska, B., and Szaniawska, A. "Poland—Looking for a higher environmental awareness", In *Governing the blue-green Baltic Sea*, edited by M. Pihlajamäki and N. Tynkkynen, 66-77. Finnish Institute of International Affairs, 2011.

14. Dzidzornu, D. M. "Four Principles in Marine Environment Protection: A Comparative Analysis." *Ocean Development & International Law* 29, no. 2 (1998): 91-123.

15. Ebbesson, J. "A Critical Assessment of the 1992 Baltic Sea Convention." *German Yearbook of International Law* 43, no. 1 (2000): 38-64.

16. Ehlers, P. *Marine Issues: From a Scientific, Political and Legal Perspective*. Springer, 2002.

17. European Court of Auditors. Combating Eutrophication in the Baltic Sea: further and more effective action needed (2016). Available on: https://www.eca.europa.eu/Lists/ECADocuments/SR16_03/SR_BALTIC_EN.pdf . Accessed March 20, 2020.

18. Fayette, L. “The OSPAR Convention Comes into Force: Continuity and Progress.” *International Journal of Marine and Coastal Law* 14, no. 2 (1999): 247-297.

19. Fayette, L. de La. “The OSPAR Convention comes into force: continuity and progress.” *International Journal of Marine and Coastal Law* 14, no. 2 (1999): 247–297.

20. GESAMP. Report of the 1st Session of GESAMP (1969). Available on: www.gesamp.org/data/gesamp/files/media/Publications/Report_1_session/gallery_1 182/object_1 18 1_large.pdf. Accessed March 16, 2020.

21. GESAMP. Report of the 20th Session of GESAMP (1990).

22. Gustafsson, B. “Interaction between Baltic Sea and the North Sea.” *Deutsche Hydrografische Zeitschrift* 49, no. 1 (1997): 165–183. Available on: https://link.springer.com/article/10.1007%2FBF02764031. Accessed March 17, 2020.

23. Hassan, D. *Protecting the Marine Environment from Land-based Sources of Pollution: Towards Effective International Cooperation.* Routledge, 2006.

24. HELCOM. Baltic Sea Environment Proceedings No. 115B (2009). Available on: https://helcom.fi/media/publications/BSEP115B-1.pdf. Accessed March 18, 2020.

25. HELCOM. Baltic Sea Environment Proceedings No. 122 (2003-2007). Available on: https://www.helcom.fi/wp-content/uploads/2019/08/BSEP122-1.pdf. Accessed March 15, 2020.

26. HELCOM. Baltic Sea Environment Proceedings No. 127 (2011). Available on: http://helcom.fi/Lists/Publications/BSEP127.pdf. Accessed March 18, 2020.

27. HELCOM. Implementation of the Baltic Sea Action Plan 2018: Three years left to good environmental status. Available on: https://helcom.fi/wp-content/uploads/2019/06/Implementation-of-the-BSAP-2018.pdf. Accessed April 12, 2020.

28. HELCOM. Monitoring and Assessment. Available on: https://helcom.fi/action-areas/monitoring-and-assessment/. Accessed April 25, 2020.

29. HELCOM. Recommendations. Available on: https://helcom.fi/helcom-at-work/recommendations/. Accessed April 5, 2020.

30. HELCOM. Thematic Assessment of hazardous substances (2011-2016). Available on: http://stateofthebalticsea.helcom.fi/in-brief/our-baltic-sea/. Accessed March 12, 2020.

31. Hey, E. "The precautionary concept in environmental policy and law: institutionalizing caution." *Georgetown International environmental Law Review* 4, no. 2 (1992): 303–318.

32. Hey, E., IJlstra, T., and A. Nollkaemper. "The 1992 Paris Convention for the Protection of the Marine Environment of the North East Atlantic: A Critical Analysis." *The International Journal of Marine and Coastal Law* 8, no. 1 (1993): 1-76.

33. ICJ Reports. Dissenting Opinion of Judge Weeramantry. Available on: https://www.icj-cij.org/files/case-related/97/097-19950922-ORD-01-05-EN.pdf. Accessed April 3, 2020.

34. ICJ Reports. Separate Opinion of Vice-President Weeramantry. Available on: https://www.icj-cij.org/files/case-related/92/092-19970925-JUD-01-03-EN.pdf. Accessed April 4, 2020.

35. Kaika, M., and Page, B. "The EU water framework directive: Part 1. European policy-making and the changing topography of lobbying." *European Environment* 13, no. 6 (2003): 314–327. Available on: https://www.researchgate.net/publication/227521330_The_EU_Water_Framework_Directive_Part_1_European_Policy-making_and_the_changing_topography_of_lobbying. Accessed April 15, 2020.

36. Lanz, K., and Scheuer, S. *EEB handbook on EU water policy under the Water Framework Directive.* European Environmental Bureau, 2001. Available on: https://www.rivernet.org/general/docs/handbook.pdf. Accessed April 20, 2020.

37. Lucchini, L. "Le principe de précaution en droit international de l'environnement: ombres plus que lumières." *Annuaire Français de Droit International* 45, no. 1 (1999): 710-731.

38. Marr, S. *The Precautionary Principle in the Law of the Sea.* Martinus Nijhoff Publishers, 2003.

39. McConnell, M. L. and Gold, E. "The Modern Law of the Sea: Framework for the Protection and Preservation of the Marine Environment." *Case Western Reserve Journal of International Law* 23, no. 1 (1991): 83-105. Available on: https://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=1637&context=jil. Accessed March 22, 2020.

40. Mensah, T. A. “The International Legal Regime for the Protection and Preservation of the Marine Environment from Land-based Sources of Pollution.” In *International Law and Sustainable Development: Past Achievements and Future Challenges,* edited by A. Boyle and D. Freestone, 297-325. Oxford University Press, 1999.

41. Ministry of Education and Science of Latvia. The European Union Strategy for the Baltic Sea region (2009). Available on: https://www.izm.gov.lv/en/international-cooperation/the-eu-strategy-for-the-baltic-sea-region. Accessed April 20, 2020.

42. Moss, T. “Spatial fit, from panacea to practice: implementing the EU Water Framework Directive.” *Ecology and Society* 17, no. 2 (2012). Available on: https://www.ecologyandsociety.org/vol17/iss3/art2/. Accessed April 16, 2020.

43. Nollkaemper, A. “Balancing the Protection of Marine Ecosystems with Economic Benefits from Land-Based Activities: The Quest for International Legal Barriers.” *Ocean Development and International Law* 27, no. 2 (1996): 153-179.

44. Ojaveer, E. *Ecosystems and Living Resources of the Baltic Sea: Their assessment and management.* Springer, 2017.

45. Powers, A. and VanderZwaag, D. L. “The protection of the Marine Environment from Land-Based Pollution and Activities: Gauging the tides of Global and Regional Governance.” *International Journal of Marine and Coastal Law* 23, no. 3 (2008): 423-452.

46. Qing-Nan, M. *Land-Based Marine Pollution: International Law Development*. Martinus Nijhoff Publishers, 1987.

47. Quevauviller, P., Balabanis, P., Fragakis, C., Weydert, M., Oliver, M., Kaschl, A., Arnold, G., Kroll, A., Galbiati, L., Zaldivar, J., and G. Bidoglio. “Science-policy integration needs in support of the implementation of the EU Water Framework Directive.” *Environmental Science & Policy* 8, no. 3 (2005): 203–211. Available on: https://www.sciencedirect.com/science/article/abs/pii/S1462901105000353?via%3Dihub. Accessed April 15, 2020.

48. Ringbom, H. *The EU Maritime Safety Policy and International Law*. Brill - Nijhoff, 2008.

49. Ryngaert, C. The Concept of Jurisdiction in International Law (2014). Available on: https://unijuris.sites.uu.nl/wp-content/uploads/sites/9/2014/12/The-Concept-of-Jurisdiction-in-International-Law.pdf. Accessed April 10, 2020.

50. Snoeijs-Leijonmalm, P., Schubert, H., and T. Radziejewsk. *Biological Oceanography of the Baltic Sea.* Springer Nature, 2017.

51. Stockholm International Water Institute. Water pollution data in the Baltic Sea basin – a local to regional approach (2018). Available on: https://www.siwi.org/publications/water-pollution-data-baltic-sea-basin-local-regional-approach/. Accessed March 27, 2020.

52. Sunardi, R. M. "Prospects for Sub-Regional, Regional, and International Cooperation in Implementing Article 43 of UNCLOS." *Singapore Journal of International & Comparative Law* 2, no. 2 (1998): 442-451.

53. The Wingspread Conference Center. Wingspread Statement on the Precautionary Principle (1998). Available on: http://www.gdrc.org/u-gov/precaution-3.html. Accessed April 3, 2020.

54. Tsukikawa, K. *Protection of the Marine Environment and the Prevention of Pollution.* Tokyo, 1997.

55. Tynkkynen, N., Schönach, P., Pihlajamäki, M., and D. Nechiporuk. "The Governance of the Mitigation of the Baltic Sea Eutrophication: Exploring the Challenges of the Formal Governing System." *AMBIO A Journal of the Human Environment* 43, no. 1 (2014): 105-114.

56. UNESCO. Intergovernmental Oceanographic Commission: New global data on High Seas and Large Marine Ecosystems to support policy makers. Available on: http://www.unesco.org/new/en/media-services/single-view/news/new_global_data_on_high_seas_and_large_marine_ecosystems_to-1/. Accessed April 10, 2020.

57. VanDeveer, S. "Networked Baltic environmental cooperation." *Journal of Baltic Studies* 42, no. 1 (2011): 37–55.

58. Viktorsson, L. "Hydrography and Oxygen in the Deep Basins." Baltic Sea Environment Fact Sheet 2017 *(*2018). Available on: https://helcom.fi/baltic-sea-trends/environment-fact-sheets/hydrography/hydrography-and-oxygen-in-the-deep-basins/. Accessed March 17, 2020.

59. WCED. Report of the World Commission on Environment and Development: Our Common Future (1987). Available on:

https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf. Accessed April 10, 2020.

60. Wulff, F., Savchuk, O., Sokolov, A., Humborg, C., and C. M. Mörth. "Management options and effects on a marine ecosystem: Assessing the future of the Baltic." *AMBIO A Journal of the Human Environment* 36, no. 2 (2007): 243–249. Available on: https://www.researchgate.net/publication/6311754_Management_Options_and_Effects_on_a_Marine_Ecosystem_Assessing_the_Future_of_the_Baltic. Accessed April 12, 2020.

61. WWF. Baltic Sea action plan short on actions. Available on: https://wwf.panda.org/?117500/Baltic-Sea-action-plan-short-on-actions. Accessed April 10, 2020.