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The role of policy instruments in planning and implementing efficient protection for the Baltic Sea

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BLUES

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The role of policy instruments in planning and implementing efficient protection for the Baltic Sea

Task 1.4.5 Incentives and implementation measures
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Summary

The purpose of this report is to go through the crucial role policy instruments play in designing and implementing efficient policies for Baltic Sea protection. Together with the results of the accompanying survey it will provide guidance for the Contracting Parties on how to proceed in developing more effective and less costly policies to protect the Baltic Sea.

Introduction

Baltic Sea protection is shaped by international laws, agreements and institutions, but also by heterogenous national laws and institutions of the littoral countries (Tynkkynen et al. 2014). The contracting parties of Helsinki Convention are committed to meet the common environmental objectives. The Baltic Sea Action Plan (BSAP) approved by the littoral states in 2007, and updated in 2021, is a strategic program of measures and actions to ensure the good ecological status of the sea will be reached. It sets specific goals on four fronts: biodiversity, eutrophication, hazardous substances and litter, and sea-based activities.

There are specific ecological and management objectives for the four entities. There are also specific measures and actions that must be implemented by 2030. The Nutrient Reduction Scheme helps achieve the goals related to eutrophication by setting sub-basin specific upper limits (Maximum allowable input; MAI) for nitrogen and phosphorus loading. These are further allocated into country specific loading limits (Net nutrient input ceilings; NIC).

The required actions are listed in HELCOM (2021). For instance, the measure coded E6 under the entity of eutrophication under the theme agriculture calls for establishing site specific buffer zones to reduce nutrient losses from agriculture. The rationale and the potential effects are listed in the document. The sufficiency of measures (SOM) analysis () is meant to evaluate whether the measures implemented by the contracting parties will

be sufficient to fulfill the ecological goals. The future versions of the SOM are also meant to address the cost-effectiveness of the measures. Many of the measures overlap with national policies prompted by national strategies and/or by EU policies such as the Water Framework Directive (WFD). There, too, cost-effectiveness analysis (and other economic assessments) is required (Martin-Ortega 2012).

Cost-effectiveness analysis is typically restricted to analyzing the costs of implementing the measures and the effects their implementation causes in the environmental pressure (see e.g. WATECO 2003). The actual tools to implement the analyzed measures, is considered after conducting the cost-effectiveness analysis. In the case of Baltic Sea protection, the instrument analysis should be integrated early on to national plans to comply with the BSAP for two reasons. First, promoting new measures or intensifying the ones currently in place is difficult to achieve, and more importantly, the national policies and institutions are so different that the difficulty of actually getting the measures implemented might vary dramatically. Therefore, policy and policy instrument analysis conducted at the contracting parties should be strongly encouraged by the HELCOM.

Environmental policy instruments are typically classified into information guidance (public engagement), regulatory measures (command and control) and economic incentives such as taxes, fees, subsidies or flexible quotas. This document provides an overview of cost-effective policies, on the role of instruments in implementing them and an example of instrument analysis to support policy making. Finally, it presents a survey completed by the members of the HELCOM EG ESA. The survey allowed the experts to reflect the role of instruments in efficient protection of the Baltic Sea, as presented in this document. The report recommends Contracting Parties to start focusing more on the concrete policy instruments suitable for each measure they plan to utilize in completing their national plans for the Baltic Sea protection.

As part of the analysis on incentives conducted in the BLUES project, two chapters will be published in the Elgar Water Encyclopedia. Their contents have been utilized in this report. The first chapter (Iho and Ahtiainen 2023) covers the management of the Baltic Sea eutrophication. It focuses particularly on the efficiency of protection and its implications on the allocation of measures between the countries and sectors. This topic is covered in the following section of this report. The second chapter (Ahtiainen and Iho 2023) focuses on institutional structures of Baltic Sea protections and how they are able to prompt and utilize interdisciplinary policy support to ensure more efficient achievement of environmental goals. The chapter focuses particularly on the topic of the latter part of the following chapter: how the implementability of measures, and therefore the likelihood of achieving the planned effects should be taken into account in policy design. It also discusses how the institutional structures could better support such interdisciplinary support work.

This report is organized as follows. First, we go through the concept of cost-effectiveness, then the concept of cost-effectiveness and the instruments. We then shortly discuss the institutional structures relevant for policy implementation. Then, we go through examples of instruments that are currently being utilized by the contracting parties. Finally, we

discuss how the members of EG ESA expressed their views the role of the instruments. The survey itself is in the Appendix.

Cost-effective policies and their implementation

Planning of measures to curtail the environmental impact of an activity are at the core of any environmental protection action. The measures may be end-of-pipe abatement solutions, or they might be changes in the production technologies within the activity. Either way, we should be able to quantify the effect of the measure on the environment. Also, we should also be able to assess the costs of implementing the measure, as illustrated in figure 1.

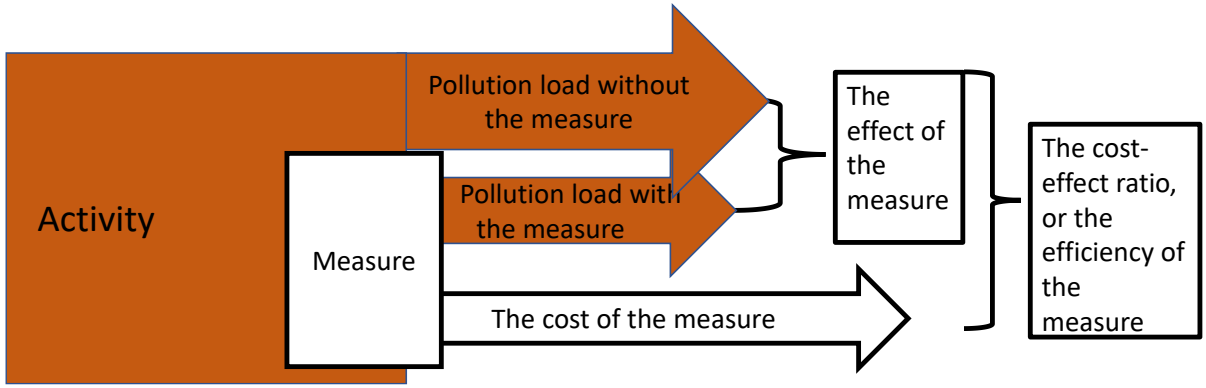

Figure 1. Cost and effect of a measure on the pollution load from a generic activity

Figure 1 depicts a single polluting activity with a single measure to curtail the pollution. The effect of the measures is defined as the difference between the pollution load with and without the measure implemented. Isolating the effect of a single measure is the harder the more complex the activity. In agriculture, for instance, any production technology, input use, or abatement technology choice affects many environmental pressures simultaneously.

The cost of the measure can be defined as the difference in net profit generated by the activity before and after implementing the measure. The cost may be difficult to quantify. If the measure is associated with changes in the activity itself, say, a change in agricultural cultivation method, it also changes the crop choices, input choices, pesticide use etc. Defining the net profits associated with the old cultivation choice and the new one to define the cost of the measure, is a daunting task. However, if the measure is an investment into an end-of pipe technology with no effects on other choices within the activity, the cost is easier to define. There, too, one must decide upon things such as the discount rate and the life cycle of the investment which are to some extent subjective choices. In theory, any measure has an unambiguous cost-effect ratio. This might be a function linking any level of the achieved abatement to costs or it might be a single value. The empirical assessment of the efficiency of the measure is rarely simple but it should nevertheless be done in order to be able to design efficient policies. This is discussed with the help of Figure 2.

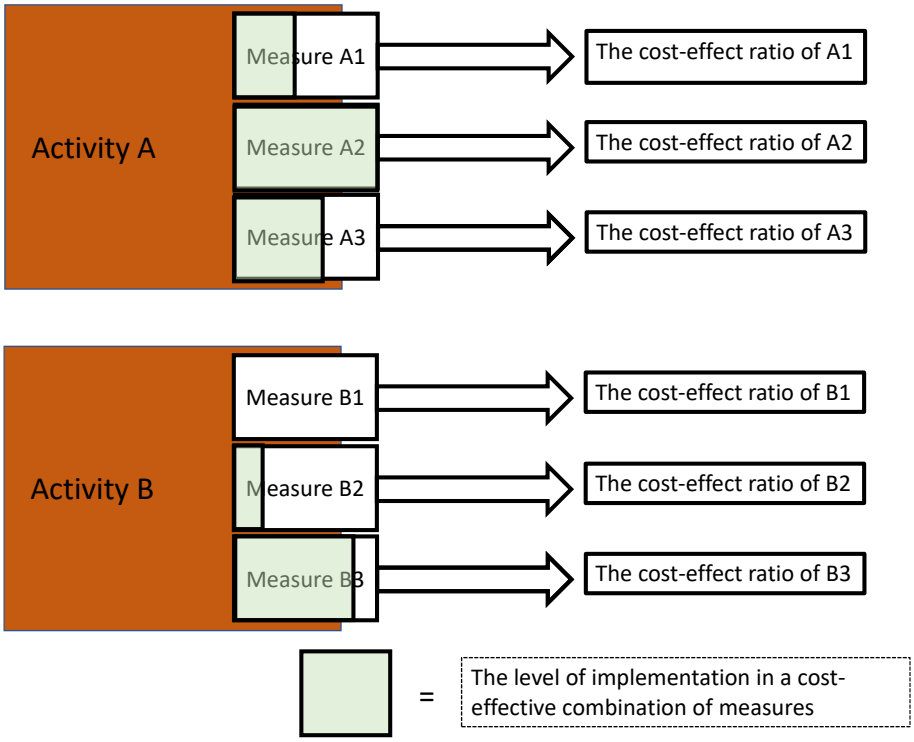

Figure 2. Cost effective combination of measures

In reality, the pressure to the environment originates from multiple activities and there are multiple ways to curtail it. Above we have two polluting activities affecting the same ambient pollution level. Pollution from both activities can be curtailed with three alternative measures (which might be same or different for the two activities). For each measure we can identify the cost-effect ratios either as functions covering a range of implementation levels or as single value numbers. Cost-effectiveness is a property of a set of protection measures. A cost-effective set of measures provides the highest possible total abatement level with the lowest possible costs. In figure 2, the light green areas inside the measure boxes indicate the level of implementation of each of the measure in a cost-effective solution. If the entire box is green, it is implemented fully, if only a small proportion is green, a similar share of it should be implemented. Measures typically have increasing marginal costs which makes the relative combinations differ for different total abatement levels (Iho 2005).

Assessing the impacts and costs of alternative abatement measures thus helps us defining the set of measures that would deliver us the highest environmental quality with the given resources, or alternatively, the lowest spending of resources for the given target level in the environment. There is a catch, however. The set of measures need to be somehow implemented.

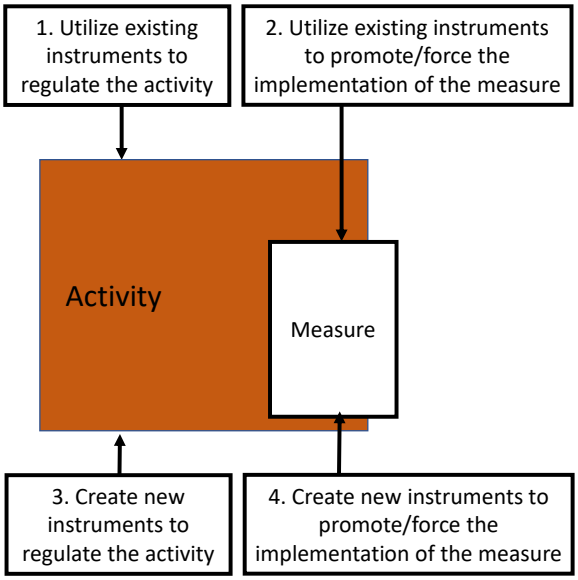

Figure 3. Instruments for implementing the measure

There is only a given number of instruments available for the regulator, in the broad categories of information guidance, economic incentives, and command and control measures. Utilizing an instrument means either imposing it or changing their intensity. The instruments can be used to influence either the activity (Box 1 in Figure 3) or the measure (Box 2 in Figure 3). An example of a regulation affecting the activity is an environmental permit which sets a pollution limit without dictating the means to achieve it. If there is just a single measure available for the activity to meet the limit, it will implement it. However, in a world with flexible production technology and input choices, the regulated activity will find the best ways to comply with the limit.

The other set of measures are those that do not yet exist (Boxes 3 and 4 in Figure 3). In 2018, for instance, the dairy sector in the Netherlands was faced with a new regulation in the form of tradable phosphate quotas (https://www.fosfaatstroom.nl/fosfaatrechten). Altering the existing measures had not succeeded in curtailing the increase of manure phosphorus that resulted from the abolishment of milk quotas. A nation-wide quota was created under which the farms are allowed to generate only as much manure phosphorus as indicated by the permits they possess. If possessing too few permits, they either have to buy more or get rid of some of the cows. The program has clearly decreased the number of affected animals and the excreted manure (https://www.cbs.nl/nl-nl/nieuws/2021/39/lichte-daling-varkensstapel-nauwelijks-minder-runderen). In the Baltic Sea, the possibility of implementing nutrient trading has been occasionally analyzed, most recently by Hautakangas and Ollikainen (2019) and WSP Consulting (2021).
It is important to note that the lack of instruments, or the lack of flexibility in altering the existing ones, may prevent implementing the desired measures. Looking at Figure 2, the cost-effective combination might change if we included the instrument analysis in policy planning. For instance, we might learn that implementing the very efficient measure B3 is not possible with the currently available instruments. It would require changes in legislation/designing altogether new instruments etc. Therefore, the cost-effective set of measure *conditional on their implementability* would change, see Figure 4.

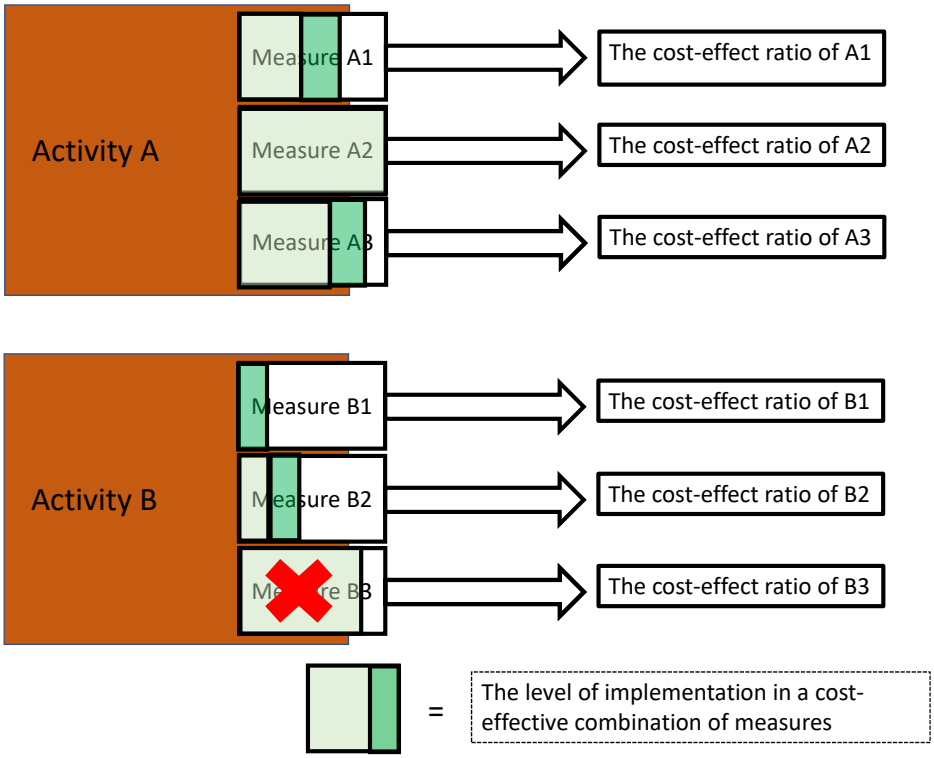

Figure 4. Implementable set of cost-effective measures

Above, the infeasibility of implementing the measure B3 means that we have to increase the intensity of all other measures. We even have to implement the very expensive measure B1 which did not initially belong to the cost-effective set of measures.

Analyzing the concrete ways of implementing the desired actions will increase the realism of the protection plans. It will also give motivation for policy innovation, that is, designing and developing new instruments.

Policy coherence – Regulatory interdependencies

Budget limitations are not the only constraints on policy design. An important aspect in determining whether there are instruments and incentives available for the regulator to alter or create, is the level of interdependence between other environmental and economic policies. Synergies and conflicts, in other words coherence, between national and international policies affects policy design. EU regulation sets constraints on any policies that may disrupt competition between member states. On a broader level, EU policies must be coherent enough with global policies.

Coherence dictates the consistency of the incentives industries face. Consistency, on the other hand determines how well the intended polices are prompted by the implemented policies. The most obvious areas that should be analyzed when altering existing, or designing new marine protection policies is their interaction with existing freshwater policies, but also climate and biodiversity policies.

However, policy coherence should not be seen as coherence between environmental policies focusing on different environmental topics. An equally important aspect is the scope of other policies influencing the economic performance of the regulated industry.

This is particularly true in nutrient management at the Baltic Sea scale. To see this, consider the independence of the economic performance of various industries from the governmental grip. The most important sources of nutrient pollution are agriculture, municipal waste waters, industrial point sources, in the Bothnian Bay forestry and in the Finnish archipelago aquaculture (HELCOM 2018).

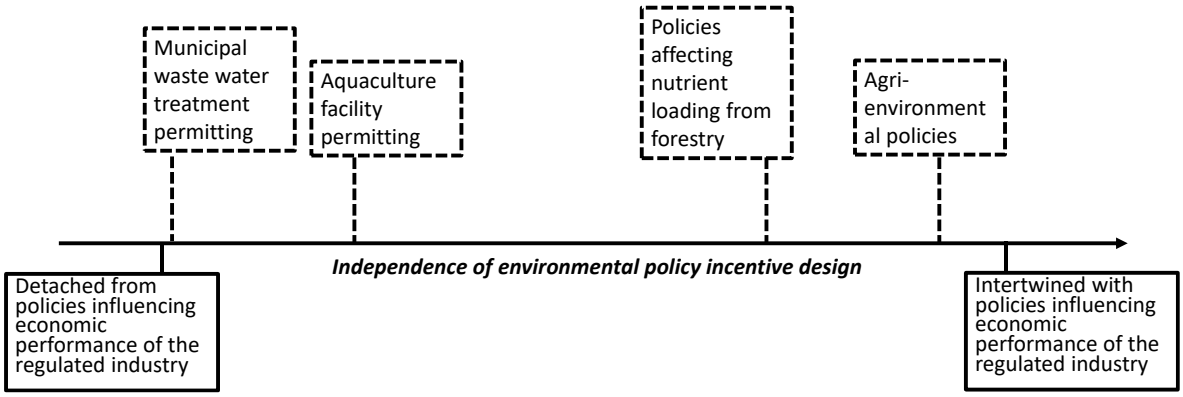

Figure 5. Interdependencies in policy design

Let us discuss Figure 5 in the context of nutrient abatement in Finland. The four sectors, municipal waste water treatment, aquaculture, forestry and agriculture differ in how strongly and how the governmental regulation encompasses the industries.

The two first ones are point sources. The economic twists in altering permitting requirements for point sources are fiscal. The facilities are owned by a municipality or a collection of municipalities. Tightening effluent limits means that the facility has to undertake costly investments. The facilities are able to transfer the increased costs to inhabitants. Alternatively, the costs could be covered by increasing the local tax rates. Therefore, the decision to change the permitting conditions includes environmental, fiscal and political considerations. Generally, the wealthier the country, the tighter the permitting limits for municipal waste water treatment plants are (see, e.g. Gren 2001 and Ollikainen and Honkatukia 2001).

As a source of point pollution, regulating aquaculture facilities is straightforward. Aquaculture is economically rather independent from governmental support (Saarni et al 2003). There are some research and development, as well as investment subsidies. However, the operational decision making is done on market economic basis. The environmental regulation boils down to influencing the location and effluent limits. Therefore, tightening the pollution limits is, as such, not confused by overlapping regulatory considerations. The economic part of the framework is linked to national strategies promoting the consumption of domestically produced fish.

Forestry was the foundation of early Finnish industrialization. Many governmentally supported programs and policies have been implemented to boost forest growth, such as draining peatlands, fertilization, using pesticides (Kröger and Raitio 2017). The role of forestry as a nutrient pollution source has been considered minor. Only recently research has shown that forestry, and particularly drained peatlands (Nieminen et al 2017). As the regulators need to start planning ways to mitigate nutrient loading from the forests, they will be faced with incentives promoting the opposite: there are still incentives for maintaining the forest ditches to promote growth; and blocking the ditches to elevate the groundwater level would be an effective way to mitigate nutrient loading.

The frictions between existing economic incentives and needs to implement others to mitigate nutrient loading are strongest in agriculture. Agriculture is supported for various policy purposes such as for food security and regional economic development. These influence farmers' operational choices from land use decisions to crop choices and input use levels (Shortle et al. 2022). Furthermore, these choices are the key drivers of nutrient loading. Trying to curtail the loading with a set of additional instruments is complicated.

Characteristics discussed above should be taken into account when analyzing the implementable cost-effective allocation of protection measures. That is, they might be the constraints that make certain desirable measures unrealistic to implement, and should prompt reevaluating the allocation of other measures, as depicted in Figure 4.

Another source of implementation frictions is the high diversity of institution structures around the Baltic Sea states. The set of measures in the BSAP is Baltic Sea specific, but the institutional machinery through which they should be implemented is country specific. Andersen et al (2022) provide a thorough survey of the characteristics of national institutions influencing agricultural nutrient governance.

Instruments in planning and implementing Baltic Sea policies

Baltic Sea protection has international layers formed by the EU and HELCOM. The EU layer comprises primarily of EU Directives, Marine Strategy Framework Directive in particular. The most visible element of HELCOM is the Baltic Sea Action Plan (BSAP). Both aim for reaching a good ecological status of the Baltic Sea. Both prompt detailed plans from the member states and or littoral countries on how to reach it. The same holds for the closely related Water Framework Directive which deals with inland waters. However, the concrete implementation of the measures and actions in these plans is left open. The plans will provide their environmental outcomes only once their measures are implemented. If the implementation fails because of lack of planning in the utilized instruments, the environmental outcomes will fall short of their potential.

The BSAP calls for the contracting parties to take predetermined actions (either pressure-reducing measures or supporting actions) to meet the targets on the segments of Biodiversity, Eutrophication, Hazardous substances and litter, and Sea-based activities. Some of the measures are fairly detailed. For instance, the measure E6 of the Eutrophication segment requires to: "Establish site specific buffer zones to reduce nutrient losses from agricultural land, for example on parts of fields where surface runoff

and erosion occurs, along ditches or at surface water inlets". While it is stated that the implementation of the plan is done nationally, there are no requirements for the contracting parties to detail, what *are the means* to make this measure actually take place.

The means of policy implementation are the policy instruments. No action or measure is undertaken without an instrument. Because of this, it is equally important for the contracting parties to link the planned actions to suitable instruments. For the efficiency of realized environmental protection, this is equally important as assessing the technical/theoretical effectiveness of the planned measure. After all, if the measure is not taken, the effect will be nil. Detailed planning of the implementation fosters realism in the eventual planning. It also helps detect measures for which the existing instruments need to be modified or new ones drafted.

Existing instruments and incentives

The network of existing incentives around the Baltic Sea can be viewed vertically within the governance system of an individual country, or horizontally as a collection of incentive systems of the Contracting Parties. Within an individual country, the network starts from country level environmental strategies and ends with concrete incentives.

Of the Contracting Parties, Finland, Sweden, Estonia and Lithuania explicitly refer to the Baltic Sea as a priority area in the national strategies. EU directives which have implications on Baltic Sea protection are mentioned by Denmark and Latvia (WSP 2021). Russia's federal target program "Water of Russia" refers to protection of Lake Ladoga and Lake Onega. There are no direct references to Baltic Sea protection. However, improvements in water quality of these two large lakes would influence the Baltic Sea as well. Some regional strategies in Russia refer to targets to reduce nutrient loading to the Baltic Sea.

At the second level are the schemes and strategies influencing efforts to protect the Baltic Sea. These are particularly clear with eutrophication management, agriculture and forestry. Almost all Baltic Sea countries have national strategies to promote agricultural production (see e.g. the approved CAP national plans: https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans-country_en). Even though plans have elements of greening in them, there is an inherent trade-off with, say intensive animal agriculture and water protection. None of the national plans explicitly states it seeks to diminish the number of production animals to relief pressure from the Baltic Sea. Also, there are national plans to promote aquaculture under the framework of Blue Growth. The Finnish national strategy for aquaculture seeks to double the production of farmed fish by 2023 (Valtioneuvosto 2022) with unevitable spillover effects on nutrient pollution.

These examples exemplify the importance of strategic coherence. The network of incentives begins on a strategic level. And there will always be national strategies with unintended negative effects on different sectors. It would be necessary to explicitly determine the priorities. If this is not done, areas with no direct commercial interest or

with strong public good character (such as Baltic Sea protection) may be given a minor role in national plans, if conflicting with economically or politically strong industries.

Regarding concrete incentives, the following summary can be made for the segment of eutrophication: All EU countries utilize subsidy schemes under the framework of Common agricultural policy. While they have the effect of shifting the agricultural practices to more sustainable direction, they also provide income support, thereby helping maintain the scope for agricultural production. Many countries have fees for wastewater discharges (DEN, EST, DE, POL) and some have specific environmental taxes. With regards to the Baltic Sea, the Danish fertilizer tax is important (OECD 2020). The polluter pays principle is satisfied with industries regulated by effluent fees or effluent limits set in environmental permits. From agriculture most activities are regulated with the pay-the-polluter principle. A notable exception is the Danish fertilizer tax. Also, the requirement of having an environmental permit for animal facilities above certain, nationally determined sizes shifts the regulation more towards the direction of polluter pays; as do the national ceilings for fertilization concerning all farms, regardless of being paid from CAP agri-environmental schemes or not.

For a detailed country specific list, we refer to the report by WSP (2021). It provides a list of instruments and incentives utilized for nutrient management by all Contracting Parties. The table below (abbreviated from WSP Consulting (2021) lists instruments used for nutrient abatement from agriculture and wastewater management in Denmark. The report provides a similar list for all contracting parties. The instruments are *not linked* to any particular plans and the lists provided in the report can thus not be directly utilized by contracting parties. However, they provide an example of the concrete buttons and switches the authorities can push and turn when trying to have the activities undertake the planned measures. For instance: the fertilizer quota can be tightened, the phosphorus ceiling lowered, permit conditions changed etc. Listing the available instruments shows what the regulator has at his/her disposal. These instruments can be adjusted for the immediate use and new ones created for the long run.

Table 1. Instruments to control nutrient loading from agriculture and waster water treatment; Example from Denmark.

Agriculture	
Information	- Free advisory services to farmers, - Catchment Officers assisting farmers with wetland implementation.
Regulation	- Implementation of the Nitrates Directive (limits on manure and organic fertilizers). - A fertilizer quota applied to farmers of a certain size; quota restricted if farm dos not have a required minimum area of catch crops - Farm specific ceilings (as kg/ha) for phosphorus application - Large animal facilities have to have an environmental permit with detailed conditions for environmentally sound farming
Economic	- phosphorus tax on animal feed (0.5372 euros per kg phosphorus) - fertilizer tax - subsidies for establishing wetlands, establishing mini-wetlands, afforestation and taking low-lying agricultural lands out of production.
Wastewater	

Regulation	- Sewage treatment equipment standards for household outside central waste water treatment plants - Environmental permits for municipal waste water treatment plants - Environmental permits and standards for industrial waste waters
Economic	- sewage tax on emitted pollutants (BOD5, TP, TN) targeting companies, wastewater treatment plants, and housing with individual wastewater treatment systems.

An important question is, to what extent would systematic monitoring and data collection benefit the existing incentive structure. The answer here is simple: monitoring and data collection will improve the efficiency of BSAP implementation dramatically – *but only if the intended measures are explicitly paired with instruments and incentives.* That is, monitoring and data collection generates a better understanding of what is happening in the environment and with environmental pressures. The regulators can react on changes in these the faster, the better and more reliable is the data. However, the only means of reacting are the instruments and incentives. To realize the substantial potential of improved data, the regulator needs to have a readily available information on how to influence which environmental pressure.

Survey

The survey was sent out to respondents two weeks before the informal consultation session of EG ESA in October (IC EG ESA 1-2022). The survey accompanied two background documents, the first related to institutional structures of HELCOM, the second related to incentives.[1] The incentives background document was essentially the first five pages of the current document. In the meeting, Antti Iho first introduced the ideas of the incentive document, and its graphs and concepts were jointly discussed. After this, the participants were given the option to fill in the survey, unless they had already done so. Based on the number of responses, all participants of the EG ESA IC session filled in the survey.

The first question related to incentives asked to what extent the respondents agreed with the following statements: *Stronger links between planned measures and implementation instruments during the formulation of a Programme of measures (BSAP, MSFD, etc.) would a) increase measures' effectiveness and b) be doable in practice.* The question thus checked if the respondents agreed with the conceptual idea presented above: To make the eventual environmental protection more effective, the instruments available for policy implementation should be considered when planning for policies and assessing the efficiency of the policy and measure alternatives. The alternatives and their associated scores were "Strongly disagree [1]", "Disagree [2]", "Somewhat disagree [3]", "Neutral [4]", "Somewhat agree [5]", "Agree [6]", "Strongly agree [7]".

The respondents strongly supported the view that measures and instruments should be better linked in policy planning, the average score being 6.3. The key reason is perhaps very simple. If the available instruments cannot be adjusted to prompt the planned measures, nor new incentives drafted, the desired measures will not be taken. Checking whether there are instruments to support the planned changes is the most robust reality

[1] In addition to information on incentives, the survey also asked about the institutional structures and how well they support Baltic Sea protection. The responses to these questions are summarized in the appendix.

check for the protection policies. Without tools to implement policies, the plans are merely wishful thinking. Therefore, including transparent plans on the instruments that will be utilized will definitely increase the effectiveness of the implemented polices: without instruments, nothing will be implemented.

While recignizing the importance of taking the instruments into account, the respondents were realistic about the feasibility of such a request for policy planning. When asked about the practical doability of integrating instruments in policy design , the average score was 5.1.

The responses the these two questions are in line with our discussions in the first sections of this report. Experts clearly see the importance of taking the available instruments and incentives into account when designing the measures. They also seem to anticipate the difficulties of doing this. The further to the right we move in Figure 5, that is, as we move to managing diffuse pollution, the more difficult it is to find efficient instruments to implement the desired measures (Shortle and Horan 2017). The problem will be aggravated in the future as the relative share of diffuse source from total nutrient loading will increase. That is, the issue of acknowledging the implementation challenges already when planning the measures will become more important in the future.

The next question asks about the status of integration:

Table 1. In your opinion, how tightly or loosely are implementation instruments currently linked to planned measures in various Programmes of measures (BSAP, MSFD, etc.) of your country?

	n	Percent
Extremely loosely	0	0,0%
Very loosely	0	0,0%
Loosely	3	42,8%
Neither tightly nor loosely	1	14,3%
Tightly	3	42,9%
Very tightly	0	0,0%
Extremely tightly	0	0,0%

The responses indicate that the instruments are only loosely integrated in the planned measures. That is, the survey conducted on a small group of core experts, indicates that there is plenty of room for improvement in instrument integration.

Conclusions

Cost-effectiveness is one of the key goals of marine protection. Cost-effective allocation of measures ensures that we obtain as high an environmental status with our protection efforts as possible. The measure allocation indicates which measures we use, where, and how intensively. However, to obtain the planned benefits the measures need to be implemented. In practice, implementation of new things can occur only by altering existing instruments and incentives or by designing and introducing new ones. Therefore, instrument analysis of at least on a rudimentary level should be incorporated in national marine protection plans. These should include at least indicating the instruments available

and the pivotal decision makers for activating the instrument or changing the way it is used. With point sources, this should also mean evaluating the political and economic frictions in tightening the effluent limits: how likely it is that it can be done? With diffuse sources, agriculture in particular, we should include consideration on the coherence of the intended changes with the network of existing agricultural subsidies and programs: How likely is it that an impact will go through the system and actually reduce the loading to the sea? This way, marine protection plans would become more realistic. If a plan including the instrument analysis would seem not to achieve the targets, societies would be able to allocate more resources for the marine protection. For the benefit of the Baltic Sea, the plans should be as realistic as possible.

There are few characteristics in how instruments for nutrient loading can and have been utilized around the Baltic Sea. Municipal wastewater treatment plants are regulated with permits. The costs are the higher, the stricter the abatement levels. The costs will be transferred to directly to water bill payers and indirectly to taxpayers. Therefore, there is a general tendency of observing tighter permitting limits for wealthier countries.

The report recommends Contracting Parties to focus on making sure each measure in their national plans has a clearly identified, concrete policy instrument, suitable for triggering the desired action. Transparent plans on how to utilize instruments will increase the effectiveness of the implemented polices. It would be particularly important to take the incentive availability account already at the stage of planning the set of measures: if there is no plausible way to implement a measure, the government authorities should not count on it as part of measures achieving ecological improvements. It is also important to note that currently the instruments are only loosely integrated in the planned measures in the Baltic Sea countries. Integrating instruments to policy design would offer ample room for improving the efficiency of Baltic Sea protection overall, and for Contracting Parties individually.

One concrete recommendation is that when identifying these instruments and marine protection policies – either completely new ones or changes in utilizing the existing ones – at least their most obvious interactions with existing freshwater policies, but also climate and biodiversity policies should be identified. If possible, the analysis should go further into the coherence of different policies and the implications of the cross-effects into environmental and economic efficiency of the policies. Furthermore, Contracting Parties should try to take such effects into account already at the stage of planning national strategies for key sectors. We recommend for stating the Baltic Sea explicitly in national environmental strategies. It would also be beneficial to explicitly address the potential effects of national strategies of key sectors (agriculture, forestry, industries with important point source loads). It would be necessary to explicitly determine the priorities. If this is not done, areas with no direct commercial interest or with strong public good character (such as Baltic Sea protection) may be given a minor role in national plans, if conflicting with economically powerful industries.

Finally. monitoring and data collection will improve the efficiency of BSAP implementation dramatically – *but only if the intended measures are explicitly paired with instruments and incentives.*

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Appendix. The Survey

Co-funded by the European Union

Request for comments

We would like to hear your reflections on the documents “The role of policy instruments in planning and implementing efficient protection for the Baltic Sea” and “Efficient marine protection: the case of eutrophication in the Baltic Sea” submitted to HELCOM GEAR and EG ESA. Based on the documents and on your own expertise and experiences, we would like you to answer the accompanying survey. It takes about 5 minutes to complete the survey. The survey is part of the HELCOM BLUES project.

The survey is collected anonymously.

Questions related to the document:
"The role of policy instruments in planning and implementing efficient protection for the Baltic Sea"

1. In your opinion, how well does the current structure of HELCOM support utilizing scientific information from various disciplines (1-4, below), and how important is such information for HELCOM work on Baltic Sea protection.

Answer by placing a dot on the grid below for each of the four disciplines. The x-axis represents a discipline’s importance to HELCOM work and the y-axis how supportive the HELCOM structure is to utilizing information from that discipline. Dots can be moved after placement and previous responses can be edited by selecting the discipline from the text list.

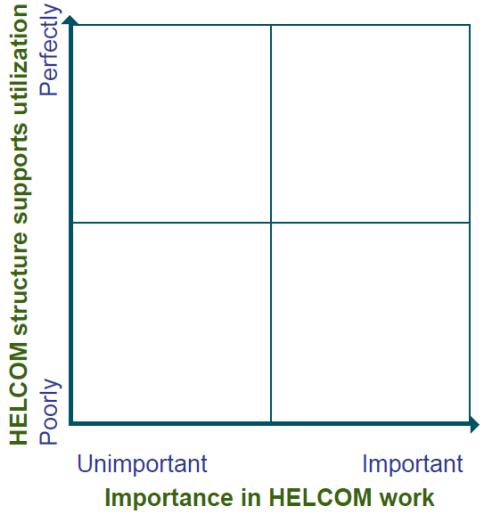
After placing each dot a text box appears to give an opportunity to elaborate your response if desired. Advance to the next discipline by clicking the continue button, using the “next” arrow button, or selecting the discipline from the text list.

1. **Ecological scientific information**
2. Economic scientific information
3. Social scientific information
4. Interdisciplinary scientific information combining ecological, economic and social scientific information

Clear all Clear selected

1. Ecological scientific information Next

Place your answer below



2. In your opinion, would HELCOM work benefit from an independent and interdisciplinary scientific advisory body?

- ◯ Yes
- ◯ No
- ◯ Maybe
- ◯ I don't know

3. You can elaborate your answer here

4. Do you have any other comments on the document or the subject?

Next

1 of 2

Co-funded by the European Union

Request for comments

Questions related to the document:
"Efficient marine protection: the case of eutrophication in the Baltic Sea"

5. In your opinion, to what extent would you agree with the following statements: Stronger links between planned measures and implementation instruments during the formulation of a Programme of measures (BSAP, MSFD, etc.) would…

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
increase measures' effectiveness	○	○	○	○	○	○	○
be doable in practice	○	○	○	○	○	○	○

6. You can elaborate your answers here

7. In your opinion, how tightly or loosely are implementation instruments currently linked to planned measures in various Programmes of measures (BSAP, MSFD, etc.) of your country?

- ○ Extremely loosely
- ○ Very loosely
- ○ Loosely
- ○ Neither tightly nor loosely
- ○ Tightly
- ○ Very tightly
- ○ Extremely tightly

8. You can elaborate your answers here

9. How would you categorize your primary role in topics related to the Baltic Sea

10. Do you have any other comments on the document or the subject?

Previous Submit

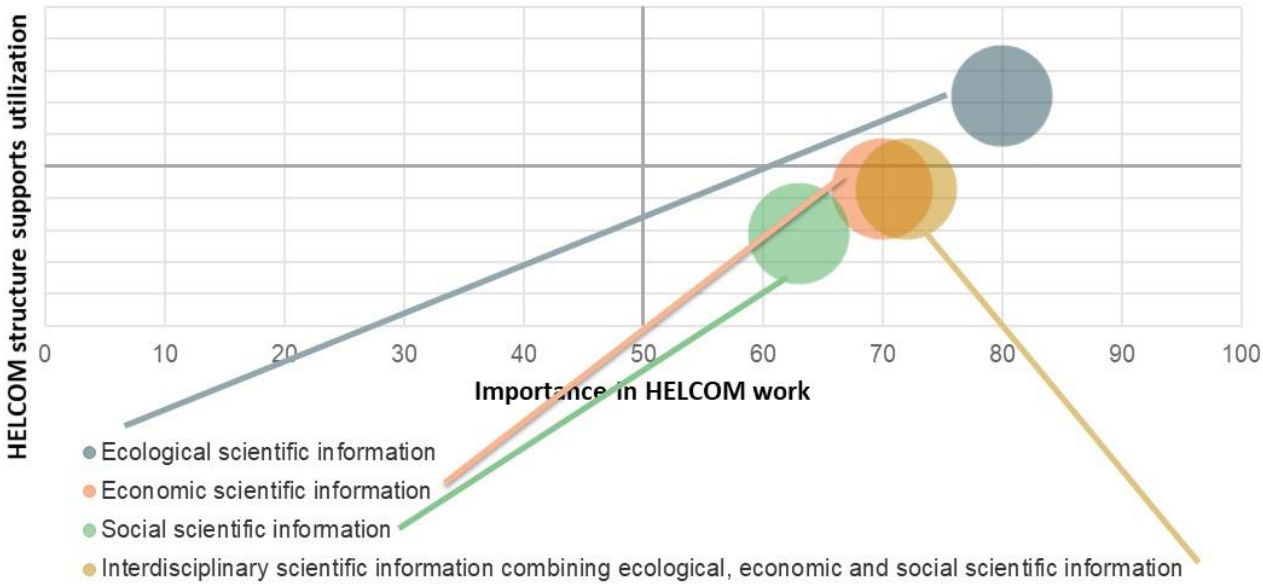
2 of 2

Responses to questions related to institutional structures and how well they support Baltic Sea protection:

1. *In your opinion, how well does the current structure of HELCOM support utilizing scientific information from various disciplines (1-4, below), and how important is such information for HELCOM work on Baltic Sea protection.*

Answer by placing a dot on the grid below for each of the four disciplines. The x-axis represents a discipline's importance to HELCOM work and the y-axis how supportive the HELCOM structure is to utilizing information from that discipline. Dots can be moved after placement and previous responses can be edited by selecting the discipline from the text list.

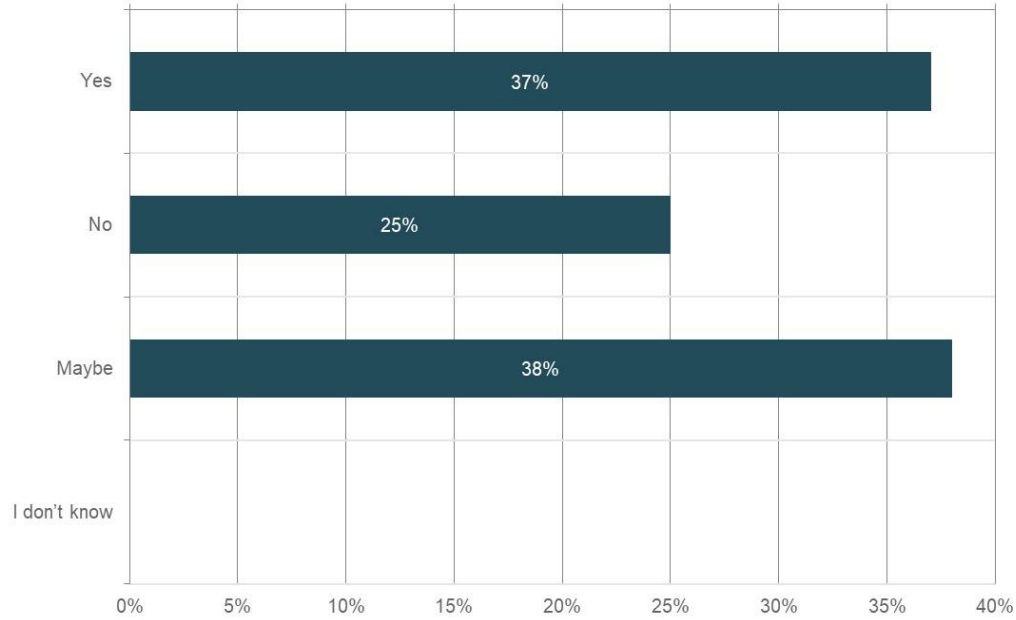
After placing each dot a text box appears to give an opportunity to elaborate your response if desired. Advance to the next discipline by clicking the continue button, using the "next" arrow button, or selecting the discipline from the text list.



The same result in table format:

	n	Importance in HELCOM work (Average)	HELCOM structure supports utilization (Average)
Ecological scientific information	8	80,1	72,4
Economic scientific information	8	70,0	43,3
Social scientific information	8	62,8	29,3
Interdisciplinary scientific information combining ecological, economic and social scientific information	8	71,5	43,4

2. *In your opinion, would HELCOM work benefit from an independent and interdisciplinary scientific advisory body?*



The responses indicate no clear support on this idea. As such, it also a good sign for the reliability of the survey results: the respondent do not merely agree with all the question.