



# Environmental regulation of aquaculture in the Baltic Sea region

*A broad overview of the legal framework*

Inga-Liisa Paavola, Ari Ekroos, Hannes Veinla and Kaarel Relve



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## Description

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<b>Abstract</b> A survey of the legal frameworks was the starting point in the development of regulation of aquaculture in the Baltic Sea region (BSR). The survey was conducted as a questionnaire in all the EU Member States of the Baltic Sea coast.  All the countries of the study use permits to control aquaculture activities but only one country (Åland) has a permit specifically designed to control aquaculture activities. There are significant differences in regulatory controls of aquaculture activities, the threshold criteria for permits and length of permit procedure. The catalogue of permit conditions varies as well. In most cases permits are temporary but also permanent permits exist. Usually there is room for discretion in setting conditions of a particular permit. Various, sometimes very specific, economic instruments are in use, but most common systems are linked to pollution charges and investment subsidies.		
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## 1. Introduction

### 1.1. General background

The global demand of food is constantly increasing. In the animal protein production aquaculture is the only main method having essential growth potential. In worldwide perspective, the aquaculture industry has risen to this challenge. The annual global production growth in aquaculture has for decades been 7- 9 %. In opposite to the global trend, the production in the EU has during this millennium stagnated. Even worse is the case in the Baltic Sea Region (BSR), where the production during the same period has been slightly declining.

The retardation of BSR aquaculture cannot be explained with bad market situation, nor is it a question of deterioration of the natural conditions. Inside the industry it is generally considered, that one main reason of the weak performance is the heaviness, fragmentation, inflexibility and narrow focus of legislative framework and licensing policy.

### 1.2. The Aquabest project approach

In the prevailing business environment the BSR aquaculture is heading for a crisis. This was recognized in the EU and reinforcement of sustainable aquaculture was included in the EU Strategy for the Baltic Sea Region, adopted in 2009. Aquabest is the strategic project responsible for this task.

Aquabest project defined four target areas of urgent need for development. A BSR-wide questionnaire was carried out to help this identification. The legal regulation of aquaculture was chosen as one of the four target areas. How to cut off the red tape and waste of time, and how to increase incentives and predictability?

Understanding the environmental legislative framework concerning aquaculture practices in the Baltic Sea Region (BSR) is an essential part in attaining a high level of sustainability in aquaculture production. Regulation affecting aquaculture practices in different BSR countries is based on national law from a national perspective. Yet, the combined effects of the concrete activities carried out have a broader environmental impact in the Region.

In this project the intention is to provide an insight to the environmental legislative system regulating aquaculture emissions in the BSR countries. The most important regulative guiding instrument in this sense is a command-and-control based environmental permitting system, which has been adapted widely in the studied countries. However, there are also big differences between different national permit systems and practices which is demonstrated by providing an introduction to the permit systems of the BSR countries. The intention has been to gather up comparable data on the different permitting systems affecting emission control of aquaculture in the BSR.

### 1.3. The character of this report

The Baltic Sea region comprises of nine coastal countries with high variation in their political and legal systems and histories. Aquaculture is a very specific form of primary food production, with often unique needs for regulation.

Comprehensive and up-to-date multinational information of the regulation is not available. The first step of the Aquabest work was to get a broad overview of the national legislations applied for the

planning, permitting and running of aquaculture units. This working report presents the main findings of this non-specific survey (the query form as appendix 1). The need and plans for further studies are discussed in the concluding chapter. The relevant results of the problem identification questionnaire are referred as an appetizer.

The autonomous Åland Islands belong to the Republic of Finland. As Åland has legislative competence as far as aquaculture-related environmental and water issues are concerned, its regulations will be compared to those of independent states in the present study.

## 1.4. Information sources

The information concerning aquaculture regulation in project countries has been gathered mainly with the help of following national partner-institutions In January 2012:

Estonia: University of Tartu

Latvia: Institute of Food Safety, Animal Health and Environment

Poland: Polish Trout Breeders Association

Germany: Society/ Association for marine aquaculture

Denmark: The Danish Aquaculture Organization

Sweden: Swedish Board of Agriculture

Åland: The Government of Åland: Section Fisheries and Section Environment

Finland: University of Helsinki, Faculty of Law

In addition to the above mentioned institutions valuable information was received from many other sources as well. The authors wish to express warmest thanks to all who contributed the data collection.

## 2. Stakeholder's experiences of the regulatory systems

### 2.1. The survey

The survey before the decision of the Aquabest development targets approached the industry from a bird's eye view to the grass roots level. The first question included a set of global statements arguing for or against growing aquaculture. The second question focused the attention on the BSR-level, with statements on environmental, political and industrial pros and cons of the aquaculture development.

The full report of the survey is published in the website of the Aquabest project ([www.aquabestproject.eu](http://www.aquabestproject.eu)). In this report we briefly refer the attitudes towards the constraints and opportunities of aquaculture in the Baltic Sea region. The results base on opinions of 158 expert respondents from eight countries.

## 2.2. Attitudes by regions and stakeholders

The Stakeholder's attitudes are presented in the table 1.

**Table 1.** Attitudes to the perspectives of aquaculture development in the Baltic Sea area by regions and by stakeholder groups. East = Estonia, Latvia, Lithuania and Poland, West = Germany, Denmark and Sweden, North = Finland and the Åland autonomous territory. The results are sorted by decreasing agreement of all stakeholders.

Statement	Fully or largely agreeing attitudes towards the statements							
	ALL	By macro-regions			By stakeholder groups			
		East	West	North	Industry	Fisheries administr.	Research and educ.	Environm. bodies
The Baltic Sea provide good coastal and in-land farm sites for a growing aquaculture production.	83 %	87 %	88 %	79 %	89 %	100 %	82 %	50 %
The various subsidies are a competitive advantage for agriculture compared to aquaculture.	74 %	77 %	64 %	77 %	89 %	75 %	69 %	50 %
The marine spatial planning is undeveloped and doesn't take into account the needs of aquaculture.	73 %	69 %	75 %	74 %	82 %	75 %	67 %	70 %
Bigger production licenses are necessary for securing profitability and competitiveness on the sector.	72 %	64 %	58 %	82 %	87 %	71 %	65 %	50 %
The aquaculture's role in the eutrophication of the Baltic Sea is insignificant.	72 %	72 %	69 %	73 %	85 %	79 %	73 %	26 %
The short license periods and uncertainty of renewal are impeding the long-term planning of the production.	71 %	56 %	61 %	81 %	82 %	75 %	71 %	40 %
The application procedure for environmental licenses is laborous and takes too much time.	71 %	62 %	73 %	74 %	87 %	83 %	65 %	30 %
There is not political support for the aquaculture industry in my country.	58 %	64 %	45 %	60 %	84 %	33 %	58 %	20 %
Increase of predators (cormorants, seals etc.) weakens remarkably preconditions of aquaculture.	56 %	74 %	42 %	52 %	73 %	58 %	56 %	10 %
The costs of permitting processes and control are unreasonable compared with allowed production.	51 %	28 %	64 %	57 %	76 %	46 %	45 %	10 %
Due to the extremely concentrated gross trade the access to the market is hard for local producers.	49 %	54 %	42 %	49 %	44 %	75 %	45 %	45 %
The availability of trained labour force for fish farms is insufficient.	48 %	64 %	63 %	36 %	53 %	67 %	46 %	20 %
The accessibility to good farm sites is very difficult or expensive.	45 %	47 %	25 %	52 %	59 %	38 %	38 %	42 %
The governmental support and subsidy to aquaculture is sufficient.	32 %	21 %	30 %	37 %	33 %	25 %	28 %	45 %
The production of the Baltic Sea Region has no chance to compete with cheap imported fish.	28 %	56 %	18 %	19 %	27 %	21 %	31 %	30 %
The availability and the terms of environmental licenses are not excluding a profitable production.	28 %	49 %	30 %	17 %	18 %	17 %	31 %	55 %
The present permitting system has secured equal treatment of all water users.	21 %	36 %	12 %	18 %	16 %	17 %	17 %	50 %
Due to its harmful environmental impacts the aquaculture production should be reduced in the BSR.	12 %	10 %	12 %	12 %	4 %	0 %	11 %	45 %

The most significant observation of the results is that obstacles of political, legal or administrative nature are generally considered as bigger disincentives of the industry than economic or

environmental factors. The industry itself is naturally most critical to the governmental burden and injustices but also other groups recognize same kind problems. The environmental stakeholders are more than others concerned on the risks and adverse effects and less than others worried of administrative issues.

The rather uniform results by the regions give a reason to expect that the principal problems have similarities. This forms a good base for multinational development activities.

### 3. Legal framework

From the regulative and legal point of view, term “aquaculture” usually covers all kinds of aquaculture (commercial) activities in all countries e.g. any type of farming of fish, other aquatic species and plants in marine or freshwater. Only few countries have detailed definition of aquaculture concept in legislation; the concept is defined in many different kinds of regulations.

Legislation concerning aquaculture in the BSR is mainly national. However, EU environmental legislation has a certain impact on aquaculture practices. E.g. the directive 2000/60/EC establishing a framework for Community action in the field of water policy forms the starting point for the protection of water courses in the EU on which national water policy planning in EU Member States is based on. The Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy is being implemented at the moment in EU Member States, and it also affects the use of marine natural resources in the BSR. Additionally environmental assessment procedures governed by legislation implementing e.g. Directive 97/11/EC on the assessment of the effects of certain public and private projects on the environment may affect planning of aquaculture projects as well as e.g. the Natura 2000-framework (directive 92/43/EEC and directive 2009/147/EC).

The environmental legislation on aquaculture exists on two levels. Firstly, there are general legal acts that cover basically all types of economic activity and that you have to comply with. Secondly, there are specific legal acts for the various forms of aquaculture i.e. freshwater farming, marine farming or mussel farming. There is same two level position with legislation when it comes EU and national level regulations. There are some more common level EU level regulations that cover aquaculture, e.g. EIA regulations, and more detailed regulations in the national level, e.g. concerning permit procedures and permit thresholds.

## 4. Procedural requirements

### 4.1. Permit types required for specific forms of aquaculture

The environmental permits had in most countries a decisive role in regulating the permissibility and production volume of aquaculture units. There are a lot of different regulations related to aquaculture and permits. It seems to be quite common that several permits are needed at the same time, e.g. environmental permit, water permit, veterinary permit and building permit. The administrative permit processes in observed countries are usually separate from each other which can significantly prolong the process.

Still, it should be noted that the regulatory control over aquaculture activities does not necessarily have to be based on permits. For instance, all the requirements for aquaculture activities could be set out in generally binding legal acts, such as laws. However, all surveyed countries employ permits for controlling certain aquaculture activities.

In a narrow sense a permit for aquaculture is an authorization that allows carrying out a specific type of aquaculture activity. Typically, the permit sets out detailed requirements for the activity. In a wide sense any authorization necessary for starting or continuing aquaculture activities could be considered an 'aquaculture permit'. For instance, spatial planning approval, building permit, veterinary authorisation, water use permit, pollution permit, consent of nature protection authorities could be required for carrying out aquaculture activities.

The permits are not usually species-specific as far as the production concerns species already existing in the country or region. The use of alien species is subject to a specific EU-regulation (Council Regulation (EC) No 708/2007) concerning use of alien and locally absent species in aquaculture) which sets the criteria for the introduction of new species.

Only one country – Aland – has a specific permit for aquaculture. Many countries use a general type permit – such as the permit for water use - to control aquaculture activities. The permit type required may be also dependent on the activity in question. For instance, in Germany indoor closed systems will follow mainly the relevant building legislation. Outdoor activities will mainly be judged by the relevant water legislation.

## 4.2. Permit thresholds

Only such aquaculture activities that may have significant impact need to be controlled through permitting. The threshold criteria determine whether an aquaculture activity comes under the permit requirement. Different types of criteria are used, e.g. pool size, amount of feed used, yearly production. Thresholds vary significantly. For instance, the yearly production criterion is 2 tons in Finland, there is no production threshold in Poland and in Aland there are two thresholds: 1 ton (small farms) and 20 tons (large farms).

## 4.3. Length of procedure

The length of the procedure can vary widely depending on whether one considers the time for issuing an aquaculture permit in the narrow sense or in the wide sense. Also, the EIA procedure may significantly lengthen the permit procedure. The survey revealed great disparity in the length of the procedure. For instance, the average length of procedure in Estonia is 3 months while it could be over 12 months in Poland. Statistical information on the precise process lengths was not collected in this first phase of the study.

## 4.4. Public participation

In all the observed countries, permits must be subjected to a public hearing process. However, public participation may be based on different criteria: such as interest based participation, rights based participation and popular participation. Also, environmental organizations may have a special participatory status. Public participation may also lead to appeals which cause further delay. For instance an appeal case can take anywhere from 1 to 10 years in Finland. In many countries appeals

are filed with some kind of Environmental Board of Appeal that is an independent administrative appeal board for rulings relating to planning, nature and the environment. Public participation and appeal procedures need further examination considering that they can potentially significantly delay aquaculture activities.

## 4.5. Environmental impact assessment

As some kind of exception to separate processes within administrative aquaculture permit processes is Environmental Impact Assessment (EIA) that is in some countries implemented into permit procedure, but practices concerning EIA implementation into permit process vary as well. EIA procedure is based on EIA Directive and Natura regulations of the EU. Still, the national point of view in implementation varies and aquaculture does not fall under EIA regulations in every countries or there are limits when must be done. What is more, some additional national assessment procedures exist.

## 5. Permit conditions

### 5.1. Requirements for permit application

In most countries, the following information or some of it must be included in the fish farmers permit application: name and address of the applicant, the site of the farming operation, water area "coastal water or lake or running water, type of technology and its source of water support, details on production and the calculated amount of feed, a sketch of the farming operation and treatment technology for discharged water and its processing, health control, nearby farming operations, the use of land and water by nearby activities, environmental conditions, concentrations of phosphorus and nitrogen and concentrations of the same compounds in the water supply, calculated environmental impact by the farming operation. This all usually requires consultation and information to various authorities and to the general public.

### 5.2. Limitations in capacities, inputs or production volumes

The menu of permit conditions vary considerably, depending on whether it is „general environmental“ permit or specific „aquaculture permit“. The more common conditions are as follows:

- Requirement for water use and cage or tank capacities
- General pollution control requirements
- Quantities and characteristics of feeds
- Quantities and characteristics of nutrient emissions
- Allowed fish species
- Farming techniques and methods
- Veterinary requirements

### 5.3. Validity periods

One factor that may significantly affect the aquaculture activities is period of validity of the permit. The initial study revealed that only in few cases permits are permanent (e.g. Germany, Latvia). However

there are reasons to recall permits, or to regularly inspect the activity. In most cases permits are temporary (as average 5 -10 years)

## 5.4. Discretion

The discretion means the power or right to decide or act according to one's own judgment - freedom of judgment or choice. In many cases permit conditions are not precisely stipulated in statutory provisions but the competent authority is left the discretionary power. Discretion involves not only interpretation of statutory provision but also consideration of general environmental law principles (e.g. precautionary principle). The considerable room for discretion in case of issuing aquaculture permits is especially evident in Germany, Sweden, Finland and Estonia, but most probably is present also in other countries.

# 6. Economic instruments

## 6.1. The concept of economic instrument

It is not completely clear how to define „economic instruments“ from legal point of view. This is probably one reason why answers to the questionnaire vary considerably. Some countries (e.g. Latvia, Germany) have even declared that economic instruments are not in use at all.

Economic incentives could be more widely applied to encourage growth in aquaculture production, especially in the “infant” phase of development where risks are often high and scale economies cannot yet be realized. In recent years, increasing attention has been given to incentives that encourage the use of environmental and natural resources in a sustainable manner. Growing interest in economic incentives to achieve sustainability objectives is not least due to the frequently disappointing performance of command and control measures (the setting of regulatory norms and standards that forbid or allow certain actions or outcomes), especially under conditions where growth incentives exist concurrently. Command and control measures generally focus on blocking the incentive created by various types of market failure for private operators to over-utilize or pollute natural resources. Conversely, economic incentives attempt to align the incentive structure with sustainability objectives.

Ideally, incentives should create “win-win” conditions, achieving both social and economic development objectives, as well as environment protection. In reality, however, growth-oriented incentives are known to have caused or contributed towards unsustainable production systems. Similarly, sustainability incentives can, at least in the short and medium term, retard achievement of growth objectives. Moreover, proper social costing of production inputs can place domestic producers at a competitive disadvantage with foreign producers who are not required to internalize environmental costs.

## 6.2. Economic instrument systems

Different kinds of incentives can be developed in isolation or in combination, including tradable use/access rights, taxes/subsidies, codes of conduct, eco-labelling and others. While practical

experiences are still very limited in aquaculture, these measures have proven effective in other sectors to induce producers to adopt better and more environmentally friendly production practices.

Link with pollution charges (taxes) is quite often the case, e.g. Poland, Lithuania, Estonia. It as a rule means that certain compounds of nutrient and emissions into the environment are taken into account when calculating pollution charges.

The other commonly occurring system of economic instrument - is link with investment subsidy (e.g. from European Fisheries Fund ) – largely dependent on environmental performance. This system occurs within the variable forms almost in all countries.

### 6.3. Specific systems

In some cases quite specific forms of economic incentives are in use. For example:

- „Feed quotas“ – in Denmark – in some cases transfer of „feed quotas“ from one farm to another is possible.
- Alands „improvement in surplus“ system – fish farms are allowed to use 2/3 of a „significant improvement in water quality beyond what is required under the Water Act“ for „expanded operations“
- Estonia – under Pollution Charges Act – the obligation to pay charges may be according to the contract substituted by obligation to finance environmental protection measures.

## 7. General conclusions

### 7.1. Limitations of the data

The survey was planned on the presumption of highly variable legal systems and licensing procedures in the countries of the study. For getting an overall picture of the situation, the matter had to be approached with a broad scope and on a general level. Thereby these early results are more of less approximate and describe more the regulation climates than exact differences in specific issues.

Differences in regulatory control mechanisms results in difficulties in making comparisons. In some cases it is not certain that respondents have the same understanding of the relevant key terms, e.g. what is an economic instrument. Some of the answers are too general for making in depth comparisons, e.g. what is the level of public participation.

### 7.2. The main findings

The differences in the letter of the law seem only partly explain the variation of the regulation-related business climate in the countries of the study. The legal frameworks leave room for policy definitions and discretion of the authorities. The impacts of these liberties on the operational preconditions will be discussed.

All countries use permits to control aquaculture activities but only one country (Aland) has a permit specifically designed to control aquaculture activities. There are significant differences in regulatory controls of aquaculture activities, the threshold criteria for permits and length of permit procedure. The catalogue of permit conditions vary but it's most common elements are general environmental protection requirements (e. g. condition of water use or cage capacity), quantities and characteristics of feeds and nutrient emissions, allowed fish species, farming techniques and methods

as well as sanitary and veterinary requirements. In most cases permits are temporary (as average 5 - 10 years) and only in exceptional case (e.g. Latvia and Germany) are permanent. Usually there is room for discretion in setting conditions of a particular permit. Various, sometimes very specific, economic instruments are in use, but most common systems are linked to pollution charges and investment subsidies.

### **7.3. Plans for further studies**

A more precise analysis of the permitting and its implications for the industry premises has been started. This stage will focus on permit documents and interviews of aquaculture operators. The detailed information of real permits gives a deeper understanding of legal and procedural bottlenecks.

Further research is necessary to ensure that data is comparable, e.g. whether the reported length of procedure includes EIA procedure. The opportunities for the public to influence the permitting procedure through participation and appeal need further study. The peculiarities of permit consideration need further study. In particular - how much room of manoeuvring the permit authority has in setting the permit conditions? Is the authority bound by detailed criteria stipulated in law or can the authority tailor the requirements for the particular case? The peculiarities of permit conditions need further research as well. What are the most common requirements (terms) imposed by the permits?

On the basis of the results the project will make proposals for improvements in the regulation. The ultimate objective is to pave the way for more streamlined, flexible, economically incentive and eco-efficient regulation which is an elementary precondition for a prosperous and sustainable aquaculture in the Baltic Sea region.

The research of aquaculture regulation circumstances will make use of research methodology of legal dogmatics and environmental policy instruments research tradition. The problem-based point of view is highlighted in the sense that the research seeks to find a theoretical approach for analyzing the impacts of aquaculture legislation on innovation on the aquaculture regulation systems.