



Voluntary responsibility schemes in aquaculture in the Baltic Sea region

Vesa Leskinen, Kaija Saarni, Unto Eskelinen and Ari Ekroos



Baltic Sea Region
Programme 2007–2013

Part-financed by the European Union (European Regional Development Fund and European Neighbourhood and Partnership Instrument)

AQUABEST



AQUABEST 

Finnish Game and Fisheries Research Institute, Helsinki
2013

ISBN 978-951-776-958-7

Reports of Aquabest project 2 / 2013

Voluntary responsibility schemes in aquaculture in the Baltic Sea region

Vesa Leskinen¹, Kaija Saarni², Unto Eskelinen² and Ari Ekroos¹

¹ University of Helsinki, Faculty of Law

² Finnish Game and Fisheries Research Institute



Description

| | | |
|---|--------------------|----------------------------------|
| Authors Vesa Leskinen, Kaija Saarni, Unto Eskelinen and Ari Ekroos | | |
| Title Voluntary responsibility schemes in aquaculture in the Baltic Sea region | | |
| Year 2013 | Pages 21 | ISBN 978-951-776-958-7 |
| Abstract <p>Sustainability has become an increasingly topical issue on the European aquaculture agenda. For updating the knowledge of the current status of aquaculture self-regulation systems in the Baltic Sea region (BSR), this report presents the results of a quick scan of the current usage of three responsibility schemes (local, organic and eco-certified production) that was carried out in six BSR countries. Based on the findings of the scan, promotion of local food production is on political agenda in all countries. Organic and eco-certified aquaculture are newer trends and still behind other staple foodstuffs in terms of market share.</p> <p>The second part of this report presents an overview of the economic motivation behind aquaculture certification, and attempts to outline the key issues relevant to the possible introduction of BSR-specific aquaculture certificates in the future. The economics of certification and reviews of recently published scientific articles on aquaculture certification are highlighted. The discussion is then focused to the Baltic Sea region with the aim of identifying topics and issues that are specific to this geographical area in relation to the introduction of new certification and labeling schemes. Finally, the report aims at identifying the key attributes of a BSR-specific eco-certification scheme that would be beneficial for all key stakeholders (win-win-win).</p> | | |
| Keywords aquaculture, local food, organic production, eco-certification, sustainability, Baltic Sea | | |
| Publications internet address http://www.aquabestproject.eu/reports.aspx | | |
| Contact unto.eskelinen@rktl.fi | | |
| Additional information Photo: Susanna Airaksinen | | |

Contents

| | |
|---|-----------|
| Description | 4 |
| 1. Preface | 6 |
| 2. Quick scan of the current status of sustainability schemes in the BSR aquaculture | 7 |
| 2.1. Background and scope | 7 |
| 2.2. Execution of the scan | 7 |
| 2.3. Results | 7 |
| 2.3.1 General observations | 7 |
| 2.3.2 Local food | 8 |
| 2.3.3 Organic production | 9 |
| 2.3.4 Eco-certification | 11 |
| 3. Search for win-win-win in BSR aquaculture certification | 12 |
| 3.1. Introduction | 12 |
| 3.2. Economic background and literature review | 12 |
| 3.2.1 Certification and information asymmetry | 12 |
| 3.2.3 Recent literature | 15 |
| 3.3. Sustainability & BSR aquaculture specific issues | 16 |
| 3.4. Preliminary attributes of a BSR win-win-win label | 17 |
| 4. Concluding remarks | 18 |
| 5. References | 19 |
| 5.1. Litterature | 19 |
| 5.2. Information sources of the quick scan | 20 |
| 6. Appendix | 21 |

1. Preface

Sustainability has become an increasingly topical issue on the European aquaculture agenda. The Baltic Sea region (BSR) is no exception and national governance mechanisms have already responded to this change: in several BSR countries, legislation has for long been developed to mitigate and control, inter alia, the environmental impacts of aquaculture production.

In addition to legislative control mechanisms, in other parts of the world many private entities have established additional aquaculture eco-labels and certification schemes to provide consumers with information on the sustainability of production. In contrast, in the BSR aquaculture eco-certification has remained relatively undeveloped. For the time being, government and EU-sponsored eco-labels relevant to the BSR, like the EU-flower and the Nordic Swan, are not yet applied to food products at all. This may be bound to change, as there are ongoing processes to expand the coverage of these labels also to the food sector (Oakdene Hollins 2011, Nordic Ecolabelling 2013). Nevertheless, at this point it seems that fisheries and aquaculture products are unlikely to be among the first product groups that government sponsored labels will expand to, even though the Nordic Swan eco-labels for hotels and restaurants already include sustainability criteria for the use of fish products and the new criteria proposal expands this (Nordic Ecolabelling 2012).

As no one eco-label or certificate has yet been widely adopted in the BSR aquaculture market, there seems to be a need to conduct an empirical scan of the current situation of eco-labeling in the area, and to review the economics of and past studies on eco-labeling in order to provide suggestions and guidance regarding the potential introduction of BSR specific labels in the future.

The AQUABEST project's main objective is to support the growth of sustainable BSR aquaculture. The topicality of self-regulation and voluntary responsibility schemes as one tool for achieving this objective was recognized in the planning phase of the project. Consequently, an analysis of the current situation of eco-labeling in the BSR, and of the pros and cons of the implementation of labels and recommendations regarding the possible development or introduction of labels in the future is provided in this report at hand.

Before proceeding, a terminological issue that is worthwhile to be discussed upfront is the definition of the terms eco-label and eco-certification. Even though these terms can arguably refer to very different types of schemes depending on the context, they are also often used in an interchangeable manner. For simplicity, in this paper we follow the latter approach and use OECD definition of the term certification scheme in a broad sense to refer to "the set of possible combinations of requirements, standards, regulations, sanitary/phytosanitary measures and related verification processes and labels used in the seafood sector" (OECD 2012). Furthermore, it is important to remember that certification and labelling are not the only ways to assure customers that their purchases are sustainable. Other schemes that serve a similar purpose are e.g. organic production, measures that certify the locality of the products, as well as schemes dedicated to specific themes such as fair trade, animal welfare, or social issues

The rest of this paper is structured as follows: the second chapter provides an overview of the current status of aquaculture certification in the BSR based on a survey implemented through national AQUABEST partners. The third chapter provides a review of the theoretical and economic motivation for aquaculture eco-certification, with the goal of identifying topics and issues that are specific to the

BSR in relation to the potential introduction of new certification and labeling schemes. The concluding chapter then takes an attempt at synthesis and discussion, and summarizes the main findings of this report.

2. Quick scan of the current status of sustainability schemes in the BSR aquaculture

2.1. Background and scope

Three responsibility schemes were chosen for the surveying. The closer definitions are presented below. These systems have already some foothold in the region and probably have the most promising expectations in the foreseeable future.

| | |
|--------------------------|---|
| Local production | Nationwide and regional initiatives for proofing the local origin of the aquaculture products |
| Organic production | Organic aquaculture production according to EU regulations (EC 710/2009) or officially approved national schemes |
| Eco-certified production | Public and private labels or management systems including aim and tools to diminish environmental impacts. Global, continental or national schemes applicable for aquaculture |

2.2. Execution of the scan

The scan was nationally conducted and reported by the Aquabest partners during September – November 2012.

The scan was structured and included conceptual and substantial parts. Firstly, the scan included a closer definition and relevant national statutes regulating the schemes, and secondly, the current status, trends and constraints of the schemes. Status and trends regarding the positioning of aquaculture products in the food market were asked on three levels, focusing from foodstuffs generally to all fish products and finally to aquaculture products. The questionnaire form is presented as an appendix of this report.

2.3. Results

2.3.1 General observations

In spite of clear differences in different sub-areas of the BSR some phenomena were common for all or most the responding countries.

- Local food has political support as well as regional or national initiatives and campaigns throughout the Baltic Sea region
- In aquaculture products labeling is still marginal and not yet approaching a situation where inclusion in some responsibility scheme is mandatory to stay in the market
- The use of voluntary certifications of aquaculture products seems to follow behind most staple food-stuffs and there are not yet well established consumer groups or markets for such schemes
- In most areas, there are as well economic as regulatory obstacles to increase certified production even in cases where demand exceeds supply

2.3.2 Local food

The concept of local food is not well defined; it has no legal or binding definition. The concept of local can be defined as nationwide or regional. In some countries, locality is regarded as a growing trend, but in others it has always been a relevant part of the food market. Implicitly, social aspects are essential elements in the concept of local food.

In spite of lacking a definition on the EU level, various relevant local food schemes are available. They may vary considerably from national or regional to the scope of neighbourhood. In Germany, a regional labelling scheme based on expert opinions was recently launched (FiBL 2012). In Sweden and Finland, the national quality labelling schemes certify production from the nationwide level to more specific regions. Swedish caught fish has a special labelling scheme ensuring its origin and controlling the fishing regulations.

In the food market in general, local food is a growing trend in most countries. Among aware customers local food is considered more sustainable, fresh, healthy and enjoyable. In Estonia, the transition to market economy and economic integration have resulted in a regression of domestic food production and availability of local food. In Latvia locality is not considered a raising trend, but taste and price are valued more important than locality.

In spite that customers value local food, the supply of domestic fish is insufficient in many countries. In fact, the opposite trend is accelerating; imports of fish are increasing in most countries. In Germany, the share of domestic supply is less than 20 per cent. In Sweden and Finland, the domestic supply is declining. Denmark is an important fishery country and the share of domestic fish is still high. But also in Denmark, the import of fish is growing, especially among aquaculture products. At present, in Estonia domestic supply is growing moderately. The current situation is challenging, as despite the scarcity of domestically produced fish, locally caught and sold fish do not usually carry any label. The origin may be signed but not with a special label. Even in Sweden local fish is mostly sold without labels.

The markets of locally produced aquaculture products are also underdeveloped in most countries. Even when a major part of domestic production is sold to domestic market; the production is not specially sold as local, or branded as a domestic or regional product. In Germany, the production from fresh water is mainly delivered to regional or local markets; in Denmark, the growing production is mainly sold to domestic market. In Sweden, the production is increasing and some production is also sold to local areas. In Finland, the decreasing production is mainly sold to the national market. In Estonia, the share of local aquaculture products is marginal.

It's unquestionable that locality is in an internal part of aquaculture, as the enterprises are small or medium sized, operating regionally or nationally and facing tight competition from growing import and mass production. Until now the domestic aquaculture products have not had similar local marketing value as fish products from wild origin. In Sweden, there is a discussion on how to support domestic aquaculture products on the Swedish market. However, it is obvious that EU is not willing to support marketing campaigns which are promoting local or national food production.

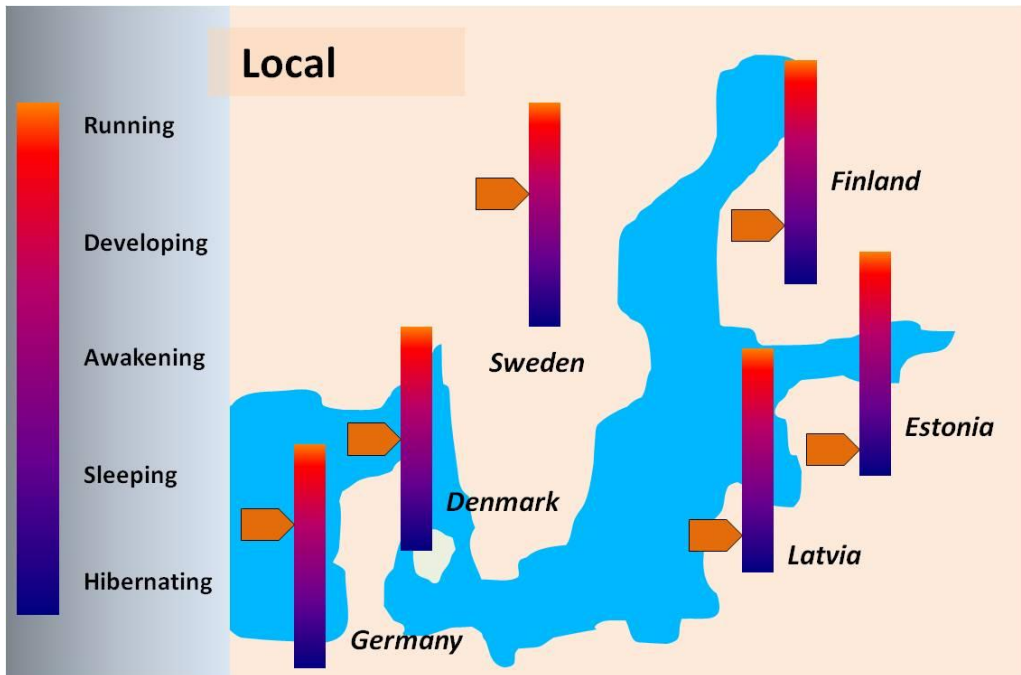


Figure 1. A thermometer graph illustrating the current interest on local aquaculture products.

2.3.3 Organic production

The concept of organic production originates from agriculture and has been applied into aquaculture later. The organic production schemes for the aquaculture include criteria for the entire production cycle; concerning origin of fry, the consistence of feed and the production practices. The concept of organic fish is still confusing customers, as only the products from aquaculture can be considered organic whereas caught fish or crayfish can not ever be organic. At the moment organic production is rather low and mainly produced to a niche market.

The interest regarding organic production varies among the countries in the Baltic Sea region. For years, Germany has had various organic schemes which are applied into aquaculture; and also Denmark and Sweden have had own national schemes for aquaculture. Other countries in the eastern part of Baltic Sea have not had national schemes. In 2009, the regulatory situation changed and the possibilities to comply with approved criteria improved, as the EU set criteria for organic aquaculture. However, the legal status of EU regulation is contradictory, as certificated organic production has to fulfil national legislation, but on the other side the EU regulations are not regarded sufficient for national legislation in many countries.

In Denmark and Germany, the EU regulations have been applied into aquaculture and certificated organic production is following national and EU regulations. Sweden has a national scheme (KRAV) with tighter criteria than EU, and aquaculture producers are not so willing to apply EU regulations (Håkansson 2012). In the eastern countries, Finland, Estonia and Latvia, the practical implementation of EU regulation has not begun.

The organic food market is growing, but the share of organic food is relatively low in most countries. In Germany and Denmark, the market is the most developed of the scanned countries. However, fish products are an exception. Especially in Germany, Sweden and Finland fish is considered to be a less interesting organic food category than other food stuffs. In Denmark, the market seems to be developing differently, with a growing interest of organic fish. Also in Latvia customers are interested in organic fish.

In the Baltic Sea region, organic production is marginal and demand and supply vary based on national trends. In Sweden and Finland, hardly any organic fish is available. In Germany, there is a supply of domestic produced organic fish, but most supply is imported from Scotland, Ireland, Norway or Italy. However, the situation is developing differently in Denmark, where market supply is more diverse with local and domestic fish completed with imported supply.

There are clear positive sights in the markets for the organic fish, but the challenges are also obvious. The organic production is heavily regulated resulting in more work and costs. In Germany, farmers have been struggling with the lack of support, in Denmark, farmers are facing double work caused by increased rules and control. In Finland, the situation is even more complex, as national productions permits have contradictory rules compared to EU organic rules.

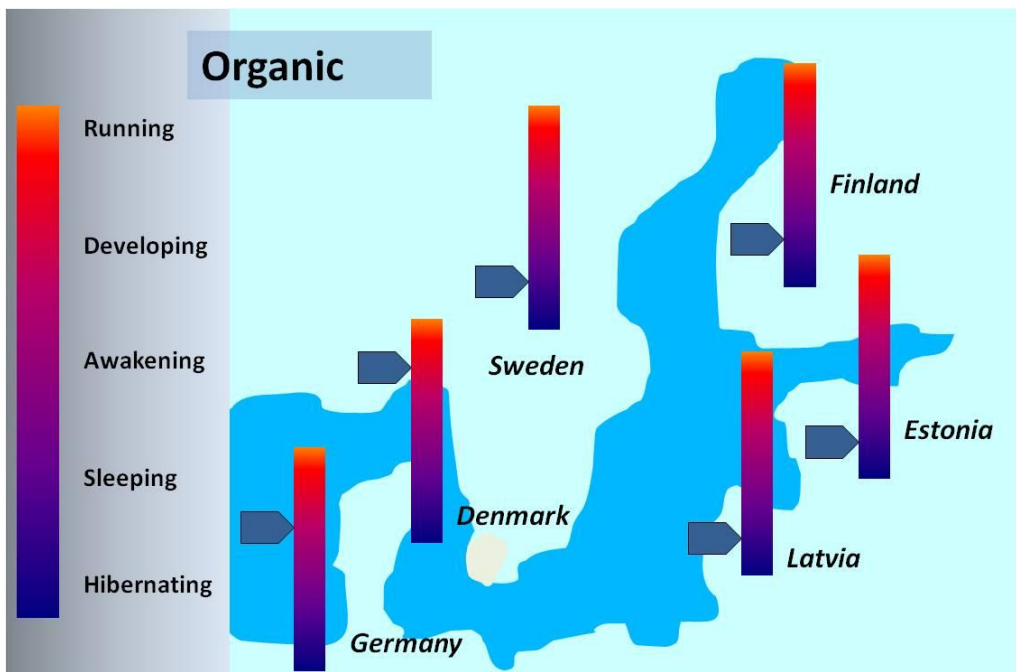


Figure 2. A thermometer graph of the current interest on organic production in aquaculture.

2.3.4 Eco-certification

Countries around the Baltic Sea region have different alternative approaches regarding the application of eco-labelling schemes for aquaculture. Germany and Sweden have national labelling schemes for aquaculture; other countries which do not have own schemes may choose among international scheme. In that case the most relevant private schemes are Aquaculture Seafood Council (ASC), Global Aquaculture Alliance (GAA) or Global G.A.P. Aquaculture Standard. Also the environmental traffic light system of World Wildlife Fund (WWF) is an appropriate alternative for aquaculture certification.

The status of eco-labelled caught fish varies among countries and the markets are not developing in a similar way. In the eastern countries, such as in Estonia or Latvia the markets are growing but remain still marginal, in Finland the products are about to attract more attention, and in Sweden, Denmark or Germany the state of eco-certified fish products is strong. The driving force in changing the market is the retailing sector, which is favouring eco-certificated products, especially MSC.

The production criteria of Aquaculture Stewardship council (ASC) labelling scheme has been just introduced and is about to be applied in Germany and Denmark. The Danish fish farmer's organization has been active in the development of ASC criteria (Thomsen 2013). Because of the activity and pressure of NGOs in these countries, retailers and supermarkets are becoming stricter in sourcing aquaculture products. In the Danish market, an increasing amount of Danish aquaculture production is ASC labelled.

In Sweden the demand of eco-labelled aquaculture products is growing and an increasing amount of certified species is available. The Swedish national eco-labelling scheme (KRAV) includes certified imported species such as, tilapia, pangasius and salmon. The market situation of KRAV-labelled Swedish produced aquaculture product is complex. There is demand for labelled fish, but Swedish farmers are not interested in producing certified fish, because the labelling scheme is considered too expensive and raising the price above the level consumers are willing to buy it. In Finland, the amount of labelled products is small, but similar driving forces are thought to eventually take place in aquaculture products as is occurring in fishery products. In Finland, there is no eco-labelled domestic production and no producers have plans for certification.

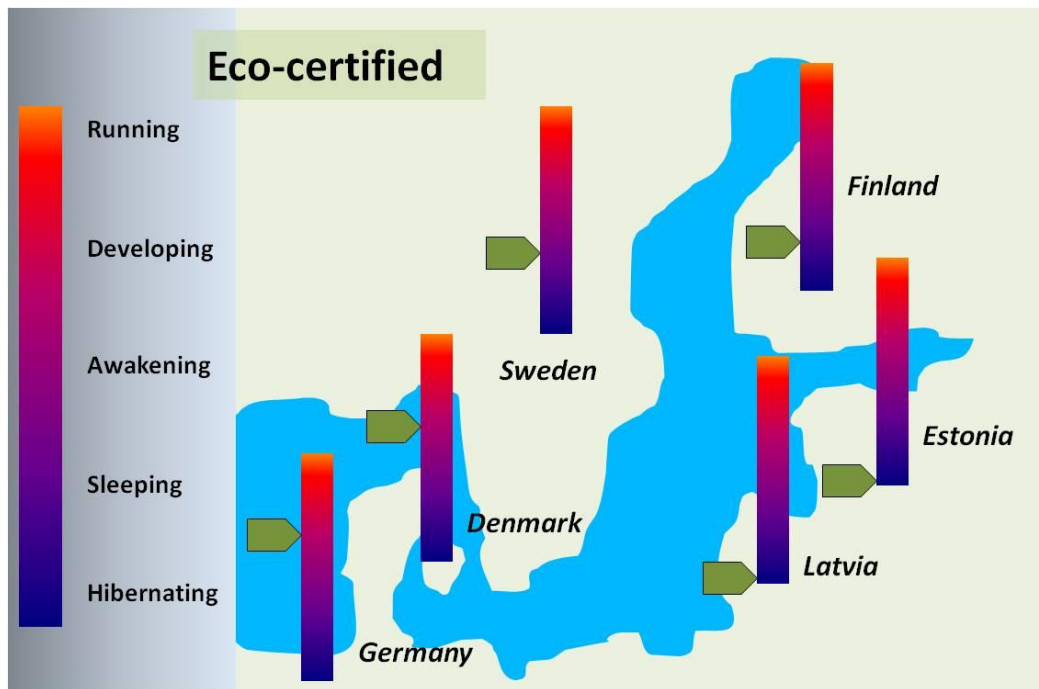


Figure 3. A thermometer graph illustrating the current interest on the use of eco-labels in the aquaculture production.

3. Search for win-win-win in BSR aquaculture certification

3.1. Introduction

This chapter provides an overview of the economic motivation behind aquaculture certification and attempts to outline the key issues relevant for potential BSR specific aquaculture certificates. In particular, the first section discusses the economics of certification and reviews two recently published scientific articles on aquaculture certification. The second section moves the discussion to the Baltic Sea region and aims at identifying topics and issues that are specific to this geographical area in relation to the introduction of new certification and labeling schemes. The final section then aims at identifying the key attributes of a BSR win-win-win label. Most of the material presented in this chapter is based on a presentation given by one of the authors at the AQUABEST workshop in Tallinn in February as well as on the subsequent group discussion.

3.2. Economic background and literature review

3.2.1 Certification and information asymmetry

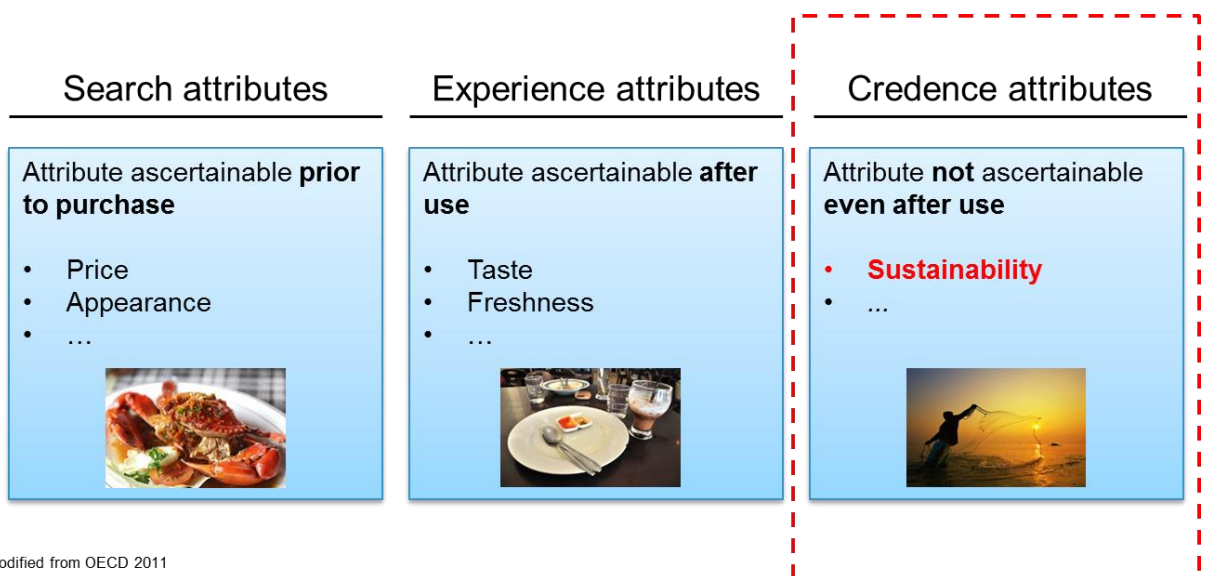
Aquaculture certification schemes are not yet broadly used in the BSR. However, in other parts of the world, the situation is very different. For example, in 2011, a Canadian study benchmarked over 20 different eco-labels used in the marine finfish aquaculture sector (Volpe et al., 2011). Marine finfish

production represents only around 7% of global aquaculture production volume, which illustrates the vast amount eco-labels that already exist on the certification market. The Nordic Council of Ministers has benchmarked seven responsibility schemes applicable for aquaculture in Nordic countries (Nordic Council of Ministers 2008). This kind of a situation is potentially challenging for both the aquaculture industry as well as for consumers. An excess amount of commonly used eco-labels and certificates has the potential to result in “label noise”, which may reduce the aggregate effectiveness of the schemes (OECD 2011).

The economic motivation for aquaculture certification stems from the concept of information asymmetry.¹ As illustrated by Figure 4, the attributes of aquaculture products can be grouped into three different types: search, experience and credence attributes. Search attributes are ascertainable before purchase and include easily observable characteristics such as price and appearance. Experience attributes are ascertainable only after purchase and consumption, and include features such as taste and freshness.

In contrast, credence attributes such as the sustainability of the production of the aquaculture product can never be fully ascertained by the consumer. In economic terms, information asymmetry between the producer and consumer over this last type of attribute is especially large. One potential way to alleviate this information is to introduce a certification scheme that evaluates the sustainability of the production and signals the sustainability of the product.

However, the introduction of a certification scheme replaces the information problem over a specific credence attribute of the product with a new problem of assessing and understanding the characteristics and operational principle of the scheme itself. From this point of view it is easy to understand why “label noise” is potentially harmful, and why it is worthwhile to invest into researching the issues that are topical in terms of the BSR when considering the development of new certification schemes for this geographic area.



Source: Modified from OECD 2011

Figure 4. Certification schemes may mitigate information asymmetry

¹ The discussion here is based on OECD 2011, p. 20-22.

3.2.2 Economic impact from the point of view of different stakeholders

When considering the introduction and implementation of a new voluntary certification scheme, it seems evident that only the schemes that are beneficial for all relevant stakeholders will be able to succeed in the market. In terms of government-initiated certification schemes, the situation is potentially different as the government can use its regulatory power to establish certification schemes that might not necessarily be directly beneficial for all stakeholders.

Regarding voluntary schemes, at least the following stakeholders have a role in initiating and supporting a certification scheme: aquaculture producers, processors, retailers, consumers and the certification/labeling industry. The economic business case in investing and supporting the scheme needs to be beneficial from the point of view of all of these key stakeholders. In Figure 5, the conceptual business case of investing into a sustainability scheme is illustrated from the point of view of an individual aquaculture producer.

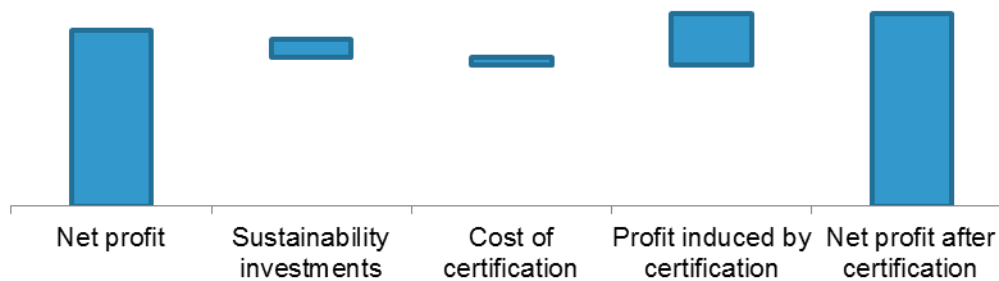
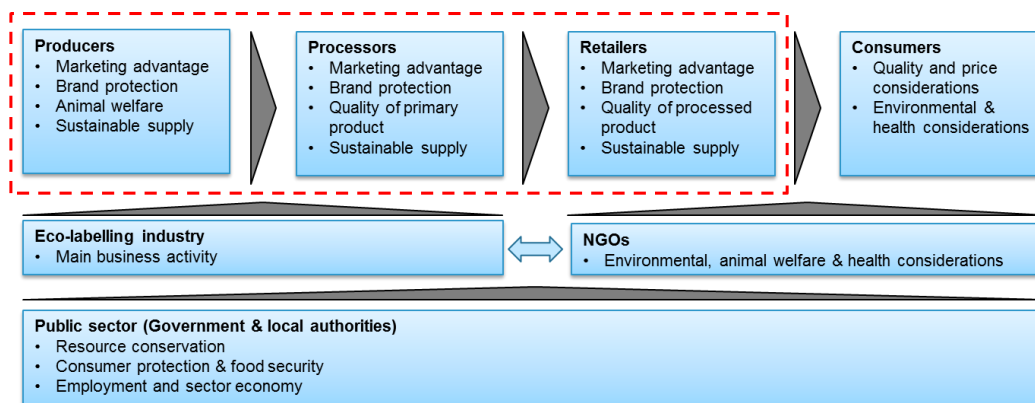


Figure 5. Conceptual business case for an individual producer (illustrative data)

Figure 6 presents an overview of the interests of the various stakeholders in the aquaculture and certification industry. It can be argued that the drivers that affect the investment and profit elements shown in the conceptual business case in Figure 5 are driven by at least these primary interests for each stakeholder. As the interests of the different stakeholder groups vary considerably, it becomes evident that a successful voluntary certification scheme must fulfill a very challenging set of criteria in order to meet the needs of all relevant stakeholder groups and be widely adapted in the market.



Source: Modified from OECD 2011

Figure 6. Stakeholder analysis

3.2.3 Recent literature

Even though the aquaculture certification industry has existed for years, so far there has been relatively little empirical or theoretical research on the impact of existing certification schemes. In this section, we cover two such recent papers. The first one by Roheim et al. (2011) is seminal in that it seems to be the first study to empirically investigate and quantify the price premium induced by eco-labels for a certain type of seafood product. The second study by Tlusty (2012) contains an intuitive theoretical model of the environmental improvements induced by seafood eco-labeling. This model is potentially very useful for those approaching the practical task of defining the specific criteria to be used in a BSR specific aquaculture certification scheme.

Roheim et al. (2011) empirically investigate whether eco-labeled seafood carries an observable price premium over non-labeled products. It may appear surprising that this has not been investigated before, but past research seems to rather have focused on market studies on consumer preferences and consumers' hypothetical willingness to pay a premium for labeled seafood products.² The question of whether there actually is an observable premium seems to be a justifiable one, since e.g. Gulbrandsen (2006) has argued that forestry and fisheries eco-labels have been created as a result of pressure by environmental groups on consumer-facing corporations, rather than in response to real consumer demand.

In their empirical study, Roheim et al. (2011) examine the price premium of Marine Stewardship Council (MSC) certified frozen Alaska Pollock based on a set of scanner data from London area supermarkets collected in 2007-2008. They report that MSC certified Pollock seems to have a 14% price premium over non-certified products after controlling for other relevant factors.

Even though Roheim et al. report a significant positive premium for certified products, several unanswered questions remain open for future research. Firstly, even though their findings seem to indicate that certified products carry an observable price premium, the evidence is limited to only this one empirical study. Secondly, it is unclear whether the premium transmits from the retail level to processors and ultimately to producers and whether or not the premium is large enough to compensate for the associated sustainability investments and certification costs of all the parties. It is also noteworthy that this study concerns certified capture fisheries products: there seem to be no empirical studies on the price premium of certified aquaculture products yet.

In the second paper, Tlusty approaches the question of whether eco-certification drives any significant environmental impacts. He reviews past literature and concludes that past research and evidence on the subject is limited, perhaps because aquaculture certification has existed on a broad scale for only a decade or so. In his paper Tlusty formulates a theoretical model of the impacts of seafood certification programs.

The key takeaway from his model is that the performance thresholds of a successful scheme must be structured based on (1) the pre-certification performance distribution of the assessed criteria/metric and (2) the probability of environmental improvement of individual producers regarding this performance criteria. This is illustrated by Tlusty's graphs in Figure 7. The upper graph (a) shows a traditional approach to environmental certification, where the introduction of a certification threshold T is assumed to result in the entire distribution of environmental impacts shifting left, i.e. in a system-wide reduction in the level of environmental impact. However, Tlusty argues that graph (b) is a more

² See Roheim et al. (2011) for a more in-depth literature review of such studies.

accurate description of the impact of introducing a threshold T: only those individual producers that are close enough to T will have an economic incentive to change their behavior to exceed the requirements set by the threshold and thus become eligible for the certificate. Tlusty coins this phenomenon as the “pull” effect of the threshold.

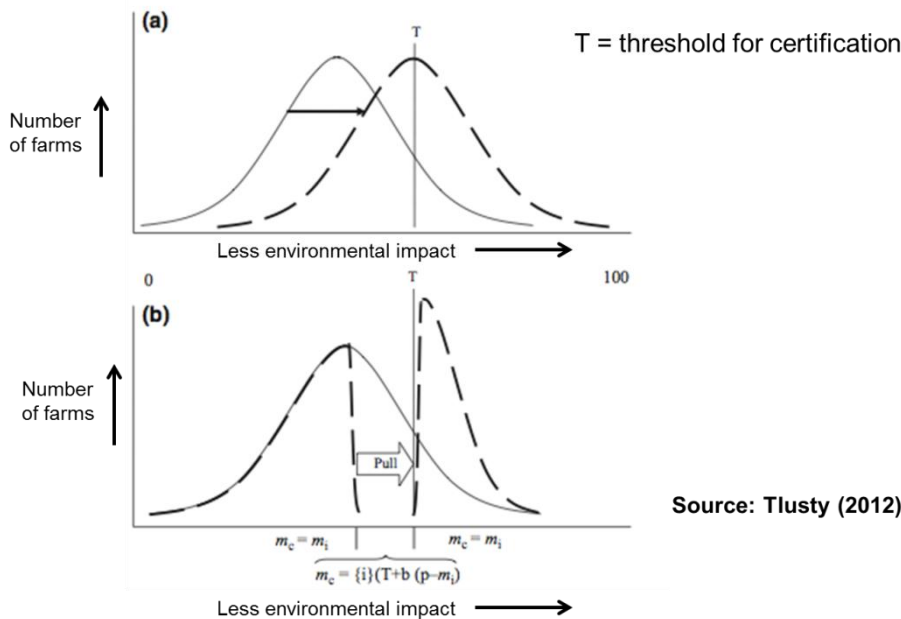


Figure 7. The environmental impact of eco-labeling by Tlusty (2012)

The policy implication of Tlusty’s work is that it underlines the importance of understanding the pre-certification distribution of the environmental impact under certification and the economic dynamics governing the producers’ ability and incentives to exceed the proposed threshold. Only knowing these two factors will allow the designers of a certification scheme to set the performance thresholds to an optimal level.

3.3. Sustainability & BSR aquaculture specific issues

For an assessment of the ways through which a BSR specific aquaculture certification scheme could add value to the industry, one potential starting point is the framework of focus areas used in the UN Food and Agriculture Organization’s (FAO) guidelines for aquaculture certification. Figure 8 presents the four key focus areas of the FAO guidelines and the corresponding labeling mechanisms that could potentially be used to add value to each of them.

When considering these different certification mechanisms (organic production, eco-labels, and local food certificates) it is important to understand that they promote very different purposes and interests and are potentially even in conflict with each other. For example, it is not at all evident that the goals of organic production and the goals of eco-labeling are parallel with each other.

| FAO Guidelines minimum substantive requirement focus areas | Potential certification mechanisms for value-added through voluntary labelling |
|--|---|
| 1. Animal health and welfare | <ul style="list-style-type: none"> • Organic production |
| 2. Food safety | <ul style="list-style-type: none"> • Organic production • Enviromental certificates (ecolabels) |
| 3. Environmental integrity | <ul style="list-style-type: none"> • Enviromental certificates (ecolabels) |
| 4. Socio-economic aspects | <ul style="list-style-type: none"> • Local food certificates |

Figure 8. Identifying the potential for a BSR win-win-win label

It is also noteworthy that of the different potential certification mechanisms, organic production is regulated by EU law and is therefore inelastic from the point of view of BSR specific needs. Organic production in general is regulated by Council Regulation (EC) No 834/2007 on organic production and labeling of organic products. The specific rules for aquaculture production are laid down in Commission Regulation (EC) No 888/2008. The former has been amended by Commission Regulation (EC) No 710/2009, which lays down specific rules on the origin of aquaculture animals (Section 2), husbandry practices (Section 3), breeding (Section 4), feed (Section 5) and diseases prevention and veterinary treatment (Section 7).

3.4. Preliminary attributes of a BSR win-win-win label

Based on the workshop discussions held at the WP3 meeting in Tallin on 6–7 February, at least the following issues were identified as topics that should be considered when introducing new aquaculture certification schemes in the BSR area.

Firstly, a successful certificate must have requirement thresholds that surpass legislative requirements. In the BSR environment, it seems that the focus of the thresholds should be on environmental integrity, as other issues pertaining to e.g. animal welfare, food safety and socio-economic aspects are already relatively well covered by the existing national laws of BSR-area countries. This is a rather different situation with many other countries with aquaculture production where legal systems may be less established due to historical and economic reasons. In this sense, it might be worthwhile to consider whether in some cases it would be sufficient to just certify the BSR origin of the products, i.e. to introduce a BSR-origin / local-origin label that does not per se include any substantive certification requirements.

A second issue that needs to be considered is the maximization of the “pull” effect of the certificate thresholds. This idea is based on the study by Tlustý (2012), who showed that efficient thresholds need to be based on factual knowledge of the pre-certification distribution of the environmental im-

pacts as well as the producers' ability and incentives (the probability) to invest to exceed the threshold after it has been set. Furthermore, the work of Tlusty seems to indirectly indicate that several certificates (e.g. organic v. local v. eco-label) are not necessarily problematic, as long as consumer confusion and the problem of "label noise" can be mitigated.

A third issue relating to BSR-specific environmental integrity is the discussion on closing the nutrient loop. If and when nutrient load compensation mechanisms based on e.g. the use of Baltic Sea feed are introduced, it will become topical to include these features into BSR area certification schemes.

A fourth and important issue is the position of small producers vis-à-vis the certification industry. It is possible that in the medium to long term certification might become a barrier-to-entry to some markets, or even become a requirement for receiving financing from investors. In this case it might become relevant to scrutinize the certification costs (the business models) of different schemes, and e.g. aim for the introduction of schemes where the certification costs scales with production capacity in order to accommodate small producers.

4. Concluding remarks

For consumers, eco-certificates provide an easy way to get information on the sustainability and other credence attributes of the product. In aquaculture, these types of certification schemes are not yet broadly in use in the Baltic Sea region, but the general trend is that their popularity is likely to increase in the near future.

Certification of fish originates from the need to safeguard the sustainable use of a common resource: commercial fish stocks and fisheries. Certification of aquaculture has evolved later and for different reasons.

Social and cultural aspects are essential elements in the concept of local food. Aquaculture is a young industry in the Baltic Sea region. Farmed fish is not perceived as a food with long local traditions and has thus not been among the first foodstuffs benefitting from locality.

In contrast to most other schemes, organic production is regulated by EU law. Therefore it is inelastic from the point of view of specific regional needs. The criteria for organic sourcing of seed and feed cause doubt to the prospects of organic aquaculture and keep the producers cautious and expectant.

The factual environmental benefits of the eco-labels in the stringently regulated western world are somewhat disputable. Stakeholders have different motivations for advocating eco-labels. Retailers, the drivers of development, see a larger variety of eco-labelled products as part of a greener imago of the chain or shops. The NGOs promote their own agendas.

Relevant public eco-certifications like the EU-flower or the Nordic swan are not yet used for food. However, the latter starts to have an impact indirectly by requiring eco-labelled fish sourcing for swan-certified hotels and restaurants.

When used properly voluntary responsibility schemes can expand and diversify the Baltic Sea region aquaculture and strengthen its competitiveness. However, if the driving forces to press labeling are something else than improving the eco-efficiency of the regional aquaculture, the outcome can be serious for the industry. Responsible policies and marketing strategies are required from all stakeholders to avoid this kind of a negative end result.

5. References

5.1. Literature

- FAO 2011. Private standards and certification in fisheries and aquaculture. FAO Fisheries and aquaculture technical paper No. 553. Rome.
- FiBL 2012. Entwicklung von Kriterien für ein bundesweites Regionalsiegel. FiBL Deutschland e.V. und MGH GUTES AUS HESSEN GmbH
- Gulbrandsen, L., 2006: Creating markets for eco-labelling: are consumers insignificant? *International Journal of Consumer Studies*, 30(5), 477–489
- Håkansson, N. 2012. Certifiering – Hållbar fiskodling. Institutionen för geovetenskap, Uppsala Universitet (examensarbete, 22 pages)
- Nordic Council of Ministers 2008. Ecolabels in the Nordic Fisheries and Aquaculture Industry. *TemaNord 2008:577*.
- Roheim C.A. (2008) The economics of eco-labelling. In Ward T. & B Ward (eds.), *Seafood Eco-labelling*, (pp. 38-57). Blackwell, Oxford.
- Roheim, C. et al., 2011: The Elusive Price Premium for Ecolabelled Products: Evidence from Seafood in the UK Market. *Journal of Agricultural Economics*, 62(3), 655–668
- Nordic Ecolabelling 2012. Nordic Ecolabelled hotels, restaurants and conference facilities - Background to ecolabelling 072/Draft of version 4.0 for consultation, 30 November 2012
- Nordic Ecolabelling 2013. Nordic Ecolabelled Bakeries and Bread, Background to ecolabelling Consultation document Product group 082, 2 January 2013
- Oakdene Hollins 2011. EU Ecolabel for food and feed products –feasibility study (ENV.C.1/ETU/2010/0025). A report for DG Environment, European Commission. File reference number: EC—03 251 v2.docx
- OECD 2011. Fisheries and Aquaculture Certification, OECD Publishing. <http://dx.doi.org/10.1787/9789264119680-en>
- Thomsen, B. 2013. Implementation of ASC in Denmark. Presentation in Aquabest-seminar “Towards Smart and Incentive Governance Policy in the Baltic Sea Region Aquaculture” February 6th – 7th, 2013, Tallinn, Estonia, <http://www.aquabestproject.eu/extranet/wp-3-working-papers/wp3-meeting-tallinn-6-722013.aspx>
- Tlusty, M., 2012: Environmental improvement of seafood through certification and ecolabelling: theory and analysis, *Fish and Fisheries*, 13, 1-13
- Volpe, J.P., J. Gee, M. Beck, V. Ethier, 2011. How Green Is Your Eco-label? Comparing the Environmental Benefits of Marine Aquaculture Standards. University of Victoria, Victoria, British Columbia, Canada.

5.2. Information sources of the quick scan

| | LOCALITY IN PRODUCTION | ORGANIC PRODUCTION | ECO-CERTIFIED PRODUCTION |
|----------------|--|---|--|
| Finland | <p>www.proagria.fi Local food, now (in Finnish) - Report of SITRA foundation, #29 2010, Report on local food (in Finnish) - Ministry of Agriculture 2012, www.hyvaasuomesta.fi</p> | <p>www.evira.fi http://ec.europa.eu/agriculture/organic/ www.luomu.fi/pro-luomu-ry/ Organic 50 %; Scenario report on impacts if 50 % of Finnish agriculture switch over to organic (in Finnish) – MTT Agri-food research 2011</p> | <p>http://ec.europa.eu/environment/ecolabel/ www.ymparistomerkki.fi/english www.asc-aqua.org/</p> |
| Sweden | <p>www.krav.se KRAV is a key player in the organic market in Sweden since 1985. We develop organic standards and promote the KRAV-label. WWW.MSR.SE SEMCo is the Swedish government's expert body on environmental and other sustainable procurement. We provide support to the public, business and third sector in the following areas: SEMCo's product-specific criteria for sustainable procurement, the EU Eco-Management and Audit Scheme (EMAS) and Environmental Product Declaration (EPD). http://www.eldrimner.com/ National center for small-scale artisanal food processing. http://www.svensktsigill.se http://www.yrkesfiskarna.se/ Swedish Fishermen's Federation (SFR) is a politically independent organization for Swedish fishermen. SFR, consists of 23 local branches from Haparanda to Strömstad http://www.narfiskat.se/ Närfiskat is a EU project run by SFR</p> | | |
| Denmark | <p>http://www.danskakvakultur.dk/</p> | <p>Ministry of Food, Agriculture and Fisheries of Denmark http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:204:0015:0034:EN:PDF http://www.danskakvakultur.dk/ http://www.okofisk.dk/</p> | <p>http://www.danskakvakultur.dk/</p> |
| Latvia | <p>http://www.zm.gov.lv/ Information of fishing in the inland waters and the sea and information about products in the European aquaculture, fishery product processing</p> | <p>http://www.zm.gov.lv/</p> | |
| Estonia | <p>Homepage of Estonian Chamber of Agriculture and Commerce http://www.epkk.ee/estonian_food</p> | | |
| Germany | <p>Federal Ministry: http://www.bmelv.de/SharedDocs/Standardartikels/Ernaehrung/Wert-Lebensmittel/RegionaleVielfalt.html Expert opinion on regional labelling: http://www.bmelv.de/SharedDocs/Downloads/Ernaehrung/Kennzeichnung/Regionalsiegel-Gutachten.pdf?__blob=publicationFile EU general: Yearly Aquaculture report of EU.</p> | <p>www.fischinfo.de http://www.boelw.de/uploads/pics/ZDF/ZDF_Endversion_120110.pdf www.destatis.de</p> | <p>www.asc-aqua.org/</p> |

6. Appendix

Voluntary responsibility schemes and aquaculture in the BSR countries - Questionnaire form of the quick scan

| | |
|------------------------|-------------|
| National status report | < Country > |
|------------------------|-------------|

| | | LOCALITY IN PRODUCTION | ORGANIC PRODUCTION | ECO-CERTIFIED PRODUCTION |
|--|--|------------------------|--------------------|--------------------------|
| 1. The concept | | | | |
| 1.1 | <i>Aquacultural focus of this report</i> | | | |
| 1.2 | <i>Relevant laws and rules</i> | | | |
| 1.3 | <i>Possible national features of the concept definitions</i> | | | |
| 1.4 | <i>Nationally relevant certification schemes for aquaculture</i> | | | |
| 2. Status, trends and constraints | | | | |
| 2.1 | Food trade and consumption | | | |
| | <i>Food market in general</i> | | | |
| | <i>Fishery products in food market</i> | | | |
| | <i>Aquaculture products in food market</i> | | | |
| 2.2 | Aquaculture production | | | |
| | <i>Current state and development plans</i> | | | |
| | <i>Challenges and contradictions with the regulation</i> | | | |
| Key references | | | | |
| | | | | |