In this issue
Consumer perceptions….1
Why a media analysis?....1
Research objectives…….1
Methodology…………….2
Intensity of media reporting…………………2
Concerns about environmental risks…….2
Importance of economic benefits…………………3
Amplification of human health risks…………………3
Trust and regulations….3
Conclusions…………………3
Implications for risk communication…………………3
Next steps……………..4
Estonia: a case study….4

Programme 4: Assessing consumer perceptions of farmed fish and new diets for aquaculture

The objective of Programme 4 of AquaMax is to devise a framework to communicate the risks and benefits of consuming farmed fish to the public and other stakeholders. This innovative social science project aims to contribute to the development of tailored and effective risk communication strategies regarding the consumption of farmed fish.

http://www.kcl.ac.uk/schools/sspp/geography/research/hrresearch/projects/aquamax

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Why analyse the media coverage of farmed fish consumption?

As fish consumption is foreseen to increase, more and more seafood products will be produced by aquaculture. Nonetheless, problems including misconceptions as to how modern aquaculture as a food-providing sector, with its diverse production methods and novel technologies, is perceived by the public. It is important, therefore, to examine the lay perceptions of aquaculture and how these are formed, so as to enable the creation of strategies as to how accurate and reliable information on risks and benefits can be communicated to the public in future.

The media can be considered one of the most effective means of understanding public perceptions of the risks and benefits relative to food consumption, given its position to be able to set the agenda and provide information to the general public. As such, it is vital to investigate how aquaculture is represented in the media and how its risks and benefits are weighed to be able to identify and elucidate potential issues that affect the public viewpoints.

Research objectives
This AquaMax component looked to identify what information (style, content…) on aquaculture is reported in the media of four European countries (Estonia, Germany, Norway and the UK), how this is reported and how it may change over time.

The research was intended to be exploratory in nature and be used, at a later stage, when comparing the media representations of aquaculture with public perceptions.
The research used a combination of qualitative and quantitative content analysis to highlight different aspects of media representations and public understanding. The time frame of analysis was May 2002 - May 2007. Articles relating to aquaculture were identified from three daily newspapers in each country, comprising two broadsheets and a mid-market or tabloid newspaper, aiming to cover a wide spectrum of political orientations and perspectives.

Table 1 shows which newspapers were chosen in each country. (see below)

The multilingual nature of the study required the selection of search terms/words that were as equivalent as possible to their English counterparts. Hence native speakers were used for the relevant data selection and analyses. Initially, all articles containing the keywords below were collected before conducting a relevancy check, following which several items were excluded from further analysis.

**Intensity of media reporting on farmed fish**

A total of over 1080 articles were analysed. It was found that the UK had by far the highest coverage of the topic (499 articles), followed by Norway (306 articles), Germany (244 articles) and Estonia (31 articles). The data establish clearly that ‘farmed fish’, ‘farmed salmon’, ‘fish farming’ and ‘aquaculture’ in general are receiving heightened media attention and, therefore, have been brought into the public arena as subject matter.

![Figure: Intensity of media reporting](image)

**What do the media report on?**

The media covers a broad variety of issues in aquaculture. However, for purpose of clarity, the overarching themes can be divided into environmental, economic, human health and organisational topics, although different countries clearly vary in their reporting on the more specific risks and benefits within each of these categories.

**Strong concerns about environmental risk**

When grouped together, the reports from the 4 countries show clearly that environmental issues related to aquaculture received the most coverage over the five years of analysis. Environmental thematic reports tend to be negative, focusing predominately on risks - such as escapes of farmed fish into the wild. This is not surprising as there is a high level of scientific uncertainty regarding environmental issues. In Norway especially, environmental risks related to fish health and quality are strongly pronounced.

Also, the media regularly considers fish farming with reference to sustainability issues, such as the sustainability of the fish feeds used or minimizing the exploitation of natural resources.

Various themes related to the sustainability of the aquaculture industry have become major issues in the European media.

Overall, when reporting on environmental issues, the media focuses on risks and neglects potential benefits. A vast variety of environmental risks associated with aquaculture are reported, often using a terminology and phraseology that could heighten public anxieties. The highlighting of such concerns may well contribute to the public perception and image of aquaculture and, consequently, needs to be considered in any proposed communications strategy.
Importance of economic benefits

Economic issues related to aquaculture received the second highest amount of newspaper coverage. In contrast to the environmental issues, economic issues are largely reported in a positive manner and framed in terms of benefits. However, the Norwegian and UK media also report on economic risks.

The reported benefits of aquaculture include the provision of rural livelihoods, employment, the creation of wealth, food security and improved nutrition. Risks reported include the potential reduction of livelihoods and the constant need to produce more and to increase unit productivity. Evidently, both social and economic benefits have to be carefully weighed against risks. The interrelatedness of media reporting on these topics implies that aquaculture is not represented as an isolated industry, but rather as one that is connected to the wider environment and resource use. This indicates that economic, social and environmental issues often go hand in hand rather than separately.

Amplification of human health risk

In all countries, human health issues associated with farmed fish consumption and with fish farming received far less media coverage than either environmental or economic topics. Also, coverage tended to be negative, focusing largely on the health risks at the expense of the health benefits of fish consumption.

However, it should be noted that the Norwegian and Estonian media offered a more balanced view than either the German or UK media, by weighing up the risks and benefits of fish consumption to a greater extent than the latter countries. Yet in all countries, the health risks emphasised the most severe or dreadful possibilities, such as cancer. Additionally, most benefits claimed were rather generic, especially when compared to the specificity of risk statements.

Therefore, it can be argued that health risks were often amplified in the media while the lack of emphasis on positive information could induce the public to conclude that health risks were much greater than any possible benefits.

Trust and regulation

Media coverage also covered a variety of organisational and regulatory risks, such as concerns about the mismanagement of the industry, the lack of regulations and labeling standards, and unease about vested interests.

Therefore, a further risk issue associated with aquaculture is related to the perception of the industry’s regulation. At the present, it may seem that there is a lack of adequate regulation and labeling since specific EU regulations for aquaculture are not yet well developed. Furthermore, a lack of a specific regulatory framework may heighten public anxieties. For instance, unresolved issues of concern include animal welfare, general sustainability topics, components of fish feeds and chemical contamination.

Consequently, consumers may lack trust in the sector and may be apprehensive or confused about current regulatory standards.

Conclusions

Summing up the main themes reported, aquaculture is an activity that may elicit public concerns because of the dominance of reporting on the industry’s risks, often at the expense of its benefits. The potential issues to be addressed, covering environmental, economic, health and regulatory topics, are wide-ranging, highlighting the challenges that lie ahead for the development of risk communication strategies and frameworks.

Implications for risk communication

Overall, this component of the AquaMax project has a number of significant European-wide policy implications. For example, since fish farming and its products touch many factors which have long been identified in the risk perception literature as causing public controversy, it is important to communicate risks in a timely manner since media attention often intensifies when governments appear reluctant to disseminate information. Furthermore, there is already a poor media climate for the aquaculture industry in general, with the salmon farming industry in particular having had numerous strikes against it.

Examining the wide-ranging risks associated with aquaculture, it is understandable how and why the industry and its diverse applications might elicit public concerns. The images put forward by the media are often negative and, although the total coverage of aquaculture and farmed fish may be low in comparison with other social issues, the public has often been exposed to negative information. The media’s amplification of certain risks (such as those related to human health) may skew public perceptions of farmed fish or aquaculture more generally away from the benefits.

This indicates that a particular challenge for risk communication is to be able to present both risks and benefits in a balanced fashion. For example, it is important to balance the risks of fish consumption, comparing contaminants to beneficial components – such as ω-3 fatty acids. Due to the relative lack of media reporting on the benefits of farmed fish consumption at present, it appears essential that these should be addressed in a special communication comparing risks with benefits.

“A particular challenge for risk communication is to be able to present both risks and benefits”
Next research steps

It should be noted that the reporting and framing of aquaculture provided by the media do not necessarily determine the overall interpretations made by the public. Consequently, it is important to study the public's perception in addition to the media analyses. Will the negative image portrayed in the media have impacts on how the public perceives farmed fish? Does the public associate negative images of, for instance, farmed salmon with other forms of aquaculture? If so, this could also have significant impacts on the industry.

Understanding the impact of media reporting on the risks and benefits of aquaculture and fish consumption on lay people's perceptions is an essential research step to develop effective communication.

To this end, focus groups have been conducted in the capitals of seven European states (France, Germany, Greece, Italy, Norway, Spain and the UK). The results of the focus groups are currently being processed and evaluated. We are confident that the knowledge gained will enable us to develop an efficient and effective risk communication framework for disseminating the results of AquaMax.

Estonia: a case study

Overview of media analysis in Estonia by Karin Kruusmaa – Peipsi CTC

Peipsi Center for Transboundary Cooperation (Peipsi CTC) is an international non-profit non-governmental association which aims at providing support to sustainable development and transboundary cooperation in the Lake Peipsi region.

This report aims to provide an overview of the current state and the development potential of fish farming in Estonia, and to present information about media coverage of issues concerning the Estonian aquaculture industry and its products. As part of a study conducted within the AquaMax project, four national newspapers were examined over the period 2002 to 2007 to determine the frequency, genre and tonality of media texts on fish farming.

Such media analysis shows that fish farming in Estonia has not received much attention in recent years. However, some articles address available support measures and fish farming development, and others consider risks associated with farmed fish consumption. We believe there are a number of reasons for such a poor coverage of aquaculture issues in the Estonian media.

First, after the fall of the Soviet regime the fish farming sector in Estonia experienced a deep depression from which it only started to recover in 2000. It was not until 2007 that aquaculture was established as a meaningful branch of the Estonian economy, thanks to economic support provided by the EU through the European Fisheries Fund. However, even with European support, fish farmers are having difficulties in providing the necessary co-financing to establish a competitive industrial activity. Unfortunately, no state support is accessible to cover additional expenses for the development of the sector.

Second is the poor competitiveness of Estonian aquaculture products in the national market place, due to the high production costs of farmed Estonian fish being noticeably higher than the price of salmon imported from Norway. For example, stores sell Norwegian salmon at 5.8 euro/kg, whereas domestic rainbow trout is sold at 9-10 euro/kg. Large supermarket chains prefer to buy cheaper fish because the Estonian market is very price sensitive and customers prefer cheaper products. Moreover, the production volume of Estonian fish farming is so small that it cannot cover the actual regular demand of the supermarkets. In addition, the Estonian government has traditionally pursued very liberal economic policies with the result that Estonian fish farmers are not protected or otherwise supported by the government in local or international markets. There is also a visible lack of cooperation between fish farmers and fish processors.

Finally, there are very few journalists in Estonia capable of writing a professional review about fish farming in Estonia and related issues.

Aquaculture development in Estonia requires the willpower and interest of the Government of the Republic of Estonia. There is an urgent need for investment and support through various measures, programmes, market development and promotion of fish as healthy food, to make local fish available for consumers in every store. It is hoped that fish farming in Estonia will receive proper support in future and that the sector will develop rapidly.