CONSUMER PERCEPTIONS OF FISH FARMING AND FARMED FISH

King’s College London
Prof. Ragnar Lofstedt
Dr. Anne Katrin Schlag

http://www.aquamaxip.eu/
PRESENTATION OUTLINE

1. WP 4.1. To understand the current perceptions the public has towards the consumption of farmed fish
2. WP 4.2. To analyse media coverage of farmed fish consumption
3. WP 4.3. To assess awareness and perception of risks and benefits associated with farmed fish consumption
4. WP 4.4. To formulate communication strategies about farmed fish fed the new diets
5. Conclusions
6. Further research
• **Programme 1:** Development of novel aquafeeds based on sustainable alternatives to fish meal and fish oil.

• **Programme 2:** Health benefits of fish consumption, with a focus on pregnant women and allergic diseases

• **Programme 3:** Safety of fish farmed on the new feeds developed

• **Programme 4:** Perceptions of farmed fish and fish farming by the public.
In recent years, the public has often been presented with conflicting scientific advice about consuming farmed fish.

Food risk tends to be a politically and morally charged issue, which challenges national and international authorities.

Thus the need for effective food risk communication has increasingly been recognized.

Strand 4 of AQUAMAX aims to devise a framework to communicate the risks and benefits of consuming farmed fish to the public and other stakeholders.
WP 4.1 (1) To assess risk perception from presently available data

- Scientific risk and benefit assessments of aquaculture were summarized.
- These were compared and contrasted to risks perceived by the lay public as outlined in the social science literature.
- 15 in-depth elite interviews with scientific experts on aquaculture were conducted in Norway, the UK and Estonia.
- Results from the expert interviews and the detailed literature review provided the basis for the topic guides and the conduction of the cross-cultural focus groups in WP 4.3.
WP 4.1 (2) HISTORICAL ANALYSES OF PUBLIC PERCEPTIONS TOWARD FARMED FISH AT PRESENT

- Public perception literature on aquaculture is very limited.
- Hence we conducted longitudinal media analyses in WP 4.2.
- Print media in Estonia, Germany, Norway and the UK was analyzed in-depth over a five-year timeframe showing historical developments in reporting on farmed fish.
- Media representations will have an impact on public perceptions on the topic.
WP 4.1 Milestones

4.1.1

- Gain a scientific understanding of the true risks and benefits of consuming farmed fish. COMPLETED

4.1.2

- Gain a knowledge of how public perceptions toward eating farmed salmon have changed over time and whether these perceptions differ between the various nations in Europe. COMPLETED
WP 4.1 DELIVERABLES

4.1.1

- A report submitted to DG Research discussing the true risks and benefits of consuming farmed fish. COMPLETED

4.1.2

- Manuscript will be prepared for a suitable peer reviewed journal on how public perceptions of eating farmed salmon has changed over time and whether these perceptions differ between the various nations in Europe. COMPLETED
WP 4.2 Media coverage of farmed fish

- In-depth exploration of media representations of aquaculture
- How does the media in various countries portray risks and benefits of farmed fish?
- What risks are amplified/attenuated and where?
- Aquaculture dataset will be utilized to compare media representations to public perceptions
  - The impact of media amplifications or attenuations of aquacultural risks on lay perceptions can be examined
WP 4.2 Methodology

- Media coverage on farmed fish and aquaculture in Estonia, Germany, Norway and the UK

- **Timeframe:** May 2002-May 2007

- **Keywords:** “aquaculture”, “fish farming”, “farmed fish” and “farmed salmon” (and their native equivalents)

- **Sample:** 1080 articles

- Data analyzed with Atlas/ti (Version 5.2) which permits both quantitative and qualitative analyses (Muir, 1998)
**Intensity of Media Reporting**

*Fig 1: Media intensity graph*

Note 1: May 2003 figures are annual figures from May 02 to May 03

UK Aquaculture Forum
OVERVIEW OF RESULTS

- Media report on broad range of risks and benefits
- In order of decreasing frequency: environmental, economic, and human health issues. Further: trust/vested interests
- Environmental issues framed in terms of risk and reported in negative tone
- Economic issues largely framed in terms of benefit and reported in positive tone
- Health issues generally framed in terms of risks and reported in negative tone
  - Amplification of human health risks at expense of benefits
WP 4.2 MILESTONES

4.2.1.

• Gain an understanding whether the European wide print media have amplified the risks and/or attenuated the benefits regarding their coverage of farmed fish consumption. COMPLETED

4.2.2.

• Assess whether there are any significant differences between the various nations’ media with regard to handling news of farmed fish consumption. COMPLETED
WP 4.2 DELIVERABLES

4.2.1.

- A descriptive and analytical report submitted to DG Research on how the European wide print media has amplified the risks and/or attenuated the benefits regarding their coverage of farmed fish consumption. COMPLETED

4.2.2.

- Manuscript will be prepared for a suitable peer reviewed journal assessing the significant differences between the various nations’ media with regard to handling news of farmed fish consumption. UNDER REVIEW
NEED FOR CONSUMER RESEARCH

• Aquaculture operates in a world served by media (Consensus Stakeholder Workshop on Sustainable Aquaculture, 2005)
  ➢ Media place more emphasis on negative than positive information

• Media is dynamic interpreter of risk and has impact on public opinion but framings do not determine public’s interpretations—messages may be interpreted differently, plus public may be critical of media reporting on risk (Hoijer et al, 2006)

• Public not passive recipient of information (Petts et al, 2001)
  ➢ To what extent do the images portrayed by the media impact public perceptions?
WP 4.3. To assess awareness and perception of risks and benefits associated with the consumption of farmed fish

- **Location**: Four focus groups each in the capitals of: France, Germany, Greece, Italy, Norway, Spain and the UK
- **Segmented sample**: Young professionals, mature professionals, housewives/husbands with children, C/D/E
- **Timeframe**: January-March 2009
- **Topic guide**: based on literature review and elite interviews
- Verbatim translation and transcription of all audio files
- Qual and quant data analyses with Atlas/ti (Muir, 1998)
WP 4.3 MILESTONES

- **4.3.1.** Setting up the focus groups. With the assistance of a professional recruiting firm in London identify four distinct population subsections in seven European member states. **COMPLETED**

- **4.3.2.** Completion of all 28 focus groups in the countries selected. **COMPLETED**

- **4.3.3.** An analysis of all 28 focus groups will be conducted using a number of different qualitative and quantitative computer research packages. **COMPLETED**

- **4.3.4.** The collection of informed consent forms of all participants of the EU-wide focus groups. **COMPLETED**
WP 4.3 DELIVERABLES

- 4.3.1. Report to DG research describing the starting point to build awareness for risks and benefits associated with consumption of farmed fish and strategies aimed at overcoming prejudices of eating farmed fish. COMPLETED

- 4.3.2. Summaries of tone of each focus group and transcriptions. Transcriptions/summaries will be sent to DG Research. COMPLETED

- 4.3.3. Analysis of the focus groups will be summarised as 30-40 page report and submitted to DG Research (COMPLETED) along with shorter more succinct research article.

- 4.3.4. Information sheets and consent forms of focus groups. Informed consent forms completed by all focus group participants in seven EU countries have been collected in the native languages. COMPLETED
Our focus groups...
RESULTS: MULTIDIMENSIONALITY OF RISK

1. Health: Benefits outweigh risks
2. Environmental risks
3. Economic: Risks vs. benefits
4. (Lack of) trust
5. Unfamiliarity and anchoring
6. Ambivalence and lack of knowledge
HUMAN HEALTH BENEFITS

- Health benefit general
- Omega3
- Fish is healthy
- Part of balanced diet
- Lighter than meat
HEALTH BENEFITS

- Well known generally both between and within countries
- Awareness of benefits of Omega 3
- Fish is perceived as a healthy food “Fish is good for you”

MR: “No one tells us you need to eat fish for this or that reason, they always say eat fish but no one explains why...” (MP, Italy)
**Health Risks**

- Mercury and toxins due to polluted oceans: “Mercury contamination in the sea seems to be the norm” (YPs, Germany)

- “Antibiotics and colourings” used in fish farming

- But: far more concern about fish poisoning, seafood allergies, and choking on fish bones!

FR: “What really worries me is when the fish is not fresh...I know how bad it is to get poisoned by fish” (MPs, Greece)
ENVIRONMENTAL RISKS

- Risks far more pronounced than benefits
- Environmental impacts of BOTH fish farming and fishing as significant problem
- Strong cross-cultural divergences, e.g. little concern in Greece, France and the UK, higher concern in Germany (sustainability) and especially Norway (escapes)
- Perceptions of uncontrollability and irreversibility
  - Uncertainty and confusion
ECONOMIC ISSUES

Destroying local economies  
Fish is expensive  
Farmed fish cheaper  
Developing local economies  
Profit

UK Aquaculture Forum
ECONOMIC RISKS VS. BENEFITS

- Perception of both risks and benefits
- Fish often perceived as “expensive”
- Farmed fish perceived as “cheaper” - benefits of aquaculture
- Cross-national differences, e.g. in Spain aquaculture is perceived as destroying local economy, in Norway it is perceived as developing the economy
- Aquaculture industry is regarded as very profitable - but who gains and who loses? Are gains/losses shared equally?

Moving away from the scientific risks and benefits...
DESIRE TO TRUST

- Trust is important dimension of lay risk perceptions of farmed fish (Luoma and Lofstedt, 2007)
- Local production more trusted and desired
- People want to trust: “we are not experts, are we? So we want to put our faith in the hands of experts to help us, who are paid to do that, people who know about that” (CDE, UK)
- Differences between countries, e.g. Norway very trusting in comparison to other countries
- Further differences related to social class. Lower SES seem to be more trusting- or have more need to trust
## WILD VS. FARmed FISH

<table>
<thead>
<tr>
<th>Wild fish</th>
<th>Farmed fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural, healthier, fresher</td>
<td>Unnatural</td>
</tr>
<tr>
<td>Familiar</td>
<td>Unfamiliar, novel</td>
</tr>
<tr>
<td>Trusted</td>
<td>Concern with mass production</td>
</tr>
<tr>
<td>Local</td>
<td>Industrial</td>
</tr>
<tr>
<td>Fair</td>
<td>Unequal profit distribution</td>
</tr>
<tr>
<td>Expensive</td>
<td>Cheaper</td>
</tr>
<tr>
<td>Heavy metals</td>
<td>Chemicals and antibiotics</td>
</tr>
<tr>
<td>Overfishing</td>
<td>Habitat destruction</td>
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</tbody>
</table>
ANCHORING IN AGRICULTURE

MR: “There are increasing problems with fish- as with everything else that is mass produced. And especially when you have more fish per cubic metre than is the case in real nature. And if they are so dense and close to each other they fall ill more easily. And often the feed is of doubtful origin. They are often fed fish meal, so fish are being fed fish, similarly to what happened with cattle and BSE. Antibiotics are added as well of course and who knows what else they are fed…”

(HHs, UK)
CONCLUDING WP 4.3

- We investigated how various European publics perceive risks and benefits of farmed fish and fish farming.
- Some of the information required is obvious, e.g. research on the environmental impacts and food safety of aquaculture.
- But some less obvious concerns, e.g. concerns with trust and naturalness.
- These are significant elements for inclusive public dialogue and policymaking about aquaculture.
  - To ensure consumer acceptance it is important to address these issues timely and efficiently.
WP 4.4. To formulate risk communication strategies about farmed fish based on information derived from WPs 4.1-3.

- WP 4.4 was based on all preceding WPs
- Incorporating results of literature review, elite interviews, and focus groups, WP 4.4. was based on the mental model approach to risk communication (Granger Morgan et al, 2001)
- This method further elucidated the particular issues to be communicated and offered a range of implications for the development of risk communications.
WP 4.4 MILESTONES AND DELIVERABLES

Milestones

- 4.4.1. Gain an understanding of current expert and lay mental models of the risks and benefits of farmed fish. COMPLETED

- 4.4.2. Develop a framework for risk communication strategies about farmed fish for various European agencies. COMPLETED

Deliverables

- 4.4.1. A report presented to FAO, FSA, MSC and other stakeholders providing implications for risk communication strategies. COMPLETED
IMPLICATIONS FOR RISK COMMUNICATIONS

- Concern with production methods rather than end product
  - At present, fish often not associated with farming
  - Aquaculture following the trajectory of agriculture?

- Farmed fish touches on risk dimensions identified in the social science literature as being a catalyst for public concern
  - Consumers are likely to be alerted to any new food scares

- Different concerns resonate with different national cultures: fish consumption practises and perceptions of farmed fish vary throughout Europe.

- There is no European consumer *per se*
  - Communication strategies to be adapted cross-nationally.
IMPLICATIONS FOR INDUSTRY

- Public concerns extend beyond scientific risk assessments to concerns with nature, trust, uncertainty, uncontrollability, etc.

- “Trigger factors” identified in the social science literature as being a catalyst for public concern- hence the industry cannot afford any controversial incidents as
  - Consumers are likely to be alerted to any new food scares

- Terminology and labelling need to be clarified

- Uncertainty and confusion but desire to find out more

- Ambivalence and lack of awareness and knowledge
  - Now is the time for credible public communications
CONCLUSIONS I

- Their lack of knowledge is a recurrent concern for consumers.
- Consumers request balanced information and a continuous communication flow.

- A public communication needs to be balanced outlining both benefits and risks of aquaculture.
  - A focus solely on benefits will be considered as a PR exercise by the public and is unlikely to be trusted.

- The industry needs to show itself as trustworthy as trust cannot be demanded but has to be earned.
  - The asymmetry of trust
CONCLUSIONS

The European aquaculture industry is in a good position.

Despite negative consumer perceptions about certain issues, e.g. environmental risks, public perceptions are ambivalent with consumers weighing up both risks and benefits.

The European public is not prejudiced against consuming farmed fish, but rather undecided towards it.

As such, the future conduct of the industry is of major importance to build and maintain consumer confidence.

Future consumer perceptions and the acceptability of farmed fish and fish farming depend on the socially responsible development of the aquaculture industry.
Dawn of the Frankenfish:
Fast-growing
genetically modified
tROUT AND SALMON
could soon be the first
transgenic animals on the table.
Further research planned based on current findings:

- Comparisons of media and public perceptions
- Representative survey to estimate population prevalence of exploratory findings
- Publication of risk communication strategies about farmed fish in book format
- Dissemination of knowledge
DISSEMINATION OF KNOWLEDGE

- Aquamax General Meeting. Istanbul, October 2007
- Aquamax General Meeting. Florence, September 2008
- Society for Risk Analysis, Boston. December 2008
- Society for Risk, Analysis Europe. Karlstad, July 2009
- Consultation FSA, London. May 2009
- FEAP Newsletter April 2009
- King’s College London Newsletter June 2009
- http://www.kcl.ac.uk/schools/sspp/geography/research/hrg/projects/aquamax.html
DISSEMINATION OF KNOWLEDGE

- King’s College London. London, Jan 2010
- DG Sanco. Brussels, Feb 2010
- FSA. London, March 2010
- MSC. London, March 2010
- FAO. Rome, March 2010
- Keynote speech at the 2nd International Congress on Seafood Technology. Anchorage, May 2010) [Book chapter in preparation]
- Contributions to FEAP newsletters
- AQUAMAX Workshop and Symposium at SRAE. London, June 2010
- Seafood and Health Conference. Melbourne, Nov 2010
THANK-YOU!


SELECTED REFERENCES


