

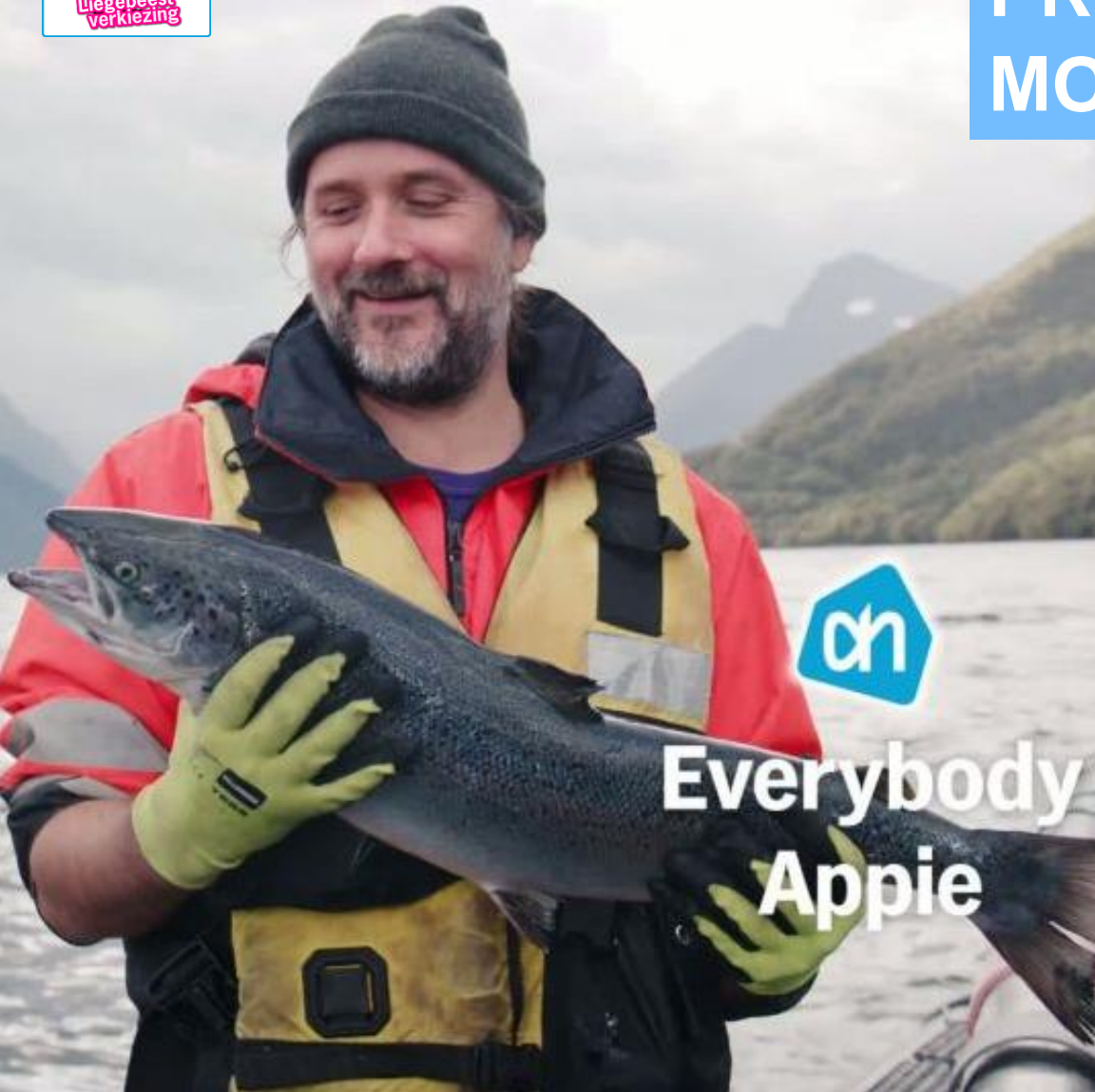
Feasibility of sound animal-based welfare criteria for farmed pangasius and Atlantic salmon (SMP 17005)

14 December 2017





PROJECT MOTIVATION



- Increased media attention for animal welfare: AH Lievebeest nomination “Happy Salmon”
- Absence of fish welfare label: “Beter Leven” label already implemented in livestock industry
- Expand welfare attention to international and pangasius value chain: cooperation with Vietnamese SME and science institutions
- In our project we focus on animal welfare during production of farmed pangasius and Atlantic salmon. Welfare is a theme within the concept of sustainability. Hence, our approach complies with the roadmap Internationalization of the Topsector Agri & Food.

PROJECT TIMELINE

FEASIBILITY
IN THE SUPPLY CHAIN

01
DEFINITION WELFARE
Selection of animal
welfare criteria

02
REVIEW
Existing certification
schemes & legislation

03
UNDERSTANDING
Atlantic salmon &
Pangasius value chains

04
IDENTIFY
Improvement
opportunities

Kick off

May '17

Dec '17

CONSUMER
COMMUNICATION

+
CONSUMER RESEARCH
Opportunities for communication



PARTNERS

FROM ALL DISCIPLINES

MARKET

Albert Heijn
Marine Harvest Pieters
Anova Seafood

PRODUCTION

Marine Harvest GRDT (Norway)
Vinh Quang Corporation (Vietnam)

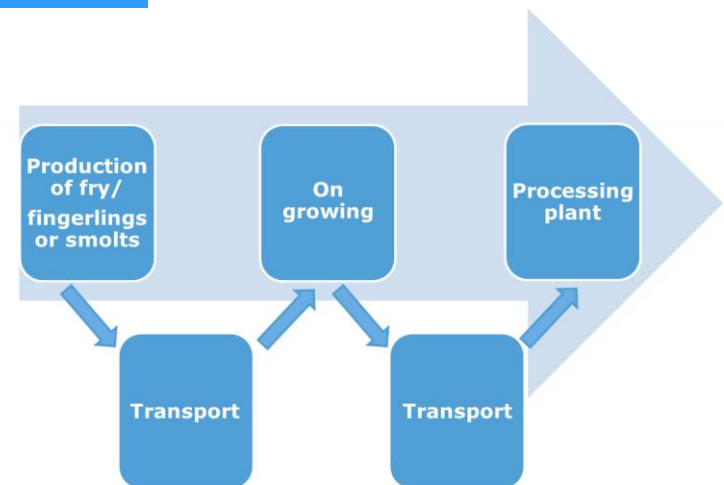
NGOs

Dierenbescherming
ASC

SCIENCE

Wageningen Livestock Research

SCOPE



LIST OF STAKEHOLDERS

Newsletters sent to inform the following stakeholders on the goal and status of the project:

- ILVO
- SAS Consultancy
- RSPCA/ RSPCA Assured
- CBL
- GLOBALG.A.P.
- Compassion in World Farming
- Eurogroup for Animals
- Vissenbescherming
- Good Fish Foundation
- Visfederatie
- Wakker Dier
- WNF
- University of Copenhagen

01 DEFINITION OF ANIMAL WELFARE

A combination of input-based and animal-based criteria

- Animal welfare is a **multi-faceted concept** and can be defined in different ways. The allostasis concept is used to distinguish challenges that are within the limits of the capacity of animal to cope with them from those that are outside of these limits
- **Input-based criteria** are based on the allocation of resources or aspects of management (e.g. water quality parameters, density parameters, feed parameters).
- **Animal-based criteria** reflect the actual welfare state of the animal in terms of their behaviour, fearfulness, health, physical condition, etc. (e.g. swimming patterns, feed intake, growth rate, diseases, wounds and other damage).
- Input-based criteria must be **supplemented** by animal-based criteria.

01 DEFINITION OF ANIMAL WELFARE

Four main questions to assess animal welfare

- Key to all definitions is that **poor welfare is associated with overtaxing** the coping capacity of animals, which may result in chronic stress-related physiology and behaviour, pathology, and increased mortality.
- The EU project Welfare Quality® has developed a system that boils down to the following questions:
 - Are the animals **properly fed** and supplied with water (for fish water with appropriate quality)
 - Are the animals **properly housed**?
 - Are the animals **healthy**?
 - Does the **behaviour** of the animals reflect optimized emotional states?

02 REVIEW OF SCHEMES & LEGISLATION

Welfare quality criteria are partly covered in a wide range of schemes, published models and legislation

PRIVATE STANDARDS

RSPCA Assured
GLOBALG.A.P.
ASC
GAA/BAP
Beter Leven

PUBLISHED MODELS TO ASSESS WELFARE

SWIM model (Institute of Marine Research)
Welfare Quality (this scheme was selected)
Concept of allostasis

LEGISLATION

EU Regulations on Organic Aquaculture
Norwegian legislation
Vietnamese legislation

GUIDELINES

OIE (World Organization for Animal Health)
FAO Technical Guidelines

02 REVIEW OF SCHEMES & LEGISLATION

Welfare Quality reworked for fish, using the allostasis concept

GOOD FEEDING

ABSENCE OF PROLONGED HUNGER

Fish must be fed sufficient feed.

Feed must be of optimal nutritional composition

Feed must be administered in an appropriate manner

Do not feed if disadvantageous for welfare

ABSENCE OF OSMOTIC IMBALANCE

GOOD HEALTH

PREVENTION OF INJURIES

Health checks

No recurring physical damage

Monitoring physical injuries and damages

Daily inspection of behaviour

Effective lice control

Care in handling

Avoid stress and injuries: farm, transport, slaughter

Minimize cannibalism

GOOD HOUSING

COMFORT AROUND RESTING (tb redefined)

Sound stocking densities

Sufficient space

Enclosures/tanks that take into account species-specific needs (enrichment)

Restrictions to use of artificial light

Use of well-designed enclosures and tanks

THERMAL COMFORT

Avoid great changes in water temperature

Temperature at appropriate level for life stage

Transportation in suitable tanks

Temperature monitoring and control

EASE OF MOVEMENT

Maximum stocking densities

Avoid over-crowding in transport and waiting pens

Monitoring effect of stocking densities and control of water quality.

Define upper limits for time out of the water

Avoid excessive pre-harvest stress

02 REVIEW OF SCHEMES & LEGISLATION

Welfare Quality reworked for fish, using the allostasis concept

GOOD HEALTH

PREVENTION OF DISEASE

- Regular visits by veterinarians
- Updated and maintained VH(W)P
- Health management based on prevention
- Prescriptions on how to dispose of dead fish
- Upper limits for mortality
- Vaccination programmes
- Limitation on antibiotic treatments
- Monitoring of health status
- Adequate staff training

ABSENCE OF PAIN INDUCED BY MANAGEMENT PROCEDURES

- Minimized handling
- Properly applied vaccination
- Fish stunned effectively prior to killing
- No avoidable pain during transport and slaughter
- Adequate staff training

OTHER

APPROPRIATE BEHAVIOUR

EXPRESSION OF SOCIAL BEHAVIOURS

- Compliance with species-specific needs
- Adequate space for movement
- Behaviour is an indicator of welfare
- Equipment designed to meet welfare needs

EXPRESSION OF OTHER WELFARE RELATED BEHAVIOURS

- Monitoring of behaviour
- Predictable interactions with conspecifics
- Structures in tanks taking into account the fish's needs

GOOD HUMAN-ANIMAL RELATIONSHIP

- Fish shall not be handled unnecessarily
- Adequate staff training
- Predictable and positive interaction with animals

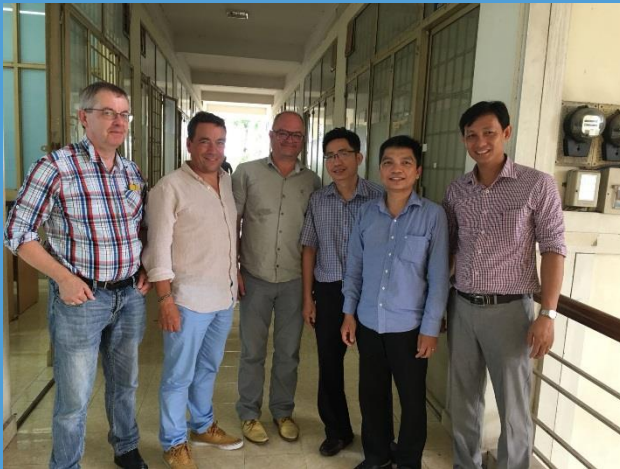
BALANCE BETWEEN POSITIVE AND NEGATIVE EMOTIONS

03 UNDERSTANDING THE VALUE CHAIN

Visit to Vietnamese SME

■ GOAL:

- **Understand** pangasius supply chain from an animal welfare perspective, in consultation with RIA2
- **Dialogue** on awareness, necessity and willingness to improve animal welfare
- Early identification of potential improvement **opportunities** in the value chain



03 UNDERSTANDING THE VALUE CHAIN

Visit to Norway

■ GOAL:

- **Discuss** welfare issues during production of Atlantic salmon and how to assess welfare in practice
- Discuss improvement **opportunities** in the value chain



04 IDENTIFY IMPROVEMENT OPPORTUNITIES

Species-specific criteria and improvements

- **Awareness** and **willingness** in both value chains to improve/optimize animal welfare
- Implementation of animal welfare practices is **species-specific**
- Several **opportunities** identified for raising the bar:
 - Norway:
 - Use available databases to identify improvement opportunities, e.g.:
 - Aggression during production of smolts
 - Sea lice control
 - Vietnam:
 - Further research on welfare criteria in different stages, e.g.
 - Breeding programs
 - Disease (mortality)
 - Transport
 - Slaughter
- Avoid that workers have to fill out endless lists to assess animal welfare

GOAL

Qualitative consumer research to find out how to communicate with consumers about welfare of (farmed) fish

RESULTS

- Increased awareness on health and reliability of food
- Fish is healthy, easy, tasty
- Barriers to eat more fish: Expensive, lack of cooking skills/creativity, 'ghost-stories'
- Confusion on origin, production and sustainability of fish
- Fish welfare is not top of the mind
- It may be 'the next big thing' in years to come
- Consumers wish one label for 'good fish'



**CONSUMER
RESEARCH**

(funded outside SMP)

We Love



CONSUMER RESEARCH

(funded outside SMP)

CONCLUSIONS & ADVICE

- Short term: Increase consumer awareness and knowledge about (good) fish
- Mid-long term: Further improve (farmed) fish welfare and communicate about it
- Use one label for 'good fish'
- Utilize the credibility of the local SPA (country-specific, NL: 'Dierenbescherming')
- Use a dual label: ASC with added recognizable element of/endorsed by the 'Dierenbescherming'



Note: The above 'dual label' example is only an attempted visualization of the idea and is not meant to suggest this would be the future dual label

weLane

PROJECT CONCLUSIONS & ADVICE

FEASIBILITY IN THE SUPPLY CHAIN

All project members agree on the **feasibility**/necessity of implementing animal-based welfare criteria in the aquaculture chain, which requires species-specific criteria

CONSUMER COMMUNICATION

There is a clear need of and potential for **increasing consumer knowledge** about fish species, origin, storytelling and animal welfare

FOLLOW-UP PROJECT

A follow-up project consists of:

- 1) **Research & implementation:**
 - **Salmon:** Additional desk top study and implementation in practice for salmon. A pilot study on implementation
 - **Pangasius:** Experimental studies on transport and stunning to establish criteria for pangasius. A pilot study on implementation
- 2) **Set levels for animal-based criteria supplemented with input-based ones** for animal welfare standard in aquaculture



QUOTES

From project partners

“Cooperation is a necessity to improve the welfare of fish and to create an innovative market with high standards. In this project the cooperation between the participants was very good and promising results have been achieved. The Dierenbescherming is very interested in a follow up of the project in which we can take the next steps towards the application of fish welfare parameters in an existing market concept.”

Dierenbescherming

“The project has been very valuable in creating a framework for further development and fine-tuning of farmed fish welfare criteria for farmed Atlantic salmon and pangasius, based on existing legislation, schemes and standards. It also resulted in a high level of co-operation between and consensus among project partners, with the common aim of developing sound and relevant welfare labelling for farmed fish. We believe this project forms a solid basis for future work.”

Marine Harvest Group

“We believe the project has been a good first step to get a clear understanding of animal based criteria and understand the pangasius supply chain from an animal welfare point of view. We will provide our knowledge and expertise on welfare aspects in a second phase for further research and development for welfare labelling.”

Vinh Quang Corporation

“Our multi-disciplinary project is a first step forward to optimise welfare of farmed pangasius and Atlantic salmon. The first step is essential for the development of a relevant welfare label for both species that is sound and understandable for consumers. Our collaboration in the project was productive and pleasurable. Wageningen Livestock Research is eager to take part in a follow up of this project.”

Wageningen Livestock Research

QUOTES

From project partners

“The discussions and cooperation within this project was pleasant, constructive and effective. We were able to reach a common understanding, approach and conclusion related to fish welfare indicators. There is a need for a follow-up project in which criteria, certification and communication will be defined. Ultimately this will lead to animal welfare labeled seafood products. We believe there will be a market need for such products. We are willing to contribute to a follow-up project.

Albert Heijn

“We believe the project has set a solid basis to proceed to the next stage. Via a constructive dialogue with all relevant stakeholders, we were able to get a common understanding on the concept of animal welfare and reach consensus on the fish welfare criteria for farmed salmon and pangasius. We have identified areas that need further research and development for the next phase, in which Anova will participate in providing knowledge and expertise of pangasius welfare in aquaculture.”

Anova Seafood

“The fish welfare project was a useful multi-stakeholder explorative study that demonstrated a market need that is worthwhile to further develop. ASC is committed to continue its involvement and support key stakeholders in the development of the first set of fish welfare criteria together with the broader stakeholder community.”

ASC