

# Remit for the evaluation of the scientific basis of the traffic light system

## Background

The Norwegian aquaculture industry is governed by an extensive set of regulations, aiming to ensure environmental sustainability, fish health and welfare and predictability for the industry. A new system was first put into action in October 2017 where the impact of salmon lice on wild salmonids is used as an indicator for production capacity regulation in Norwegian salmon and trout aquaculture. The scientifically documented effects were used by the government to determine the threshold for low, medium or high impact of sea lice. The coast(-line) was divided into 13 production regions - and a colour coding scheme was introduced – green, yellow and red, hence the ‘traffic light’ system, to identify regions where the industry is allowed to grow, stay the same, or where farmers must reduce their production capacity. The ambition is to combine sustainable growth in the salmon farming industry with conservation of the wild salmonid populations.

The maximum amount of fish a fish farmer can have in the sea at any given time is set by the Ministry of Trade, Industry and Fisheries (the Ministry). In 2020, the Ministry decided for the first time that production capacity will be reduced for two red regions, and thus it can be said that for the first time the full force of the "traffic-light" management system has been applied to the Norwegian aquaculture industry.

As described above, the estimated impact of salmon lice on wild salmonids, along with the governmentally decided threshold, is used as the indicator for adjusting production capacity for the Norwegian aquaculture industry. The impact of salmon lice on wild salmonids is assessed annually by the Expert group appointed by the Steering group. The Steering group coordinates the work, and reports to the Ministry. The Expert group does an overall scientific analysis of salmon lice impact in the various production areas based on all available knowledge. The analysis encompasses a set of models that are central to predict the lice impact. The input variables to the models are the lice-counting by the industry, data from the national monitoring program for salmon lice on wild salmonids, data for migration of salmonids from freshwater into the sea, the time wild salmonids spend in areas where they are exposed to salmon-lice and a variety of other sampling points and methods. The division of work and responsibility, with the Steering and an Expert groups, was initially based on the approach used by ICES where a working group brings together the best scientific experts in their relevant fields carry out the analysis and an advisory group receives their report and compiles the recommendations.

Every second year the Ministry considers the need for adjustments of the production capacity for each production region, and its colour code. The decision is based on the recommendations from the Steering group, but also opens up for socio-economic considerations by the Ministry. The Steering group is responsible for providing all relevant knowledge and gives the Ministry annually recommendations related to capacity adjustments. The Steering group gave its first recommendations to the government in May 2017 based on data from 2016.

Until now, only Atlantic salmon has been included in the Traffic light evaluations as more is known about the effects of salmon lice on mortality and population status of salmon than for brown trout and Arctic charr. However, the Ministry has initiated the process of also including trout and charr.

The Research Council (RCN) has been commissioned by the Ministry to evaluate the scientific assessments related to the traffic light system.

## **Purpose of the evaluation**

The traffic-light system is based on scientific advice and is a constantly evolving system. Decisions based on the traffic light system are of great importance to the salmon and trout aquaculture industry and the fate of the wild salmonid populations along the Norwegian coastline. The impact of salmon lice (from farmed salmon and trout) on wild salmonids is also an area of scientific debate with strong advocates holding a variety of positions in the scientific community, politics and the public debate. It is therefore important for the Ministry to evaluate the scientific basis as a quality assurance of work on the traffic light system.

The purpose of the evaluation is to:

- Assess the use and choice of scientific models and methods, strengths and weaknesses, handling of risk and uncertainty, results and statistics, and quality of the assessments
- Assess to what extent the recommendations from the Steering group to the Ministry of Trade, Industry and Fisheries reflect the scientific evidence

The evaluation will be an important document for improving the work on assessing the risk of mortality in wild salmonids due to salmon lice from farmed salmon.

## **Evaluation tasks**

The evaluation committee shall review the scientific work that forms the basis of the reports generated by the Expert and Steering groups:

- Assess the different models and methods used with respect to
  - scientific basis
  - strengths and weaknesses
  - state of the art
  - points of improvement
- Assess the combined use of models and methods, with respect to
  - risk and uncertainty
  - methodical independence
  - conclusions drawn from the scientific work in the Expert group
  - points of improvement
- Provide an overall assessment, with respect to
  - the relationship between conclusions drawn in the Expert group and the Steering groups' advice to the Ministry
  - the choice of scientific methods, considering the Ministry's needs for knowledge and available resources to perform the scientific work
  - the transparency and verifiability in the work of the Expert and Steering groups (documentation, publications etc.)
  - points of improvement

The Evaluation Committee should include other issues they find relevant and give specific recommendations on improvements where relevant/necessary.

## **Data and methodology**

The evaluation should be based on reports and recommendations produced by the Expert and Steering groups as well as 2-3 meetings with the Steering group and/or the Expert group. Reports, recommendations to the Ministry, additional notes and supporting documents by the Expert and Steering groups will be translated and made available to the evaluation committee. The translation of documents is well underway but will not be completed before the start of the committee's work. The translated documents will be made available to the committee consecutively as translation of a document is finished.

The evaluation committee should also include relevant peer reviewed, scientific articles which support the work of the Expert and Steering groups where necessary.

The Evaluation Committee may request translation of other relevant documents and further information as needed.

The Evaluation Committee is free to contact additional expertise when needed and should notify the RCN if they do so.

## **Organisation and work process**

An international Evaluation Committee consisting of 6-8 experts will be appointed. The committee shall have expertise in risk assessment, mathematical modelling, oceanography or hydrodynamic modelling, statistics, parasitology, fish biology and evidence-based management. The Evaluation Committee is requested to write a report of findings and any recommendations for improvements aimed at the Expert and Steering groups and the Ministry.

The Evaluation committee will have several virtual/video meetings and at least one physical meeting (given that the Covid19 situation allows it). The evaluation Committee may, after its first meeting, suggest clarifications in the mandate.

The Research Council will act as secretary for the committee, and will:

- Develop the mandate and appoint an evaluation committee
- Facilitate the process, convene meetings, write minutes and assist in organising the report after consulting with the committee leader
- Host meetings at the Research Councils premises
- Cover remuneration, travel and meeting expenses
- Perform other necessary administrative functions related to the assignment
- Be responsible for contact between the Ministry and the evaluation committee
- Facilitate the dialogue between the evaluation committee and the Steering and Expert groups. RCN shall be present at all meetings and oriented of all contact between the evaluation committee and the Steering and Expert groups
- Assure that the report is in accordance with the committee's mandate
- Submit a completed report to the Ministry

## **Schedule**

Covid19 is a major element of uncertainty and will affect the possibility to have committee meetings and meetings with the Expert and/or Steering groups in person.

Indicative Schedule:

- Constituent meeting with introductory discussions medio December 2020
- The Committee start its work primo January 2021
- Meet the Steering group/Expert group tentative in the January, March and June.
- Deliver a note with preliminary assessments and proposals for improvements at the end of June 2021.

## **Deliverables**

The Evaluation Committee is requested to make a report of its findings and recommendations for improvements aimed at the Expert group, the Steering group and the Ministry, including a summary. The deadline for the final report is November 30<sup>th</sup>, 2021.

Deliver a note with preliminary assessments and proposals for improvements before July 1<sup>st</sup>, 2021.

The committee leader is expected to present the evaluation and its major findings in connection with the handover to the Ministry of Trade, Industry and Fisheries.