

Environment Management Strategy

Short version Ole Petter Pedersen Calanus AS

The Mission of Calanus AS is to develop a new industrial value chain based on sustainable harvesting and utilization of the marine zooplankter *Calanus finmarchicus*, the largest renewable marine source of useful health and nutrition product on the northern hemisphere.

The focus of the ongoing work with the Environment Management Strategy (EMS) is to set directions to reach future targets for the company. The targets are inspired by the Mission, and further influenced by the UN SDGs, but also driven by national regulations and defined internally in the company. The following strategic objectives are key drivers in the EMS.

- Sustainable harvesting

Calanus AS adheres to the highest environmental standards in all aspects of its operations, and practices harvesting in a sustainable manner in order to minimize the effect upon the marine environment. This is implemented internally through a Policy for Sustainable Harvesting (In Norwegian), revision document dated 22.01.2019. The authority responsible for the management of the Calanus fishery is The Ministry of Trade, Industry and Fisheries, acting as a secretariat for the Minister of Fisheries. The Ministry embodies several Departments, where the Department for Fisheries and Aquaculture is responsible for matters related to fisheries, the fishing fleet and the aquaculture industry. The Department also determines total commercial quotas, based on advice from Institute of Marine Research and ICES. The major legal instrument under which this authority, enterprises and fishery operates is the Marine Resources Act. This legislative framework has an explicit precautionary approach based on sustainability principles. Calanus AS complies in total to the allocated quotas and precautionary principles in the MRA.

Calanus AS sustains on preserving our marine ecosystem for future generations.

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- Environmental Code of Conduct

As an employee of Calanus AS, everybody is aware that work on behalf of the company is connected to all of the business activities. In this regard, Calanus AS does not tolerate illegal, environmentally unfriendly or unethical acts in violation of the company policy and rules. With respect to the environment, this is explicitly addressed in the company's general Code of Conduct (AP-5, ver. 2, 22.01.2019)

- Zero emission and waste reduction

Calanus AS has zero tolerance for pollution, and all harvesting operation has a zero-pollution ambition. This is manifested through several operational aspects.

- 1) All garbage produced onboard during harvesting is collected and returned to recycling containers in ports visited.*
- 2) With respect to carbon emission, there are in-house research initiatives directly focusing on reduction of consumption of fuel. This is done by minimizing the search period and maximizing the effective fishing period.*
- 3) The pelagic trawling is done gently at a ship speed of about 1 knot. The fuel consumption of the participating vessels is in the range 50 to 70 litre per hour, which is about 30 – 50 % of what is consumed by similar sized vessels at similar biomass in traditional fisheries.*

- Development of best environmental practices for the industry

The company has a unique role as a pioneer in the development of the industrial value chain of harvesting zooplankton. In many ways, best practices on how to utilize this resource has been developed by Calanus AS. This has been in close collaboration with the Directorate of Fisheries. The experience gained and knowledge developed will be instrumental in the present transformation into a commercially viable fishery. This will be particularly relevant with respect to maximum allowable bycatch, technology / methodology developed to reduce bycatch and ethical norms.

- Science based harvesting

Calanus AS are leading two national research projects, where sustainability and reduction of ecosystem effects are explicitly addressed. This is conducted in collaboration with several major industrial partners and national research institutions.

Project 1: Use of drones to localize zooplankton. This will provide a better spatial mapping of the stock. The effect is a reduction in time spent searching for zooplankton, hence a reduction in carbon emission.

Project 2: OASIS2. The objective of this project is to develop a new generation of harvesting equipment. This will allow Calanus AS to harvest on lower concentrations compared to previously, and to avoid areas with high presence of larvae and juveniles.

- Regulatory compliance

A national Management Plan for Calanus harvesting was released 09.05.2016 by the Directorate of Fisheries, and an adjoint national hearing process amongst stakeholders was completed. At present, Regulations to follow the Management plan are finalized, and 10 commercial harvesting licenses were announced 03.05.2019 by the Directorate of Fisheries. The total allow catch was set to 254.000 tons, but no individual quotas were set. The basis for the announced licenses is the Management Plan, where a precautionary and sustainable approach is adopted. There is a general policy that IMR provides scientific advice to the management organisations regarding regulation and administration of national marine resources, and this has been instrumental in the development of the Management Plan.

The major legal Laws, Acts and Regulations under which this authority and fishery operates are as follows:

*Marine Resources Act (MRA) – Lov om forvaltning av villlevande marine ressursar
Participants' Law (Lov om retten til å delta i fiske og fangst)
Act relating to the economic zone of Norway (Lov om Norges økonomiske sone)
Act relating to The Norwegian Coast Guard (Lov om Kystvakten)*

Calanus AS is in compliance with the relevant legal Acts and Regulations

- Processing of *Calanus finmarchicus*

Calanus finmarchicus is processed at a production facility approved by the Norwegian Food Safety Authority with approval number T220 for food and 1001279 for feed. The processing is gentle and efficient, without harmful chemicals and solvents, using solely enzymatic hydrolysis and phase separation. This yields minimal waste consisting only of water and residual organic materials.

The production facility holds a discharge permit according to the Pollution Control Act which strictly controls the waste and emissions to protect the environment against pollution and to reduce the quantity of waste. The holder of the permit must document to the Norwegian Authorities that it can consistently meet the requirements to retain its permit.

This document is short version of an Environment Management Strategy under development