



NORWEGIAN SEAFOOD RESEARCH FUND

# Research & Development

in the Norwegian Seafood Industry



Creating value, sustainability and innovation through industry-based R&D.

# What?

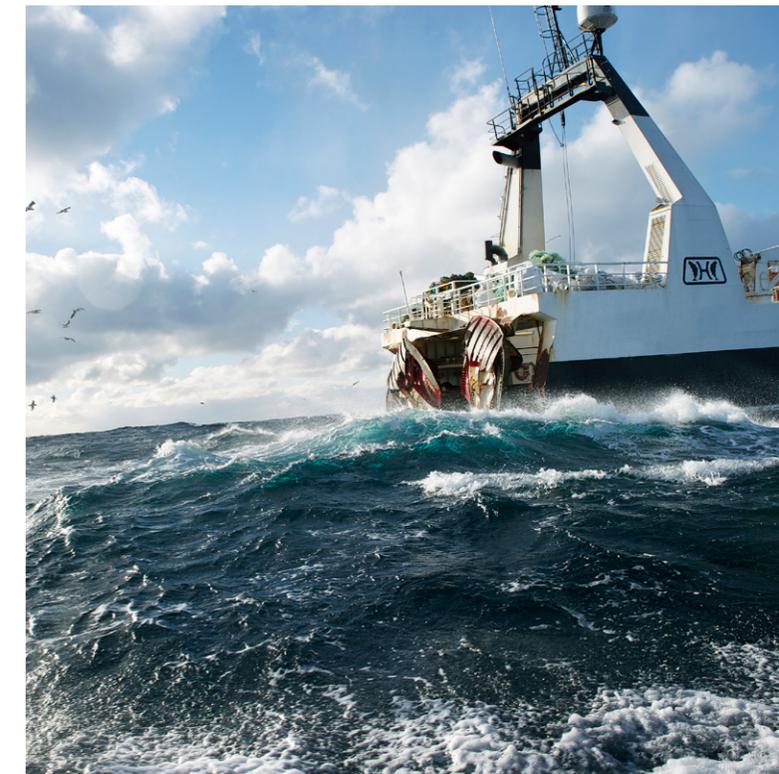
FHFs main objective is to create value, ensure sustainability and promote innovation in the Norwegian seafood industry through research and development (R&D)

**FHF IS A** state-owned limited company owned by the Ministry of Trade, industry and fisheries, and financed by the seafood industry through a 0,3 % levy on exports of Norwegian Seafood.

The Ministry constitutes the general assembly and appoints the board of directors which is comprised of representatives from the industry. The industry anchoring is further strengthened through four industry advisory groups consisting of industry actors.

FHFs activities and priorities are anchored in laws and regulations as well as FHFs main objective and strategy in addition to annual priorities.

In addition, FHF shall take steps to ensure that results from the R&D projects can be implemented in the industry and thus create value and ensure sustainability and innovation within the industry.



# Why?

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Research and development (R&D) have been essential in developing Norway into a leading global seafood nation, and it will be vital in bringing the industry forward in the future. The research activity is comprehensive, covers all areas of the industry and is financed by both the public sector and the industry itself.

The establishment of FHF in 2001 was initiated by the industry and was based on the recognition of three fundamental factors which define the Norwegian seafood industry:

- The importance of substantial and continuous investments into R&D to ensure that the industry may realize its full potential and further develop into a world leading sustainable and profitable seafood industry.
- The fact that R&D results and innovations to a large degree are open knowledge and shared between actors in the industry.
- The very varied and fragmented structure of the industry, from global integrated corporations, through regional companies, all the way to small single-person operated coastal fishing vessels.

These fundamental factors lead to the recognition that jointly funding and organizing industry-based R&D would be effective and would ensure that enough efforts were put into R&D to help the industry realize its full potential.



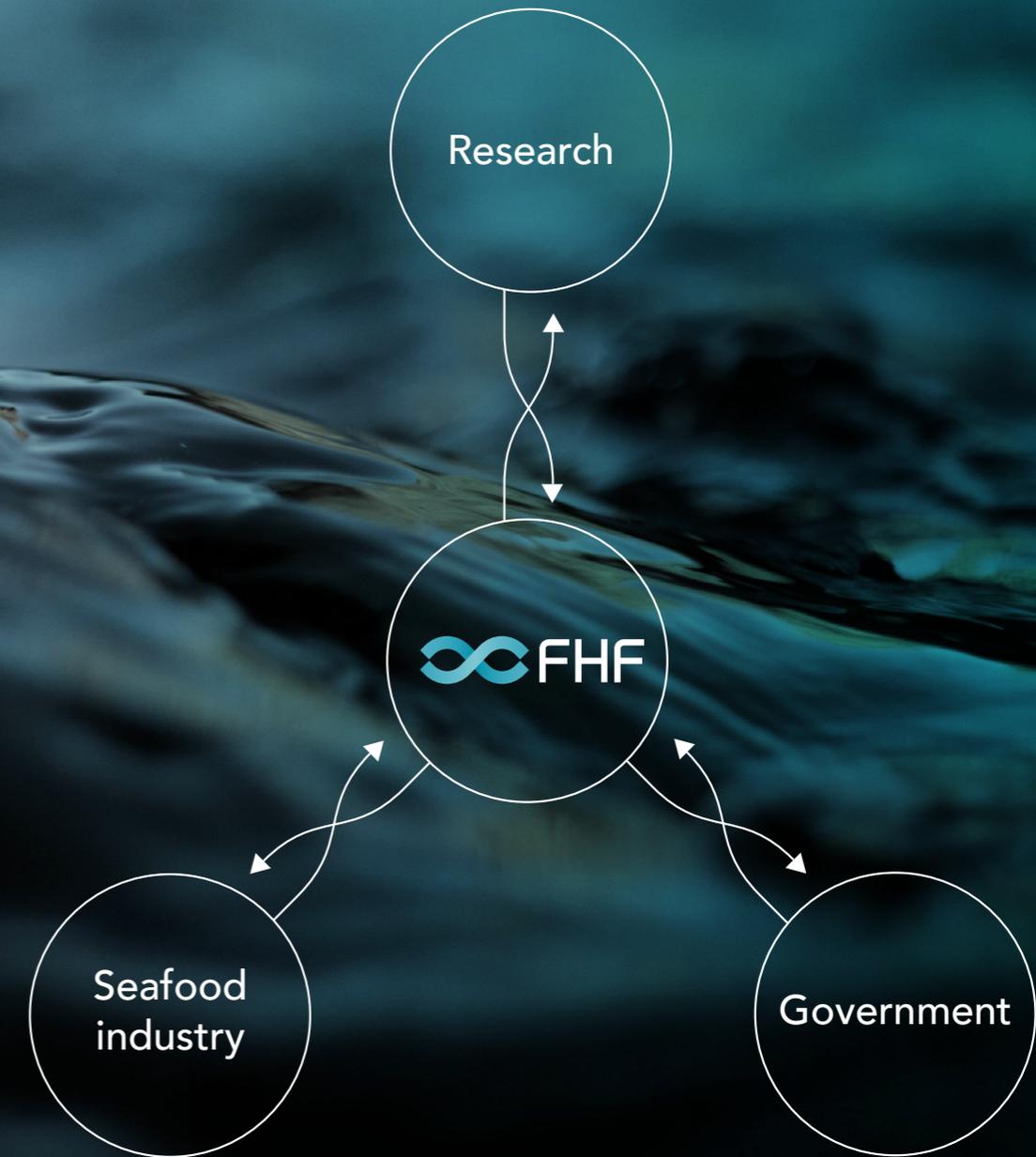
# How?

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FHF is financed by the industry through a levy, and is organized as a state-owned limited company. FHF must therefore adhere to laws and regulations governing public organizations.

This means that FHF must satisfy three prerequisites:

- FHF must deliver value to the industry. This requires comprehensive industry involvement to ensure that priorities are anchored in the industry, that R&D projects address the most important issues, and that results are brought to the industry in a way that they can be implemented and create innovation and value.
- FHF must ensure that the research it finances safeguards the independence and thus the legitimacy of the science. This means FHF must have terms and conditions related to all grant recipients which ensure the scientists' independence.
- FHF must comply with laws and regulations which govern public companies, primarily the freedom of information act and the administration act. This ensures that the industry, the media and the general public can get access to information about how FHF works and what decisions are being made.



# How FHF works

## INDUSTRY ANCHORING

- All FHF activities are anchored in the industry.
- FHF's board of directors is comprised of industry representatives.
- Advisory industry groups consist of industry representatives.
- Annual priorities and specific projects are widely anchored in the industry.
- Reference groups related to specific projects consist of industry representatives.

## PRIORITIES

- Specific R&D projects are based on the defined annual priorities.
- FHF considers projects and activities continuously through the year and thus may initiate activities and projects quickly when needed.
- FHF receives suggestions on specific issues to address through R&D from industry and scientific communities throughout the year.

## EXECUTING R&D PROJECTS

- FHF projects are as a main rule subject to competition.
- Individual projects may also arise from a direct request from FHF to a single R&D institution.
- Reference groups are assigned to most projects as a valuable resource to ensure industry value.
- Scientific independence is safeguarded through FHF's standard terms and conditions, and is always addressed at the initiation of projects.

## CREATING VALUE

- The R&D institution or project leader conducts open and free communication of scientific methods and results from FHF-financed projects.
- Results from FHF funded R&D projects shall be communicated and presented so that they are implemented and create value.
- FHF shall identify and carry out the most effective activities to ensure industry utilization and value from the R&D projects.

CREATING  
VALUE

INDUSTRY  
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# Aquaculture

The Norwegian aquaculture industry is a world leading food industry, where salmon is its main product. The world leading position has been achieved through intensive investments in R&D from the beginning of the salmon industry about 40 years ago. R&D investments are funded by government grants, by companies in the industry and by the industry through FHF.

## SUSTAINABLE AQUACULTURE

FHF shall contribute to sustainability in the Norwegian aquaculture industry.

- Priorities include salmon lice, environmental impact, escapes and circular economy.

## QUALITY

FHF shall develop knowledge and solutions to ensure good and predictable quality in Norwegian Salmon.

- Priorities include occurrence of dark spots, slaughtering procedures and colouring.

## FISH HEALTH AND WELFARE

FHF shall contribute to reduced mortality, improved fish health and strengthening the bio-security in the Norwegian aquaculture industry.

- Priorities include documentation of fish welfare, reduced mortality through robust fish and handling of infectious diseases.

## FEED AND FEED RESOURCES

FHF shall provide knowledge on nutrition and feed resources which will ensure good fish health and contributes to new sustainable feed resources being used.

- Priorities include analysis of implications of introducing new feed raw materials and providing knowledge which contributes to regulations on new feed resources.

## REGULATORY FRAMEWORK FOR THE AQUACULTURE INDUSTRY

FHF shall contribute to the industry's regulatory framework through science-based knowledge.

- Priorities include effects of regulatory frameworks, documentation of contributions to society and identification of sustainability indicators.



# Groundfish

Norway's primary groundfish species are cod, haddock and saithe, in addition to several other species. The groundfish sector is complex, with a diversified fishing fleet and a processing industry which continuously must develop in order to maintain competitiveness.

Investments in R&D are essential both for the fleet and for the processing industry. It is essential in improving catch control, effectiveness, profitability and environmental impact in the fleet, and it is essential in maintaining competitiveness in the industry.

## **FISHERIES AND VESSEL TECHNOLOGY**

**FHF shall develop knowledge and technologies which will improve sustainability, profitability, fish welfare and product quality in the Norwegian fisheries.**

- Priorities include catch control prior to setting gear and haul, technology for effective handling and slaughtering on board, improved information sharing for increased effectiveness and evaluating environmental impact from the fleet.

## **PROCESSING – FRESH/FROZEN**

**FHF shall contribute to value in the sector through ensuring quality, effective and sustainable production and increased degree of processing.**

- Priorities include developing fully automated processing lines for filleting, technology for effective handling of live fish and increased knowledge on development of rest raw materials and profitable development of end products.

## **PROCESSING – SALTED/DRIED**

**FHF shall contribute to sustainable production processes and increased value in the sector.**

- Priorities include developing technologies for increased automated processing and competitiveness, automated traceability along the value chain, documentation related to parasites and R&D for increased energy effectiveness during production.

## **CRUSTACEANS**

**FHF shall contribute to increased value in the sector.**

- Priorities include catch solutions for better selection in shrimp trawling and solutions which reduce environmental impact and increase profitability in the shellfish sector.



# Pelagics

The most important species for human consumption in the pelagics sector are mackerel, herring and capelin, other species like blue whiting are particularly valuable as feed raw materials

Norway's pelagic fleet is a world leader when it comes to effective and sustainable fishing, but R&D is important to continuously improve. The processing industry needs R&D investments to increase the degree of processing and thereby increase value adding.

## FISHERIES AND VESSEL TECHNOLOGY

FHF shall develop knowledge and technologies which will improve sustainability, profitability, fish welfare and product quality in the Norwegian fisheries.

- Priorities include catch control prior to haul, cost-saving vessel technologies and catch handling.

## PELAGIC INDUSTRY

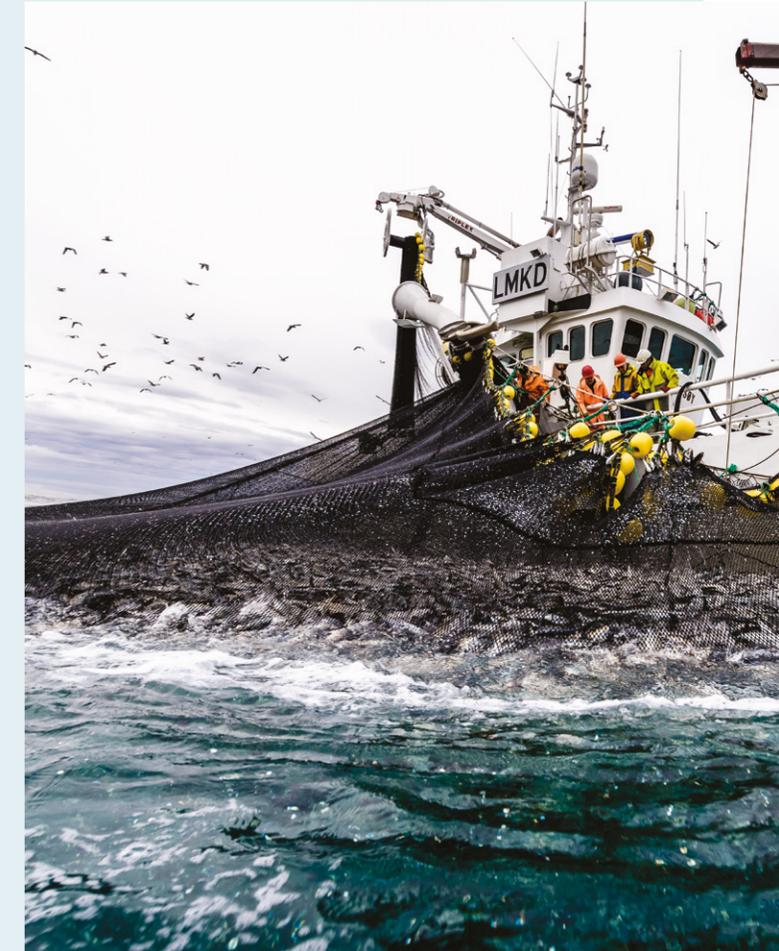
FHF shall contribute to increased processing and improve utilization of rest raw materials in the Norwegian pelagic industry

- Priorities include technologies for increased processing of mackerel and utilizing rest raw materials.

## REGULATORY FRAMEWORK FOR THE WILD FISH SECTOR

FHF shall contribute to the industry's regulatory framework through science-based knowledge.

- Priorities include effects of regulatory frameworks, documentation of contributions to society, rest raw materials analysis and identification of sustainability indicators.



# Cross sector R&D activities

Some important R&D areas are not easily defined within one of the three value chains, aquaculture, groundfish and pelagics, but are nonetheless areas where R&D can make important contributions to the further development of the Norwegian Seafood Industry. Therefore, FHF addresses these issues separately from the three value chains.

## MARKET ACCESS

FHF shall contribute to market access and value through scientific knowledge and documentation.

- Priorities include documentation related to market requirements and analysis of sustainability structures.

## CO-EXISTENCE

FHF shall provide scientific knowledge as basis for use of and allocations of sea areas for the seafood industry.

- Priorities include documentation of effects of aquaculture on wild species and knowledge on alternative sea area allocations.



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have been essential in developing Norway  
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forward in the future»*





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