

# High value special products towards commercialisation

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# Blue Products -innovation program

## The aim

of the Innovation Program is to develop value added products from Baltic herring and low-value fish species and their by-products

## Funded

by European Maritime and Fishery Fund (EMFF)

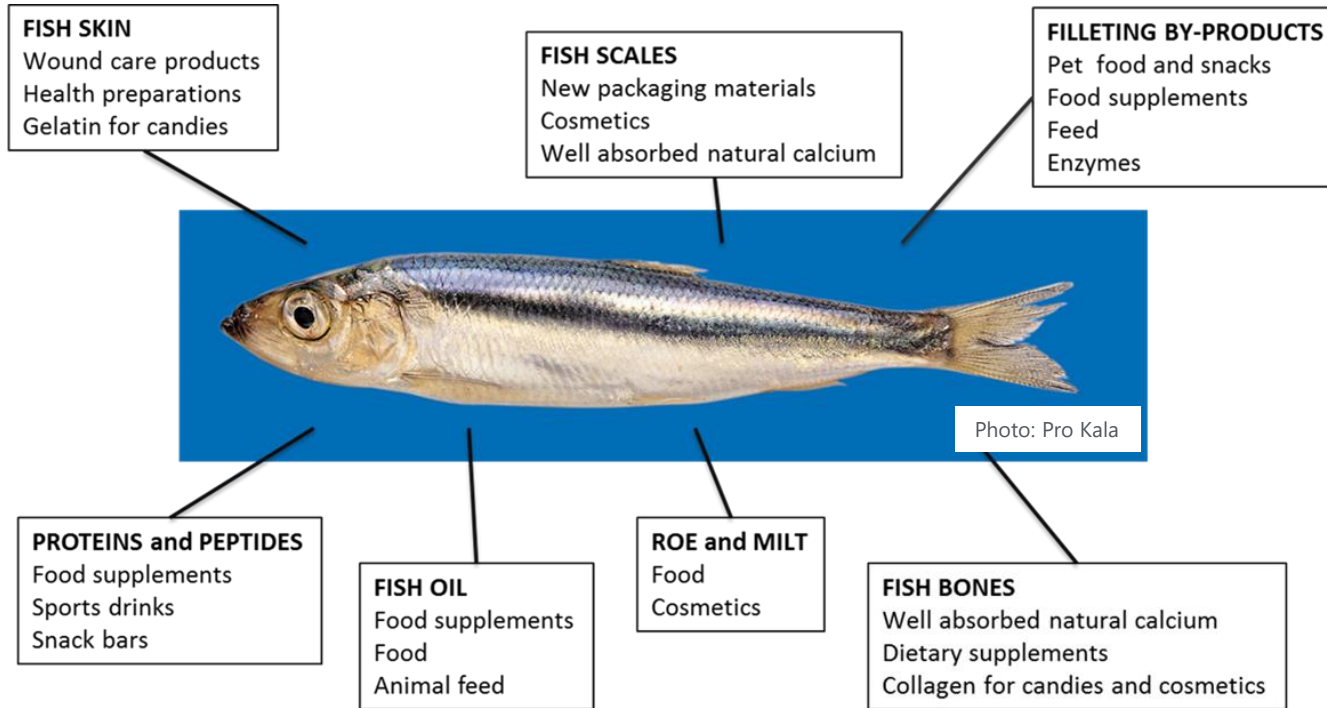
## Partners:

The Blue Products –program is coordinated by Österbottens Fiskarförbund and managed by Aktion Österbotten

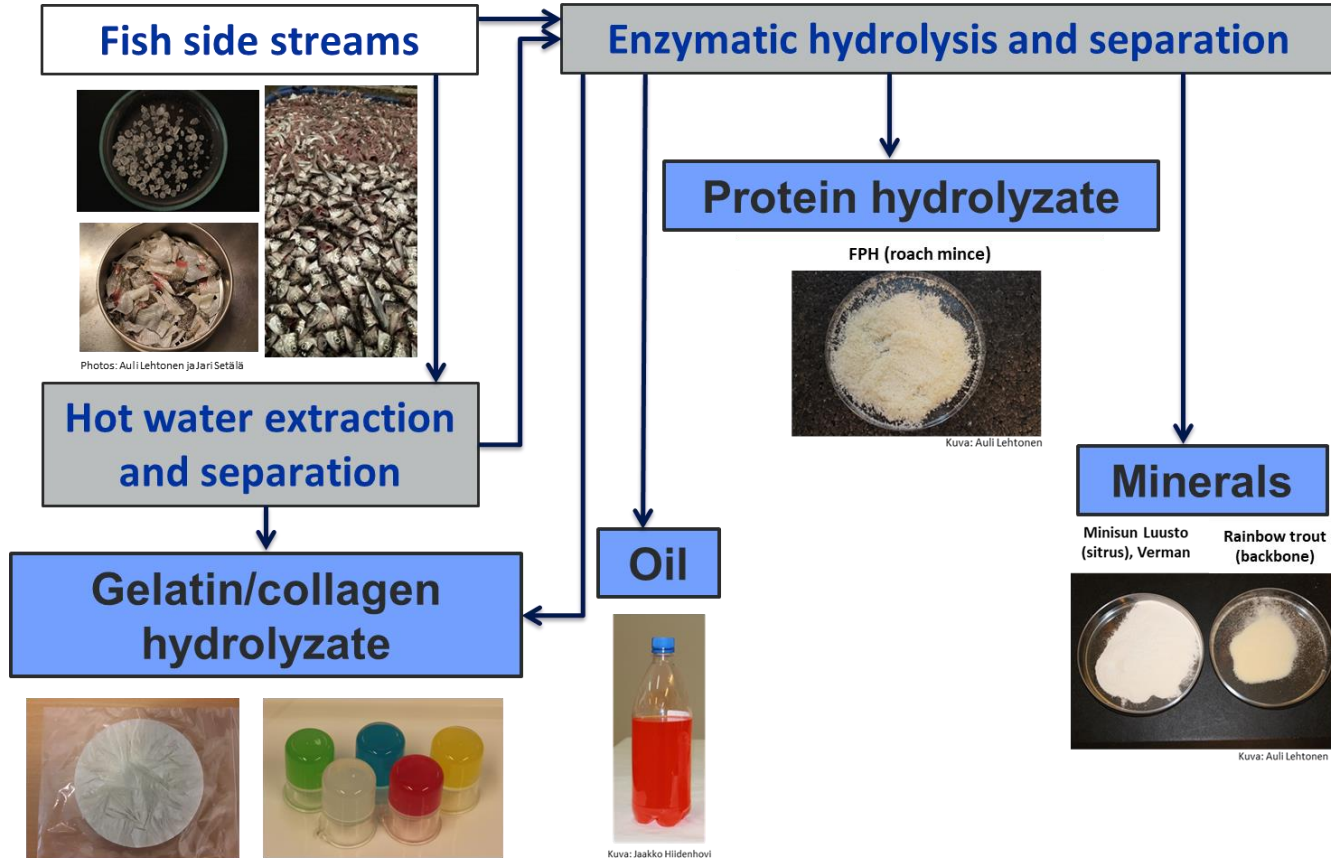
Research partners included: Natural Resources Institute Finland (Luke), VTT Technical Research Centre of Finland and University of Turku



# Fish can be utilized in many ways

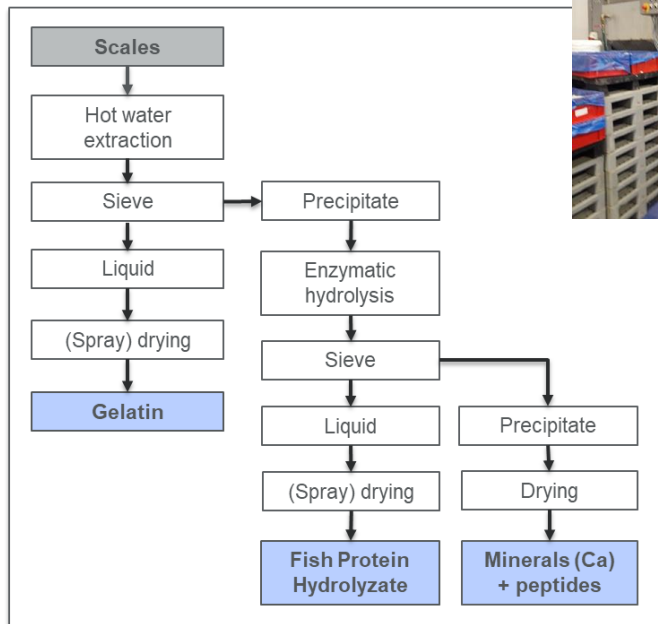


# Process development towards new products



# Pilot testing (Baltic herring scales)

## Meatco B.V. + Bodec, The Netherlands



Photos: Jaakko Hiidenhovi



	Yield (%)		
	Gelatin	FPH	Minerals
Laboratory (100 g)	2.9	4.4	9.4
Pilot (76 kg)	2.4	5.3	8.3

# Active gelatin films

**Active films can be utilized in renewable packaging materials, e.g., to promote food quality and extend shelf life.**

- Modification of film properties (e.g., water solubility, elongation / tensile strength)
- Verification of the efficacy of bioactive compounds in membranes
- Optimization of manufacturing methods (solution casting, extrusion, compression molding)



Photos: Jaakko Hiidenhovi

# Health effects of fish protein hydrolyzate

**According to the International Diabetes Federation, IDF, there are over 460 million people with diabetes between the ages of 20 and 79, and the number is expected to increase to 700 million by 2045. The vast majority of them (75-80%) have type 2 diabetes.**

- Protein hydrolysates produced from domestic fish have been shown both in laboratory experiments and in an animal model to have preventive effects on metabolic syndrome and type 2 diabetes
- The next step is the identification of active peptides
- Taste and smell

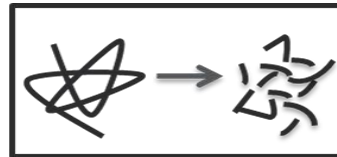


Photo: Sara Hiidenhovi



# Fermented fish products

**Some consumers do not like the smell and taste of Baltic herring. In the feed industry, the smell of fish-based raw material causes challenges.**

- Microbial processing can be used to modify the smell and taste of Baltic herring
- The technique is suitable for fish mass, whole fish and fillets
- The technology can also be used as a pretreatment step

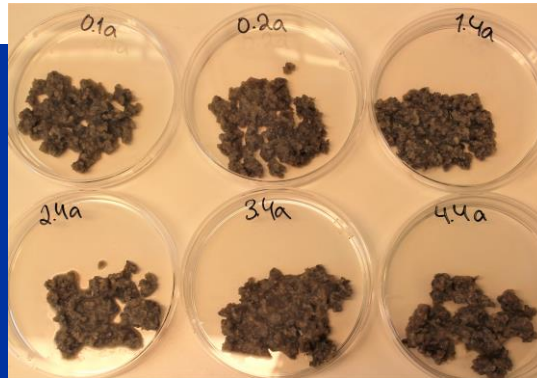


Photo: Rina Bragge



Photo: Anna-Liisa Välimaa



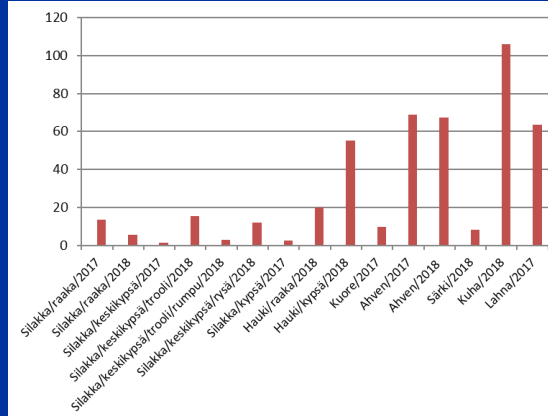
# Other value-added products from fish

- Fish oil for humans and pets
  - EFSA has approved several health claims for EPA and DHA
- Bones and scales
  - sources of calcium
- Underutilized roes
  - many are rich sources of vitamin D3
- Enzymes
  - active at low temperatures
- Feed and fertilizers
  - the need for new raw materials



Kuva: Jaakko Hiidenhovi

D-vitamiinipitoisuus 2017 ja 2018 (µg/100 g)



# Thank you!