

## Transforming cod heads, frames and intestines from waste to value

**An innovative processing method combined with close collaboration with local fishermen secures a high quality of side-streams such as heads and frames, which enables the development of nutritional ingredients.**

Every once in a while, most people enjoy a fillet of cod, but did you know that the fillet only constitutes 40% of the fish and that the rest such as the head, frame and intestines are often disposed of leaving the companies involved with a great expense?

Bearing in mind that we need to find ways to make the most of the resources that are available so that we can produce more food for the world's growing population, this needs to change. One of the hurdles that prevent exploitation of the side-streams and the development of more valuable products is the fact that the side-streams deteriorate very quickly.

A prerequisite for exploiting the side-streams for more valuable purposes such as nutritional ingredients is that the side-streams are of high quality. Ensuring this, requires proper logistics and infrastructure so that the side-streams are fresh. In the European project WaSeaBi 3 research institutes, 1 industry cluster and 9 companies from Denmark, Sweden, Belgium, France & Spain respectively are working together to solve this challenge. One of the companies participating in the project is Royal Greenland, who among other things are providing raw-materials like side-streams from their Nutaaq® cod.

This cod product is particularly interesting to work with in this context because it is extremely fresh. In fact, there is a maximum timespan of two hours from the live cod leaves the sea until it is frozen in the factory. This means that there is a good basis for exploiting the side-streams for developing other products, ingredients or the like.

The unique freshness of the cod is achieved through close collaboration with local fishermen combined with an innovative processing method. After the fish is caught, the fishermen empty their net traps into Royal Greenland's net cages nearby. In due time, a specially designed well boat collects the live cod directly from the net cage, where they are kept in seawater wells and where the water is continuously replaced with new seawater to give the cod the best possible conditions. The cod is then unloaded into large net enclosures in the fjord right outside the factory. When the factory is ready, the cod is transported directly into the factory for processing. This means that the live cod stay in the sea right up until the point when the factory is ready to process them.



Samples of side-streams including heads, frames and intestines from the Nutaaq cod have been collected this autumn in the town of Maniitsoq in Greenland. The composition and quality of these side-streams are currently being analysed at the Technical University of Denmark and at Chalmers University of Technology in Sweden. Results from these analyses will form the basis for the development of methods to protect the side-streams against deterioration if needed and of technologies to produce new ingredients for food and feed from these side-streams.

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*Photo: Local fishermen are emptying their net traps into Royal Greenland's net cages*



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