Residual raw materials open new opportunities
A blue ocean of possibilities is still open to those willing to make a commitment to producing high-value products from residuals.

blue ocean strategy
What if your business could be in a league of its own? Instead of competing with others in your industry, what if you were setting the pace, creating unique products and profiting from lucrative new markets?

Generating that kind of environment is the goal of blue ocean strategy, a business theory that suggests companies are better off searching for ways to gain “uncontested market space” than engaging in traditional competition.

*The term is derived from the book Blue Ocean Strategy by W Chan Kim and Renee Mauborgne.*
Sustainable and profitable resource utilisation

Some 340 thousand tonnes of residual raw materials are generated annually in Norway’s fishing industry. These are valuable resources, and represent substantial economic opportunities.

The residual raw materials produced by the fishing industry represent a big resource with a considerable commercial potential. We offer technology which can convert it into high-value products, including commodities intended for human consumption. These are in demand – and valued by the international market.

Given our shared responsibility for managing marine resources, we are keen to help you develop new and unique products based on the raw materials already available to you. That makes the whole fish profitable, and adds a new dimension to the utilisation of by-products and trimmings previously thrown into the sea.

The unique expertise we have acquired in food processing over almost 80 years gives us the ability and knowledge to support you by opening new markets in the marine ingredients sector.

We help you to add value to your residuals through improved resource utilisation and high-value end products.

Source: Analyse av marint restråstoff, 2014 - Sintef
In a world where consumers are increasingly conscious of what they eat and concerned about their health, high-quality marine products are in big demand.
Your resource for utilising resources

We serve as your partner in taking a further step forward with value creation at sea. Many years of experience from processing plants for the food industry allow us to contribute technology, new solutions and improved routines. We also have heavyweight technical specialists on process automation and refrigeration technology.

Our expertise contributes to reducing wastage, automating production and safeguarding quality and hygiene. We design process lines which take account of all the requirements for correct production of high-quality fish protein, meal and oils.

Our cross-disciplinary team covers all necessary leading-edge expertise for planning, designing, automating, building and maintaining every kind of processing facility for the fishing industry.

We offer solutions of every size and scope, and also have the organisational and financial strength to cope with the very largest projects. And we stick with your project all the way.

Typical process areas

- Production of fish meal/powder for human consumption, such as taste additives in food products, health foods or protein supplements. Our solutions meet the specified equipment and hygiene requirements, which differ very considerably from those set for traditional feed meal production.
- Enzymatic hydrolysis of trimmings and other by-products to produce oil, proteins and similar high-value products.
- Production of Omega-3 oils.
- Further processing of ensilage into protein concentrates used as feed for livestock, fish and fur farming. The oil separated out – also known as ensilage oil – can be used in fish feed and by the chemical/technology industries.
- Production of fish meal and oil for the feed market.

We also offer solutions for further processing of the raw material into packaged products in the form of extracts, powders and pellets.
Generations of specialist expertise

Our many years of experience with processing plants for the food industry have contributed technology, innovative solutions and improved routines.

We also have heavyweight specialists on process automation and refrigeration technology.

All our knowledge of reducing wastage, automating production and safeguarding quality and hygiene can be applied to designing process lines which take account of every requirement for correct production of high-quality fish protein, meal and oils.
The natural next step for the fishing fleet

We offer technology which ensures full utilisation of every fish caught – and have the expertise needed to convert residual raw materials into high-value products – including ones for human consumption. This is sustainability in practice, combined with good economics.

“A total of 250 000 tonnes of fish waste is dumped in the sea every year. Methods exist for exploiting this unique resource.”

 Vu Hoang Le, sales engineer
Complete resource utilisation

With its Molnes freezer trawler, Nordic wildfish has made a major commitment to adopting new technology which ensures complete utilisation of the fish. We have developed and delivered the hydrolysis plant on this vessel as a pioneering facility which ensures optimum utilisation of residual raw material on board.

Nordic wildfish aims to achieve complete utilisation of the resources it recovers from the sea. Its conversion of Molnes means that the company ranks as a very early adopter of new technology, and has transformed this vessel from a traditional trawler to a production platform.

Processing on the spot
Dealing with raw materials while these are still fresh is important for ensuring the best possible quality in every kind of food processing technology. Where the fishing industry is concerned, this means that residuals should be dealt with where they arise – out on the fishing grounds.

Nordic wildfish uses hydrolysis to extract fish proteins and amino acids, oil and calcium from the residual raw material. These are clean and traceable natural products, where the nutrients and antioxidants are kept intact through careful handling at low temperatures.

Specially tailored
Although the technology we work with is well-known, building such a process facility on a ship imposes special requirements compared with a land-based plant.

A tough operating environment and very demanding space restrictions called for many considerations to be taken into account during the design work. Three-dimensional models must be constructed to tolerances measured in millimetres. This plant is approved to produce products for human consumption while meeting unique standards of hygiene and automation.

“Through this project, we have taken action to create process technology which boosts value creation and yield by enhancing product quality. We’re not least able to extract completely new high-value products by processing hydrolysed residual raw material on board.”

Tore Roaldsnes, Nordic wildfish
A floating krill factory

We delivered a complete factory with substantial dimensions to the Thorshovdi krill trawler. This facility comprises three production lines – two for processing the krill meat and one to deal with shells/chitin. Krill oil and various concentrates are also recovered.

Krill represent an exciting raw material, rich in protein and with a high content of Omega-3 fatty acids and antioxidants.

Krill Seaproducts AS in Ålesund was one of the first Norwegian companies to secure a permit to catch these small crustaceans in the Southern Ocean. Scientists at the Norwegian University of Life Sciences (UMB) and the Aquaculture Protein Centre (APC) – a Norwegian centre of excellence for protein research – were key partners for Krill Seaproducts in developing new products and production methods based on krill.

Complete process plant in the Southern Ocean

Eventually, the need arose for a partner who could design a full-scale plant to handle the production processes being developed by the scientists. We were chosen in part because of our ability to offer front-end expertise in both food and feed technology.
Your goals, our technology

With almost 200 employees covering specialists in process engineering, automation, robotisation and food technology, we rank as Norway’s leading specialist for food processing. Through us, you get access to a unique and specialised team which can help you to reach your goals.

We are an important partner for much of Norway’s food industry, and offer specialists on planning, design, construction and operation of production plants for the food and fishing sectors.

For almost 80 years, we have worked to provide our customers with production processes which are more efficient and make better use of labour.

The great majority of our employees combine knowledge of food technology, automation and process technology, allowing us to offer complete integrated solutions where the process components and control systems function as an integrated unit.

Own production and international network

We design and deliver process solutions worth some NOK 500 million every year to Norwegian clients. We have our own manufacturing facilities in Trondheim, Stjørdal and Lier for stainless steel products, machinery construction and the production of robot and automation solutions.

Combined with an international network of suppliers, such as Alfa Laval, Tetra Pak, Siemens and ABB, this allows us to solve your technological challenges.

Meat
Fish
Dairy
Food
Feed
Drink