Seafood in Rogaland
Norway’s fastest growing industry

Norwegian fishing industry and aquaculture are a knowledge-based business, an integral part of the global seafood market. Together, they constitute Norway’s second largest export industry, with almost three million tonnes of Norwegian seafood being extracted from the ocean each year. Fishing is a tradition that stretches thousands of years back in time, and Norway is today known for its high quality seafood exports. Norway is also highly developed in terms of aquatic cultivation, and is a world-leading producer of equipment and fish feed to the world’s aquaculture industry.

Rogaland, situated southwest in Norway, is a region known for its unique landscape. It is closely located to fish banks in the North Sea and to international seafood markets. This gives the region an immense advantage, both nationally and internationally. Here there are distinguished privately owned knowledge-based businesses, industrialised manufacturing, international ownership, railway connections and great delivery potential, as well as exceptional cookery and food preparation expertise. The partakers are geographically nestled, close to national markets and the extensive export industry. Rogaland is a pioneering region, where huge progress is made within production and advancement of the supply chain of the seafood industry. Our competence is central to the development of products made from Norwegian raw materials, products that are intended at the European quality market where restaurants and other consumers increasingly demand freshly processed fish. Rogaland is in the process of foregathering competencies into a competence centre of food development called Måltidets Hus, which should be up and running in the beginning of 2009. This is a vital measure in preserving Rogaland as the number one food region in the country.

The seafood industry in Rogaland will also strengthen through the NCE (Norwegian Centres of Expertise) program Culinology, which is partially financed by Innovation Norway, SIVA and the Research Council of Norway. The primary aim of the program is to reinforce knowledge and maintain innovation within industrial gastronomy and culinary differentiation.

Also through the Norwegian Research Councils VRI program, Rogaland has chosen to focus on the food industry. The aim for this program is to tighten the cooperation between research facilities and the food industry.

Both in terms of aquaculture and fishing, for raw materials, Rogaland is relying on a small number of industrial companies that collect the materials. This concentration of collaborators, combined with entrepreneurial proficiency and a desire for innovation, ensures continual improvement of products and processes.

In this industry, technologies, organisational structures and methods evolve continuously. The export industry in Rogaland plays a leading role, especially in terms of fish feed production, environmental technology and process development. Knowledge and technology currently used in the salmon industry will be of vast importance to the commercial production of new species. The marine export industry in Rogaland is thus of immense significance.
Fish farming is a flourishing industry both globally and in Norway. In 1970, fish farming counted for about five per cent of the world's seafood production. Today, the share is 50 per cent. In Norway, aquaculture is a relatively new industry, and it was not until the 1980s that large-scale production of salmon was successful. Today, however, salmon counts for about 85 per cent of the total sales of Norwegian farmed fish, and on an international basis about 40 per cent of all farmed salmon comes from Norway.

Salmon and Trout
Rogaland is accountable for about seven per cent (50,000 tonnes) of the country's salmon and trout production. Marine Harvest and Grieg Seafood are the main producers of salmon in this region. These are integrated companies controlling the entire supply chain from hatching to farming, via handling and packaging, to selling the finished salmon products. Together with joint representation from other companies, about 400 people are employed in this industry in Rogaland. Geographical proximity to the market and a number of seafood companies eager to invest in further progress make Rogaland a competitive aquaculture region.

In Rogaland you will also find Erfjord Stamfisk, a strategically important producer of salmon roe. Erfjord Stamfisk owns, together with two other businesses, the majority of Salmobreed AS, a company that supplies 40 per cent of all salmon roe to Norwegian fish farming facilities and hatcheries.

Halibut
Halibut is another fish cultivated in Rogaland. This is the leading halibut producing region in Norway, with more than 500 tonnes of halibut being produced in 2005. Halibut produced by Marine Harvest Cold Water Marine Species here in Rogaland was used during the World Cuisine Contest, Bocuse d'Or, in 2007.

Other species
On the island Kvitsoy, the smallest municipality of Norway, you will find both lobster farming and production of bay scallops. The company Norwegian Lobster Farm is today the world's only commercial producer of portion lobster, with a production of up to 100 metric tons each year. The company has patented its lobster-farming technology and has developed a central feeding system, computer navigation, lobster feed and a graphics editor tailored to the industry. Production of bay scallop on Kvitsoy is done by Kvitsoy Edelskjell AS. Today this company has more than 30 hectares of sea ranching for bay scallops, and it has up to 300,000 seashells located along the ocean bed.

The region is also building up the blue mussel industry which has been through an organisation change for the last years.

At Rygjabø High School there is a land based test facility for production of sea urchins. The goal for this facility is to make a commercial production for the export market.

<table>
<thead>
<tr>
<th>Metric tons</th>
<th>540,000</th>
<th>272,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swine, chicken and cattle production</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Did you know that

- Approximately every 20 minutes of every day, a truckload of salmon crosses our national boarder?
- Norwegian salmon is enjoyed in more than 100 different countries, and that salmon accounts for 41 percent of our overall export sale of fish?
- Every day, 15 trucks full of salmon are exported from Rogaland to the rest of the world?
- In France, Norway’s most important market, the brand name Norwegian Salmon has a higher recognition than Coca-Cola?

Aquaculture
Fishing

Norway is a country of long-established fishing traditions, and there are still about 12,000 people here that have fishing as their primary source of income. Norway's coastline – with islands and cold, clean fjords – stretches more than 57,000 kilometres, a distance which is altogether longer than the span of equator. This has made Norway one of the world's leading fishing nations.

Fish

Rogaland is a top fishing region in Norway, closely situated to the most important fishing grounds in the North Sea. Here, there are 112 fishermen in fulltime employment, and another 79 people have fishing as their secondary income. The fishing docks in Egersund/Sivåg and on Karmøy are among the biggest in the country. In the southwest trawlers and fishing vessels operate in the waters. Rogaland has about 25 industrial trawlers, which account for about half of the Norwegian fleet. In 2006, about 450,000 tonnes were brought to shore in Rogaland – of which 260,000 tonnes were brought to Egersund. This city is also one of Norway's leading places for bringing in fetched seafood. In financial terms, the main catch is industrial fish such as northern sand lance, Norwegian pout and blue whiting, which are used in fish flour and oils. Rogaland Fiskesalgslag S/L is responsible for most of the organisational proceeds of fish and shellfish.

Crab and prawn

The catching of shellfish is also popular in this region, with both crabs and prawns being caught all year round. Prawn trawling is a long-established practice in Rogaland – and right now this tradition is experiencing thrilling changes in structure and production. Rogaland has 59 out of the 175 prawn trawlers that exist in Norway. These supply Finny Sirevaag AS (amongst others) with raw materials that are the basis for a turnover of peeled prawns in brine – valued at NOK 120 million annually.

Algae

Seaweed trawling is also practiced in Rogaland. This enables the production of alginates at FMC BioPolymer's Haugesund-based facility, Norway's biggest alginate factory with a workforce of 200 employees. The facility is in close proximity to the raw materials, mainly brown seaweeds, which are harnessed just off the west coast. Alginate is used in food products, feed, pharmaceutical and cosmetics products, as well as industrial applications. FMC BioPolymer AS is well-known for employing modern biotechnological methods in the development of new products.

Did you know that...

...Norway’s fishing areas stretch more than two million square kilometres, the equivalent of 6-7 times the size of the country itself?
Selling and handling of seafood

Seafood is one of Norway’s most stable and lucrative commodities – each day more than 27 million meals of Norwegian seafood are consumed worldwide. For centuries, Rogaland has accumulated knowledge, expertise and skills of how to handle and package fish for the worldwide market. In Rogaland we are close to both the European and the global food markets. As early as the 1800s, Rogaland was the epicentre of the biggest export industry of the time, namely the export of herring.

Pelagic fish

Today the region is rich on cold storage plants intended for pelagic fish. Skude Fryseri at Skudeneshavn freezes approximately 20,000 tonnes of pelagic fish each year. Herring and mackerel are the two main types of fish being produced, most of which is exported to Eastern Europe and Japan. Egersund Seafood AS in Egersund specialises in processing, packaging and freezing pelagic fish. In Egersund you will also find the company Fonn Egersund AS, a producer and exporter of fresh and frozen seafood. Also Koralfisk AS on Avaldsnes freezes pelagic fish, which is then exported mainly to Russia and Japan.

Prawns

Finny Sirevaag AS, which has more than 100 years of experience, specialises in producing high-quality fresh North Sea prawn in brine. The company, located on the border between Rogaland and Vest-Agder, uses the brand names Sirevaag, Finny and Lista. Almost 99 per cent of the entire world’s cold-water prawns have been deep-frozen. Finny Sirevaag is one of only a handful of companies that delivers fresh prawns from the North Sea, peeling them while fresh and putting them directly in brine.

Aquaculture

The fish farming industry, spearheaded by Marine Harvest and Grieg Seafood, also produces immense quantities of exportable seafood. There are two prominent farmed-fish butchers in Rogaland. These make most of the produced fish exportable. But some of the fish is sent to fishmongers who handle the product locally. One of the companies doing this is King Mikal Salmon, a family-owned company specialising in producing high-quality smoked salmon.

Distribution

Rogaland Fiskesalgslag S/L is a company solely devoted to the immediate handling of fish and shellfish that are brought to shore in the region.

Matgrossisten Vest is a combination of two prominent seafood vendors, Karmøy Delikatesse and Vest Engros AS. Together they have more than 40 years of experience delivering fresh seafood to supermarkets, restaurants and institutions in Rogaland.

Pet food

There is also a company in the region producing and handling seafood for the pet animal market. Salmopet produces fish oil to use in pet food, which is healthy for both cats and dogs.

Omega-3 fatty acids

Did you know that

...Every day, 27 million Norwegian seafood meals are consumed on a worldwide basis?
...Norway supplies seafood to approximately 10 billion meals annually?
...In 2006, Norway exported seafood worth 35.6 billion NOK, 3.8 billion more than the previous year. China is the only country exporting more than Norway?
The Norwegian fish farming industry is world leading in terms of production and development of fish feed. The feed is, and will always be, the most important factor in ensuring sustainable development. Today, fish feed is made from both marine and vegetable materials, where about 55 per cent of the raw material comes from fish flour and fish oil. The remaining ingredients are proteins, vegetable oils, binders, vitamins and antioxidants. Essentially, there are three major producers of fish feed for the fish farming industry: Skretting, EWOS and BioMar.

**Skretting**

In Rogaland you will find some of the world’s leading producers of fish feed, along with some of the top companies doing research on fish feed for the fish farming industry. Skretting, with main offices in Stavanger, is the world’s biggest producer of fish feed. With facilities all over the world, the company accounts for about 40 per cent of the global production of feed for salmon and trout. In total, there are about 200 employees at Skretting, a company that conducts much of its research in the Skretting Aquaculture Research Center (ARC). This department, which has a workforce of 60, is situated in Stavanger. Skretting has a long history; the company was one of the first in the world to produce dry feed intended at ocean-based salmon.

**EWOS**

EWOS, another world-leading producer of fish feed, is present with one of its most important facilities – EWOS Innovation – located in Dirdal in Rogaland. With its 70 employees, this is currently the world’s biggest commercial research centre devoted to fish feed.

**BioMar**

Also BioMar is represented in Rogaland, with a fish feed factory on the island Karmøy where feed is produced for the fish farming industry. BioMar is part of the BioMar-Group, which has production facilities also in other parts of the world.

**AgriMarin Production AS**

Felleskjøpet Rogaland Ågder has recently started producing raw materials for fish feed at their factory AgriMarin Production AS, which is located in Hillevåg, Stavanger. Here the raw materials are dried peas, processed to fractions containing various amounts of protein and carbohydrate, as well as shell and fibre products. Both resources and price connected to fish flour, and expensive prices internationally, appropriate these products as fish feed. The factory, which has 16 employees, has an annual production of about 100,000 tonnes.
Technology

Norway is a technologically advanced country, with highly developed equipment available to the fishing and aquaculture industry. Here you will find top-notch producers of tools used in fishery and fish farming both domestically and internationally.

AKVA Group ASA

In Rogaland, there are world-leading companies specialising in relevant technology. AKVA Group ASA, which is located in Bryne, is a first-rate supplier of technological solutions to the fish farming industry. In addition to departments around Norway, the company also has subsidiaries throughout the world. AKVA Group ASA has 600 employees, of which 160 are based in Norway. AKVA Group, with its four main brands of aquaculture products, has more than 25 years of experience in design and manufacturing of steel cages, plastic cages and work boats, feed systems, feed barges, sensor systems and fish farming software.

Egersund Group

In Egersund you will find Egersund Group, a producer and supplier of fishing, aquaculture and trawling equipment to fishing fleets worldwide since 1952. Since the 1970s, the company has manufactured cage net and equipment for the fish farming industry. Egersund Group has about 300 employees and is today one of the world’s leading manufacturers for the aquaculture industry.

HOBAS AS

HOBAS AS, a company that has supplied aquaculture equipment since 1999, is also located in Rogaland. This company provides skill enhancement projects and technology to land-based aquaculture farms, producing warm or coldwater species (fish/shellfish) in marine, brackish or freshwater systems. The company is working on numerous international projects such as glass fibre production and fish farming in land-based farms in Sri Lanka.

Trio Fish Processing Machinery AS

Trio Fish Processing Machinery AS, located in Stavanger, is a world leader in deep skinning machines for fish fillets. This company has more than 100 years of experience employing skinning machines that are used on ships and in onshore factories all over the world. Trio produced machinery for the hermetic industry in Stavanger as early as the 1900s.

Smart Farm has unique solutions for growing, husbandry and harvesting of mussel.

Did you know that...Norway has several world leading companies within production and development of technology for aquaculture and fishery?
Rogaland has about 50 institutions and companies, with approximately 3000 employees, that are dedicated to research. Regionally, there are altogether about 250-300 people doing research on seafood specifically. The knowledge and competence within the food section in Rogaland is quite different from other structures farther north along the coast. This includes research on animal and fish health via development of basic knowledge and methods for preserving raw materials, fresh food products and industrially handled products to research on marketing activities and customer behaviour. This region also has eminent privately owned knowledge-based organisations such as Skretting ARC and EWOS Innovation’s FoU-departments.

Norconserv AS is an independent research institute devoted mainly to the study of seafood. Considerable projects and institute activities are carried out jointly with industrial partners, to further develop processing methods, packaging and applied technologies. One of the key activities of the institute is extended shelf-life of food products. Other key areas of research include new seafood concepts, hygienic production, minimal processing and heat processing. Norconserv AS is now a part of NOFIMA which also contain Fiskeriforskning, AKVAFORSK and MATFORSK.

The Culinary Institute of Norway is owned by the GI Foundation, Matforsk AS, Norconserv and Fiskeriforskning. The company’s main offices are located in Stavanger, but it also has a regional office in Oslo. The institute is dedicated to the appreciation of good food, and it is working to increase people’s knowledge of foods and drinks. Its main areas of business include product development, communication, giving advice to other companies, as well as offering formal education and courses to professionals and hobby-chefs. Both Norconserv and The Culinary Institute are central players in the realisation of Måltidets Hus.

The University of Stavanger

The University of Stavanger, one of the world’s leading educational institutions in terms of economic analysis of seafood markets, offers a master’s degree in management and marketing of seafood. The University offers higher education in the specialised areas of food, hotel and tourism services. Here you will also find courses in biochemistry, where the aim is to master modern experimental and theoretical methods for solving biological and chemical problems. These areas are of vast importance to the future of food production. The University has already initiated research projects that focus on fish protein. Some areas of the University will be working closely with Måltidets Hus, and it will continue to be an important institute researching on molecular and biological enigmas.

High school

Rygjå High School is the only high school in the region that offers high school courses in aquaculture and fishing, but does also educate within seafood production. From the autumn of 2008 Jåttå Technical High School will offer a specialised course in food preparation and production. The course will help to reinforce and strengthen existing competence within processing and handling of food, especially in terms of food production as well as foodstuff chemistry and biology.

Did you know that

... Research has shown that the body absorbs omega 3 found in fish nine times faster than that in capsules and supplements?
... The University of Stavanger is one of the world’s leading research institutes on economic analysis of seafood markets and marketing of seafood?
... The country’s only university offering courses in seafood management is located in Rogaland?
Biomarin Vekst

Biomarin Vekst is a dynamical and solid network for seafood production industry on the south west coast of Norway. We want to connect members together to build a strong reputation for the industry and make sure it has focus on recruiting.

Our members can be all businesses connected to the seafood industry.

Biomarin Vekst lead and administrate projects. The industry can be owner of the project and hire Biomarin Vekst as a project administrator.

**Biomarin Vekst**
Phone +47 906 75 301

**Visiting address**
Professor Olav Hanssensvei 7A
4021 Stavanger

**Mail**
P.O. Box 8034, 4068 Stavanger

ingrid@biomarinvekst.no
www.biomarinvekst.no
Welcome to Måltidets Hus
A national centre for food science and industry

www.gastronomi.no/en

Biomarin Vekst

Rogaland Fylkeskommune