

seafood, fishing & aquaculture

Quality on
Demand





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in cooperation with Innovation Norway, the Confederation of Norwegian Enterprise, the Norwegian Ministry of Foreign Affairs, the Research Council of Norway and the Norwegian Ministry of Trade and Industry.

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The **NORWAY EXPORTS** series provides timely, in-depth information on a selection of Norwegian companies, products and services in over 15 industrial sectors.

NORWAY EXPORTS is distributed free of charge through the Innovation Norway offices and Norwegian foreign service missions (see inside back cover), selected trade publications and at major conferences and trade fairs around the world.

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NORWAY EXPORTS, please contact Findexa Forlag AS, tel: +47 21 50 80 00 or send an enquiry to kundeservice@findexaforlag.no

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NORWAY EXPORTS is printed on chlorine-free paper.

Cover photo:

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facts:

Norway in Brief

Size: 385,155 sq. km

(including the islands of Svalbard and Jan Mayen)

Population 4.62 million

Main Cities Population (incl. suburbs)

Oslo 801,158

Bergen 242,158

Stavanger/Sandnes 174,104

Trondheim 158,613

GDP 2006 USD \$261.7 billion

Exchange Rate:

NOK/USD 6.10 (April 2007)

NOK/EUR 8.12 (April 2007)

Exports and Imports 2006

	NOK bill.	USD bill.	Amount of GDP
Total Exports	786	122.6	46.8%
Total Imports	384	59.9	22.9%

Main Export Commodities

Oil & gas, metals, machinery, chemical products, fish & fish products, pulp & paper and ferro alloys

Main Import Commodities

Transport equipment, machinery, chemicals, textiles and metal products



Distribution

Norway Exports – Seafood, Fishing & Aquaculture is distributed through the following channels:

- Innovation Norway's offices abroad and Innovation Norway's contacts and network
- Norwegian embassies and consulates abroad
- The Norwegian Ministry of Foreign Affairs' offices abroad
- The Norwegian Ministry of Trade and Industry
- Norwegian Chambers of Commerce worldwide
- Official state delegations in Norway and abroad
- The Norwegian Seafood Export Council's contacts and network
- The Association of Norwegian Students Abroad's (ANSA) contacts and network
- The following trade fairs, among others:
 - European Seafood Exposition (Brussels, Belgium) April 24–26, 2007
 - VIETFISH 2007 (Ho Chi Minh City, Vietnam) June 12–14, 2007
 - Aqua Nor (Trondheim, Norway) August 14–17, 2007
 - World Food Moscow (Moscow, Russia) September 18–21, 2007
 - AQUA SUR (Puerto Montt, Chile) March 2008

Recipients of Norway Exports – Seafood, Fishing & Aquaculture will include:

- Relevant industry contacts in both the public and private sectors in Norway and abroad
- Relevant departments, politicians, and county and township offices in Norway
- Norwegian seafood exporters
- Norwegian seafood purchasers and traders
- Seafood importers in important markets worldwide
- Norwegian fisheries and aquaculture companies
- International fisheries and aquaculture companies
- Attendees of international events, meetings and trade shows where Innovation Norway or Norwegian embassies are represented



table of contents

- 2: Alphabetical Listing of Companies
- 3: Foreword by the Norwegian Minister of Fisheries and Coastal Affairs
- 8–11: Index by Company & Industry
- 14–33: Norwegian Seafood, Fishing & Aquaculture Articles
 - 14: Overview of the Norwegian Seafood Industry**
Quality on Demand
 - 18: Norwegian Fresh Cod**
Fresh Cod Takes Off
 - 22: Norwegian Halibut, Red King Crab & the Bocuse d'Or**
A Seafood Success Story
 - 26: Norwegian Fishing Gear Products & R&D**
In Harmony with the Sea
 - 28: Past, Present & Future of the Norwegian Aquaculture Industry**
Healthy, Happy, Sustainable
- 35–85: Company Profiles
- 86–91: Service Providers

SPECIAL THANKS TO:

Helga Pedersen (The Norwegian Minister of Fisheries & Coastal Affairs), Karin Johansen (Norwegian Ministry of Fisheries & Coastal Affairs), Kristin Lien (Norwegian Seafood Export Council), Edmund Mikkelsen, Jr. (Norwegian Seafood Export Council), Marit Sogn Rismyhr (Norwegian Seafood Export Council), Katrine Lill Rypeng (Norwegian Seafood Export Council), Bardon Steene (Norwegian Seafood Export Council), Svein Hallbjørn Steien (Innovation Norway), Petter Ustad (Innovation Norway)



It is no stretch of the imagination to say that seafood is to Norway as wine is to France and as pasta is to Italy.



Norwegian seafood has shown its quality at the *Bocuse d'Or* by being selected for the competition four times, more often than any other country supplying raw ingredients except France.



Norwegian aquaculture as a viable commercial industry truly began in the 1970s, when in 1971 the first shipments of farmed salmon totalled 100 tonnes. Exports have grown by a mind-boggling factor of 600 in just 35 years.

alphabetical listing

NORWAY EXPORTS – Seafood, Fishing & Aquaculture

Aalesund Seafood AS	35	Grieg Seafood Finnmark AS	53	Norwegian University of Life Sciences (UMB)	72
Agra Group (Mills DA)	36	Hallvard Lerøy AS	54	Norwell AS	73
AKVA group ASA	37	HitraMat AS	55	Nova Sea AS	74
Akvaplan-niva AS	38	Hofseth AS	56	Optimar Giske AS	75
Akvator AS	39	Ice Fish AS	57	Oshaug Metall AS	76
Amatec AS	40	Institute of Marine Research (IMR)	58	PAM Refrigeration AS	77
Andenesfiske AS	41	Lofoten Seafood Export AS	59	Pan Nordic Logistics (PNL)	88
AquaOptima Norway AS	42	Lorentz A. Lossius AS	60	PLANY AS	78
Aquastructures AS	43	Mainstream Norway AS	61	Prestfjord Seafood AS	46
Berg LipidTech AS (BLT)	44	Marine Construction AS	62	PricewaterhouseCoopers	89
Bergen University College (Høgskolen i Bergen)	45	Modolv Sjøset AS	63	Sea Star International AS	79
Brødrene Sperre AS	46	Naturkost S. Rui AS	64	Seaborn AS	80
Coast Seafood AS	47	Njord Seafood AS	65	SINTEF Fisheries and Aquaculture	82
Eimskip-CTG	86	NOFI Tromsø AS	66	Skandinavisk Transport System AS (STS)	90
Finny Sirevaag AS	48	Noomas AS	67	Skei Marinfisk ASA	81
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49	Nor Lines AS	87	Storvik AS	84
Fosnavaag Seafood AS	50	Normarine AS	46	Tollpost Globe AS	91
Frionordica AS	51	Nor Seafoods AS	41	Vartdal Seafood AS	46
Gjendemsjø Fisk AS	52	Norsk Sjømat Group	68	West Fish Norwegian Salmon AS	85
		Norway Prawns AS	69		
		Norway Royal Salmon AS	70		
		Norwegian Institute for Water Research (NIVA)	71		

first-class seafood, harvested sustainably

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Norway is signified by the sea and the country's coastline. Marine resources have been a natural source for work, income, settlement and transportation. However, Norway

wouldn't have become the great fisheries and aquaculture nation we know today without the considerable priority that the Norwegian authorities have placed on research and development over the last few decades.

Knowledge and competence are at the base of Norway's management of marine resources, creating a lasting foundation for production and harvesting. Thus, Norwegian authorities are active participants in the battle against illegal, unreported and unregulated fishing. This kind of fishing threatens fish stocks and, as a consequence, the industrial base for law-abiding fishermen. It is therefore important that we cooperate with other countries in order to fight this illegal activity. I am especially pleased that NEAFC is implementing a completely new set of rules and regulations for harbour governmental control on May 1, 2007. This will lead to a dramatic improvement in inspections and control in several European countries and hopefully pirate vessels will have to use a great deal of valuable time finding a port in a country that is willing to receive fish caught illegally.

Ensuring the sustainability of Norway's fisheries and aquaculture industry also involves maintaining the positive results we have achieved through our focus on fish welfare, fish health and the environmentally adapted placement and operation of fish farms. The industry itself and the authorities take the challenges that remain seriously. As far as fish escaping from installations is concerned, it is my view that each escapee is one too many. In recent years we have put into place a number of measures for reducing the amount of escaped fish in Norwegian aquaculture. Our objective is to make sure that the escape of fish does not cause any risk to wild salmon or other marine species.

Norwegian seafood export amounted to NOK 35.6 billion in 2006. Ninety percent of annual production is for export. Therefore, market access for Norwegian fish is vital for our fisheries and aquaculture industry. It is the responsibility of the Norwegian authorities to ensure that the industry has good access to all of the main markets. I would like to make certain that consumers in our markets prefer Norwegian seafood because of its high quality and that it has been harvested in a sustainable way. The ability to trace fish is therefore essential for keeping illegally caught fish out of the market. Such labelling is demanded for in a market with steadily greater spending power. The Norwegian fisheries industry's reputation will determine what the consumer buys for dinner.

The value creation of our national fishing resources will benefit coastal communities that are dependent on fishing. As a link in this process, the government is working on a strategy for increasing Norway's export of processed fish based on fresh raw materials. In this way Norway can make good use of the advantage we have with our proximity to both the resources and the high-spending markets in Europe. An initiative of this type implies a need for developing new products in which we manage to make use of larger parts of the fish. We will also continue to assist the development of new products and marine technology in aquaculture through increasing research efforts and strengthening the marine value chain programme. Within a period of five to ten years the increased added value of seafood by-products in Norway can come to more than NOK 5 billion – in other words, more than the present export of fillet products.

Norway's future lies in the development and preservation of value in the marine sector. Therefore, Norway stands for a responsible, user-oriented and ecosystem-based management of the sea.

helga pedersen

The Norwegian Minister of Fisheries and Coastal Affairs



– We give local ideas global opportunities

Innovation Norway offers products and services to increase innovation in industry throughout Norway, to help develop the regions and promote Norwegian industry and internationalization, and to promote Norway as a tourist destination.

With offices in more than 30 countries worldwide and in all Norwegian counties, Innovation Norway is easy to reach. Our staff has knowledge of local and international factors that will help turn our customers' ideas into business successes.

Products Tailor-Made to Customers' Requirements

Innovation Norway assists the entirety of Norwegian industry, but has particular responsibility for aiding entrepreneurs and assisting small and medium-sized companies with an ambition and potential for growth.

We offer:

- Funding provided as loans, guarantees and equity capital programmes
- Advisory and expertise development measures

- National and international network-building and technology transfer
- Marketing of Norwegian industry and Norway as a tourist destination

With these measures as a point of departure, Innovation Norway customizes its products and services according to the needs of each individual client. Through our offices in Norway and abroad, our clients also gain access to services from other public agencies – such as the Research Council of Norway, the Norwegian Design Council and the Industrial Development Corporation of Norway (SIVA).

Dynamic and Result-Oriented

Innovation Norway supports the profitable development of industry in both individual companies and in society at large:

- Innovation Norway contributes to the creation and securing of 9,000 jobs annually

- Customer surveys show that 90 percent of Innovation Norway's funds have been allocated to projects viewed as important to companies' survival and profit growth

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Innovation Norway took over the tasks of the Norwegian Trade Council, the Norwegian Industrial and Regional Development Fund, the Govt. Consultative Office for Inventors and the Norwegian Tourist Board on January 1, 2004.

innovation norway

– marine sector

Innovation Norway has 60 colleagues in the marine sector who have experience in business and market development. We are able to finance projects that lead towards the raising of competence, a higher degree of processing and increased profitability. We collaborate with the Fishery and Aquaculture Industry Research Fund (FHF) and the Research Council of Norway. Our goal is to contribute to the development of the value chain for seafood which satisfies the demands of international consumers.

How Do We Finance Your Project?

Get in touch with your local district office. Then you will get the opportunity to present your project either through a meeting, by sending in materials or over the telephone.

Special Schemes for the Marine Sector Include:

Marine value chain programme

The goal of the programme is the establishment of a market-oriented business network in which collaborating seafood companies become better at adjusting themselves to the demands of the market. The programme will offer assistance for the planning and startup of a network. A competence programme and a training scheme will be entered into for the purpose of strengthening the long-term ability towards attaining market adaptation.

Market competence for the Norwegian seafood industry (National)

In 2007 Innovation Norway is offering a national competence programme that is tailor-made and particularly developed for the seafood industry. Important themes include international market competence and comprehension, market orientation, strategy, brand building and alliance building. The programme is being provided by the Norwegian School of Economics and Business Administration (*Norges Handelshøyskole*).

Course in market competence in the food industries (Finnmark)

In 2007 Innovation Norway is also offering a competence programme with its starting point in Finnmark County that is tailor-made and particularly developed for the seafood industry. Important themes include international market competence and comprehension, market orientation, strategy, brand building and alliance building. The programme is being provided by the University of Stavanger.

Other Information








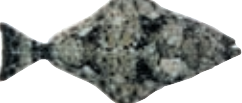

Continuation of important marine programme – NOK 65 million in 2007











On February 2, the 20 most important people in the Norwegian seafood industry were gathered together at Innovation Norway. Representatives from local governments and industry organizations, in addition to the Ministry for Fisheries & Coastal Affairs, came together in order to prioritize measures for market-driven innovations for the seafood industry. New information concerning the programme will be published as it is made available.

Joint innovation projects

In cooperation with the Fishery and Aquaculture Industry Research Fund (FHF) and the Research Council of Norway, Innovation Norway is participating in a series of developmental and documentation projects with the goal of improved profitability and competitiveness in the marine sector. A description of the projects can be found on FHF's website.



	Scientific name	French	German	Spanish	Italian
PELAGIC FISH					
					
Capelin	Mallotus villosus	Capelan atlantique	Kapelan/Lodde	Capelán	Cappellano
					
Herring	Clupea harengus	Hareng	Hering	Arenque	Aringa
					
Mackerel	Scomber scombrus	Maquereau commun	Makrele	Caballa	Maccерello
WHITE FISH					
					
Coalfish / Saithe	Pollachius virens	Lieu noir / Colin	Seelachs	Palero	Merluzzo nero
					
Cod	Gadus morhua	Morue / Cabillaud	Dorsch / Kabeljau	Bacalao	Merluzzo bianco
					
Haddock	Melanogrammus aeglefinus	Églefin	Schellfisch	Eglefino	Asinello
					
Hake	Urophycis tenuis	Merluce	Seehecht	Merluza	Nasello
					
Halibut	Hippoglossus	Flétan de l'Atlantique	Heilbutt	Halibut	Halibut
					
Pollack	Pollachius pollachius	Lieu jaune	Pollack	Abadejo	Merluzzo giallo

	Scientific name	French	German	Spanish	Italian
 Redfish	Sebastes marinus	Grand sébaste	Rotbarsch	Gallineta nórdica	Scorfano di Norvegia
 Wolffish	Anarhichas	Loup	Katfisch	Lobo	Bavosa lupa
SALMON & TROUT					
 Salmon	Salmo salar	Saumon	Lachs	Salmón	Salmone
 Arctic char	Salvelinus alpinus	Ombe chevalier	Saibling	Salvelino	Salvelino ártico
 Trout	Salmo trutta	Truite	Forelle	Trucha	Trota
PRAWNS (SHRIMP) & SHELLFISH					
 Crab	Cancridae	Crabe	Kurzschwanz-Krebs	Cangrejo	Granchio
 Mussel	Mytilus edulis	Moule commune	Miesmuschel	Mejillón	Mitilo
 Scallop	Pectinidae	Coquille Saint-Jacques	Pilger-Muschel / Kamm-Muschel	Vieira	Ventaglio-pettine maggiore
 Oyster	Ostreidae	Huître	Auster	Ostra	Ostrica
 Prawn (Shrimp)	Palaemon serratus	Crevette	Garnele	Camarón	Gamberello

seafood pelagic fish

CAPELIN

Agra Group (Mills DA)	36
Coast Seafood AS	47
Fosnavaag Seafood AS	50
Hallvard Lerøy AS	54
Modolv Sjøset AS	63
Norsk Sjømat Group	68
Sea Star International AS	79

HERRING

Agra Group (Mills DA)	36
Andenesfisk AS	41
Coast Seafood AS	47
Fosnavaag Seafood AS	50
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Modolv Sjøset AS	63
Nor Seafoods AS	41
Norsk Sjømat Group	68
Norwell AS	73
Sea Star International AS	79

HORSE MACKEREL

Coast Seafood AS	47
Fosnavaag Seafood AS	50
Hallvard Lerøy AS	54
Norsk Sjømat Group	68
Norwell AS	73
Sea Star International AS	79

MACKEREL

Agra Group (Mills DA)	36
Andenesfisk AS	41
Coast Seafood AS	47
Fosnavaag Seafood AS	50
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Nor Seafoods AS	41
Norsk Sjømat Group	68
Norwell AS	73
Sea Star International AS	79

white fish

COALFISH (SAITHE)

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Fosnavaag Seafood AS	50
Hallvard Lerøy AS	54
Ice Fish AS	57
Lofoten Seafood Export AS	59
Modolv Sjøset AS	63
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norwell AS	73
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Vartdal Seafood AS	46
West Fish Norwegian Salmon AS	85

COD

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46

Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Hallvard Lerøy AS	54
Hofseth AS	56
Ice Fish AS	57
Lofoten Seafood Export AS	59
Modolv Sjøset AS	63
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Norwell AS	73
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Skei Marinfisk ASA	81
Vartdal Seafood AS	46
West Fish Norwegian Salmon AS	85

HADDOCK

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Hallvard Lerøy AS	54
Ice Fish AS	57
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norwell AS	73
Prestfjord Seafood AS	46
Seaborn AS	80
Vartdal Seafood AS	46
West Fish Norwegian Salmon AS	85

HAKE

Hallvard Lerøy AS	54
Hofseth AS	56
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Sea Star International AS	79
Seaborn AS	80

HALIBUT

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Ice Fish AS	57
Modolv Sjøset AS	63
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71

Norwell AS	73
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Vartdal Seafood AS	46
West Fish Norwegian Salmon AS	85

POLLACK

Aalesund Seafood AS	35
Hallvard Lerøy AS	54
Ice Fish AS	57
Njord Seafood AS	65

REDFISH

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Hallvard Lerøy AS	54
Ice Fish AS	57
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norwell AS	73
Prestfjord Seafood AS	46
Vartdal Seafood AS	46
West Fish Norwegian Salmon AS	85

WHITEFISH

Aalesund Seafood AS	35
Brødrene Sperre AS	46
Coast Seafood AS	47
Hallvard Lerøy AS	54
Ice Fish AS	57
Modolv Sjøset AS	63
Njord Seafood AS	65
Normarine AS	46
Norsk Sjømat Group	68
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Vartdal Seafood AS	46

WOLFFISH

Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Hallvard Lerøy AS	54
Ice Fish AS	57
Njord Seafood AS	65
Norsk Sjømat Group	68
Seaborn AS	80

salmon & trout

ARCTIC CHAR

Fiskeriforskning Norwegian Institute of Fisheries and Aquaculture Research)	49
Hallvard Lerøy AS	54
Njord Seafood AS	65
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71

SALMON

Agra Group (Mills DA)	36
Andenesfisk AS	41
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49

Gjendemsjø Fisk AS	52
Grieg Seafood Finnmark AS	53
Hofseth AS	56
Lofoten Seafood Export AS	59
Mainstream Norway AS	61
Nor Seafoods AS	41
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Norwell AS	73
Nova Sea AS	74
Sea Star International AS	79
Seaborn AS	80
West Fish Norwegian Salmon AS	85

SALMON TROUT

Agra Group (Mills DA)	36
Coast Seafood AS	47
Gjendemsjø Fisk AS	52
Grieg Seafood Finnmark AS	53
Hallvard Lerøy AS	54
Hofseth AS	56
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwell AS	73
Sea Star International AS	79
Seaborn AS	80
West Fish Norwegian Salmon AS	85

TROUT

Andenesfisk AS	41
Coast Seafood AS	47
Hallvard Lerøy AS	54
Nor Seafoods AS	41
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72

prawns (shrimp) & shellfish

CRAB

Aalesund Seafood AS	35
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Hallvard Lerøy AS	54
HitraMat AS	55
Ice Fish AS	57
Njord Seafood AS	65

MUSSELS & SCALLOPS

Hallvard Lerøy AS	54
Hofseth AS	56
Njord Seafood AS	65
Norway Royal Salmon AS	70

Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwell AS	73

OYSTERS

Hallvard Lerøy AS	54
Norway Royal Salmon AS	70

PRAWNS (SHRIMP)

Agra Group (Mills DA)	36
Andenesfisk AS	41
Brødrene Sperre AS	46
Finny Sirevaag AS	48
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Nor Seafoods AS	41
Normarine AS	46
Norway Prawns AS	69
Norway Royal Salmon AS	70
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Prestfjord Seafood AS	46
Seaborn AS	80
Vartdal Seafood AS	46

fish & seafood products

CANNED SEAFOOD PRODUCTS

Agra Group (Mills DA)	36
Sea Star International AS	79

CURED & MARINATED FISH

Agra Group (Mills DA)	36
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Gjendemsjø Fisk AS	52
Hofseth AS	56
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Seaborn AS	80

DRIED & SALTED FISH

Aalesund Seafood AS	35
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Lofoten Seafood Export AS	59
Lorentz A. Lossius AS	60
West Fish Norwegian Salmon AS	85

FILLETS

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Fosnavaag Seafood AS	50
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Hofseth AS	56
Ice Fish AS	57
Njord Seafood AS	65
Nor Seafoods AS	41

Normarine AS	46
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwell AS	73
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Vartdal Seafood AS	46

FRESH FISH

Aalesund Seafood AS	35
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Gjendemsjø Fisk AS	52
Grieg Seafood Finnmark AS	53
Hallvard Lerøy AS	54
Hofseth AS	56
Ice Fish AS	57
Lofoten Seafood Export AS	59
Njord Seafood AS	65
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Norwell AS	73
Nova Sea AS	74
Sea Star International AS	79
Seaborn AS	80

FROZEN FISH

Aalesund Seafood AS	35
Andenesfisk AS	41
Brødrene Sperre AS	46
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Fosnavaag Seafood AS	50
Gjendemsjø Fisk AS	52
Grieg Seafood Finnmark AS	53
Hallvard Lerøy AS	54
Hofseth AS	56
Ice Fish AS	57
Lofoten Seafood Export AS	59
Njord Seafood AS	65
Nor Seafoods AS	41
Normarine AS	46
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Norwell AS	73
Nova Sea AS	74
Prestfjord Seafood AS	46
Sea Star International AS	79
Seaborn AS	80
Vartdal Seafood AS	46

MARINE-BASED OILS & EXTRACTS

Berg LipidTech AS (BLT) Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	44
Naturkost S. Rui AS	64
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Sea Star International AS	79

PREPARED FISH & SEAFOOD PRODUCTS

Aalesund Seafood AS	35
Agra Group (Mills DA)	36
Coast Seafood AS	47
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Hofseth AS	56
Norsk Sjømat Group	68
Norway Prawns AS	69
Norway Royal Salmon AS	70
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Sea Star International AS	79

PRESERVED, MARINATED & SALTED FISH

Aalesund Seafood AS	35
Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Norsk Sjømat Group	68
Norway Royal Salmon AS	70

SMOKED FISH

Coast Seafood AS	47
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Gjendemsjø Fisk AS	52
Hallvard Lerøy AS	54
Norsk Sjømat Group	68
Norway Royal Salmon AS	70
Norwell AS	73
Sea Star International AS	79
Seaborn AS	80

WET-SALTED FISH

Aalesund Seafood AS	35
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Modolv Sjøset AS	63
Norway Royal Salmon AS	70

aquaculture

PRODUCTS & EQUIPMENT**Anti-Fouling**

NOFI Tromsø AS	66
----------------	----

Biomass Estimators

AKVA group ASA	37
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Storvik AS	84

Cages (Sea Pens & Floating Collars)

AKVA group ASA	37
Amatec AS	40
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Marine Construction AS	62
NOFI Tromsø AS	66

Ensilage Agents

NOFI Tromsø AS	66
----------------	----

Feed

Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72

Feed Barges

AKVA group ASA	37
Marine Construction AS	62

Feeding Control Systems

AKVA group ASA	37
Marine Construction AS	62
Storvik AS	84

Feeding Systems

AKVA group ASA	37
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
Storvik AS	84

Fish Carriers

PLANY AS	78
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Fishmeal & Fish Oils

Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72

Fittings, Ropes & Ancillaries

NOFI Tromsø AS	66
----------------	----

Grading Machines

Marine Construction AS	62
------------------------	----

Hatchery Equipment

AquaOptima Norway AS	42
Marine Construction AS	62
NOFI Tromsø AS	66
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Storvik AS	84

Husbandry & Harvesting Equipment

Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
PLANY AS	78

Ice Machines

Frionordica AS	51
PAM Refrigeration AS	77

Land-Based Aquaculture Equipment

AKVA group ASA	37
AquaOptima Norway AS	42
Marine Construction AS	62
NOFI Tromsø AS	66
PLANY AS	78

Lift/Load Systems

PLANY AS	78
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Marker Lights

NOFI Tromsø AS	66
----------------	----

Mooring Systems

Marine Construction AS	62
NOFI Tromsø AS	66
Noomas AS	67

Net Cleaning Equipment (Subsea)

AKVA group ASA	37
Noomas AS	67

Net Drying Equipment

AKVA group ASA	37
----------------	----

Nets & Net Cages

Amatec AS	40
Marine Construction AS	62
NOFI Tromsø AS	66
PLANY AS	78

Pharmaceuticals/Vaccines

Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
--	----

Piping

AKVA group ASA	37
NOFI Tromsø AS	66

Processing Plants & Machinery

Frionordica AS	51
Mainstream Norway AS	61
Optimar Giske AS	75
PAM Refrigeration AS	77

Refrigeration

Frionordica AS	51
PAM Refrigeration AS	77

Safety Equipment

NOFI Tromsø AS	66
----------------	----

Software

AKVA group ASA	37
NOFI Tromsø AS	66

Tanks

AquaOptima Norway AS	42
NOFI Tromsø AS	66
PLANY AS	78

Turnkey Fish Farms

AKVA group ASA	37
Akvaplan-niva AS	38
AquaOptima Norway AS	42
Marine Construction AS	62

Underwater Monitoring Equipment

AKVA group ASA	37
Storvik AS	84

Water Pumps, Filters & Recirculation Technology

Akvaplan-niva AS	38
AquaOptima Norway AS	42
Marine Construction AS	62
PAM Refrigeration AS	77

Well Boats	
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71

Work Boats	
AKVA group ASA	37
Marine Construction AS	62
Noomas AS	67

CONSULTANCY & OTHER SERVICES

Certification

Akvaplan-niva AS	38
NOFI Tromsø AS	66
Noomas AS	67

Consultancy

AKVA group ASA	37
Akvaplan-niva AS	38
Akvator AS	39
Institute of Marine Research (IMR)	58
Marine Construction AS	62
NOFI Tromsø AS	66
Noomas AS	67
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
PAM Refrigeration AS	77

Environmental Assessment

Akvaplan-niva AS	38
Bergen University College (Høgskolen i Bergen)	45
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
NOFI Tromsø AS	66
Noomas AS	67
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71

Financing

AKVA group ASA	37
PricewaterhouseCoopers	89

Fish Farm Management & Training

AKVA group ASA	37
Akvaplan-niva AS	38
Bergen University College (Høgskolen i Bergen)	45
Marine Construction AS	62
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72

Product Development, Testing & Documentation

AKVA group ASA	37
Akvaplan-niva AS	38
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
NOFI Tromsø AS	66
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71

Research & Development

Akvaplan-niva AS	38
Bergen University College (Høgskolen i Bergen)	45
Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	49
Institute of Marine Research (IMR)	58
NOFI Tromsø AS	66
Norwegian Institute for Water Research (NIVA), Department for Fish & Aquaculture	71
Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences (UMB)	72
SINTEF Fisheries and Aquaculture	82

Standardization

Bergen University College (Høgskolen i Bergen)	45
NOFI Tromsø AS	66

Transport & Logistics

Eimskip-CTC	86
Nor Lines AS	87
Pan Nordic Logistics (PNL)	88
Skandinavisk Transport System AS (STS)	90
Tollpost Globe AS	91

fishing gear

GEAR & EQUIPMENT

Automatic Jigging Equipment

NOFI Tromsø AS	66
--------------------------	----

Bins, Boxes, Pallets & Semi Bulk Containers

NOFI Tromsø AS	66
PLANY AS	78

Buoys, Fenders, Floats & Floatropes

NOFI Tromsø AS	66
PLANY AS	78

Cables & Chains

NOFI Tromsø AS	66
--------------------------	----

Deck Equipment

NOFI Tromsø AS	66
PLANY AS	78

Gill Netting Equipment

Amatec AS	40
NOFI Tromsø AS	66

Hoisting & Hauling Equipment

NOFI Tromsø AS	66
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Hooks & Lures

NOFI Tromsø AS	66
--------------------------	----

Ice Machines

Frionordica AS	51
PAM Refrigeration AS	77

Ice Plants

Frionordica AS	51
PAM Refrigeration AS	77

Longlining Equipment

NOFI Tromsø AS	66
--------------------------	----

Nets, Net Equipment & Ropes

Amatec AS	40
NOFI Tromsø AS	66

Processing Equipment

Frionordica AS	51
Optimar Giske AS	75
PLANY AS	78

Propellers, Propulsion Gear, Steering Gear & Transmissions

Oshaug Metall AS	76
----------------------------	----

Purse Seining Equipment

NOFI Tromsø AS	66
PLANY AS	78

Refrigeration Equipment

Frionordica AS	51
PAM Refrigeration AS	77
PLANY AS	78

Rescue & Survival Equipment

PLANY AS	78
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Ship's Equipment

NOFI Tromsø AS	66
PLANY AS	78

Survival Suits & Workwear

NOFI Tromsø AS	66
--------------------------	----

Trawling Equipment

NOFI Tromsø AS	66
PLANY AS	78

INFORMATION & COMMUNICATIONS TECHNOLOGY

Alarm, Monitoring & Control Systems

Storvik AS	84
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CONSULTANCY & OTHER SERVICES

Certification

NOFI Tromsø AS	66
Noomas AS	67

Consultancy

Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Research)	47
NOFI Tromsø AS	66
Noomas AS	67

Financing

PricewaterhouseCoopers	89
----------------------------------	----

Research & Development

NOFI Tromsø AS	66
SINTEF Fisheries and Aquaculture	82

ansa

(association of norwegian students abroad)

ANSA – the Association of Norwegian Students Abroad – is a non-profit, independent organization voicing the interests of Norwegian students who study abroad. Currently 22,000 Norwegian students are studying abroad in over 60 countries at over 1,200 educational institutions worldwide.

ANSA was founded by Norwegian students in 1956, and through the years ANSA has worked to improve and change the rules and regulations governing grants and loans for students abroad. ANSA believes that all students should have the right to study any subject in any country they wish.

ANSA provides a broad range of services to students before, during, and after their studies abroad:

Before Studies

ANSA is the national Information Centre for higher education abroad. The Information Centre is funded by the Ministry of Education and Research and gives unbiased advice on higher education abroad. Its five full-time educational advisers visit schools and student recruitment fairs, give individual counselling, and publish information both in print and on the Internet.

During Studies

As the welfare organization of Norwegian students abroad, ANSA offers services and funds social events for its members during their studies. Members are organized locally in 21 groups spread all over the world, and more than 500 volunteers arrange various events and represent ANSA where they study.

Members also run professional committees in a variety of subjects. These committees arrange meetings for professional development and networking, often in close collaboration with Norwegian organizations such as Tekna (science and engineering), *Siviløkonomene* (business administration) and *Den norske lægeforening* (medicine).

In cases of international crises, ANSA cooperates closely with the Ministry of Foreign Affairs to secure the safety of Norwegian students abroad. ANSA also works with the Norwegian Church Abroad (*Sjømannskirken*) and the Student Health Services at the University of Oslo in giving individual aid to students in difficulty.

In cooperation with Norwegian service providers, ANSA offers high-quality and cost-effective banking and insurance solutions tailored to the needs of students abroad.

On the political front, ANSA acts as an advocate for students and studying abroad through its relations with the Ministry of Education and Research, the Norwegian State Educational Loan Fund (*Lånekassen*) and other players in the field of higher education. Six hundred yearly quotations in the media make ANSA's views known both to politicians and the general public.

After Studies

ANSA Alumni is a career network set up to help former students gain access to the Norwegian job market. ANSA Alumni arranges seminars, cooperates with ANSA's professional committees and offers an extensive network for job recruitment.

ANSA also maintains close connections with both public and private Norwegian employers, and with the Confederation of Norwegian Enterprise (NHO). Employers regularly advertise for candidates in ANSA's magazine *ANSAnytt* and through ANSA's mailing list. Every year ANSA organizes a Symposium where employers and students meet to discuss job opportunities.



ANSA
Association of Norwegian
Students Abroad

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Website: www.ansa.no

ANSA attends to the professional, economic, social, and cultural interests of Norwegian students abroad, and strives to strengthen the appreciation of the resources these students represent because of their international experience and qualifications.

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WELCOME TO THE 3rd ANNUAL NORTH ATLANTIC SEAFOOD WEEK

3–9 March 2008 – Oslo, Norway

Our second annual North Atlantic Seafood Week proved a huge success – a success we're determined to repeat in 2008.

The conference will offer an even bigger set of seminars and the popular and interesting study tours now include Iceland. This is your opportunity to learn more about trends, marketing and finance - and also to experience, meet and do business with the key players within the seafood industry. Make sure you put the dates in your diary today. **See you in Oslo next March.**

THE NEW PLACE TO MEET - A FULL WEEK OF EVENTS

Monday 3 March	Tuesday 4 March	Wednesday 5 March	Thursday 6 March	Friday 7 March	Saturday 8 March
	THE CONFERENCE				
			STUDY TOURS		
SOCIAL EVENTS					
Conference Speakers VIP Dinner	Conference Reception	Russian Evening			



www.nor-seafood.com

Organiser: Norway Trade Fairs in cooperation with Innovation Norway



quality on demand

By David John Smith

Norway enjoys some of the richest fishing grounds in the world, including the North Sea, Barents Sea, Norwegian Sea and Norway's coastal waters. A unique ecosystem nurtures Norway's 200 different species of fish and shellfish, many of which are exported to a global market totalling more than 150 countries. In addition to its plentiful seafood resources, other important reasons behind Norway's seafood industry success is its ability to deliver products where and how the customers want them – be it fresh, frozen, dried or prepared in other ways – and the country's overriding focus on seafood traceability, quality assurance, environmental certification and safety.

The main focus of the Norwegian Seafood Export Council (NSEC) is to promote the first-class quality and taste of Norwegian seafood all over the world, with the information available in over a dozen languages on www.seafood.no. And the good word has undoubtedly spread – no less than 15 different countries purchased more than NOK 1 billion of the country's seafood in 2006. In fact, 27 million meals with Norwegian seafood are enjoyed all over the world every single day. With this in mind, it is not a stretch of the imagination to say that fish is to Norway as wine is to France and as pasta is to Italy.

In 2006 Norway exported NOK 35.6 billion of seafood, a new record and

an increase of NOK 3.6 billion from the year before. Growth was especially strong in Europe, with eight of Norway's 10 largest customers hailing from the European Union (EU). Norway dominates the seafood export market to Europe, exporting six times more seafood than the number-two country in this category.

Playing main roles in this export increase are salmon and cod, with salmon export leading the way with NOK 17.1 billion sales in 2006, an increase of NOK 3.5 billion from the year before. Cod exports totalled an impressive NOK 10 billion in 2006, compared to NOK 8.7 billion in 2005.

Increased demand and prices, continued flexibility in delivery, and the traditional

excellent quality of Norwegian seafood has set the stage for this positive trend, pointing the way towards another record year in 2007.

King Salmon

The EU maintains its status as Norway's most important salmon target market, importing NOK 12.9 billion in 2006. In fact, since 1999, Norwegian exports of salmon to the EU have increased by 75%, the main reason being the country's ability to deliver fresh fish to its customers in the region.

The rest of the world is continuing to discover the joys of salmon from the clear, cold waters of Norway, with record exports in 2006 to countries such as South Africa (78% increase), Egypt (88% increase) and the United Arab Republic (48% increase).

Something for Everyone

The high quality and rich diversity of Norwegian seafood makes it a natural partner for local food traditions and a wide range of recipes worldwide. Examples of this include the popularity of Norwegian salmon in Japanese sushi,



© Alf Börjesson/Norwegian Seafood Export Council

From the richest fishing areas, the clean taste of Norwegian seafood is exported to over 150 countries.



the importance of Norwegian clipfish in Spanish, Portuguese and Greek dishes, and the preference for Norwegian herring in Poland – a country in which 30% of the population eats the fish at least one time per week.

In addition, it is both a cultural and economic curiosity that 90% of all dried fish (stockfish) from the mid-Norwegian region of Lofoten is exported to Italy for autumn festivals celebrating “*Stoccafisso di Norvegia*”.

The Numbers Say it All

Special markets for Norwegian seafood translate into good business. One prime example of this is Portugal, which accounts for 60% of the total clipfish export of NOK 2.8 billion. Portugal was also Norway’s most important market for cod in total, followed by Denmark and Italy. Exports of saithe clipfish totalled NOK 936 million, the highest export value ever recorded for this product. The greatest export growth here took place in Brazil and Congo.

Trout continued to whet tastebuds in 2006, particularly in countries such as Russia and Japan. Herring and mackerel also held their own for the year despite lower prices worldwide, with herring recording NOK 3 billion in exports and mackerel exports weighing in at NOK 1.7

Perhaps no seafood is better known worldwide than the Norwegian salmon.

billion. In total, pelagic fish registered a total export of NOK 5.5 billion, slightly less than the record year of 2005.

Accountability & the Environment

Norwegians pride themselves on doing things in the correct manner, and the country’s seafood industry upholds this tradition. The industry knows the importance of compliance to the strictest health and hygiene requirements, while adapting sustainable and environmentally friendly production methods. Nothing less than the best is good enough for Norway and its customers with regards to traceability, quality assurance, environmental certification and safety.

Traceability & Accountability

Seafood exporting countries face challenges in the open international market, one characterized by progressively fewer – but larger volume – customers who place stricter demands on the products they purchase. This necessitates a high level of documentation and traceability from harvest to the product as it reaches the final consumer.

This traceability is multi-dimensional, one aspect taking into account environmental

factors related to responsible and controlled catch based on defined quotas, using systems that document and track the fish. Another is to document specific quality factors related to salmon and trout fish farming in a secure process that tracks all elements of the fish production process.

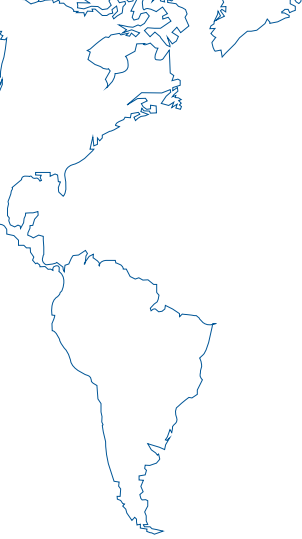
The goal of these traceability activities is aimed towards establishing an international standard covering all stages up until the product reaches the consumer. To achieve this, the Norwegian fishing industry has initiated a tracking system based on the Tracefish and TraceCore XML traceability standards. This project will be integrated into activities related to several species, including white fish, pelagic fish and salmon.

The SKREI® Quality Assurance Initiative

The NSEC spreads the word that the best seafood comes from Norway, and one major initiative being undertaken has been the development and marketing of new quality standards related to the mature coldwater cod – the skrei.



© Yvonne Holth/Norwegian Seafood Export Council



Once each year during the months of January, February and March, the Norwegian coastline becomes the scene for one of nature's most magnificent events. Out of the enormous feeding waters of the northern Barents Sea, migrating codfish come in the millions, heading for their spawning ground along the wintry coast of Norway to carry their species into the future.

All Norwegian Arctic cod marked with the SKREI® brand are packed according to a highly defined grade label standard. The brand assures that the fish used are true Norwegian Arctic cod, full-grown and of spawning age (of the species *Gadus morhua*). The fish are only to be caught during the winter season – from the first

day of January until the last day of April – in the traditional spawning grounds along the northern Norwegian coastline.

The SKREI® brand guarantees the best quality product and is a result of an initiative from the NSEC, developed by a committee comprised of representatives of Norwegian fishermen, producers and exporters. The goal has been to produce a strict Norwegian standard intended to promote a clear perception of SKREI® as a top quality product.

This official quality standard for SKREI® was ready at the start of the 2006 fishing season. It is the first to be used in a new series of grade labelling for Norwegian seafood products, and is supported by documentation, guidelines and directives that cover all aspects of skrei production – from the condition and exact species of the fish upon catch within specific areas and times, to the preparation, packaging, transportation and marketing processes.

Environmentally Certified

It takes more than quality, clean products to satisfy – the world market needs to be informed that fish are legally caught and come from stocks that are harvested in a sustainable manner. In recent years, the Norwegian fishing industry has become aware of increasing demands to provide concrete evidence that the products offered come from fish stocks that are managed in a sustainable way.

The Norwegian fishing industry's response is to become the leader in the sustainable management of legally caught fish, taking action to satisfy the market's need for information and documentation in this area with a two-part information strategy:

- A system will be established to document that Norwegian seafood has been caught legally, and that Norwegian fish resources are managed in a sustainable way in cooperation with a third-party certification agency. The assessment is based on criteria from the FAO "Code of Conduct for Responsible Fisheries", with a key measure being traceability systems which will ensure that products come from legally caught fish from sustainable stocks.

© Aina Hole/Norwegian Seafood Export Council



From sushi in Japan to clipfish in Brazil, 27 million Norwegian seafood meals are enjoyed every day.



- The second part of the strategy is to facilitate high credibility, transparency and documentation regarding Norwegian sustainable fisheries management. An application has been submitted for MSC (Marine Stewardship Council) certification of Norwegian saithe, and the Norwegian fisheries industry will continuously assess the use of third-party certification for Norwegian fish stocks.

The easily found portal www.fisheries.no provides continuously updated information and documentation regarding the fish stocks as well as Norwegian fisheries management.

Transparency & Safety

Consumers and industries around the world are becoming more aware of the need for food safety measures and information. In order to meet this demand, Norway has developed a complete system dedicated to an open approach to safety information.

Seafood is the second-largest export industry (trailing only oil) in Norway, warranting – and receiving – attention at the highest levels. Together with the Ministry of Fisheries at the top of the governing structure, a wide range of public and private organizations work together systematically to ensure that top levels of safety are observed and used in all elements of the seafood and fishing industry.

In 2004, Norway established a new governmental body – the Norwegian Food Safety Authority (NFSA). The NFSA brings together all different aspects of the production chain – from the sea to the dining table. This food safety system includes:

- Developing regulations and ensuring compliance (Norwegian Ministry of Fisheries and Coastal Affairs)

- Implementing regulations – food safety from sea to fork (Norwegian Food Safety Authority)
- Inspection and regulation of the fisheries (Norwegian Directorate of Fisheries)
- Risk assessment (National Institute of Nutrition and Seafood Research)
- Managing safety information in the market (Norwegian Seafood Export Council)

This broad support, combined with Norway's rich seafood resources, sends a strong signal: join the 27 million other people worldwide who will enjoy a Norwegian seafood meal today.



© Alf Börjesson/Norwegian Seafood Export Council

Skrei is a Norwegian delicacy enhancing recipes all over the world.

fresh cod

takes off

By Dean Clark

The world is well-acquainted with the qualities of fresh Norwegian salmon and, thanks in part to being honoured at the *Bocuse d'Or*, fresh white halibut and king crab from Norway are becoming increasingly popular as well. But it is fresh cod, in four main varieties – wild, sea ranched, farmed and skrei – that is poised to become the next major Norwegian seafood export. And supplying growing new markets with the fish will not be a problem. Thanks to this variety of sources, Norwegian fisheries are able to supply fresh, healthy cod to customers every day of the year.

Skrei are Norwegian Arctic cod that migrate some 400 km north of the Arctic Circle to breed. During the season, which runs from January to April, the skrei are harvested at their prime, packed with energy and vitality. This is a fishing ritual that has deep roots. Going back to Viking times, skrei has been a valued delicacy and a mainstay of the northern economy, especially in the area around Lofoten. In fact, the fish may have been the very first exported Norwegian product, dating back to the 12th century.

Wild cod taken from the cold and clear Arctic waters off the Norwegian coast provide unparalleled quality and freshness during the cod season. The fishermen who ply their trade along the northern coast of the country have been harvesting this healthy fish for over a thousand years, and the short distance between their historic fishing grounds and landing stations means fresher deliveries to the rest of the world.

Sea ranches and cod farms take advantage of the ice-cold currents of Norway's fjords and coastal islands to produce fish that are characterized by a delicious, mild taste to the meat, resulting in a delicacy that is also a rich source of protein and vitamins.

A Sales Phenomenon

The marketplace is showing a huge increase in appetite for fresh Norwegian cod, particularly fish from sea ranches and farms. In the first half of 2006, sales of this seafood jumped an amazing 259% over the previous year. The top three consumers were the Netherlands, France and Spain, who collectively accounted for 69% of this market segment.

Over the past two years, the volume of export of farmed and sea ranched fresh cod has risen a dizzying 941%, with the overall farmed cod export value reaching NOK 135 million in 2006.

Commenting on the strong performance of cod in the export market, Tove Sleipnes of the Norwegian Seafood Export Council (NSEC) cited three key elements. "Good marketing work, a favourable currency situation and high quality of raw goods are the main factors behind the positive export trend we are seeing for codfish," she said on seafood.no, adding "The fishing industry has shown a tremendous ability to adapt to changes in the market and to procure products which are in demand and give a good price."

Fresh Norwegian cod is being shaped into delicious new forms by some of the world's leading chefs at contests such as the *Bocuse d'Or*.



© Ragge Strand/Norwegian Seafood Export Council



Spain Hungry for Fresh Cod

Spain has shown the most dramatic growth as a market for fresh Norwegian cod. The nation has more than quadrupled imports of the fresh sea rancher or farmed fish. Effective marketing and promotions are thought to be behind the explosive growth. “The goal-oriented activities were expected to be effective,” said Arne Sorvig of the NSEC on its website, “but we see that they have a surprisingly large and fast effect. This tells us that Spaniards are ready for fresh Norwegian cod.” What’s more, the future looks bright in this market. Spaniards have the highest consumption of fresh seafood per capita in Europe, with whitefish making up a large portion of their diets.

Champagne, Gourmet Cooking & Cod TV

Creative promotions have underpinned the amazing growth in the popularity of fresh cod, especially in Europe. Famed Spanish chef Joaquín Felipe of the restaurants “Urban”, “Europa Deco” and “Europa” did much to raise the profile of the seafood with “Cod and Champagne” month in Madrid. Diners had the chance to sample different cod dishes paired with just the right champagne. Delicacies included “Tartar of Cod” paired with a Veuve Cliquot Rose and “Rice with Cod, Spinach,

Cauliflower and Sea Anemone” together with a Krug Brut sparkling wine.

In Germany as well, the knowledge that fresh Norwegian cod is available 365 days a year is being trumpeted. Head chefs at 300 German restaurants had the chance to experience the quality of fresh Norwegian sea rancher and farmed cod when the NSEC selected them to sample and work with the whitefish by shipping the seafood directly to them. In neighbouring Belgium’s capital of Brussels, it was “Live from Norway – it’s Cod TV”. This was an innovative marketing presentation created for Europe’s largest seafood convention, ESE. A satellite hookup with Stavanger was established, and large-screen television at the convention enabled visitors to see what’s involved in all aspects of delivering fresh cod from Norway to Europe, as well as ask experts from Norway about any and all issues relating to the seafood.

A Network of Experienced Suppliers

The centuries-old fishing tradition and expertise in Norway has created an extensive network of sea ranches, fish farms and fisheries that, together, are able to supply fresh cod to markets around the world each and every day of the year. Among the key players in this segment are Aalesand Seafood, which not only delivers cod, king crab and halibut, but as a subsidiary of Aalesand Shipping Group, the firm owns its own vessels. This gives the company greater control over quality. Another important presence in this segment is Hallvard Lerøy AS. A part of the Lerøy Group, the company is based in Bergen and boasts an extensive supply network, including fresh fish plants, farms and packing stations. The company produces both fresh and frozen cod, salmon, trout, and pelagic fish.

Fresh Norwegian cod is finding an increasing share of the growing world market and appetite for high-quality and healthy seafood that can be prepared in a wide variety of ways.



© Ragge Strand/Norwegian Seafood Export Council



find new business partners in norway

At www.nortrade.com you will find up-to-date information on more than 3,400 Norwegian manufacturers and exporters within 30 different industries. There you will find a search tool which allows you to perform searches for companies, products or persons in the Norwegian Export Directory.

Thirty Industry Portals

Nortrade also has 30 different industry portals containing information about companies, products and news of current interest.

Find Relevant Suppliers

Nortrade has a comprehensive presentation of Norwegian seafood, fishing & aquaculture companies, complete with company profile pages, product pages, industry codes and news articles, along with e-mail and website links.

Send Online Trade Requests

You can send inquiries directly to one or more companies following a product search. You will receive a reply directly from the company.

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the research council of norway

The Research Council of Norway offers project support to companies that invest in innovation through research and development. Industry projects are financed through the tax deduction scheme SkatteFUNN and within thematic research programmes covering such areas as aquaculture, food, oceans and coastal areas, and regional development. Long-term research projects can be supported through the Centres for Research-Driven Innovation.

Marine Research in Norway

The Norwegian coastal area is one of the world's most prolific areas for marine bioproduction. Combined with Norway's long marine traditions, it provides a strong platform for developing competitive advantages in marine resources.

Research and development has been, and still is, vital for developing marine industries. Private and public investments in marine R&D in Norway reached approximately €218 million in 2005.

Marine research is a prioritized research area in Norway. The total budget for marine research in the Research Council has increased in recent years, and is over €75 million for 2007.

AQUACULTURE – An Industry in Growth

A large-scale strategic marine research programme has been established to coordinate and carry out national ambitions within aquaculture. The Aquaculture Programme supports knowledge building for profitable business in the aquaculture sector, and works to secure Norwegian R&D expertise in strategically important areas for the industry. The programme includes stakeholders in the entire value chain, including the supply industry.



Important goals of the Aquaculture Programme include the development of:

- Expertise for profitable and sustainable production of salmonids in the aquaculture industry
- Expertise to support profitable business in the breeding of other marine species
- Expertise to ensure environmentally friendly production, food quality and safety, and animal welfare
- Long-term, leading-edge international expertise in the industry, R&D sector and governmental agencies

The Research Council of Norway is a strategic body for Norwegian research run under the auspices of the Ministry of Education and Research. The Research Council develops research programmes based on policy guidelines from the Norwegian government and the Norwegian Parliament. In 2007 the Research Council administrated some €700 million, financed by 16 ministries to fund basic research, applied research and innovation-related activities.

The Research Council of Norway

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a seafood success story

By Dean Clark

Bocuse d'Or. Just speaking those words will elicit a nod of admiration and recognition from food experts around the world. The *Bocuse d'Or* is arguably the world's most prestigious culinary competition, a demanding test of gastronomic skill and superlative raw ingredients that has yielded high honours for Norway.

Norwegian seafood has shown its quality at this world-famous event by being selected for the competition four times, more often than any other country supplying raw ingredients except France. One would expect world-renowned Norwegian salmon to be featured but in the January 2007 contest held in Lyon, it was farmed Norwegian halibut and both farmed and wild-caught Norwegian red king crab that held the spotlight. Salmon from Norway will have its turn, though, as the featured raw ingredient in the first European regional *Bocuse d'Or* competition in Stavanger in 2008.

Tough Selection Process

It was left up to French Master Chefs Christian Bourillot and Alain Le Cossec to select the raw ingredients for the *Bocuse d'Or* competition in the seafood section. The pair visited Norway to scout for quality fish and, when asked by a reporter for www.seafood.no why Norwegian seafood has been selected for the competition so many times, the pair answered that

The "Oven-Baked Norwegian Halibut with Sherry and Vegetables" dish shown here was created by Sven-Erik Renaa for the Norwegian "Cook of the Year" competition in 2006. His victory here gave him the honour of representing Norway in the 2007 *Bocuse d'Or* culinary competition in Lyon, France. Norwegian halibut was one of the main ingredients in the competition.

"Norwegian seafood holds exceptionally high quality, the industry is fantastically good at following up, and the raw ingredients are available all around the globe."

Previous *Bocuse d'Or* expert chefs have selected Norwegian fjord trout, saithe, scallops and skrei for the competition. Yves Hunckler, General Manager of Sepelcom (the official organization for the 2003 *Bocuse d'Or*) pointed out another aspect of Norwegian success in having its seafood selected for the competition. He noted that seafood is as important to Norwegians as gastronomy is to the

French, and that is why they pay so much attention to the quality of their fish and shellfish. Hunckler also mentioned that the international aspect of the Norwegian seafood industry (exporting to more than 150 countries around the world) was an important parameter in the choice of *Bocuse d'Or* partners.

Small but Powerful

Perhaps surprisingly for a small nation, Norwegian chefs have enjoyed tremendous success in the field. In all, Norway has claimed top honours in the competition three times – again, second only to France in the number of victories.



© Tom Haga/Norwegian Seafood Export Council



In 2007 Sven Erik Renaa carried the national colours and placed 4th, while winning the best seafood dish category. In addition, Norwegian chefs have claimed two silver medals and one bronze in recent *Bocuse* competitions.

The opportunity to host the world's great chefs for the European Regional in Stavanger in 2008 can be seen as a reflection of the growing awareness of the quality and variety of Norwegian seafood and the high level of skill with which native chefs prepare it.

Growing Sales

Greater market awareness of halibut thanks to high-profile successes like the *Bocuse d'Or* selection helped drive exports of the fish higher last year, reaching 756 tonnes in 2006, an increase from 550 tonnes the previous year. The total export value of Norwegian halibut grew from NOK 37 million to NOK 59 million last year, with Great Britain ranking as the largest importer of this fish.

The other raw ingredient for the competition, Norwegian red king crab, is little-known in much of Europe, so "registering an increase in exports to these markets is positive", said Karin Olsen of

This Norwegian halibut dish with heart lettuce and truffle sauce was created by 2006 Norwegian "Cook of the Year" Sven-Erik Renaa. Norwegian white halibut is gaining a good amount of publicity lately in kitchens the world over for its white, firm meat and versatility.

the Norwegian Seafood Export Council (NSEC) on the council's website. In 2006, exports of Norwegian red king crab came to 670 tonnes, an increase of 150 tonnes over 2005. The average price saw a five kroner per kilo decrease to NOK 125.67 per kilo, compared with 2005. Overall, the total value of exports of Norwegian red king crab in 2006 was NOK 84.5 million.

Japan ranked as the biggest single market for red king crab, purchasing 274 tonnes at an average price of NOK 113.50 per kilo in 2006. This added up to a value of NOK 31.1 million. Second was the European market, which imported a total of 230 tonnes.

Campaigns Driving Success

The NSEC saw the opportunity presented by the country's prominence at the *Bocuse d'Or* competition as a chance to spread the word about this year's featured ingredients. During a campaign timed to coincide with the contest, approximately

30 restaurants in Lyon featured Norwegian halibut on their menus and more than 20 had both Norwegian halibut and Norwegian king crab available for diners. In addition, the Council hosted a VIP dinner featuring the creations of two of Norway's *Bocuse*-winning chefs, Bent Stiansen and Terje Ness.

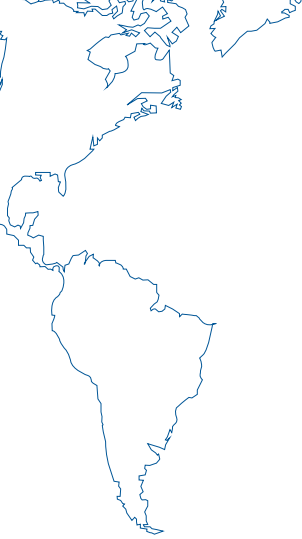
Not only are such promotions likely to make halibut and king crab more popular in France by exposing diners to their quality and freshness, the chefs in the competition are a key to worldwide sales, as they will return to their home nations with a deeper knowledge of the gastronomic possibilities of these different seafood types to offer to their customers.

The Holy Fish of the Fjords

Gaining the spotlight at *Bocuse d'Or* has brought unprecedented focus to Norwegian white halibut, or the "Norwegian Fjords' Holy Fish", as it has come to be nicknamed.



© Tom Hagar/Norwegian Seafood Export Council



The species is a large flatfish with a small head and small forked tail, characterized by a white underside with a darker-pigmented dorsal surface. Cooks appreciate the white halibut's versatility and ease to work with. The filet is white and firm and suitable for a wide variety of creative applications.

Norwegian suppliers have created a network of fish farms to breed white halibut so as to make it available year round. The fish is raised in fresh, cold seawater, in farms located along the country's long coastline. In the wild, fishermen have reported exceptional catches of "monster" white halibut weighing up to 100 kilos. On the more practical side, farmed Norwegian white halibut are harvested between 3–4 years of age, at an ideal weight of between 2 and 7 kilos.

Red King Crab

The *Bocuse* chefs were given two four-kilogram red king crabs from Norway to work their magic in the seafood competition. The shellfish was selected for the superb white meat of the legs and claws, featuring a natural juiciness and sweet taste. The crab's meat has an open structure, similar to that of lobster, which gives it a strong versatility when it comes to compatible ingredients and seasonings.

Norwegian red king crab, one of the main ingredients at the 2007 *Bocuse d'Or* culinary contest, was selected for the competition due partially to its white meat's natural juiciness and sweet taste.

Around the world, Norwegian red king crab is prepared in a wide variety of methods. Asian chefs often use garlic, ginger, coriander, green pepper or exotic fruits with the crab. Others simply serve it accompanied with a melted butter sauce for dipping.

From Cold Clean Waters

One of the suppliers chosen for the 2007 *Bocuse d'Or* was Nordic Seafarms. The company works in the clear waters off some small islands near the city of Bergen, where it carefully nurtures juvenile halibut before they are moved even further north, to the cold seawater conditions

at Averøya. There the fish are grown to optimal size and weight for export to the world. Nordic Seafarms is set on being a total integrated producer of halibut, with a focus on sustainability, traceability and careful control of the production chain.

An importance presence in the growing king crab export market, Contrace AS is situated in the Arctic town of Vardø. The company delivers live crabs to restaurants and wholesalers on a year-round basis. Contrace also supplies custom-made isolated crab aquariums for display in restaurants.



© Per Eide/Norwegian Seafood Export Council

norwegian seafood export council

Every day throughout the year 27 million meals of seafood from Norway are served worldwide. The Norwegian Seafood Export Council (NSEC) strives to make that number even greater and to ensure that people from all corners of the world know that the best seafood comes from Norway. The Norwegian fisheries industry funds the NSEC itself, and enables the NSEC to develop markets for Norwegian seafood both in Norway and abroad.

The NSEC's head office is located in Tromsø and it employs representatives in Germany, France, Spain, Portugal, Italy, Brazil, Japan, China and Russia. The Norwegian Seafood Export Council has 50 employees and a 2007 budget of NOK 204 million.

The NSEC's main areas of focus include:

Marketing & PR

In order to increase demand for Norwegian seafood, the NSEC runs campaigns in shops and restaurants, arranges media campaigns, gives lessons for consumers, chefs and shop employees and works with media in a number of markets.

Information & Issues Management

The NSEC is a key player in the safeguarding of the Norwegian fisheries industry's positive image. The NSEC engages in active information work and cooperates closely with media, NGOs,

various interest groups, the fishery industry and Norwegian authorities. To ensure reliable and updated information regarding Norwegian seafood, the NSEC works in close cooperation with expert bodies and Norwegian authorities.

Market Access

The NSEC is the industry's key source of information for tariff rates, product classifications, import quotas and other conditions relating to market access. The NSEC acts in an advisory capacity to the Ministry of Fisheries and Coastal Affairs and other authorities, and is responsible for the approval of exporters.

Market Information

The NSEC provides statistics and analyses of Norwegian and international trade relating to seafood. Presentation of market information is important, and the NSEC runs trade seminars as well as presenting information online and through press releases.

More Information

The Norwegian Seafood Export Council presents websites in 13 different languages, all of which can be reached from the main sites www.seafoodfromnorway.com and www.godfisk.no. The websites include consumer information such as seafood recipes and seafood facts, as well as trade information and press releases.

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NORGE is the trademark for first-class seafood from clear, cold Norwegian waters.



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in harmony

with the sea

By David John Smith

With one of the largest fishing fleets in Europe, and control of some of the world's most important fishing waters, Norway is both dependent on the fishing industry for part of the country's economic livelihood and on taking measures to make certain that the coastal environment is managed properly. This means that Norway's shipbuilders, fishing gear manufacturers, research and development institutions, and national authorities all have roles to play here – and sometimes overlapping ones – in helping to find the proper balance.

Norway has entrusted the Ministry of Fisheries and Coastal Affairs to maintain equilibrium in the vigilance against overfishing and maintaining responsible fishing policies, while at the same time allowing a reasonable harvest of this nation's rich seafood resources. The Ministry is responsible for the fishing and aquaculture industry, seafood safety and fish health and welfare, as well as preparedness against acute pollution.

Support Where it is Needed

Norway's commitment to research within the fishing industry is shown through its financial support within areas that include marine and coastal habitat analysis, fish health, fishery technology, aquaculture and business development. The Research Council of Norway acts as an advisor to the Ministry of Fisheries and Coastal Affairs, with a portion of public subsidies channelled through the Council to ensure that funding best serves the present and future industry.

Another important institution is SINTEF, the largest independent research organization in Scandinavia. Within SINTEF, the Fisheries and Aquaculture operational unit focuses on the entire

value chain – from biological and marine production, aquaculture and fisheries to processing and distribution.

The Fishery and Aquaculture Industry Research Fund (FHF) sees to it that funding is in place with benefits that can reach all parts of the industry, distributed in the form of grants for research programmes and major projects. The FHF manages a funding scheme for industrial research and development work within fisheries and aquaculture, and is based on a levy of 0.3 percent on all exported fish and fish products.

Understanding the Environment

Current FHF projects include funding for the development of a new product for fishing boats called SEAT (School Exploration and Analysis Tool) which will make it possible to evaluate exact species of fish. Another FHF priority is the energy economization of fishing boats.

Norway has large areas of unexplored seabeds, and their exploration is important in understanding – and protecting – the ocean environment. The Institute of

Marine Research is leading the ongoing MAREANO project to scan and map these Norwegian coastal and oceanic seabeds through surveys and studies of its physical, biological and chemical environment. The result is the ongoing development of a marine area database covering Norway's coastal and marine areas.

Fishing Gear Expertise

Norway has always lived and worked with the sea, and this history is clearly shown through fishing products and services respected far beyond Norwegian shores, including such diverse areas as fishing line equipment, the upgrading of fishing vessels, fish detection technology, fish freezer technology, and propulsion/motion control. Norwegian companies such

The MAREANO project shows Arctic seabed life in detail never before seen. Pictured here is a sunstar at a depth of 300 metres.

© MAREANO/Institute of Marine Research





as Helseth, Optimar Giske, Peterson Emballasje, Scana Volda and Sleipner Motor show the importance of tradition, innovation and knowledge.

Norwegian companies supplying solid shipbuilding expertise and technology for the fishing industry include Aas Mek. Verksted, which specializes in building new fishing vessels for the coastal and ocean fleet as well as the design and construction of live fish carriers for the fish farming industry. The company's shipyard offers newbuilding, rebuilding and services for nearly all types of vessels up to 80 metres of length in an enclosed slipway.

Power & Control

Rolls-Royce Marine's head office is based in Norway, and the group's technology and experience has provided customer satisfaction around the globe with its design, development, production and delivery of a wide range of customized ship systems for fishing vessels. Complete ship systems include stern trawlers, pelagic trawlers, longliners and oceanographic vessels.

Kongsberg Maritime delivers state-of-the-art technology for fishing vessels with products such as the K-Chief 5000 marine automation system and the AIS 200 automatic identification system. Other Kongsberg products include navigator safety systems, pressure transmitters and voyage data recorders – all designed to increase safety and efficiency at sea.

Careful, continuous, controlled and chilled flow is at the core of Cflow vacuum pump technology.

Catching the Fish

Simrad is the world's most recognized brand in professional fish-finding equipment, offering worldwide sales and service of its advanced sonars, echo sounders and catch monitor instrumentation. Simrad echo sounders include the Simrad EK60, the most modern scientific echo sounders on the market. This echo sounder has been developed based on more than 50 years of research and development in cooperation with leading marine scientists, and has become an international standard for fish stock assessment.

Mustad Longline is the developer of the Mustad Autoline System, a resource-friendly fishing system that has mechanized longline fishing worldwide. With over 700 systems in use, the system has gained the reputation of contributing to increased catches of large fish of excellent quality as well as more effective targeting of the correct species – all of which leads to reduced waste and increased profit.

Fresh & Safe

The Norwegian company Sæplast Norge supplies high-quality double wall containers in a number of sizes to ensure that once fish are caught, they are efficiently stored in order to raise catch values. Tough and resilient, these containers can be stacked for simple handling, making them both practical and user-friendly.

Keeping fish iced is a key to freshness, and the Norwegian company Finsam Refrigeration is an engineering expert in this field, delivering solutions related to ice plants, ice machines, compressors, condensers and cooling systems. Ice plants are tailored to customer needs and include containerized, prefabricated and tailor-made alternatives.

Cflow Fish Handling helps preserve seafood quality through its focus on the careful, continuous, controlled and chilled flow of fish from the sea to the processing lines. Expertise and equipment that include vacuum pumps, well boat and fishing vessel technologies, processing plants and a new version of its patented control system have made Cflow a recognized name in the field.



© Cflow Fish Handling

healthy, happy, sustainable

By Nancy Bazilchuk

In 2006, roughly 150 million Norwegian salmon – or 600,000 tonnes of fish – were shipped to more than 100 countries across the globe. Norwegian salmon were sold in fish markets in Japan and sushi bars in California. Norwegian salmon could be found in restaurants from Brussels to Boston, Paris to Prague, and Madrid to Moscow. Plump Norwegian-farmed salmon fillets have been curried, boiled, poached, wrapped in puff pastry and eaten raw. Not a bad achievement for a humble pink fish. Norwegian farmers and fishermen have experimented with small-scale aquaculture for more than 50 years, but Norwegian aquaculture as a viable commercial industry truly began in the 1970s, when in 1971 the first shipments of farmed salmon totalled 100 tonnes. Exports have grown by a mind-boggling factor of 600 in just 35 years.

Norwegian fish farming now represents an annual business of NOK 11.8 billion, and employs about 20,000 people in the direct and indirect production of goods and services. The United Nations Food and Agricultural Organization reported in its 2006 edition of the State of World Fisheries and Aquaculture that Norway was the second-largest exporter of fish on the planet, behind China, with Norwegian exports (of farmed and wild fish combined) valued at \$4.1 billion in 2004. Norwegian aquaculture companies like Marine Harvest, T. Skretting, EWOS and Helgeland Plast – all of which were founded or diversified decades ago in response to the demands of innovative coastal fish farmers – are now world leaders in the field.

Norwegian salmon farming – and the Norwegian aquaculture industry as a whole – has improved by conceptual and technological leaps and bounds since its early days approximately 35 years ago. The pictures on the following pages showcase some of the progressions that have been made in the industry over time.

Nimble Industries & Determined Farmers

Norway's success with aquaculture didn't happen by accident, and it wasn't always easy. Instead, through a combined effort of targeted research, government support, nimble industries and determined fish farmers, Norwegian aquaculture has grown to be a successful, efficient and sustainable industry. Researchers and the industry are not only continuing to advance developments for farmed salmon and trout, but are also pioneering the domestication of marine species, such as cod, halibut, and various shellfish.

The country's expertise – and its exports – comes at a time when scientific evidence increasingly underscores the need to develop sustainable aquaculture to feed the world. In early 2007, a scientific panel at the American Association for the Advancement of Science's annual meeting reported that the global demand for seafood has exceeded the ability of fisheries worldwide to supply the public demand for fish. Scientific breakthroughs and new technologies in aquaculture are necessary in order to meet this need, the panel concluded.



© Norwegian Seafood Export Council



But why Norway? The partial answer is that when the first experiments with fish farming began, the country already had a strong fisheries industry, which could supply both experienced labour and a source of fish meal for feeding farmed fish. The country's geography was another reason, because Norway's protected coastline provides a perfect place to shelter fish farms. "It is a gift from God, the natural resources of our coastline," said Jan-Eirik Angell Killie, associate professor in the Department of Marine Biotechnology at the Norwegian College of Fishery Science in Tromsø.

The Norwegian government continues to invest heavily in research that pairs industry leaders with the best minds in aquaculture science. In 2006, for example, the Research Council of Norway funded CREATE, the Centre for Research-Based Innovation in Aquaculture Technology, which is a partnership between the Norwegian University of Science and Technology (NTNU), SINTEF Fisheries and Aquaculture, the Institute of Marine Research in Bergen, AKVAFORSK, AKVASmart, Helgeland Plast, Egersund Net, Erling Haug, and Ørsta Aqua Systems. The consortium has a budget of NOK 160 million over eight years and will work on a variety of issues, from the

reduction of escapes and nutrient pollution to fish welfare and the monitoring and control of water quality.

Another effort is called TEKMAR, which is funded by the Research Council and a host of aquaculture and seafood groups. TEKMAR conducts workshops and seminars to bring together experts from throughout the aquaculture industry – from researchers to suppliers – as a way to build consortia that can carry out complex research and development projects.

Much of the research today is focused on advanced problems, evidence of the highly developed nature of Norway's aquaculture industry. A look back at the history of Norwegian aquaculture, however, shows that it was basic developments that propelled the industry into its leading position of today. "There are three main elements in the success of the Norwegian aquaculture industry," says Jens-Eric Eliassen, at the Norwegian College of Fishery Science in Tromsø. "Those are advancements in feeding, advancements in breeding, and advancements in technology."

Inspiration, Experimentation

Norway's inspiration for fish farming came from looking south: beginning in the 1890s, the Danes had begun land farming freshwater rainbow trout in small ponds. When the Danish industry began to expand rapidly after 1950, Norwegian fishermen and farmers looking for a little extra income tried land farming rainbow trout, but without much success. Norway – the land, at least – was simply too cold.

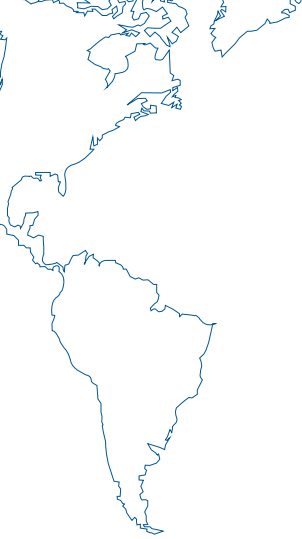
By the mid-1950s, Norwegians had made a conceptual and technological leap: Norway's land might be cold, but temperatures in the fjords can be remarkably mild and relatively stable. In the mid-1950s in Sykkylven, the Vik brothers carried out the first successful seawater trials with rainbow trout, showing that the relatively sheltered salt water of the fjords was a perfect place to farm fish, as long as the fish could be kept in a cage that was strong enough to endure winds, waves and currents.

Even so, it would take another decade and a half before the next technological leap, when Ove and Sivert Grøntvedt of Hitra in 1969 introduced an octagonal floating cage that was made of wood. The cage's advantage was that it was strong yet flexible – and it was cheap and easy to

One of the reasons that fish breeders have had such great success with salmon and rainbow trout is the ease with which eggs from the fish can be harvested. In this photo from the early 1970s, AKVAFORSK workers strip a fish of its eggs.



© AKVAFORSK



work with. Moreover, the cages were far larger than earlier structures, and the fish liked it. Fish growth “was phenomenal,” Sivert Grøntvedt said in an interview at the time. And the price of salmon was high.

By 1973, the production of farmed salmon had already doubled, to nearly 200 tonnes, and aquaculture was attracting the attention of commercial companies, such as T. Skretting of Stavanger, which introduced a six-sided floating cage called the Tess 300 that sold as a complete unit, and which was briefly the best-selling Norwegian cage for export.

Cages a Critical Link

These seemingly simple cages were actually a critical link in the development of aquaculture technology, Killie says. The earliest cages could only tolerate a certain amount of abuse from the waves and currents, so they still needed to be placed in the most sheltered areas of the fjords. That placement in turn accidentally resulted in an environmental headache: when cages full of salmon were anchored for several years in sheltered areas, the areas under the nets could be smothered by uneaten fish food and fish faeces. The limited water circulation didn’t allow for the nutrients from the food and the faeces to be dispersed.

Hand feeding was the norm in the earliest days of Norwegian aquaculture. The fish in this picture are enclosed in a Tess 300 cage, which was introduced by T. Skretting of Stavanger in 1973 and was briefly the best selling Norwegian-made cage for export.

Enter plastics. By the early 1980s, salmon production had grown exponentially, with production numbers doubling every other year. In 1980, for example, fish farmers had reared 8,000 tonnes of fish, representing 90 percent of the world’s market of farmed salmon. By 1985, that number had skyrocketed to 35,000 tonnes. Farmers needed more robust structures so the cages could tolerate rougher conditions in the deeper, more exposed parts of the fjords, where water circulation would disperse nutrients.

Companies like Aqualine, in Trondheim, were started in the early 1980s to sell larger plastic cages for these rougher water conditions; other companies like Helgeland Plast also commercialized their own designs for big plastic cage structures. “The growth of that industry made it possible to move from sheltered waters to the open water,” Killie said.

The move paid off in production: by 1990, Norwegian fish farmers produced a staggering 150,000 tonnes of salmon – a nearly five-fold increase in just five years. As the technology has developed and the industry has expanded, Norwegian companies have responded by providing the equipment and materials needed to bring fish to market. Nor-Mær in

Hagavik specializes in steel cages, and Marine Construction makes steel and plastic cages and concrete feed barges. Companies like Sæplast have found their niche making polyethylene fish holding and insulated fish transport containers. The Refa Frøystad Group makes knotless and knotted nets for use in cages and transport.

The demands of handling literally thousands of fish each day have spawned its own specialized industry: the Aas Mek. Verksted shipyard branched into making specialized well boats, to transport fish from farms to centralized processing plants, while Cflow Fish Handling developed the vacuum and flow pumps needed to gently and efficiently move the fish from farms to boat to processing plants.

These days, the research focus is on reducing fish escapes and improving the net structure to reduce the growth of marine organisms on the nets, which periodically must be cleaned off.

Breeding for Growth

Norwegian aquaculture could not have grown as it has without strong cages and good systems for farming fish. But equally important was the nature of the fish



© AKVAFORSK



stock itself. Enter Trygve Gjedrem and his colleagues at AKVAFORSK, the Institute of Aquaculture Research, who together in 1971 started the first salmon breeding programme in the world. AKVAFORSK as a research institution was created for this job – and Gjedrem became AKVAFORSK’s first director and one of salmon breeding’s true pioneers.

Over a four-year period, Gjedrem and his colleagues visited 40 of Norway’s best wild salmon streams, 10 streams a year, starting in the south and working their way north, sampling fish from each. “We needed a broad genetic base for our work,” Gjedrem said. “We didn’t want to just concentrate on one strain.”

At first the focus was clear. In the wild, salmon can take years to grow to maturity. Clearly if aquaculture was going to be a viable industry, the first characteristic that breeders needed was fast growth. “We started with the most important trait, body weight at harvest, to get the fastest growing animals,” Gjedrem said.

Salmon Most Efficient

After eight generations of breeding, Norwegian farmed salmon are some of the most efficient converters of feed on the planet “In the 1970s, we used four

years to produce a fish of four kilos, but we can now do that in two,” Gjedrem says. The fish now stocking Norway’s salmon and trout farms are twice as efficient in converting the protein and energy in their feed into edible products as poultry or pigs.

Selective breeding and research on salmon genetics continues today at AKVAFORSK Genetics Centre, which was created in 1999, at the Institute for Marine Research in Bergen, and at companies such as Salmobreed in Bergen and Aqua Gen in Trondheim. There’s also an international effort called cGRASP, in which researchers from the United States, Scotland and the Centre for Integrative Genetics at the Norwegian University of Life Sciences are working to understand the genetic makeup of salmon and salmon relatives. The development of the breeding and egg production has had its spinoffs, too: Norwegian companies like BIA Miljø AS of Herdia craft specialized tanks and vessels for hatching eggs and producing fish fry.

Commercial breeders now look for a host of characteristics in their fish. In addition to efficient conversion of feed and rapid growth, breeders are continually in pursuit of improved fat content and pink colour,

delayed sexual maturity, and resistance to bacteria and viruses. This last area is where Gjedrem, now retired, has his highest hopes for the industry. “For me the biggest goal is (now) developing disease-resistant fish,” he said.

More Than Just Fish Meal

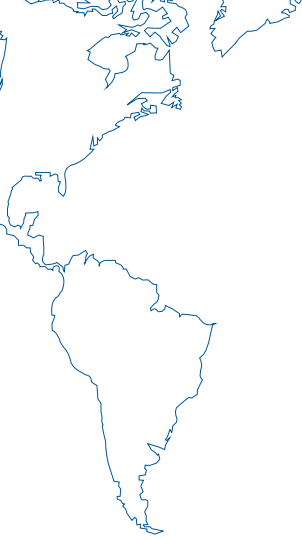
Breeding the perfect fish was one thing, but just what should that perfect fish eat? In the early days of aquaculture, the answer was easy: fish like capelin, sprats and sand eels, which were already being caught by Norwegian fishermen, were easy enough to feed to young salmon. Farmers simply ground up these fish and mixed them with some kind of binder to keep the mass from immediately dissolving when it was put in seawater.

Salmon thrived on these ‘wet’ feeds, but the feeds had many drawbacks. The main problem was that they would sink quickly, faster than the fish could consume them, so that there was a great deal of wastage. The wasted feed cost money, but it caused problems, too, by over-fertilizing the site. Dry pellets began to be introduced as early as the mid-1970s to overcome these problems, but the biggest breakthrough was in the early 1990s, when the fish food industry introduced extrusion technology, said Malcolm

The growth of Norway’s aquaculture industry required the development of every facet of production. This picture shows AKVAFORSK’s salmonid fry production hall from 1971. At the time, it was the most modern facility of its kind in the world.



© AKVAFORSK



Jobling, Professor of Aquaculture at the Norwegian College of Fishery Science, University of Tromsø.

Using this technology, fish food manufacturers could make a pellet that had little holes in it that could be filled with fats. By adjusting the fat content and the way the pellet was extruded, “you could make feeds that float, that sink, or that sink slowly,” he said. “They could make feeds that were more water stable and more easily digestible.”

The use of pellets opened the door to a whole range of new technologies that helped the industry grow, Jobling said. Pellets could be fed with automatic feeders, so that fish could be offered food whenever they were hungry. Researchers like Jobling studied every aspect of salmonid digestion and behaviour, to figure out everything from how often the fish liked to eat to how big the pellets should be for optimum consumption.

Breeding more efficient fish, combined with better formulated fish foods, now means that farmers can expect to produce one kilo of fish for every kilo of fish food fed, AKVAFORSK’s Gjedrem said, or three to four times less fish food than when fish farming first began in Norway.

In the early days of aquaculture, it was possible to feed fish by hand, but no longer. Companies like Betten Maskinstasjon in Halså were early pioneers in responding to the need to develop automatic feeders. AKVAsmart, with branch offices in Chile, Canada, the United Kingdom and Turkey, has developed a spectrum of fish feeding products, from barges to fish feeding systems to IT-based integrated technologies such as FishTalk. Arena, which also has a branch office in Chile, provides automated feeding systems for hatcheries, as well as feed barges and environmental monitoring. Orbit AquaCam offers wireless fish cage monitoring systems to enable farmers to improve overall production.

Healthy, Happy, Sustainable

The success of Norwegian fish farmers had a downside: whereas a 1978 textbook on Norwegian salmon and trout farming could report that only two diseases were commonly troublesome in Norway, by the early 1980s, nasty diseases with unpronounceable names had begun to appear in Norway’s growing number of fish farms. As the 1980s advanced, farmers had to treat their fish with an ever-

increasing amount of antibiotics. In 1987 the total Norwegian production of salmon and trout topped 50,000 tonnes, but the consumption of antibiotics had reached 50 tonnes. Not any more.

“Today we produce more than 10 times as many fish (than the 1980s) and we use less than a half-tonne of antibiotics,” or 100 times less than used in the 1980s, Killie said. “This is the food production that uses the least amount of antibiotics in the world.”

How did this shift come about?

Researchers and industry, such as PHARMAQ, a veterinary company that uniquely focuses on aquaculture, joined hands to develop vaccines against some of aquaculture’s most problematic diseases, particularly cold-water vibriosis and furunculosis. By 1987, a vaccine for cold-water vibriosis virtually rescued the salmon industry. In 1991, a vaccine had been developed for furunculosis that gave lifelong immunity to fish. These days, fish farmers can use numerous vaccines to protect against new viral diseases, and researchers are developing vaccines for the burgeoning cod farming industry, with suppliers like Intervet Norge of Bergen.

Moving farmed fish is always a challenge. Here net baskets are used to move the fish, but more modern techniques include the use of hoses and pumps.



© Jean Gaurny/Norwegian Seafood Export Council



Consumers will be able to be certain they're eating healthy Norwegian salmon with the development of efforts such as TraceFish, a multinational effort funded by the European Union that focused on developing the standards to eventually allow consumers to trace the source of their food from the sea to the supper table, says Leif-Magne Sunde, aquaculture research scientist at SINTEF Fisheries and Aquaculture. TraceFish, which was coordinated by the Norwegian Institute of Fisheries and Aquaculture with cooperation from SINTEF, is the kind of forward-thinking project that helps keep Norway on the leading edge of aquaculture research and development.

Norwegian companies are critical in helping make these and related standards a reality. Aquastructures in Trondheim certifies that new and existing fish farming equipment complies with national and international regulations. Standards Norway develops standards that measure a host of aquaculture-related factors, from the environmental impact of fish farms to salmon fillet quality. "Food security is something that is of enormous interest throughout the world," Sunde says.

The Future: Cod & Halibut

When Norwegian fish farmers look to the future, they see not only the glistening sides of fat farmed salmon, but the barbeled jaws of cod and the broad flat backs of halibut. While Norwegian researchers have been active in bringing a host of species into commercial production – AKVAFORSK, for example, has worked with 16 species in 25 countries – the two stars on the horizon are clearly cod and halibut.

Both species have been much more challenging to bring into commercial production than salmon, because their eggs are small, and the young are fragile and must be fed live feed. Nevertheless, with the same careful and focussed approach that led to the success of Norwegian salmon farming, researchers and fish farmers are making progress. Roughly 765 tonnes of farmed halibut were sold in 2006, an increase of 35 percent over 2005, with most exports to Great Britain. Cod is already in strong commercial production, with farmed cod sold in 2006 valued at NOK 135 million, or an increase of NOK 45 million over 2005.

But if history has anything to say about the future of these fish, it will be breeding that will be the linchpin in their success. That's what researchers are hoping at the Norwegian Cod Breeding Programme in Tromsø, where fish from the first-ever generation of selectively bred cod, born in 2003, are now old enough to slaughter and study. In all, more than 30 families were bred, all with different characteristics. "We are now getting detailed information about genetic differences amongst the families. This is information we use when selecting fish for further breeding," says Atle Mortensen, who leads the Norwegian Cod Breeding Programme.

Researchers at a number of Norwegian research institutions, including AKVAFORSK and the Institute of Marine Research at its Austevoll research station, are working on halibut breeding and rearing techniques to improve the production of the species for aquaculture. From his perspective as one of the founders of modern fish breeding techniques, Trygve Gjedrem recognizes that halibut poses many challenges, but he remains optimistic. "The halibut still has so many secrets," he said. "It hasn't taken off yet, but we are working on it."

The future continues to look bright for the Norwegian salmon farming industry, and two other Norwegian farmed breeds will definitely make their marks in the years to come: cod and halibut.





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Since 1957, the **Norway Exports** publication series has and continues to provide timely, in-depth information on a selection of Norwegian companies, products and services in over 15 industrial sectors. Over 80,000 copies of the publications are distributed each year to relevant importers, purchasing agents and Chambers of Commerce in cooperation with Norwegian embassies, consulates and Innovation Norway's offices abroad.

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Given the publication series' public cooperative partners and its close working relationships with the leading industry organizations in each sector, it's clear: if it's happening in Norwegian export industry, it's being covered in **Norway Exports**.



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Aalesund Seafood AS is a subsidiary of Aalesund Shipping Group AS, which was established in 1971. At first, the company merely bought and sold boats, but after receiving repeated requests for fish, the company made the decision to expand the business to include fish sales and Aalesund Seafood AS was founded. Aalesund Seafood is situated in the heart of Ålesund, the fisheries capital of Norway. The company expanded a great deal over the past year, and revenue for 2006 was approximately NOK 400 million.

Emphasis on Personal Service

The company is proud of its friendly approach and good service. Close relationships have been formed with many of its buyers. Close contact with customers and knowledge of their needs enables Aalesund Seafood to keep track of market development at all times and adapt to changing trends quickly and efficiently. The company takes pride in being readily available to its business partners.

Reliable Supplier

As well as exporting and importing fish, Aalesund Seafood AS also owns its own vessels and has firm agreements with both Norwegian and foreign vessels (mainly Russian). This gives the company full control over the quality of products and ensures continuous access to raw fish stock, both

pelagic and white fish. Aalesund Seafood has steadily grown to focus on white fish and king crab from the Barents Sea, and is a solid and reliable supplier of a host of fish products.

Products

Aalesund Seafood's product range includes:

- Cod
- Haddock
- Pollock
- Coalfish (saithe)
- Greenland halibut
- Redfish
- Ling
- Tusk
- Catfish
- Tuna
- Plaice
- Red king crab

Export Markets

Today, the company has long-standing experience in selling and buying seafood from markets all over the world, such as the United Kingdom, Russia, Portugal, Spain, Germany, Poland, Asia and South America.





Mills



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The Agra Group, established in 1885, supplies products to the food retail and catering industries under the labels Mills and Delikat. The Group is known for its substantial selection of seafood-based products, including marinated herring and numerous types of sandwich spreads. Its success is based on satisfying customer preferences and long-term brand name development. The Agra Group had a turnover of US \$330 million in 2006, and exports its products to more than twenty countries around the world.

The Agra Group

The Agra Group is a market leader in Norway for a wide range of products, including margarine, mayonnaise, edible fats and potato mixes. It is also at the forefront of the Scandinavian market for mayonnaise-based salads, and offers a wide variety of top-quality processed seafood products such as:

- Arctic caviar
- Seafood spreads
- Marinated herrings
- Seafood salads

Mills Seafood Spreads

Mills DA has recently introduced a range of seafood spreads. This is a new range of versatile and healthy seafood. These spreads

are based on high-quality raw materials, which are mixed with egg-free mayonnaise in order to ease spreading.

In addition to being tasty, the spreads are also an excellent source of OMEGA-3 fatty acids, which are recognized to be an important part of a person's diet. Mills' unique manufacturing process has been designed to preserve the colour, texture, flavour, nutrition and the health-beneficial properties of the fresh product.

The following varieties are available:

- Mackerel sandwich spread
- Norwegian Salmon with Smoked Flavour
- Norwegian Salmon with Peppermix
- Norwegian Salmon "Au Natural"
- Tuna with Peppermix
- Arctic Caviar
- Arctic Caviar mild
- Arctic Caviar with cream-cheese
- Arctic Caviar with egg



Toast with Salmon spread.



Boiled egg with Arctic Caviar.



Salmon wrap.





AKVA GROUP™

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AKVA group is now the world's largest supplier of fish farming technology with more than 350 employees, and factories and offices in Norway, Scotland, Ireland, Turkey, Chile and Canada. The company recently went public on the Oslo Stock Exchange in Norway and today promotes four strong and well-known brand names and high-tech products such as feed systems, pellet sensors, underwater feed cameras, environmental sensors, production and process control software, steel cages, plastic cages, work and pleasure boats and HDPE piping, amongst others.

The new AKVA group offers four strong and well-known brand names with a long track record in the aquaculture industry:

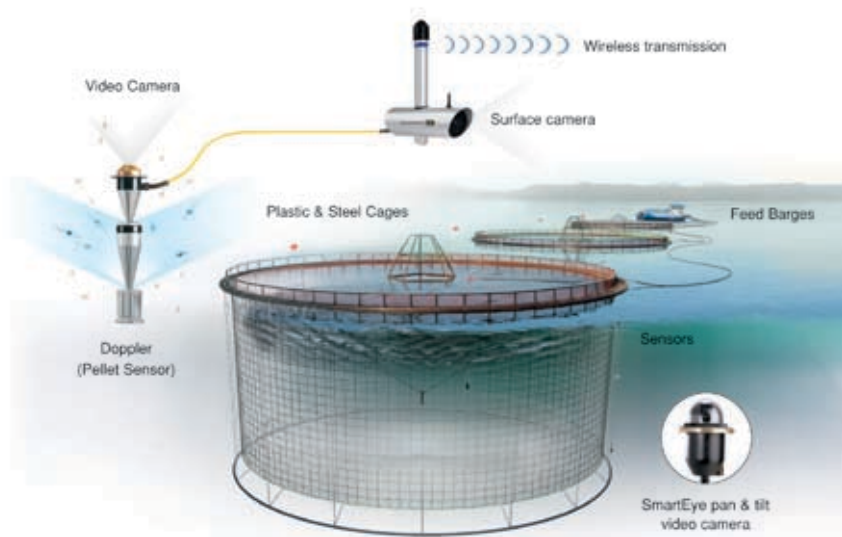
Wavemaster Steel Cages are often the first choice in fjords and more protected waters. Sturdy steel cages in all sizes and configurations are perfect for less-exposed sites. With more than 7,250 cages delivered since 1985, Wavemaster is the world's leading steel cage supplier.

Polarcirkel supplies flexible circular and square plastic cages of all sizes, designed for extreme weather conditions. Polarcirkel is today the world's leading supplier of plastic cages, and more than 30,000 cages have been delivered since 1974. Polarcirkel has also developed a series of very tough work boats which provide fast and safe transport to the farm sites in all weather conditions. Some Polarcirkel boats are also specially designed for pleasure use.

Modern fish farming can be the key to future global food production. In 2006 the total export value of the Norwegian fish farming industry passed the country's total wild fisheries.

Fishtalk – Intelligent IT solutions always ensure full control. Fishtalk is a unique IT concept and tool that provides "Integrated Operations" of fish farming and ensures optimum efficiency, excellent fish quality and increased profitability. Fishtalk covers all needs for production control and planning. This includes tracing, documentation of animal welfare, analysis, reports and bench-marking. Fishtalk CV is also the most common traceability software in fish farming today.

Akvasmart's new-generation certified feed systems are a clear winner. Extra-reliable systems ensure that the correct amount of feed is always delivered on time every day. The advanced video cameras and sensor systems monitor both the fish and the feeding process. Turnkey feed barges are tailor-made from 96 to 740 tonnes and include a central feed system, monitoring system, generator, control room and living quarters.





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Akvaplan-niva AS is one of the leading private research and consultancy companies in the field of aquaculture and water environments. The company cooperates closely with the Norwegian Institute for Water Research (NIVA) and other national and international experts and institutions. Akvaplan-niva has its head office in Norway but is represented with local offices in its main markets.

Aquaculture Services Worldwide

Akvaplan-niva’s aquaculture professionals provide a comprehensive range of services to clients worldwide:

- Investors and fish farmers: Site surveys, environmental impact assessments, feasibility studies, financial advice, design and construction supervision, start-up assistance, staff training and management
- Fish farmers: Monitoring and improvement of management and environmental practices, technical inspections of sea farms
- Private companies and research organizations: Developing new aquaculture concepts and technologies for commercial production of new aquaculture species (“from laboratory to commercial scale”)
- Authorities and non-governmental organizations: Design, construction supervision and management of research facilities

- Regional and national authorities: Development of aquaculture development plans and integrated coastal zone management strategies with focus on sustainable aquaculture

Extensive Expertise

Akvaplan-niva’s international staff has hands-on experience with a number of cold and warm water species in aquaculture, including: salmon, trout, tilapia, sea bream, sea bass, cod, wolffish, halibut, turbot, groupers, sole, eel and shrimp.

References

Since 1984, Akvaplan-niva has carried out thousands of aquaculture-related assignments. Recent international projects include:

- Feasibility studies for aquaculture in South Africa, Bosnia and Herzegovina, Russia, and Spain, including searching for professional farm managers, key personnel and investors
- Planning, design and construction supervision of hatcheries and on-growing farms for cod and wolffish in Norway and Iceland
- Design and construction of national aquaculture research and extension stations in Singapore, Saudi Arabia, the Philippines and the United States
- Environmental impact assessments for aquaculture activities in the Adriatic region

- Development of monitoring guidelines and modelling tools for environmental effects from European aquaculture (research and policy support projects for the EU)
- Development of guidelines for integrated coastal zone management in Croatia with special focus on aquaculture
- R&D projects on marine aquaculture species such as cod, sole, turbot, halibut and wolffish financed by EU-CRAFT, national & international research organizations, and private aquaculture companies

1. Environmental monitoring of fish farm activities in Croatia.

2. Akvaplan-niva is well experienced in the design of land-based aquaculture facilities.

3. Upgrading of breeding facilities and design of a model hatchery for tilapia in the Philippines.





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Akvator AS offers engineering consultancy services to the aquaculture industry both nationally and internationally. The company has worked on projects in locations such as Chile, Germany, Scotland and Belize. The company's goal is to be the leader when it comes to expertise in the field of aquaculture, and hopes that its competence can contribute to an increase in added value for its customers.

Location

Akvator AS is located in Stord in Sunnhordland. This area, which is situated between Bergen and Stavanger, is one of the largest aquaculture regions in Norway. Several of the pioneers within this field are located there.

Personnel & Projects

Akvator's staff of 12 is among the most experienced within design and project management for land-based aquaculture installations. Since 1981 its staff has built up a considerable level of competence through the many national and international commissions the company has received. The company hopes to cultivate this competence further and create synergy for its customers.

Services

Akvator's services include the following:

- **Detailed Engineering & Production Planning** – The calculation of the practical dimensions of processing facilities such as water inlets, pipes, pumping stations, water treatment and degassing systems. In addition Akvator draws up detailed plans of the edifices. All planning is carried out according to current standards and regulations.

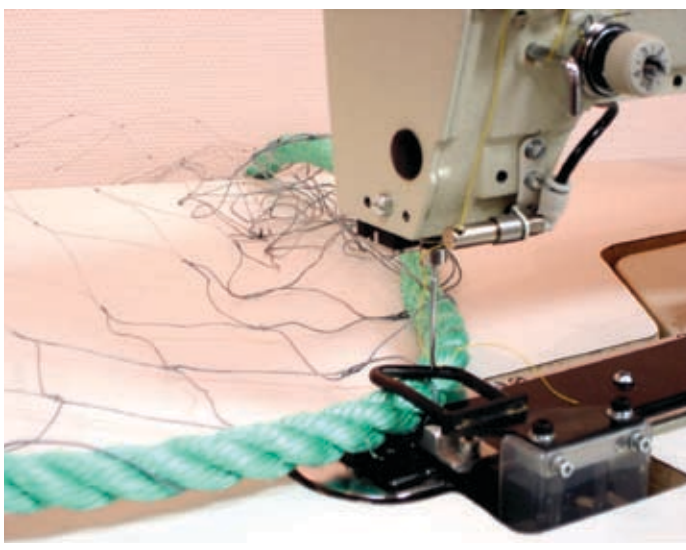
- **CAD-Design** – Design production based on computerized constructions (CAD) using Autocad and 3D. Since modern aquaculture installations are advanced processing plants, Akvator designs the processes as well as the necessary buildings. This is done in close collaborations with the client. The installation's design is carried out from a foundation in competence that has been built up over many years.
- **Tender Documents** – The drawing up of the required tenders for the purpose



of obtaining competitive prices. The tenders consist of drawings and the detailed specifications of materials. Also, the company evaluates incoming tenders and draws up the contracts between the building owner and contractor.

- **Project Management & Site Supervision** – The project management and coordination of all parties involved in the project. During the construction phase Akvator carries out site supervision, which ensures that the building owner receives the quality of service as specified in the contract. In addition the building accounts are kept in such a way so that the building owner can ensure that payments are done properly.
- **Economic Analysis** – The detailing of investment and operational expenditure for juvenile plants, production and processing. These budgets are invaluable for owners when making decisions, as well as laying an essential foundation when seeking finance.





AMATEC™

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AMATEC AS is a leading manufacturer of machines for mounting gill nets to floating and sinking lines and machines for joining nets. The company exports these machines worldwide and has customers in Canada, China, India, Scotland, Greece and Italy, amongst others. Founded in 1988, the company today has 33 employees and a turnover of approximately €6 million per year. The main office is situated in Sykkylven, not far from the town of Ålesund on the west coast of Norway.

Amarope

The Amarope is a machine that has the best solution for the joining and lacing of nets as well as joining rope to net. It is a heavy-duty machine, well suited for the production and repair of most types of cages, purses and trawls, etc. It sews rope up to 21 mm thick in addition to net. The machine is very easy to operate and the operator can easily adjust it to different materials and operations.

Amanet

The Amanet is a 1-needle, 3-thread special machine with puller for joining nets. The machine is equipped with AMATEC's specially constructed needle guard for the safe stitching of purses. Joining is very well suited for this operation and it provides a safe seam with good strength and elasticity. With the right use of this machine the seam will be nearly impossible to open.

Amatacker

The Amatacker is a high-speed, single needle machine with 2-thread lockstitch. This is the new generation gill-net machine specially developed to be able to sew floating ropes up to 20 mm in diameter. It has an automatic thread cutter and presser foot lift. Because it is electronically controlled without mechanical cams, it has the flexibility to make any kind of seam within 3 cm by 4 cm.

Leading Supplier

AMATEC AS' staff of skilled technicians has worked with these kinds of machines for more than 25 years, and they have the necessary experience and knowledge. The continuous process of improving and developing the machines in cooperation with the requirements of its customers has led to AMATEC AS becoming one of the leading suppliers of machines of this kind. The company can also build special solutions according to its customers' requirements.





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With its fleet of modern vessels equipped with bottom trawl, Andenesfisk AS is a major fishing company of frozen-at-sea fish and prawns. The company was established in 1963 and is strategically located in the harbour of Andenes in the northern Norwegian archipelago of Vesterålen and Lofoten. Aalesund-based Nor Seafoods AS is the marketing company for Andenesfisk's fish products. Nor Seafoods AS's fundamental idea is to provide its customers with a broad variety of first-class fish. From whole round fish to the finest fillets, its focus on quality, flexibility and reliability gives it a distinctive competitive edge.

Top Facilities

Andenesfisk AS has a 120-metre quay that is ideal for discharging and loading with its own cold storage. The company owns and manages both deep-sea trawlers and fresh fish trawlers.

Quality-Assured Products

Andenesfisk's fish are caught in the clean, rich Barents Sea, while the prawns come from the icy waters further north. Nor Seafoods exports raw material and semi-finished products to the processing industry throughout the world.

Once caught, the company's fish is immediately processed and frozen at sea in accordance with Ocean Wild brand standards. This keeps the fish in supreme condition from catch to delivery. Nor Seafoods also has long-lasting relationships

with other Norwegian and foreign vessels and producers. This shortens the business value chain, resulting in deliveries of quality-assured products of fresh frozen fish.

Nor Seafoods' land-frozen products are delivered by modern fishing vessels and processed at efficient production facilities.

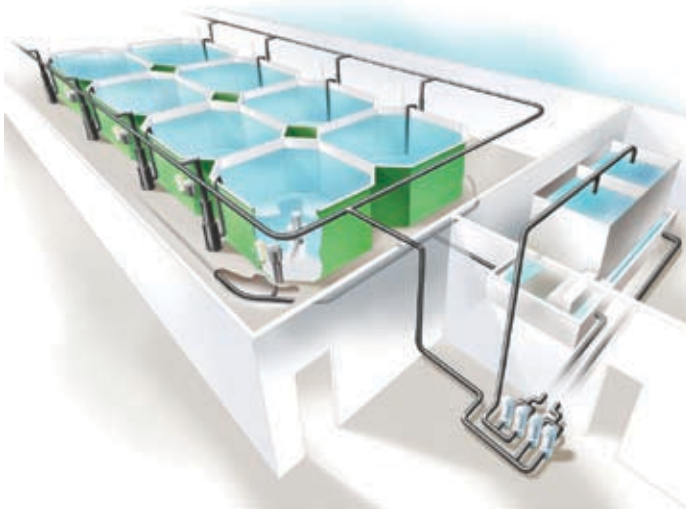
Quality reports, grading sheets and pictures of the products are available on request. Inspection during processing and prior to shipment can also be arranged at the customer's request.

Products

Andenesfisk and Nor Seafoods' product line includes the following:

- Cod – Fillets and H&G
- Haddock – Fillets and H&G
- Saithe – Fillets and H&G
- Redfish – Whole round, N-cut and J-cut
- Greenland Halibut – N-cut and J-cut
- Industrial prawns
- Cooked prawns – Packing of 1 to 5 kg cartons
- Herring – Fillets and whole round
- Mackerel – Fillets and whole round
- Salmon – Fillets and head-on gutted
- Trout – Fillets, H&G and head-on gutted





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AquaOptima specializes in recirculation aquaculture systems (RAS), and, based on its own unique technology, offers hatcheries and grow-out land-based farms to the world market for a variety of species.

Market Leader in Recirculation Systems

All scientists working in this field talk about the importance of controlling the removal of solids in order to have stable and controlled conditions in recirculation systems.

AquaOptima has a patented system (ECO-TRAP) that removes the settleable solids directly from the tank. The water treatment system is designed to benefit from this unique function. Due to the ECO-TRAP the mechanical and biological filter is given water with a low content of organic matter and with a much smaller variation in loading because of the elimination of feed waste in periods. This ensures a safer recirculation system.

AquaOptima has delivered RAS for warm and cold-water species and for fresh and sea water. As of now the company has experience in species like Atlantic salmon, Arctic charr, Atlantic cod, halibut, rainbow trout, tilapia, sea bass and sea bream, barramundi, Japanese flounder, turbot, eel and tiger puffer fish.

Hydraulic Control in Tanks

The removal of solids starts with the hydraulic conditions in the tank, and AquaOptima has developed its own products for tanks and water inlet and outlet that ensure the optimal mixing of incoming water, and even water quality and current throughout the tank.

This ensures a rapid transportation of settled particles to the tank outlet.

Solids Removal & Feed Control

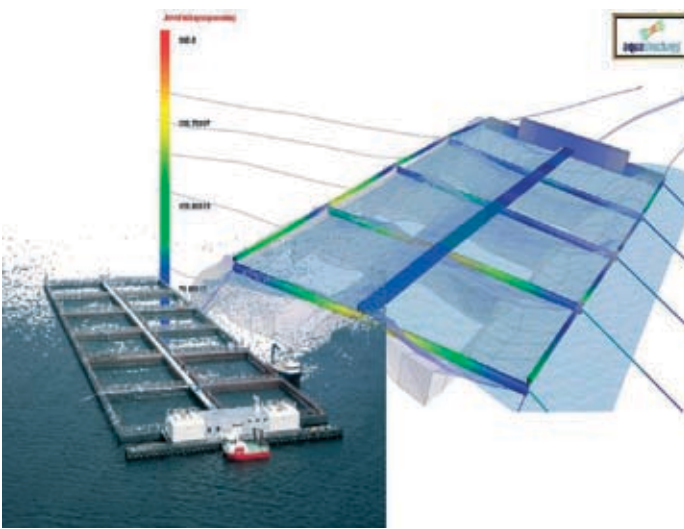
All particles that settle to the bottom, as feed waste and fish excrements, are carried to a central outlet through water movement where they are caught by a patented particle trap and lead to a sludge collector outside the tank. This system (named ECO-TRAP) brings the particles out of the tank by using only 1 to 5% of the flow going through the tank. No other dual drain system on the market proves to have a similar level of efficiency. In flow-through systems it removes about 95% of the settled particles; in recirculation systems it removes approximately 50% of the

suspended solids. The particles are removed from the tank within a short amount of time, 3 to 5 minutes after they settle at the bottom.

The ECO-TRAP systems offers an improved quality of water in tanks due to the rapid removal of particles from the bottom, and the feed waste can continuously be observed in the sludge collector outside the tank. For the farmer this is a unique tool for optimizing the feeding of the fish according to appetite and for reducing overfeeding. This means improvement in growth and feed economy.

The ECO-TRAP system can also be installed in existing tanks.





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Aquastructures AS performs certification of new and existing equipment for the fish farming industry according to an international technical standard for floating fish farm installations, NS-EN 9415. The company also provides software tools for technical analysis, quality assurance and maintenance of fish farming systems based on proven technology. Aquastructures' head office is in Trondheim, Norway, with local offices in Oslo and Bergen.

Certification Process

Product certification is issued on the basis of technical requirements stipulated in NS-EN 9415. This means that the product is quality assured for a given location class against failure resulting in fish escape. The certification process consists of the following activities: analysis, inspection and control of quality routines. The key benefits of the process are that insurance companies and banks can protect their investments through better knowledge of the assessed risk. Fish farmers in turn can depend on the reliability of the equipment, with reduced risk of losing live stock.

Analysis

Aquastructures' engineering team carries out analyses of the product through the software tool AquaSim, which documents technical strength and durability of the product with regard to assembly, material usage, welding, coating, deformation or damage to the structure. AquaSim can perform reliability and strength analysis of fish farm systems consisting of mooring, barges, nets and floaters for any given loading condition.

Inspection

Certified inspectors and engineers perform inspections on products and fish farm systems to document the technical standards of the main components. This is mainly done through visual and non-destructive test methods (NDT). Underwater cameras and ROV are used when performing underwater inspection of the net structure and mooring system.

Operational Standards & Procedures

A control of the internal quality is carried out together with the customer to evaluate the production and operations performed. A software tool, AquaLog, for internal control and maintenance can be provided for customers who choose Aquastructures AS for product certification.





Berg LipidTech

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Berg LipidTech AS (BLT) manufactures all kinds of special marine oils and concentrates, from crude oils to fully refined grades. The company has state-of-the-art production facilities located near the town of Ålesund on the western coast of Norway, and delivers in bulk worldwide to the pharmaceuticals, health food, functional food and cosmetics industries.

Numerous Refining Processes

BLT oils undergo comprehensive analyses and are fully documented. The company offers the following refining processes:

- Crude extraction
- Semi-refining (de-acidification)
- Bleaching
- Deodorization
- Winterization (cold-filtered)
- Distillation

Comprehensive Quality Control

BLT's processes are thoroughly tested to ensure the manufacture of high-quality products that meet customer expectations and specifications. The company's in-house laboratory is equipped with state-of-the-art analytical equipment and computer software to provide extremely accurate analyses at all times. All manufacturing stages are monitored and approved according to HACCP sanitary regulations, and are carried out in accordance with the USFDA's HACCP Regulation 21 CFR 123. The company's registration number is M-421.

Wide Product Range

BLT manufactures the following products:

- Cod liver oils
- Omega-3 (EPA/DHA) oils
- Salmon oils
- Tuna oils
- Fish oil concentrate (EPA/DHA)
 - Ethylesters (EE)
 - Triglycerides (TG)





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Bergen University College has a strong standing amongst the university colleges in Norway. The college has 6,000 students and 600 staff members, and is organized into three faculties. Bergen University College has offered a bachelor's degree in Aquaculture Technology for the last 20 years.

BSc in Aquaculture Technology

Bergen University College has offered a three-year study in the applied aspects of aquaculture technology since 1987. The focus of the bachelor programme is on the technological aspects of fish farming. There is a close collaboration with the industry, and all of the students do an internship with a company as part of their education.

The education that the students receive is comprehensive and equips them to satisfy the various requirements within all aspects of the fish farming industry, both technological and biological, from the breeding of spawn to the further processing of the finished food product.

After qualifying, former students are able to participate in the development of new equipment and design concepts for fish farming. They are qualified to work at open and closed aqua production systems, with environmental monitoring, water supply, filtration and recycling systems, production processes and quality control.

Aquaculture-Related Research

At Bergen University College the research laboratory used for aquaculture-related research dates back to 1990. Recently a new recirculation system was installed. In addition the institute has acquired a range of new instrumentation for monitoring environmental parameters.

Experimental studies aiming to assess safe water flow and water quality parameters for salmon, parr and smolt have been performed at Bergen University College since 1991. In total 14 long-term experiments have been conducted at the college or at the locations of its partners. Parameters studied include ion regulatory, haematological, somatic growth and health parameters.



Water Quality Parameters

A major problem in Norwegian smolt production is the low carbonate concentration in the water supplying the smolt farms, thus the buffer capacity is low. Methods for intensive production in aquaculture may result in a build-up of carbon dioxide causing a major impact on aquaculture species. This is in many cases the factor limiting the quality of the water.

The long-term effects of carbon dioxide exposure to rainbow trout and Atlantic salmon in fresh water include the development of nephrocalcinosis, reduced food conversion, reduced growth, and often an increase in mortality. Recognizing this, recent research at Bergen University College has addressed this topic. Based on its commitment to water quality research, in 2004 Bergen University College contributed to the establishment of an international carbon dioxide network.



BRØDRENE SPERRE A/S
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Frozen at Sea Fillets

Norwegian companies started filleting at sea in 1962. Since then the Norwegian factory trawlers have been in the forefront in producing frozen at sea fillets of cod, haddock and saithe. Norwegian frozen at sea fillets are:

- Wild-caught, from well-managed stock
- Fresh frozen
- Pure and natural from clean North Atlantic waters
- Additive free
- Rich in natural nutrients
- Healthy

Brødrene Sperre AS, Normarine AS, Prestfjord Seafood AS and Vartdal Seafood AS represent a large portion of the Norwegian factory trawler fleet, and would be pleased to offer you their products.





COAST SEAFOOD AS
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Coast Seafood AS, established in 1994, has its headquarter in Måløy, which is Norway’s largest fishing port. It is the largest independent trading company for farmed Atlantic salmon and fjord trout worldwide. The company is active in more than 40 markets located mainly in Europe, North America and the Far East. In 2006 Coast Seafood revenues totalled NOK 1.8 billion, which made up 8% of all Norwegian farmed fish. The company has two branch offices – one in Bergen, Norway and one in Boston, USA. Through the company headquarters and its branch offices, Coast Seafood is sourced globally with farmed fish from the main regional producers. The company operates and owns two state of the art processing facilities – one for the processing and smokehouse for salmon and trout, and the other is for the processing of pelagic fish.

Business Focus & Vision

Coast Seafood’s business focus is on maintaining its position as a leading organization in the sales and marketing of seafood for the international and domestic markets. The company strives to achieve this through providing first-class products from the best independent farmers in Norway, as well as having a strong focus on achieving the correct business solutions for the industry and retail segment.

The company’s vision is to become the natural choice for seafood supplies through quality and innovation as well as building alliances with the best independent farmers.



Strengths & Strategic Positioning

Coast Seafood’s strengths and strategic positioning includes:

- Cost-effective – High volume means low cost per kilo
- Innovative – New markets, products and concepts
- Customer-driven focus
- Motivated and experienced employees
- Sales channel for small and medium-sized farmers

Selected Family Farms

Some of the benefits Coast Seafood finds in working with small and medium-sized farmers are that these companies have a strong focus on quality, are cost-efficient and have experienced and devoted employees. In addition, they can adapt quickly to changing conditions. Through collaborating with these companies Coast Seafood adds value to the whole production chain with focus on ethics, animal welfare and environmental matters. As a result of the overall strategy, Coast Seafood is the only Norwegian company to

be awarded “Exporter of the Year” twice – in 1998 and 2006.

Product Range

Coast Seafood’s products include:

- Atlantic salmon
- Fjord trout
- Cod
- Halibut
- Herring
- Mackerel
- Norwegian haddock
- Tilapia
- Norwegian king crab



The company’s product focus has the following main criteria:

- Freshness and traceability of raw materials
- Consistency in supply and quality
- Time and cost-efficient logistical solutions
- HACCP and stricter guidelines executed throughout production and processing
- Quality control implemented throughout the distribution chain
- Customized product specification and packaging solutions



Sirevaag

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The Norwegian seafood companies Sirevaag and Finny Reker merged and became Finny Sirevaag AS in 2002. With over 100 years of seafood tradition, Finny Sirevaag brands – which include Sirevaag, Finny and Lista – are known to deliver the highest quality seafood products at the most competitive prices to consumers, retailers, seafood distributors and hotel, restaurant and industrial customers. Finny Sirevaag AS has factories in Sirevaag (BRC certified) and Åna-Sira.

Brands

Finny Sirevaag's brands include:

- **Sirevaag – “Fresh Norwegian Prawn” Guarantee**

Some people believe that all prawns are alike, but that's just not the case. There is a vast difference in taste and consistency between prawns that are marinated in brine while they are still fresh versus prawns that have been peeled and frozen first.

Only 1% of the world's peeled cold-water prawns can be marinated fresh. The other 99% of the peeled cold-water prawns are

frozen before they can be marinated. Finny Sirevaag is one of very few companies in the world capable of marinating peeled cold-water prawns while they are still fresh. These **fresh Norwegian North Sea prawns** are sold exclusively under the Sirevaag brand. Finny Sirevaag does not sell any other prawns under this brand. The local fishing fleet along the western and southern coast of Norway delivers fresh raw prawns to the company's factories in Sirevaag and Åna Sira almost daily. The prawns are peeled and marinated fresh in Sirevaag's special brine.

The Sirevaag brand is one of the few in the world that guarantees the use of fresh Norwegian North Sea prawns in its production of peeled prawns in brine.



• **Finny and Lista**

Finny and Lista are international specialists using seafood from all over the world.

Prawns from the North Sea and Barents Sea are peeled and marinated in Finny's and Lista's special brine at their factories in southern Norway. Finny and Lista also import prawns from various countries and marinate these prawns in their special brine. Additionally, Finny and Lista import other seafood products, including **mussels** from Denmark, **crayfish tails** from China and **crab sticks** from several Asian countries. All of these seafood products are marinated in Finny's and Lista's special brine at their factories in Norway.

EXCLUSIVE:
 Only 1,5 % of the world's peeled cold water prawns (Pandalus borealis) can be marinated fresh in brine.





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Fiskeriforskning is a national research institute owned by the Norut Group and the Norwegian Ministry of Fisheries and Coastal Affairs. Located in Tromsø and Bergen, its facilities are an important part of the national infrastructure for fisheries and aquaculture research. Fiskeriforskning's presence in Stavanger, through ownership in Norconserv and the Culinary Institute of Norway, also ensures its strength within regional affiliation and national coordination. Fiskeriforskning's ties to central European research institutes are strong, both through projects and formal agreements. The institute has a total of 156 employees.

Vision

In keeping with Fiskeriforskning's vision of "Greater value from the sea", the institute conducts research and development for the fisheries and aquaculture industry. The institute covers virtually all links in the value chain. Progress within fishing and aquaculture has clearly established the need for research-based knowledge. As a multi-disciplinary organization, Fiskeriforskning is especially qualified to tackle the industry's future challenges.

Areas of Operation

Fiskeriforskning has a number of different aquaculture-related facilities for most types of research and trials within the field of aquaculture. The institute also runs the Norwegian Cod Breeding Centre.

Fiskeriforskning offers an extensive product range in the area of accredited analysis services of raw materials, along with feed and food articles based on physical, chemical, biological and microbiological measuring methods.

Main Areas of Research

Aquaculture:

- Breeding
 - Improve genetically dependant production qualities of aquatic species
- Aqua feed development
 - Feed development based on existing and alternative marine raw materials
- Fish disease prevention
 - Reduce diseases in breeding species by determining behaviour, physiology and health
- Fish welfare
 - Promote fish welfare in aquatic organisms by integrating behaviour, physiology and health
- Environmental integrated production
 - Develop sustainable aquaculture production in the Norwegian coastal zone

Industry and Market-Oriented:

- Knowledge of marine raw materials
 - Treat and process marine raw materials for optimal product quality
- Industrial processing
 - Develop cost-effective processes that produce high-quality, popular products
- Marine biotechnology
 - Contribute to the total utilization of raw materials and the application of biotechnological methods
- Market-based product development
 - Achieve commercially competitive advantages for seafood through innovation
- Marketing research
 - Build a knowledge base about international marketing, new markets, trends and consumer behaviour
- Strategy and industrial economics
 - Develop strategies that will increase the added value in the marine sector





FOSNAVAAG SEAFOOD

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Fosnavaag Seafood AS is among the main producers of pelagic fish in Norway. The company, located on the west coast of Norway, is in close proximity to the main fishing grounds for mackerel and herring. Its annual turnover amounts to \$45 million.

The Factory

Production on the premises started in 1917. In 1978 the Remøy family, well-known in the fishery sector in the area, purchased the site. The factory was refurbished in 1990 and additional technical changes were completed in 2003. The factory has since been refurbished to satisfy the requirements of clients and authorities, and the plant is today among the most modern processing plants in Norway.

Transport

Fosnavaag Seafood's products can be delivered by reefer vessels, containers or trucks. Quality reports, grading sheets and pictures of each production are available for clients to view. It is possible to conduct an inspection during production and prior to shipment.

Product Range

- Mackerel (*scomber scombrus*) – round frozen and fillets
- Herring (*clupea harengus*) – round frozen, butterfly fillets, skinless fillets
- Horse mackerel (*trachurus trachurus*)
- Silver smelt (*argentina silus*)
- Sprats (*sprattus sprattus*) – round frozen
- Blue whiting (*micromesistius poutassou*)
- Capelin (*mallothus villosus*) – round frozen
- Saithe (*pollachius virens*) – headless/ gutted





MTK compressor packages at a freezing plant in Chile.



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Frionordica AS is an industrial refrigeration company that has extensive experience in developing cost-effective solutions for the fishing, fish processing and aquaculture industry. Frionordica is owned by Aquaterm, MTK and Finsam Refrigeration, and handles the sales and marketing for these companies. Aquaterm specializes in the cooling and heating of seawater and manufactures RSW systems for fishing vessels as well as heat pumps for fish farming. MTK is a well-known systems supplier and contractor of large refrigeration systems. Finsam is recognized worldwide within the fishing industry as a leading specialist in ice systems with products such as ice machines, ice plants and ice slurry systems.

Ice Machines & Ice Plants

Finsam offers a full range of ice machines and ice plants to cover all of the requirements for onboard as well as land-based installations. Finsam's containerized ice plants with plate ice machines and ice rake systems have proven to be the most reliable solution for fishing ports and processing plants worldwide. Such plants can be made fully automatic including "Auto-Ice" for self-service delivery to vessels and trucks. Finsam offers two different concepts for ice slurry. One solution is based on use from an existing ice plant, the other by using the Finsam Flow-Ice units, which makes ice directly from seawater.



Finsam Flow-Ice machine, capacity 40 tonnes per day.

Freezing Plants

MTK is one of the leading companies in the Norwegian industrial refrigeration market onshore and onboard. The company is based in the northern part of Norway and offers service facilities in more or less all fishing harbours along the coast. The company is well-known for its large industrial refrigeration systems for fishing fleets, fish processing plants, pelagic freezing systems and general refrigeration systems for the food industry in Norway and abroad. MTK is an approved packager by Howden and offers a full range of screw compressor units.



Finsam Plate Ice Machine, capacity 30 tonnes per day.

RSW Plants & Heat Pumps

Aquaterm heat exchangers represent new technology in refrigeration, using enhanced tubular geometry and effective thin film principles in evaporation and condensation. These are the most compact designs on the market. Other features include low refrigerant charge, leak-proof welded tube-to-tube sheet joints and non-corrosive plastic end caps. Tubes and tube sheets are made of titanium for seawater applications. For freshwater applications stainless 316 is used. Aquaterm offers heat exchangers as separate items, or as assembled RSW and heat pump units. The capacity range is 100 to 1,400 kW.



Aquaterm RSW unit, capacity 440 kW.



Gjendemsjø

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Gjendemsjø Fisk AS is a producer of high-quality seafood products, with a particular focus on smoked and marinated goods. The Gjendemsjø family started up its fish business in the 1960s as the owners of two fishing vessels and, in 1980, established Gjendemsjø Fisk to expand into fish processing. In 2001, Gjendemsjø constructed a state-of-the-art factory in order to cope with the company's expansion and high-quality profile. Today, Gjendemsjø Fisk AS supplies supermarket chains, wholesalers and caterers in Norway, as well as exports its products worldwide.

A High Focus on Quality

Gjendemsjø's high focus on quality includes a top-notch monitoring system with full traceability at every stage of production. The company has highly qualified employees working full-time with quality inspection and quality-monitoring matters. Gjendemsjø's products are HACCP and kosher approved, and the company received BRC certification in 2004. In August 2003, Gjendemsjø Fisk achieved the Quality Award from the Norwegian Directorate of Fisheries. This award is given each year to the company that has distinguished itself most in regards to product quality and production processes.



Product Range

The company exports the following seafood products:

- Smoked salmon and salmon trout
- Marinated salmon and salmon trout
- Salmon fillets, steaks, portions
- Whole salmon (frozen)
- Salmon caviar
- Smoked mackerel
- Smoked and marinated herring
- Smoked halibut
- Seafood terrines/salads
- Norwegian blue lobster

Export Markets

Gjendemsjø Fisk exports its products to the following markets:

- Europe
- Asia
- North America
- Australia
- Middle East





Blue Silver

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Grieg Seafood Finnmark AS is a family-owned company that has produced quality salmon and trout for generations. Located in the northernmost region of Norway, it uses a “Best Practice” production system in which it develops and maintains a healthy relationship to the environment.

Vertically Integrated

Grieg Seafood Finnmark is vertically integrated. This allows the company to ensure excellent bio-security supervision of the whole value chain, from ova to the market. It is committed to maintaining environmental and fish welfare standards and to the long-term success of its small, independent salmon and trout farm. Being small allows it to have hands-on control and ensures the best delivery of its products.

Production

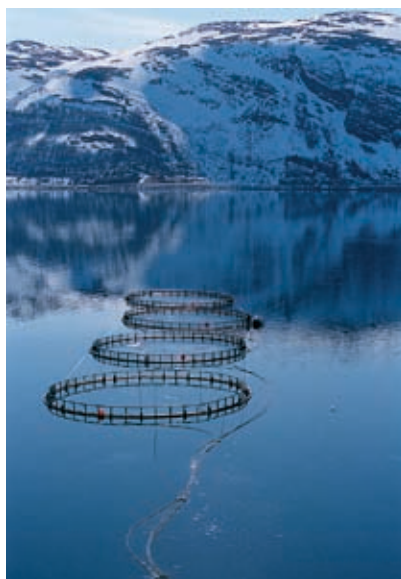
Total production of salmon and trout in 2007/2008 is projected to be 12,000–15,000 tonnes. This production is achieved through a fully integrated system designed to maximize the health of its stocks. It has one hatchery and eight sea sites. Three of its sites are constantly fallow, allowing for natural cleansing and regeneration of the sites. This policy is part of a total fish farming philosophy that maximizes the health and welfare of the fish and minimizes environmental impact.

Markets

Grieg Seafood Finnmark is a market-driven organization that delivers its products mainly throughout Japan and the EU, as well as in Russia, the United States, Taiwan and Korea. 90–95% of its production is exported. The company has long-term commitments to a limited number of partners (wholesalers and/or retailers). Its well-organized production allows it to supply fresh and frozen salmon and trout around the world.

Focus on Fish Welfare & the Environment

Grieg Seafood Finnmark’s production is based on principles of sustainability and long-term care of the environment and of its fish stock. Salmon and trout are farmed according to a standard exceeding the regulatory framework. Farming is done in a manner designed to prevent pollution and limit potential threats to the wildlife.





Creating Tasteful solutions



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As the leading exporter of seafood products from Norway, Hallvard Lerøy AS maintains a consistent focus on the development of markets for fresh and frozen seafood products. In 2006, the holding company Lerøy Seafood Group had a turnover of more than NOK 5.0 billion.

For more than 100 years Hallvard Lerøy AS has been a pioneer in seafood. Today the company's vast selection of seafood products is demanded throughout the world, and Hallvard Lerøy does its utmost to meet the customer's expectations.

Hallvard Lerøy AS strives to ensure the fulfilment of high customer standards in every stage of the supply chain. The Lerøy Seafood

Group ASA is a major supplier of salmon and trout, both in Norway and Scotland.

The Group has a global distribution network that covers 65 countries with headquarters in Bergen and local distribution and processing in Norway, Sweden, France, Portugal and Turkey. Local representative offices are located in key markets such as France, Japan, China and the United States.

Product Range – Fresh & Frozen

- Lerøy – produced and branded seafood products
- Farmed fish – salmon and trout
- Pelagic fish – mackerel, herring and capelin
- White fish – cod, Greenland halibut, coalfish, haddock, monkfish, catfish, halibut, ling and tusk





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HitraMat is currently Norway's leading producer of edible crab. The company exports its products all over the world and has put a great deal of effort into developing new crab products for various markets. Its fisheries and methods of processing raw materials from the sea have been developed by three generations of owners since the 1930s.

Production

In 2006, HitraMat's production was nearly 4,000 tonnes. This makes up 62% of the Norwegian crab catch. Continued growth in production is expected in the years to come.

New Facilities

The crab processing is carried out in HitraMat's brand-new facility. It is a state-of-the-art facility that meets or exceeds all HACCP and QMP quality standards.

Products & Markets

HitraMat's product range consists of crabmeat products, freshly packed white fish and scallops. It also plans on introducing new products, including other types of shellfish and snails. During the last few years HitraMat has put a lot of work and effort into improving and developing new crab products, mainly for the retail, hotel, restaurant and catering markets.

Product Range for HORECA, Retail & Industry

All products are 100% natural, with no additives or preservatives. They include:

- Dressed crab
- Whole-cooked crab
- Crab cocktail claws
- Fine-minced crabmeat (or other types of crabmeat for industrial customers)
- White crabmeat
- Dressed crab buffet
- Crab claws
- Scallops
- Luxury handpicked Norwegian crabmeat





HOFSETH

HOFSETH AS

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Hofseth AS was established in 2001. Since that time the company has grown vigorously and today it stands out as a business that has a great capacity for adaptation and flexibility. The combination of a high level of knowledge, experience and a global network makes Hofseth AS an attractive partner in the Norwegian fisheries industry. The company markets its finished products in more than 20 countries around the world.

Norwegian Seafood Products

Hofseth AS offers a wide selection of seafood products based on Norwegian raw produce. Its products are offered in either standardized packaging or according to its customers' needs. The company places a great deal of pride in having an expansive base of knowledge so that its customers will always feel secure with the products they buy. Hofseth AS produces mainly finished products consisting of salmon, trout and cod.

Quality & Traceability

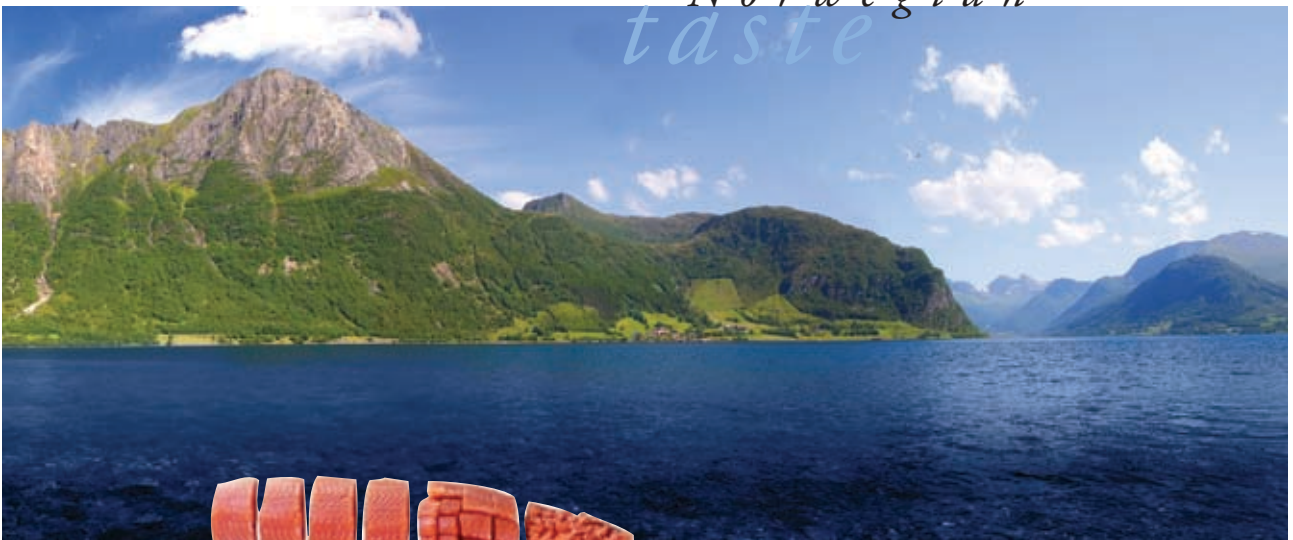
In order to ensure that its products always encompass a certain level of quality, Hofseth AS is in the process of being certified as a BRC and IFS supplier by July 2007. This will guarantee the quality of all of its business processes.

Products

Hofseth AS's products include:

- Fresh and frozen salmon and salmon trout
- Salmon and trout fillets and portions
- Consumer brands such as salmon with sauce
- Canadian and American hake, farmed cod and halibut
- New convenience products in the pipeline

*Norwegian
taste*





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Ice Fish AS is an exporter of fresh and frozen white fish from northern Norway. The company's staff administrates operations from its two offices located in Tromsø and Ålesund.

Supply

Ice Fish AS has good connections with many fresh and frozen white fish manufacturers throughout Norway. The fishing regions are northern Norway's coastal area, including the North Sea and the Barents Sea. The company exports fresh and frozen white fish products every day; its suppliers have long experience and quality is of great importance to them.

Product Range

The company exports all types of seafood, including:

- Coalfish
- Cod
- Haddock
- Redfish
- Herring
- Monkfish
- Tusk
- Plaice
- Black halibut
- White halibut
- Cod liver
- Crab
- Salmon
- Trout

Export Markets

Ice Fish currently exports to markets in:

- Belgium
- Canada
- Denmark
- England
- Estonia
- France
- Germany
- Lithuania
- The Netherlands
- Portugal
- Russia
- Spain
- Sweden
- Ukraine





INSTITUTE OF MARINE RESEARCH (IMR)
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The Institute of Marine Research (IMR) is a leading organization within scientific investigations and advice on living marine resources, marine environment and aquaculture. The Institute is the main adviser for the Norwegian Ministry of Fisheries and Coastal Affairs on these issues. IMR has an excellent infrastructure to support the research activities, including seven research vessels, three research stations for experimental biology and aquaculture, and a wide range of biological and chemical laboratories.

Aquaculture

The aquaculture programme at IMR is one of the largest and most comprehensive of its kind in Europe. The Institute has been a central force in the development of salmon farming technology and the major contributor to the scientific basis for cod, halibut and scallop culture in Norway. IMR has the responsibility for providing the scientific basis for a sustainable exploitation of Norway's substantial aquaculture potential. The aquaculture research at IMR is a combination of basic research on fundamental biological mechanisms and applied research for the industry, society and government.

In 2006, IMR's research station in Matre north of Bergen was totally modernized. The new facilities are designed for both small and large-scale studies on present and future aquaculture species. The facilities are also excellent for studies on wild fish species, including climate change studies and pollution-related experiments.

In collaboration with other counterparts IMR has developed technology and procedures for the live capture of cod by seine net vessels. The storage of live fish allows for the regular supply of live fish of superior quality and also the potential for on-growing of small fish or fish of poor condition, thereby increasing the value of the limited quotas.

Responsible Fish Capture

IMR has internationally recognized expertise within the fields of:

- Development of active and passive fishing gear
- Selective properties and environmental impact of fishing gear
- Observational methodology for field testing of gear
- Technology for live capture of fish
- Methodology for fish behavioural studies in general and in capture situations in particular

1. IMR has developed technology and procedures for the live capture of cod by seine net vessels.

2. Fish welfare is a key area of research at IMR. Hypermodern facilities enable the scientists to study the reactions of the fish to changes in their environment.





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Lofoten Seafood Export AS was established in 1982 and has become a complete, integrated company. The company produces fry (small fish) and farm fish and exports fish. The fish are controlled in every process; Lofoten Seafood Export is able to trace the fish from when it is fish roe and until it reaches the consumer. The company has 20 employees with a great deal of competence and experience in the field, and Lofoten Seafood Export sells its products in the local community, as well as in the domestic and international markets.

Stockfish & Salt Fish

(*Gadus Morhua*)

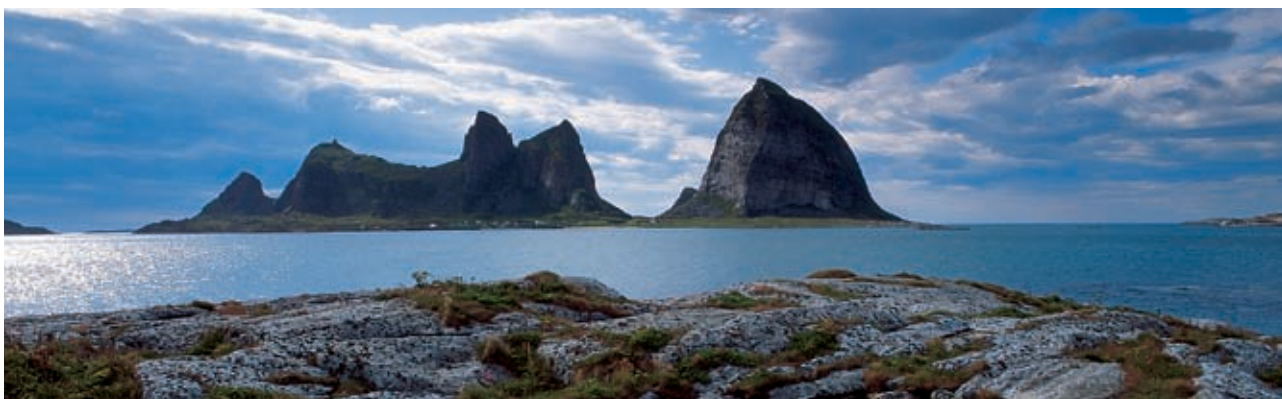
One of the world's largest commercial fishing areas is in operation in Lofoten in the period of January–April each year. The Norwegian Arctic cod (*Gadus morhua*) comes from the Barents Sea to the islands of Lofoten in order to spawn. Fishermen from all over the country come to utilize this amazing fishery. During this period, Lofoten Seafood Export produces fresh fish, salted fish and stockfish.

Lofoten Specialities

Each year, the Norwegian Arctic cod makes the long journey from the Barents Sea to the Lofoten Islands in order to spawn. Norwegian Arctic cod is loved all over the world – from Europe to South America and Africa. The fish is used in many ways, such as cod, lutefisk, stockfish, bacalao, clipfish, and also in snack form.

Salmon

Lofoten Seafood Export also sells Atlantic salmon (*Salmon salar*). Between the green, high Lofoten Mountains and the deep blue seawater, the salmon have an excellent environment to grow in. Long summer nights with the midnight sun give the salmon a feeling of well-being. Snowy winters, icy water and the beautiful Northern Lights help produce the healthy look, attractive colour and fantastic taste of the region's salmon.





Trade mark

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Lorentz A. Lossius AS was founded in 1833, and is the oldest producer and exporter of clipfish in Norway. The company's main product is salted and dried fish (*Bacalhau*), but it also sell stockfish, wet-salted fish and cuts of clipfish in plastic bags. Lorentz A. Lossius AS delivers its fish products in large and small quantities all over the world, and last year the company exported approximately 1,120 tonnes of clipfish. The company is a member of the Norwegian Seafood Federation.

Flexible Organization

Lorentz A. Lossius AS has a flexible organization, which allows it to handle both large and small orders as well as customers' special requests quickly. The company's production department has specialized know-how and a great deal of experience, and the sales department has great knowledge about the various markets.

Modern Production

Lorentz A. Lossius AS has a new production facility, which was built in 2002 and has government approval. New technology has been installed, and all aspects regarding food safety are taken very seriously. The company has 2,000 square metres worth of production and warehouse facilities.

Products

Lorentz A. Lossius AS produces first-class salted and dried **cod**, **saithe**, **tusk** and **ling**. The fish is packed whole in cartons, or in wooden boxes. The company also puts together **consumer packs** for various markets – its vacuum packs can hold from 250 grams up to 1 kilogram. Different products can easily be combined in the same shipment.





MAINSTREAM NORWAY AS
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Mainstream Group is the farming division of the Norwegian holding company CERMAQ, a fully integrated world leader in salmon production. Mainstream has operations in Canada, Scotland, Norway and Chile, and its production of over 120,000 tonnes makes the group the second-largest producer of farmed salmon in the world. CERMAQ is also a world leader in salmon feed production through its feed division EWOS. Around 40% of the world's production is fed by EWOS.

Production

Mainstream Norway AS is a wholly integrated company with its own smolt production, fish farm production, well boats and slaughterhouses. The company has three wholly owned smolt hatcheries in Nordland, 12 licenses for fish farming in Nordland and 28 licenses for fish farming in Finnmark. The slaughterhouses are wholly owned – one of which is located in Nordland, and two others in Finnmark. Mainstream Norway's convenient well boat arrangements ensure the secure transport of the fish between the smolt hatcheries, fish farming facilities and slaughterhouses.

Mainstream Norway's headquarter is located at Steigen in Nordland, where the company has immediate access to production. This gives Mainstream Norway control over the entire production chain, and the company carries out quality control of the fish from when it receives it as roe until it is slaughtered, packed and delivered to the customer. Mainstream Norway monitors all processes in production, and, when the salmon is delivered to the customer, the company has full traceability from roe to the finished product.

North of the Polar Circle

Mainstream Norway AS's core area of business is the production of Atlantic salmon north of the Polar Circle – more precisely in Nordland and Finnmark. The production of smolt takes place in Nordland, while fish farming production takes place both in Nordland and Finnmark. It is the company's experience that Atlantic salmon has optimal growth conditions in Nordland and Finnmark, where there is unpolluted, cold and clear water, deep fjords and protected locales.

Fish Health

Mainstream Norway AS has always placed its focus on salmon production according to ethics and governmental regulations. There are, however, three contributing factors that are crucial for the end product – a fresh smolt, quality feed and first-class employees. With its own smolt hatcheries, the feed company EWOS as fellow subsidiary and highly motivated employees, Mainstream Norway has full focus on these three factors, and, as an effect of this, takes care of the environment related to every segment of the production.

Market

Together with Mainstream Sales, the company sells fresh, frozen and processed Atlantic salmon, trout and Coho salmon to all of the world's markets. Mainstream has good relationships with wholesalers, retailers and smokehouses, and its production is adapted to fit all various needs.





Marine Construction as

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Marine Construction AS develops and manufactures equipment for cost-efficient aquaculture. The company has stayed at the forefront of marine fish farming technology by continually refining its products based on customer feedback. Marine Construction's fish farming technology is in use at fish farms around the world.

Profits through Industrialization

With maximal operational efficiency in mind, Marine Construction designs its aquaculture products to allow labour-saving mechanization wherever possible, while reducing the number of operations required.

Steel Cages

Marine Construction's **SystemFarm** fish cages feature steel sections with strong, self-protective hinges and unsinkable floats. SystemFarm provides wide, stable walkways around all cages with high load-bearing capacity to allow for the use of forklifts, grading machinery, winches, air lifts, fish pumps, feed hoppers and predator nets. SystemFarm is available in a variety of sizes. The company's **Ocean Wave** cage system is a stiff and rigid steel cage system for very exposed sites. The cage system is available in 25 x 25 m and 30 x 30 m cage sizes and can be easily extended.

1. Ocean Wave 25 x 25 steel cage system.
2. FarmBase 400 concrete feed barge.
3. Coast Rider plastic cage.
4. Land based fish farm supplied by Marine Construction as.

Heavy-Duty Plastic Cages

Coast Rider is Marine Construction's newest product line. The heavy-duty plastic cages are certified according to Norwegian Standard 9415, and are built for very rough conditions. Coast Rider cages can be supplied in a variety of sizes.

Concrete Feed Barges

Marine Construction's reinforced-concrete **FarmBase** barge features an integrated service building with furnished office, driveable deck, guardrails, rounded corners and fenders. Integrated high-capacity feed silos are available. The FarmBase can be built to any size, depending on required deck space and feed capacity. Fully equipped turnkey FarmBase barges, including generators, are also available.



Land-Based Fish Farming Technology

Marine Construction is a supplier of highly efficient land-based fish farming technology. This includes:

- Design and planning of new, state-of-the-art land-based fish farms
- Upgrades of existing facilities
- Delivery of complete land-based production facilities

Worldwide Transport

Marine Construction technology can be shipped in containers to destinations all over the world.

Profitable Fish Farming Technology





MODOLV SJØSET AS

8770 TRÆNA



MODOLV SJØSET AS

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Modolv Sjøset AS was established in 1951 on the spectacular island of Træna, a site that attracted settlers 9,000 years ago due to its rich fishing grounds. Modolv Sjøset places great emphasis on product freshness, accepting only fish caught in nearby waters and drawn to land quickly. The family-run company's 2005 turnover was \$45 million.

Tradition & Modernity

For more than 50 years, Modolv Sjøset has processed "the fruits of the sea" catches. Consistent high catch quality has been preserved through continuous evolution of processing technologies. From its new, spacious facilities, it aims to continue its tradition as a market leader supplying prominent products worldwide.

Time is of the Essence

Modolv Sjøset's facilities are ideally located. The rich fishing grounds of the Vest Fjord and the Norwegian Sea lie just beyond the quay, at the Arctic Circle. This ensures a

reliable supply of first-class fresh fish from most Norwegian Sea areas, and the season lasts almost throughout the year. In the high season, from September to February, Modolv Sjøset produces herring. In February–March, the capelin comes in from the Arctic waters, just before the company starts producing the delicate silver smelt caught nearby (April–May).

Product Range

- Herring – whole round, fillets (single, butterfly, with skin or skinless), portions and headed/gutted

- Silver smelt – whole round, headed/gutted, fillets and mince
- Capelin – whole round, female/male, roe production, unsorted
- Whitefish – wet-salted or fresh, whole round or fillets

Major Markets

In addition to a strong position in the domestic market, Modolv Sjøset exports, principally, to Poland, Germany and Russia. It is gaining ground in the European market, and exports to Japan are growing.





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Naturkost S. Rui AS is a pioneer in the health food market. The company has offered high-quality products to the health food industry since 1977. All health food store chains distribute products from Naturkost S. Rui AS. The company has eight employees and an annual turnover of approximately NOK 37 million.

Products

Naturkost S. Rui AS's main products include:

- Ruis Selolje (seal oil)
- Dermyn (facelift without surgery)
- XM (for eczema and dry skin)
- OliMar (patented mixture of seal oil and olive oil)
- Femal (for women with PMS and women in menopause)
- Acnix (for acne)
- Kyolic hvittløk (garlic)
- Fosfoser Memory (for memory and Alzheimer's disease)



Prestigious Awards

In the autumn of 2006 Naturkost S. Rui AS was awarded two prestigious awards by the Association of Herbal Manufacturers and Retailers. The company's Omega-3 Selolje was awarded the "Herbal Product of the Year" and skin product Dermyn Aktiv Serum received the "Natural Cosmetic of the Year" award.



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Njord Seafood AS started its operations in January of 2004. In three years time it has become one of Norway's most important exporters of fresh white fish products and shellfish. The company's main office is in Trondheim and it has a branch office in Bergen.

Purchase

Njord Seafood collaborates with both large and small suppliers and currently receives its fish from Mandal in the south and up to Båtsfjord in the north. Having suppliers spread out over such a large geographical area ensures that the company has steady access to products and that it is able to deliver the whole year round.

Njord Seafood's suppliers take in fish caught that day from coastal vessels, and their products are of a consistently good quality. The company has expertise from a background in both the vessel and fish buying ends of the business. This gives Njord Seafood an advantage in relation to evaluating the quality and seasonal fluctuations of the different types of fish.

Sales

Njord Seafood has five competent colleagues in the sales department who are fluent in a number of languages, including Spanish, French, English, Arabic and Japanese.

The company aims to be a total supplier of Norwegian seafood for its customers, and its sales staff works with this goal in mind. In this way Njord Seafood strives to make the work day simpler for its customers, transporters and itself.

Products

Njord Seafood offers a wide selection of fresh Norwegian products, and normally has over 20 different types of fish available.

In 2006 Njord Seafood had sales of NOK 188 million and had a total product quantity of 5,800 tonnes. Of this 1,500 tonnes consisted of cod, 750 of monkfish, 435 of redfish, 130 of halibut, 860 of haddock and 700 of coalfish. In addition the company sold 215 tonnes of scallops.





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NOFI Tromsø AS is an industrial company, with its headquarters in Tromsø, Norway. The company's markets are mainly the fishing and aquaculture industry, oil spill control agencies and general industry. NOFI products and services are sold and distributed worldwide. NOFI Tromsø was established in 1978. The company currently has 55 employees and is firmly committed to the continued development of products and technology.

Fishing Industry

The manufacture and supply of products and technology to the fishing industry is one of NOFI Tromsø's main activities. The company is a full-service supplier of net systems and accessories for shrimp and cod trawls, nets and Danish seine as well as fishing nets and lines. Since the company was established it has become one of Norway's leading suppliers to fishing fleets. From the very beginning the company has placed a great deal of emphasis on maintaining a good relationship with its customers.

NOFI Tromsø is an international company. However its customer base is not restricted to within Europe; the company operates in a global market. The company has been a major supplier to Russian fishing fleets since the end of the 1980s, and it has a sales office in Murmansk. NOFI Tromsø is an innovative



company and has always remained up-to-date in regards to new developments in aquaculture. The company has been engaged in productive, collaborative efforts with various research environments for many years. This has resulted in the company's profile as a solid cooperative partner.

Aquaculture/Fish Farming

NOFI Tromsø is a certified total supplier of equipment and technology to the aquaculture industry. The company also performs analysis of mooring systems for installations and landing stages using software developed by SINTEF. All of this is carried out in accordance with NS 9415 standards. The company maintains a large stock of ropes, hardware, floaters and other mooring equipment. As a result the company is able to deliver products at short notice.



Plastic products produced by the company include:

- "NOFI" net cages
- Bottom rings
- Floats for shadow/ceiling nets in all sizes – with integrated feeding systems if required
- Mooring clamps
- Automatic feed clamps
- Feed hose holders
- Power supply pylons
- Tanks for pneumatic adjustment of elevation of fish cages
- Ensilage tanks

NOFI Tromsø delivers cages certified in accordance with NS 9415 standards – including enclosures of up to 130 metres in diameter. The company supplies installations and equipment for smolt farms and hatcheries for stocking. It also supplies net treatments (bonding) from several manufacturers. Breeding cages and nets are supplied from reputable Norwegian manufacturers.

The company also produces a series of products made from reinforced fabrics. The comprehensive range of products includes custom-made pallet hoods and tarpaulins.



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Noomas AS, established in 1985, has 20 years of operative experience with working on aquaculture installations, and its customers come mainly from this industry. The company also has expertise within the design and analysis of mooring and anchoring. The company has 35 employees, some of whom have worked there since the beginning. Noomas AS runs its operations through three subsidiaries – Noomas Certification AS, Noomas Offshore AS and Noomas Kristiansund AS. The company has experience from working in Asia, the US, Canada and the Mediterranean.

Product Certification

In 2004 Noomas Certification AS was accredited as a certification body according to NS 9415, as well as an inspection body. Because of this the company can supply the product certification of principal components, such as floating cranes, fleets and fishing nets, and give out certifications of fitness for fish farms.

Anchoring

It is very important for an installation to be safely and securely anchored. If the anchoring is done badly then the breeder risks incurring large financial losses. Noomas has years of experience in the anchoring of various types of installations at sea, among them:

- Aquaculture installations, both for fish and mussels
- Fleets and barges
- Mooring buoys for vessels
- Certified bolts from 40 to 85 breaking strength

Noomas' choice of equipment such as bolts, shackles, chains and rope are especially adapted to the location in question.

Cleaning & Disinfection

Noomas offers several methods for the cleaning of nets. Clean nets are decisive for the health of fish. They reduce the stress the fish experiences and are greatly significant for good growth. Cleaning also reduces the strain on the nets and hinders unnecessary wear on them and the installation. Cleaning the nets while they are in the water is the most economical and safest method for the removal of overgrowth. Also, the customer is able to receive a complete inspection and report of the net's condition.

Noomas has developed its disinfection routines for aquaculture installations in cooperation with veterinary authorities. Noomas carries out the preliminary removal of

unwanted elements and the disinfection of the entire fish farming installation with equipment both at sea and on land. At the time of disinfection a report is drawn up and given to the farmer and veterinarian. Noomas has disinfected installations in Norway, Canada, the Shetland Islands and Sweden.

Experience that Benefits its Customers

Noomas has followed the aquaculture industry through good and bad times and along the way it has learned from hard-working fish farmers who have all had their own ideas about how breeding should function. This has led to a great deal of trial and error that today benefits all of its customers.





Quality Seafood

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Norsk Sjømat Group provides you with a wide range of seafood all year around, and at competitive prices. The three companies that make up the Norsk Sjømat Group all specialize in different areas. Together, they offer a wide product range, flexible production units, and a skilled and experienced organization with high focus on gaining customers' satisfaction.



Norsk Sjømat AS

Value-Added Salmon & Trout

Norsk Sjømat provides a wide range of products, from sashimi fillets to portions, steaks, smoked products and gravlax. The company's new success is marinated dinner portions. By-products are also available. Norsk Sjømat's plants are BRC Higher Level and HACCP-approved, and the company meets kosher requirements. You can choose the packer's brand, or the company can produce for private labels.

E-mail: mail@norsksjomat.no
 Website: www.norsksjomat.no



Vikomar AS

Mackerel, Herring & Whitefish

Skilled employees in a modern and efficient plant secure Vikomar's products from landing to sale. Direct contact with the market, production and fishermen gives the company the opportunity to be flexible, and to produce according to customer expectations and demand.

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 Website: www.vikomar.no



Norsk Sjømat Trading AS

Fresh & Frozen Salmon & Trout

Norsk Sjømat Trading specializes in supplying full trucks of fresh whole salmon. The company also provides frozen salmon or trout shipments in full containers or in combination with other products from its group. If you are interested in other seafood species besides the group's range, then please contact Norsk Sjømat Trading for offers.

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Norway Prawns AS of Tromsø, Norway is located at 70 degrees latitude, and is a true master in the art of processing wild-caught coldwater prawns. Combining rich Norwegian history and a profound knowledge in fisheries, the company strives to become the ideal supplier for its selected customers. The company delivers a wide range of wild-caught Norwegian IQF cooked and peeled coldwater prawns from its BRC Global-certified factories, which have a capacity of more than 12,000 tonnes of finished product per annum.

Norwegian Origin

Norwegian fishermen from the Troms Region were pioneers in establishing the commercial use of coldwater prawns (*Pandalus borealis*). Fishing of these prawns started in the late 1800s. By the end of the 19th century the scientific research and development of industrial prawn fishing had begun. Gradually, a prawn industry cluster developed in the Troms Region, and today the area is still a leader in prawn production. Rooted in over two centuries of tradition, two ultra-modern factories operate in the Troms Region today, both represented by Norway Prawns AS.

Wild Caught Coldwater Prawns

Norwegian prawns are one of the most pure and natural seafood products available. Norway Prawns' raw material is sourced mainly from the Barents Sea and the areas around Svalbard where the low temperature of the sea allows prawns to grow slowly and mature patiently. This results in a firmer, tastier and more nutritious product.

The combination of favourable natural conditions, generations of hard-earned experience, respect for the environment and the latest cost-efficient technologies gives

the company a product it is proud to present to discerning consumers worldwide.

Norway Prawns sells *Pandalus borealis* to retail, food service and industrial customers, and can supply all sizes from 150 pieces per pound to 500+ pieces per pound. Depending on individual customers' needs, the company offers a wide range of packaging options.

Traceable & Healthy

The safety of Norway Prawns' products starts from the very beginning. Prawn stocks in the North Atlantic are in good condition and are harvested in a sustainable manner. The company's BRC Grade A-awarded factories provide a first-class quality product, strictly controlled and traceable throughout all processes – from raw material to ready-to-eat consumer packs.

Coldwater prawns are a very healthy and convenient product, rich in proteins and containing a high content of vitamin E. They are fat-free and the level of salt is between 0.7 to 0.9%. It is hard to find a more tasty way to good health.

New Thinking & Competitive Foresight

Norway Prawns continuously seeks opportunities to expand the market for Norwegian coldwater prawns. The company has successfully launched IQF marinated prawns in the Nordic countries, a product that was featured in the final of the 2005 ESE Seafood D'Prix competition in Brussels. Another product the company offers is raw peeled prawns. Gently peeled and with a crisp texture, these prawns approach the perfect taste of the freshest seafood and extend culinary possibilities.

Because of Norway Prawns' enthusiasm and expertise, its customers feel that they have chosen a reliable supplier and a dynamic partner for future progress.





Norway Royal Salmon AS

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Located in Kristiansand and Trondheim, Norway Royal Salmon AS has merged old family-run companies specializing in salmon farming and sales. The company has been a leading player in the Norwegian fishing industry for many years and is now one of the largest groups of salmon farmers in the world. Norway Royal Salmon exports and sells salmon, trout and other fish types year-round to more than 30 countries.

Fresh, Clean Environment

The raw produce is farmed in an ideal environment with unpolluted, cold, clear water. The company has the advantage of obtaining salmon deliveries from farmers along the entire Norwegian coast. It can, therefore, offer top-quality products all year round.



Quality Products

A wide range of salmon products are offered by Norway Royal Salmon, with special emphasis on taste, presentation and quality assurance. The company's farmers helped to pioneer the international salmon farming industry and are well known for their top-quality salmon and salmon products. The company has expanded its range of products to include new-farmed species such as cod, halibut and mussels.

Norway Royal Salmon leads the way in product development, maintaining its position as one of the world's leading companies in salmon sales.



Fresh, Frozen & Smoked

Norway Royal Salmon's line of export products includes:

- Fresh and frozen salmon and salmon trout
- Salmon fillets and portions
- Smoked and marinated salmon
- Various salmon delicacies
- Fresh and frozen farmed cod, halibut and mussels

Export Markets

Norway Royal Salmon exports its range of salmon products throughout Europe, as well as to the other important world markets, including:

- Russia
- Japan
- China
- Eastern Europe
- Hong Kong
- Israel
- Malaysia
- Mexico
- Singapore
- Taiwan
- United States

1. An array of salmon products from Norway Royal Salmon.



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The Norwegian Institute for Water Research (NIVA) is an internationally oriented competence centre for water-related research and development activities in production, environment and resources, such as aquaculture, live fish stock (freshwater and coastal species), management, water treatment, monitoring, feasibility studies and integrated water resources management. NIVA provides knowledge and advice regarding these issues at the national and international levels to authorities, the private sector and the public. NIVA is a private research foundation, and is the largest interdisciplinary applied water research centre in Norway. The NIVA Group, comprising NIVA and its four regional offices in Norway, subsidiary consultancy companies NIVATech AS and BallastTech-NIVA AS in Oslo, Akvaplan-niva in northern Norway, Aqua Biota Water Research in Sweden and Geomor-NIVA in Poland, has a total staff of 240 and an annual turnover of over NOK 125 million.

NIVA's Objective

NIVA serves the private sector, the authorities and the public – on the company, local, national and international levels – for the common goal of an improved aquatic environment and sustainable production through competence within both industry sector and profession.

NIVA's Strengths

- A special team of experts within fish and aquaculture
- Well-qualified and experienced staff with more than 120 professionals with qualifications at the doctoral and graduate levels
- Well-developed cooperation with both large and small private aquaculture companies
- Comprehensive R&D facilities, including field research stations
- A state grant of 17% of the institute's turnover to ensure state-of-the-art competence

- A Board of Directors appointed by the Norwegian Ministry of the Environment and the Research Council of Norway
- Member of the consortium of the Environmental Research Alliance of Norway (ENVIRA) and the Oslo Centre for Interdisciplinary Environmental and Social Research (CIENS)

Competence & Services

- Optimizing aquaculture production through improving water quality and understanding fish physiology
- Optimizing systems and performance of live fish transport
- Optimizing systems and performance of recirculation systems
- Finding good sites and making plans for the production of fish or crustaceans
- Establishing population dynamics and harvest strategies for freshwater fish
- Integrated coastal zone management (ICZM)
- Environmental information management systems for water
- EIAs and pollution abatement strategies

- Impact analysis on water quality and aquatic ecosystems
- Ecotoxicology
- Environmental aspects in aquaculture and the oil and gas industry
- Modelling of physical, chemical and biological processes and effects
- Water and wastewater treatment
- Technology – process optimization
- Acid precipitation and long-range transported pollution
- Institutional strengthening/capacity building
- R&D and testing of ballast water treatment technologies

International Experience

- Nearly 30% of NIVA's activities are now conducted in international projects
- Established in Chile, Puerto Varas, serving the aquaculture industry
- A solid basis of competence and a network through over 20 EU research projects
- A long-standing tradition in providing services for over 70 countries around the world



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The Norwegian University of Life Sciences (UMB) is recognized as an international centre of knowledge. Two of its focus areas are animal and aquacultural sciences. The Department of Animal and Aquacultural Sciences offers 2-year master's degree programmes in English.

Master's Programme in Aquaculture

Aquaculture is an area with great potential and is strongly influenced by new thinking. The industry is still developing new species, products and technology. The Department's main focus areas are fish breeding, fish nutrition and the planning and design of aquacultural plants. Optional/supply courses include environmental engineering, product quality, logistics and economy. In connection with study, good laboratory and field work facilities are also available.

The Department is part of the NOVA University Network (The Nordic Forestry, Veterinary and Agricultural University Network). All aquaculture and freshwater fisheries courses that are registered at any of the other participating universities in Denmark, Finland, Iceland, Norway and Sweden are open to the students.

UMB, in cooperation with AKVAFORSK (the Institute of Aquaculture Research), has a long tradition and history as a contributor in developing the aquaculture industry in Norway and abroad. In 1973 UMB became the first university offering studies in modern aquaculture in Norway. Over 2,000 students have taken courses or degrees at the bachelor's, master's or Ph.D level, and the university has trained the most candidates within aquacultural studies in Norway.

Master's Programme in Feed Manufacturing Technology

This programme provides unique insight into the economically significant area of feed manufacturing technology. A graduate with a master's degree has gained competence covering the key factors in feed production for domesticated animals, fish and companion animals.

Students also receive skills needed for higher-level management in the feed milling industry and other related industries. The programme focuses on topics aimed at understanding key processes and processing equipment, feed ingredients and feed formulation. The study programme involves hands-on experience with the various types of equipment and production lines by fully integrating the possibilities offered by the Centre for Feed Technology. Teaching is based on lectures, demonstrations and training in groups.

While this technology has traditionally been based on practical experience, this study focuses on understanding the principles in feed technology as a basis for the improvement of existing technology.

Admission Requirements

Candidates with academic qualifications at BSc level or similar can apply.

Aquaculture: BSc must include 10 ECTS* mathematics, 10 ECTS chemistry/physics, 10 ECTS statistics and 60 ECTS biology courses.

Feed Manufacturing Technology: BSc degree with basic knowledge in nutrition, chemistry and physics.

The 2-year programmes consist of 3 semesters of classes and a final semester of thesis work. An English proficiency level set by a TOEFL test or ones similar is required. Application deadline is June 1, 2007.

* = European Credit Transfer System





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Norwell AS is a fully integrated sales organization which sells and markets Norwegian-produced salmon and trout, and supplies customers all over the world. Independent smolt and fish food producers, slaughterhouses and production companies are all part owners in the sales organization. All of the part owners therefore have a common interest in ensuring quality and expertise in all production links. Norwell integrates them in order to guarantee quality and to fulfil the high requirements of its customers.

Network Cooperation

Norwell AS is owned by the fish farmers and their employees. This creates incentives throughout the value chain so that it is as rational as possible. At the same time this gives fish farmers a share of the profits and influence in the sales. An integrated value chain like Norwell's allows the company to provide flexibility and excellent market information to all members.

Norway's unique nature and coastline is the reason for this quality. Amongst fjords and mountains, around small points and in hidden bays fish farms which create today's success can be found.

What is the key? Why do the fish do so well? Why does this work so well? Again, the answer is the pure water. The water is pure, fresh and unpolluted, and there is unlimited access to it.

Quality

Pure and cold water is an important and necessary condition for good fish. There has been a steady increase in the need globally for healthy food without damaging additives. This has led to a large increase in turnover in recent years within the fisheries and seafood industry in Norway.





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Nova Sea AS is located in the middle of Norway close to the Arctic Circle and surrounded by cold, clear water, essential for the production of salmon. As producers of high-quality Atlantic salmon since 1974, the company benefits from highly qualified farmers with more than 30 years of experience in aquaculture.

The Largest Northern Norwegian Fish Farmer

Nova Sea is the largest northern Norwegian fish farmer, with 160 employees at a total of 17 production units at sea, a packing station and an administration/sales staff. With 31.33 licenses for the production of salmon, the company represents about 6% of the total export volume from Norwegian salmon exports in 2006. Nova Sea's production capacity is increasing steadily in all stages.

Production

Nova Sea is in total control of its production from when the smolt is transferred to sea and until the finished product is packaged and ready for shipment to the customer. The company is also in the process of developing a modern smolt production facility, making the company self-sufficient already from the hatchery process. With a great deal of



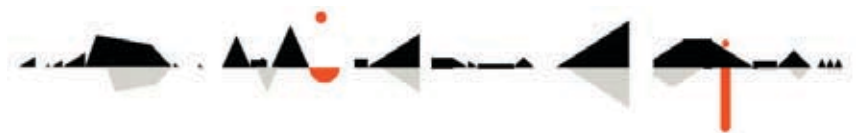
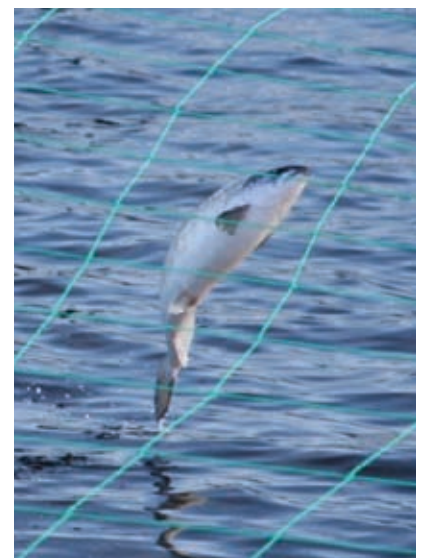
attention on quality management throughout the process, Nova Sea is a reliable supplier of quality salmon to both Norwegian exporters and customers abroad. The company's packing station, N-1041, is able to produce 200 tonnes a day, and it loads shipments according to customers' specifications for delivery worldwide.

Good Animal Husbandry

Nova Sea believes that good animal husbandry, fish welfare and fish health are key factors in successful fish farming. The company employs an experienced staff of biologists and veterinarians in order to ensure that emphasis is placed on disease prevention, as well as correct nutrition and environment. Located on the Arctic Circle in picturesque surroundings illuminated by the midnight sun, Nova Sea is perhaps situated in the best area in Norway for the production of Atlantic salmon. Ideal temperatures, stable currents, and excellent water conditions ensure superior welfare and growth.

Local Ownership

With its basis in local ownership, Nova Sea is a significant participant in the development of the salmon industry, as well as being a contributor to research and development in aquaculture, including the farming of new species.





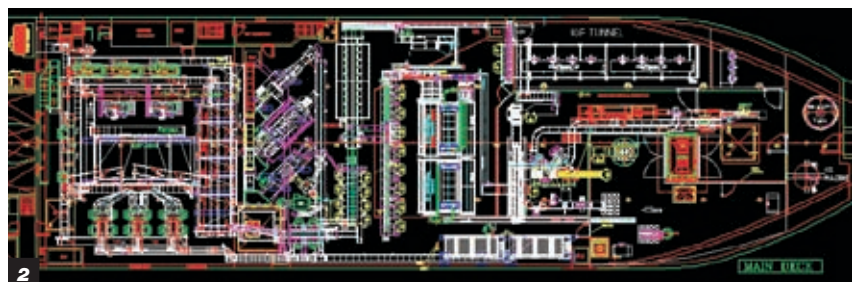
OPTIMAR GISKE AS
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Optimar offers specialized machinery and total solutions within fish processing. The unique combination of expertise within the Optimar companies, combined with their locales in the main Norwegian fishing regions, makes Optimar an attractive partner for both the onboard and onshore fish industries.

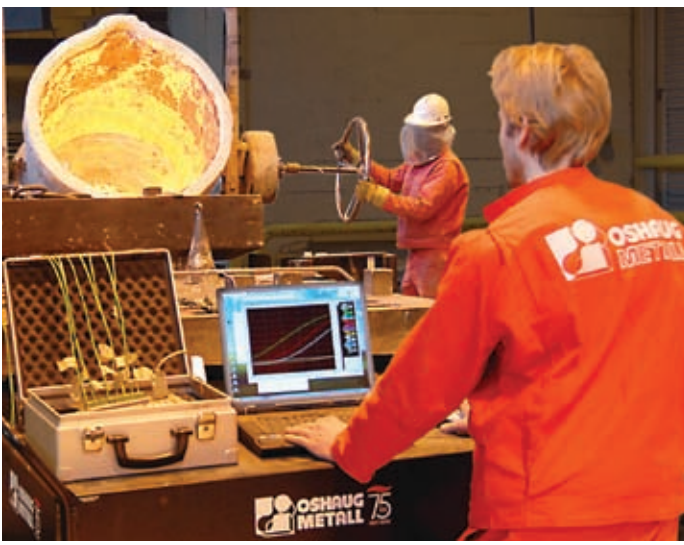
Products & Services

Optimar Giske AS, uniting the former forces of Odim Skodje AS and MMC Fodema AS, provides careful handling, high capacity and efficient operation within:

- **White Fish Processing** – Conveyor systems, grading arrangements, storing bins, working tables, trimming and packing tables, weighing systems, packing machines, by-catch separators, block ejectors, loading and unloading elevators, automatic plate freezers, IQF freezers and cargo lifts.
- **Salmon Processing** – Bleeding systems, gutting lines, cooling tanks, grading systems, automatic freezing tunnels, fresh packing lines, ice handling systems and palleting units.
- **Pelagic Processing** – Receiving systems, flow scales, grading systems, distribution systems, batch weighing units, plastic feeders, lid applicators, packing lines, stackers, automatic freezing tunnels, automatic vertical freezers and palleting units.
- **Project Management** – Processing layouts, logistic optimizing, progress planning, production management systems, installation, start-up, documentation and final testing.



1. Autofrys, an automatic horizontal plate freezer for onboard processing.
2. Further processing onboard a white fish trawler requires careful planning.
3. Automatic individual blast freezing of trout.
4. Automatic packing lines for pelagic fish.



OSHAUG METALL AS
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Nickel aluminium bronze (NiAl bronze) is one of the world's most invaluable engineering alloys and is the material of choice for high-performance ship's propellers. This complex and high-alloy bronze is, technically speaking, one of the most challenging foundry alloys to work with. Oshaug Metall has, over the course of almost 80 years and three generations, cultivated its metallurgical and foundry expertise to an increasingly greater level of refinement in the production of high-integrity NiAl bronze castings. For the customer, the company's dedication to excellence in the production of this delicate alloy means consistent deliveries of superior propeller components in cast NiAl bronze.

Full Service Provider

As a full service provider, Oshaug Metall proudly counts among its customers every major propeller manufacturer in Scandinavia. A seamless, integrated 3D CAD/CAM caters to the handling of customer geometries – from optimized methods design to pattern manufacture in its state-of-the-art 5-axe milling machine, to CNC machining and coordinate measurements in the company's granite-based CMM – hereby ensuring the highest level of consistency and accuracy throughout the manufacturing process.

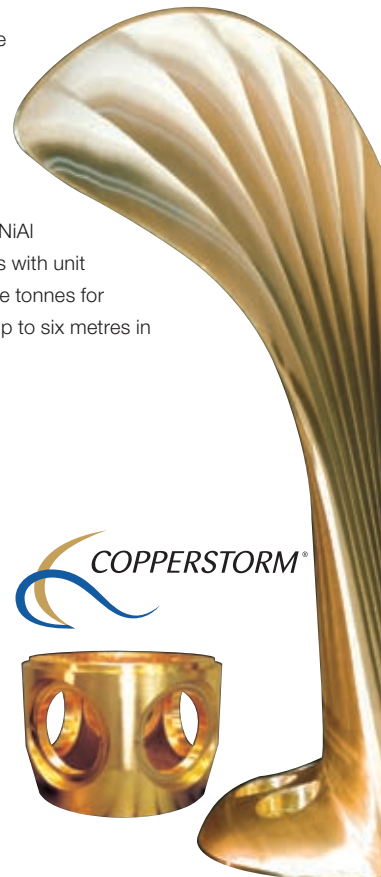
Casting Solutions

A trusted partner for decades, Oshaug Metall has provided casting solutions for some of the most complex and highly

sophisticated propeller components available today. Oshaug Metall has been a partner in both of the EU-based rapid-prototyping projects, Patternless® and Fastcast, and is currently researching new approaches to some of the industry's prime challenges, such as near-net-shape capability, design and manufacturing flexibility and lead time reduction.

Utilizing some of the latest technology in its production, control and documentation, the company manufactures cast NiAl bronze components with unit weight of up to three tonnes for propeller systems up to six metres in diameter.

Oshaug Metall has named the cast NiAl bronze components Copperstorm®, as a reflection of their reliability even in the most severe of sailing conditions.





Pam REFRIGERATION

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 Tel: +27 21 51 10 117 • Fax: +27 21 51 10 119
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 Website: www.pammarine.co.za

PAM REFRIGERATION (PTY) LTD.
 PO Box 1056 • 9190 Walvis Bay, Namibia
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PAM Refrigeration is a worldwide supplier of refrigeration equipment and technology. PAM delivers systems as turnkey solutions, including engineering, contracting, training and long-term service and maintenance, including spare parts. Since it was established in Norway in 1991, the company has set up branches in Walvis Bay, Namibia and Cape Town, South Africa. PAM Refrigeration's key personnel have more than 30 years of experience within the refrigeration industry.

Experience

For the last 15 years PAM Refrigeration has been working on the front line of refrigeration. The company has experience with varying conditions and a wide spectre of applications for fisheries, aquaculture, food and agriculture, shipping, the chemical industry and sports arenas.

Independent

PAM Refrigeration offers solutions with the necessary output and at an optimum cost in regards to investment, operation, service and maintenance. The company acts as an independent entrepreneur that takes full responsibility for its customers, chooses the right equipment and turns it into a total quality operation. Control systems are made for easy understanding, logical operation and are equipped with energy-saving functions.

Reliable

PAM Refrigeration has regional offices that undertake regular service and the planned replacement of components, and they also provide assistance when required. Through its experience in the field the company is able to recommend the most cost-effective and durable equipment, and offer a long-term collaboration in order to look after its customers' best interests.

Industrial Refrigeration Solutions

PAM Refrigeration's tailor-made industrial solutions include:

- Industrial heat pumps
- Air conditioning and comfort chilling
- Fresh water and seawater chilling systems
- Chill rooms and storages
- "Micro Ice" slurry ice production
- Flake Ice and Plate Ice systems
- IQF freezers (single frozen product)
- Blast freezers
- Horizontal and vertical plate freezers
- Freezer stores
- Refrigeration machinery such as screw compressors, piston compressors, condensers, liquid receivers, liquid separators, etc.
- Electrical panels
- Internet and WAP monitoring control systems



Marine Refrigeration Solutions

PAM Refrigeration's tailor-made marine solutions include:

- Air conditioning and comfort chilling
- RSW (Refrigerated Sea Water) systems
- Chill rooms and storages
- "Micro Ice" slurry ice production
- Flake Ice and Plate Ice systems
- IQF freezers (single frozen product)
- Blast freezers
- Horizontal and vertical plate freezers
- Cargo freezing holds
- Refrigeration machinery such as screw compressors, piston compressors, condensers, liquid receivers, liquid separators, etc.
- Electrical panels
- Internet and WAP monitoring control systems



PAM Micro Ice package.

Masterfile/Scampix Creative



PLANY AS
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PLANY was established as a sailmaker back in 1964. Over the years PLANY has evolved to become one of the leading suppliers of PVC canvas products to the marine sector, including aquaculture companies. Ninety percent of PLANY's customers operate within the marine sector. Situated on Norway's west coast, PLANY is part of an environment with world-leading manufacturers of supply vessels, ship design and deck machinery.

Dedicated to Quality

More than 40 years of experience has given PLANY unique knowledge and understanding of canvas product design, manufacturing and durability. This platform positions PLANY well for future challenges in cooperation with its customers.

De-Ice

PLANY is a supplier of covering solutions to vessels operating under extreme weather conditions. Where de-icing classification is needed, PLANY contributes with well-tested and approved solutions.

MOB Equipment

PLANY is a complete supplier of canvas equipment and safety nets to the MOB segment. A wide variety of qualities ensures the customer's special order needs.

1. PLANY's products are exposed to rough weather conditions daily.
2. De-Ice Cargo protection, supply vessel.
3. De-Ice MOB recess, supply vessel.
4. Canvas roofing for fish tanks.

Fisheries

Standard fishing vessel products from PLANY include sea anchors for purse seine, heavy-duty loading nets and flexible mats for the insulation of plate freezers.

Aquaculture

PLANY has a broad spectre of products that are highly approved by the aquaculture industry. Roofing of fish tanks for light manipulation of fingerlings, Sub Sea Scallop fencing for predator protection and Delicing Tarpaulins are

products that have been developed in close collaboration with fish farmers.

Tailor-Made Canvas Solutions

The manufacturing of goods at PLANY's workshop is based on single orders. Highly skilled staff and flexible production facilities help PLANY to tolerate frequent shifts in production. A working atmosphere which combines close customer dialogue with PLANY's experience helps make for a creative environment that functions smoothly.

James Wells/Getty Images





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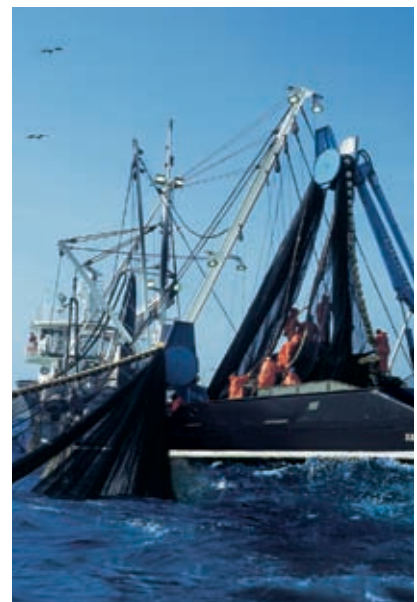
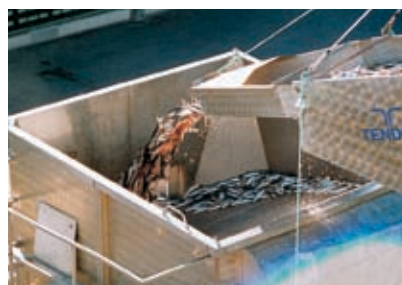
Sea Star International is part of Austevoll Seafood, a globally integrated fishery specialist operating a full value chain model in Chile, Norway and Peru. Sea Star International is responsible for the sales and marketing of pelagic, canned pelagic and salmon products.

Quality Products

Austevoll Seafood ASA (AUSS) operates fishing vessels with quotas worldwide. Committed to providing quality products to its consumers, AUSS employs sophisticated fishing technology and responsible fishing strategies that harvest the abundant offerings of the oceans without compromising the sustainability of such a valuable natural resource.

Integrated Operations

Through the company's activities with its fishing fleet, fish meal plants, canning plants, modern packing plants, salmon farming and sales, AUSS's integrated operations ensure that a high level of freshness is maintained in its catch – from fishing waters to finished products.





SEABORN AS

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Seaborn's unique position as a sales organization for Norwegian fish farmers helps secure the company the best-quality fresh salmon and fjord trout all year round. The company is headquartered in Bergen and has 15 full-time employees, along with a sales representative in Sweden. The company's owners' fish farms are mainly located along Norway's west coast, where the fish farming conditions for salmon and trout are optimal. Norwegian salmon and Norwegian fjord trout are Seaborn's main products, but the company also offers its customers high-quality white fish.

Small Family-Owned Companies – Seaborn's Mark of Distinction

Seaborn AS was established in 2001 and is owned by small and medium-sized family-owned companies. The shareholders take pride in delivering fresh fish of the best quality. Welfare is the basis for the growth and quality of fish, and Seaborn's fish farmers provide their fish with a good amount of space in the cages and the best feed available.

1. Seaborn AS's farmed salmon is based on genes from Norway's best salmon rivers.

Seaborn's Products

Norwegian salmon is a gourmet experience – whether you prepare it yourself or order it at a restaurant. Seaborn guarantees this through its quality control.

Norwegian fjord trout – The sharp red colour and white marbling in the fish makes the trout both a taste experience and a delight for the eye at any well-stocked table. As with salmon, Norwegian fjord trout is sought after by international master chefs and in private homes alike.

White fish – both wild fish and farmed fish – can be delivered all year round. Sales

of wild-caught fish – such as cod, saithe, redfish, monkfish and halibut – follow the fishing seasons for these species.

Value Chain

Seaborn AS ensures that its customers receive the best fish possible. The company is no industry giant, and doesn't wish to be, either. Seaborn's personal relationship with its customers is its guarantee that the customer is satisfied. Its system for traceability and certificate of quality gives every opportunity to control each link of the value chain, and to ensure the high quality of its customers' fish.

– A totally integrated seafood company
– Supplying Atlantic Salmon, Salmon Trout and whitefish all over the world.

Pure nature
real people
high quality



Skei Marinfisk ASA

SKEI MARINFISK ASA
NO-7994 Leka, Norway
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E-mail: post@lekatorsk.no • Website: www.lekatorsk.no

Founded in 1997, Skei Marinfisk ASA is one of the largest cod farming companies in Norway. The company's farmed cod, which is of the absolute highest quality, is currently exported to the French, German, English and Belgian markets through Norway Cod AS. Norway Cod AS is a subsidiary of Skei Marinfisk ASA. Skei Marinfisk ASA is the operating company that holds the farming licences, while Norway Cod AS is the company responsible for the marketing and sales of the products. Skei's cod biomass is increasing every year. As of the beginning of 2007, the company had ca. 1,000,000 cod in cages. The company has licences to produce 8,320 tonnes of cod currently, with a planned increase to 19,760 tonnes.

Vision

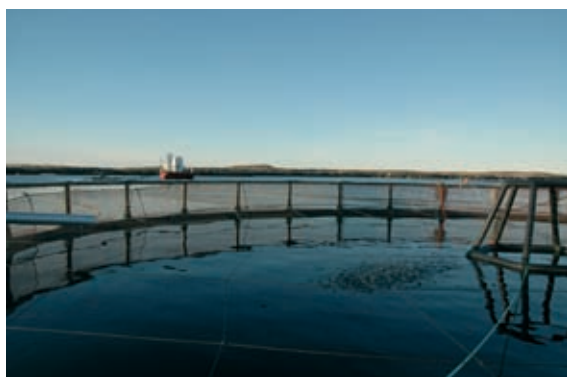
Skei Marinfisk ASA's company vision is as follows:

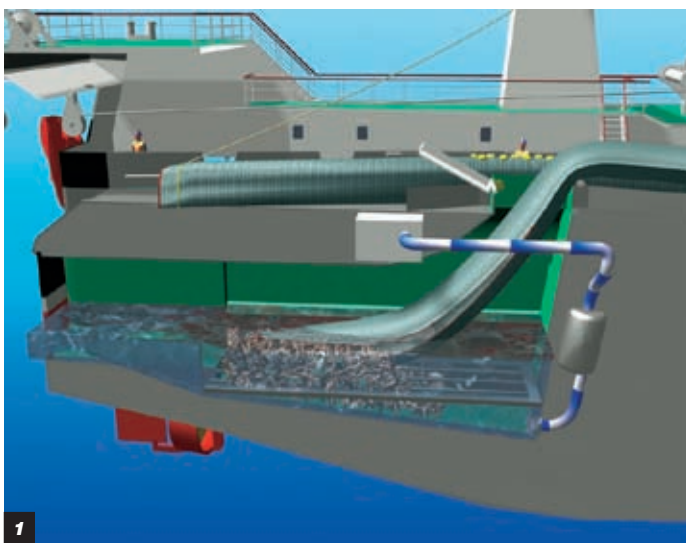
- The company will remain one of Norway's leading players in seafood farming and of significance on an international scale
- Establish new and profitable employment in a company that gives good returns to its investors

Goals

Skei Marinfisk ASA's goals include:

- To be amongst the world's most proficient fish farmers
- Obtaining new licences for the farming of cod
- Obtaining good, long-term deals for the purchase of fish feed and the sale of feed fish
- Working goal-oriented in order to optimize production (locales, equipment and feeding regimes)
- Developing control routines for the assessment of the company in cooperation with research institutions
- Working to increase its access to desired competence, fry and marketing channels





SINTEF FISHERIES AND AQUACULTURE
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 E-mail: fish@sintef.no • Website: www.sintef.no

SINTEF Fisheries and Aquaculture is an independent institute within the SINTEF Group of Norway, one of Europe’s largest contract research organizations. Although established in 1999, the institute has 30 years of experience in fishery and aquaculture technology. SINTEF Fisheries and Aquaculture has knowledge and broad competence in the utilization of renewable marine resources. The institute contributes to solutions along the whole value chain – from biological and marine production, aquaculture and fisheries to processing and distribution. SINTEF has technological competence and user-oriented knowledge. Its products and services are based on advanced laboratory facilities, software and high-level competence.

SINTEF Fisheries and Aquaculture has approximately 100 experienced employees and operates in close cooperation with the Norwegian University of Science and Technology (NTNU). The institute also performs contract work for private industry.

Fisheries Technology

The Fisheries Technology department participates in the development of an innovative and sustainable fishing fleet for an optimal and profitable utilization of marine resources. This implies the development of efficient fishing methods and a total utilization of the catch.

Areas of Expertise

- New vessel concepts
- Machinery and equipment
- Energy utilization and environmental measures in the fishing fleet
- Safety and work environment
- Information and communication technology
- Fishing equipment design, control and handling
- Onboard catch handling

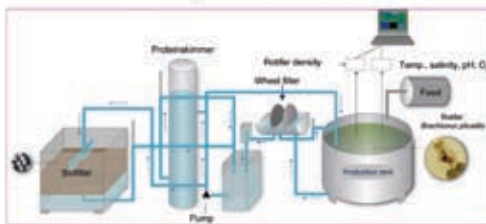
The Flume Tank

In Hirtshals, Denmark, the department operates a 30-metre-long, 8-metre-wide model tank with water flow up to 1 m/s. The tank is equipped with an artificial seabed of conveyer belt type. Activities in the flume tank include:

- Testing of fishing gear
- Training and courses
- Research projects
- Testing other equipment

1. New vessel concept for quality handling of the catch.

Cost effective production of rotifers.



- Semicontinuous production for 65 days
- Recirculation of water
- Automatically washing of production tank
- Harvesting: 1 billion rotifer per day

Contact: Gunnvor.Ole@sintef.no

2. Cost effective production of rotifers.



Aquaculture Technology

The Aquaculture Technology department performs research projects through the entire farmed fish value chain, from fish fry to slaughtering. Its competence consists of technologists and biologists with considerable practical experience.

Areas of Expertise

- Aquaculture constructions
- Operation and management
- Logistics, traceability and transport
- Aquaculture systems on land

Processing Technology

The Processing Technology department conducts technology-based research and development for the fish processing industry. It focuses upon developing optimal processes with a higher level of automatization in order to achieve more profitability in the processing of marine products.

Areas of Expertise

- Knowledge of process and technology
- Chemical engineering
- Mechanical engineering
- Measuring technique
- Marine biomass knowledge
- Product quality analysis methods

SINTEF SeaLab – A Unique Base for Technology

In August 2005, SINTEF established a brand new facility in which the majority of its marine water-related activities are located. This is the SINTEF SeaLab – a large facility located by the harbour in the centre of Trondheim. SINTEF SeaLab comprises some 6,000 m² of exposure facilities and laboratories. The laboratories include a modern pilot plant for processing technology.

3. The SINTEF SeaLab.

4. Concept for fully automated fish processing plant.



Marine Resources Technology

The Marine Resources Technology department performs research projects for the utilization of marine resources. The department has expertise for carrying out projects in marine first feeding technology, marine biotechnology, marine feed technology, integrated aquaculture, ocean circulation and computer modelling of marine ecosystems.

Areas of Expertise

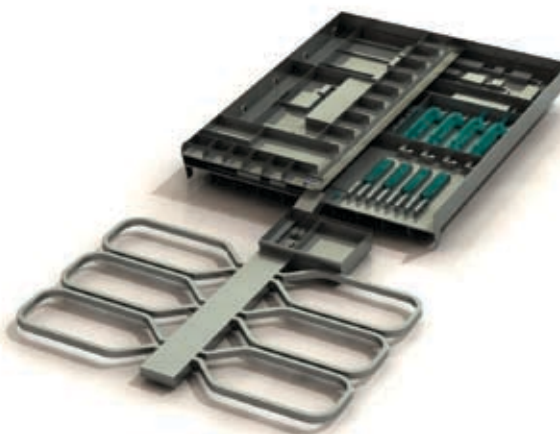
- Live feed, first feeding technology
- Microbial control
- Water treatment
- Microalgae
- Probiotic bacteria, immunostimulants
- Seaweeds
- Mussels
- Computer modelling and marine cybernetics

International Projects & Consulting

By combining the competence of the researchers and the experience and competence of the consulting group, both in Norway and internationally, the International Projects and Consulting department carries out services suited to the specific needs of its customers. The purpose of the department is also to coordinate the international work at the institute and further improve the dissemination of the fishery and aquaculture expertise in SINTEF to the industry.

Areas of Expertise

- Strategy and business development
- Reviews and analyses
- Environmental advisory services
- Project development and management
- Aquaculture in developing countries





STORVIK

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Storvik AS supplies equipment for environmental monitoring, feeding systems, underwater cameras and biomass estimation worldwide. The company also does fabrication and engineering for machine and electrical instrumentation. It supplies services, products and projects for the aluminium industry and other process industries. Storvik's headquarters is in Sunndalsøra, Norway. The company's subsidiary, Storvik SA, is located in Puerto Montt, Chile, and it is a co-owner in Protech in Sunndalsøra, Storvik s.r.o. and V&S Products in Prague, Czech Republic. The aquaculture department also has an office in Scotland. Storvik has over 100 employees and in 2006 the turnover was NOK 163 million.

Storvik AS's aquaculture department's main products include:

Environmental Logging Station

This product is a completely automatic logger of environmental parameters, such as oxygen, saturation, salinity, temperature, sea current and wind. Optical oxygen sensors are used to ensure the most maintenance-free operation possible. There is an automatic transfer and presentation on Storvik's website. This can also be combined with equipment for oxygen adding (see Netox® below).

Feeding Dispensers

- **Appetite-driven Feeding System** – This system features the automatic feeding of fish according to its appetite, as well as the collection and the recirculation of uneaten food. This increases growth, improves the economical use of the feed and the environmental situation under the net cages. The system is delivered with several silo variants. It can be fixed on rafts by the net cage, on a steel foundation or as its own raft. It has a capacity from 1,000 to 14,000 kilograms.

- **Underwater Feeding System** – This includes equipment for the automatic control of feeding with a submerged feeding point. It is adapted to underwater net cage systems or ordinary ones. The feeding point is adjustable.
- **Poro** – Storvik also supplies traditional feeding systems for surface feeding from Poro. The capacity is 1,000 to 5,000 litres.

Submersible Cameras

The company supplies remote-controlled cameras for underwater surveillance of production, biomass and installation. It also includes wireless transfer.

Netox® – Oxygen Adding in Net Cages & Ponds

This includes a network of diffuser hoses for use in net cages and ponds, such as in production or harvest. The oxygen level can be regulated automatically through a signal from an oxygen sensor and a preset point.

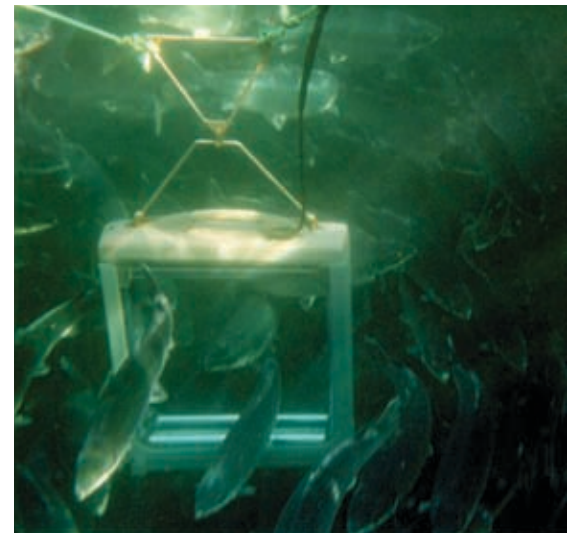
Biomass Estimators

The fish's biomass is estimated as it swims through a measuring frame. This is done completely automatically without handling the

fish. It can be used on several species, such as salmon, trout, cod, halibut, sea bass, sea bream and yellow tail. It can be monitored and serviced via a water-tight pocket PC with specially developed software. A course and follow-up training is offered on several levels.

Equipment for Hatcheries

Hatchery equipment includes a GasX Oxygen Diffuser, a Storvik Feeding Robot, a Disc Feeder and Poro Feeder.





WEST FISH NORWEGIAN SALMON AS
PO Box 1116 • NO-6001 Ålesund, Norway
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West Fish Norwegian Salmon AS is located in the heart of Ålesund, the fishing capital of Norway, and promotes a broad range of seafood products under the trade name Silver Premium Seafood. The company takes pride in its reliable and extensive network of top Norwegian aquaculture farms and fish reception sites. This guarantees access to the best supply of raw materials from one of the world's leading fishing nations.

Silver Premium Seafood™

The raw produce originates either exclusively from top aquaculture installations along the Norwegian coastline or is caught out at sea. White and pelagic fish are principally caught in the North Atlantic Ocean, North Sea, Arctic Ocean and Barents Sea, and are delivered fresh or "sea-processed" to modern fishery installations along the Norwegian coast. West Fish Norwegian Salmon AS has close links to a number of selected aquaculture installations that ensure that its salmon and trout is consistent with customers' specifications.

Quality Control from Catch to Consumption

Having control over the entire value chain – from the moment a fish is caught to the moment it is served on a consumer's plate – is a vital focal point for the company and permits it to guarantee quality. Well-organized transportation and shipping are also crucial factors. The company's forwarding agents meet industry standards and ensure that they keep up to date with logistics technology. The progress of consignments is closely monitored

to assure quality every step of the way until confirmation is received that the consignments have arrived safely at their ultimate destination.



Foto: Herald M. Valderhaug



EIMSKIP-CTG

EIMSKIP-CTG AS

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Other offices:
 Fredrikstad • Tromsø • Ålesund • Murmansk

E-mail: market@eimskip.no • **Website:** www.eimskip.no

Providing a total logistics solution, Eimskip-CTG puts its customers in touch with a long-established worldwide network where quality storage and transport facilities are guaranteed. The company's mission is to be the supplier of choice for internationally competitive, high-quality transportation and logistic services with a focus on the company's home market in the North Atlantic and other markets where viable.

Reefer Vessels

Eimskip-CTG operates a fleet of reefer vessels and provides flexible and comprehensive service. With direct port-to-port transport of full or part loads of chilled or frozen consignments, Eimskip-CTG connects Scandinavia/Europe to the North Atlantic, Russia, Poland and the Baltic.

Reefer Forwarding

Eimskip-CTG is part of a worldwide transportation network for chilled and frozen fish. Providing comprehensive door-to-door logistics solutions, Eimskip-CTG connects continents quickly and efficiently through its contacts worldwide.

Coldstores

Eimskip-CTG operates coldstores in Kirkenes, Hammerfest, Tromsø, Sortland and Aalesund. The company is a partner in a worldwide coldstore network in which discharging, online inventory, tallying, agency, etc. are all a part of a day's work as well as making connections to worldwide transport modes.

Dry Cargo

Eimskip-CTG offers regular and flexible service for dry cargo from ports in Europe to Norway, as well as transport along the Norwegian coast. By using Eimskip's container vessels,

calling at Fredrikstad weekly, together with its reefer vessels, the company is able to find the best solutions for its customers.

Documentation

Eimskip CTG's highly qualified personnel offer their services in issuing all kinds of export and import documents.

Eimskip-CTG's Reefer Liner Service Covers

- Norway/UK/The Netherlands route weekly
- Norway/Murmansk route
- Norway/UK/North America route fortnightly
- Coastal route twice a week

Eimskip-CTG's Spot Service

The main focus of Eimskip-CTG's spot service is on transport to and from Scandinavian/European ports and ports in Russia, Poland and the Baltic. The company also operates in other parts of the North Atlantic.





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Nor Lines is one of the major operators in transport along Europe's northern coastlines, and is responsible for all cargo transport by Hurtigruten, the Norwegian coastal express service. The company's unique transport system includes sea transport along the entire Norwegian coast, Scandinavia and the Baltic Sea (Baltic Line). Through its part-ownership of and cooperation with Sea-Cargo, Nor Lines offer sea transport across the North Sea to Holland, England and Scotland. The company also has a road transport network which combines with the Hurtigruten to reach northern Norway.

Competitive Advantage

Nor Lines has a long tradition of goods transport by sea. In this sector the company has built up a route network both in Norway and on the continent, putting Nor Lines in a class of its own. As a comprehensive supplier of transport services, Nor Lines has 10 regional offices in Norway, in addition to more than 50 domestic and northern European agents. The company has approximately 150 employees and a gross freight turnover of over NOK 700 million. By combining the most unique solutions by sea and land into an extensive transport system, Nor Lines provides a distinct competitive advantage to its customers.

With weekly departures from the entire Norwegian coast to Hirtshals, Cuxhaven, Eemshaven and Immingham, UK, Nor Lines can offer flexible and predictable solutions in combination with road transport across Europe. The company also offers transport of frozen/chilled containers from all over Norway and Europe to the rest of the world in close cooperation with a number of worldwide shipping companies and agents.



Fish Transport

Nor Lines AS's division in Ålesund is the company's competence centre for fish and seafood shipping domestically and internationally, and is responsible for all of the booking of fish transport in the system. Knowledgeable employees manage and coordinate all of the chilled and frozen cargo that is shipped with the Hurtigruten coastal express service, reefer vessels and thermo trucks.





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PNL is the Nordic region's leading logistics company in the parcel market. Owned by the Danish and Norwegian postal companies, PNL offers unique solutions to businesses with transport requirements for parcels and pallets to, from and within the Nordic region.

Logistics in the Nordic Region

As companies are internationalized, the ability of logistics suppliers to handle international flows becomes increasingly important. PNL's base is in the Nordic region, but thanks to a comprehensive network and international partnerships, the company reaches businesses and individuals in 190 countries throughout the world. The company cooperates closely with postal companies in Estonia, Finland, the Faeroe Islands, Greenland, Iceland, Poland and Sweden. PNL was established in 1997 and currently has 160 employees in Denmark, Finland, Norway and Sweden, where the head office is located. During 2005, turnover exceeded SEK 1.1 billion.



CarryOn from Europe

PNL's solutions are called CarryOn and are characterized by huge flexibility. By always starting with customers' needs and using these to create physical and electronic products and services, PNL does not just deliver shipments, but also security and additional value. The solutions are easy to use, reliable and cost efficient, with tracking to 55 countries. For companies that import shipments from Europe to the Nordic countries, PNL offers specialized logistics import solutions.

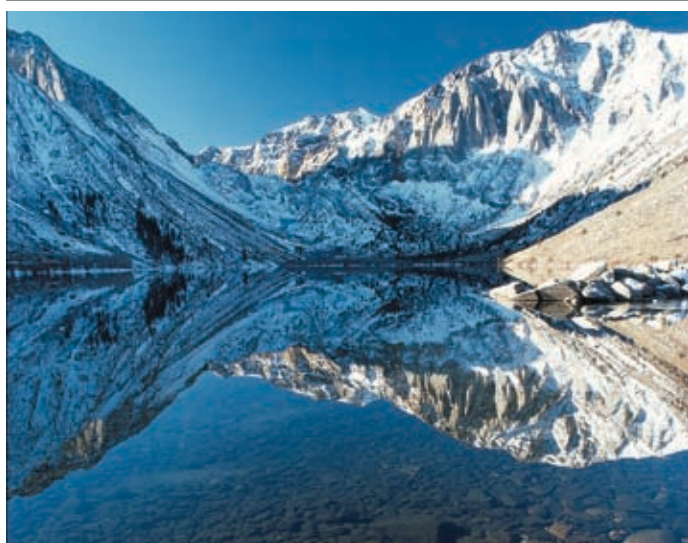


PNL's import operations have increased since its establishment in 2002. Sales have increased four-fold and several international companies have been added to the list of customers. In that many international companies have their central warehouses in Germany, Belgium and the Netherlands, the need for logistics solutions from Europe to the Nordic region has increased. At present, a number of PNL's linehaul vehicles depart daily from various parts of Europe to the Nordic countries.

PNL is currently working to strengthen and develop its position in relation to its European import customers. Consequently, an office was opened in Venlo in the Netherlands in 2005.

For more information, please visit PNL's website (pannordic.com) or send an e-mail to import@pannordic.com.





PRICEWATERHOUSECOOPERS

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PricewaterhouseCoopers provides industry-focused assurance, tax, legal and advisory services to build public trust and enhance value for its clients and their stakeholders. More than 142,000 people in 149 countries across the company's network share its thinking, experience and solutions to develop fresh perspectives and practical advice. In Norway, PricewaterhouseCoopers has more than 1,000 professionals and 18 offices, making it one of the country's largest professional service providers.

The Seafood Industry Centre

The seafood industry is becoming globally integrated. This transformation has its corresponding challenges in economic as well as legal terms. To give a response to these challenges and to comply with the regulatory environment PricewaterhouseCoopers has established a centre of competence dedicated to the needs of the fishery, fish farming, fish commerce and fish processing sector in its Bergen practise.

Financial Services

- Restructuring and transactions
- Due diligence
- Mergers and acquisitions
- Valuation
- Initial Public Offering (IPO)

Legal

- Competition legislation and its relation to the fisheries and fish farming sector
- Establishment of activity on Norwegian territory
- Establishment of industry abroad
- General legal representation in Norway for foreign companies
- Trade restrictive measures in the fisheries sector
- Tax questions in general, and related to transfer pricing and restructuring specifically
- Questions related to the EEA agreement and its influence on the seafood sector
- Value added tax questions

Business Advisory Services

- Strategic analysis and strategy processes facilitation
- Process simulation and performance improvement
- Post-merger integration
- Financial management and corporate governance
- Cost of production analysis
- IT effectiveness
- Crisis management

Assurance

PricewaterhouseCoopers' assurance capacity is the company's "senior service." It is global and well-established, and enjoys a reputation of integrity.

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Skandinavisk Transport System AS (STS) is one of the largest independent and privately owned freight forwarding companies in Norway. Since it was established in 1980 the company has developed and become an international operator with offices in Trondheim in Norway, Stockholm and Malmö in Sweden, Copenhagen and Aarhus in Denmark and London and Hull in the UK. STS's head office in Norway is located in Lillestrøm near Oslo. At this location there are 65 employees and a terminal with more than 12,000m².

STS – A Total Logistics Provider

Through combined infrastructure and core expertise in the STS Logistics group of companies, together with their agents and partners, the company ensures economies of scale and efficiency in all of its work. In addition it develops, produces and provides cost-efficient solutions for the benefit for its customers.

STS offers a wide range of logistics solutions with a personal touch. Information and communication are key words in its daily work. The company's employees are

committed to providing the required service no matter if the job is a small domestic delivery or a large global project. Through doing this STS's aim is always to meet its customers' expectations.

STS's Company Values

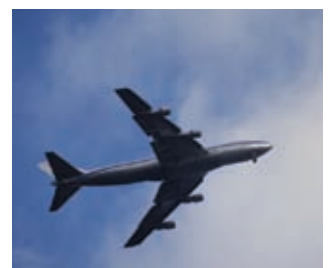
STS's company values are:

- Creativity
- Involvement
- Responsibility
- Personal commitment

Products

STS's products include:

- **STS ScandiCargo** – An intra-Scandinavian solution
- **STS ScandiPack** – Parcels sent with defined delivery times
- **STS EuroCargo** – A transport solution from/to the continent or the UK
- **STS AirFreight** – A transport solution covering the whole world for everything from small packages to large shipments
- **STS OceanFreight** – A sea transport solution covering the whole world for everything from general cargo to full container and project loads
- **STS SpecialLogistics** – A logistics solution for heavy and special goods
- **STS 3PartyLogistics** – A standard or customized logistics solution
- **STS MarineLogistics** – A total logistics solutions for ship's spares





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Tollpost Globe AS was established in 1926 and is one of the oldest privately owned transport companies in Norway. With a turnover of approximately NOK 2.1 billion, 940 employees, 700 drivers and a full-range service profile, the company is among the leading transport and logistics suppliers in Norway. The company's main office is located in Oslo. Fifty percent of Tollpost Globe is owned by DSV AS in Denmark and 50% is owned by Posten AB in Sweden.

International Owners & Network

Tollpost Globe AS operates a nationwide distribution network for parcels and groupage. This network comprises a total of 29 departments. In addition, the company operates full and part loads in Norway. Through its collaboration with DPD Direct Parcel Distribution, the company is connected to a Nordic and international network for the distribution of parcels. This structure makes Tollpost Globe one of the leading distributors in the Nordic region.

Quality & Development

Tollpost Globe's aim is to be the primary and most profitable logistics partner of the business sector, with future-oriented solutions that create competitive advantages for its customers. This is exemplified through the continuous development of IT and EDI solutions during the last 15 years, which makes the company one of the leading companies in Europe in this area. This technological edge helps Tollpost Globe continue to be a quality supplier in its field, further underscored by its ISO 9001 certification. The company also has ISO 1400 environmental certification. Tollpost Globe uses the railway extensively wherever this is possible.

Tollpost Termo

Tollpost Termo is the company's solution for the transportation of temperature-sensitive goods. Tollpost Globe specializes in full-load transport through the use of containers by railway (due to environmental concerns) and boat (the company has its own boat in northern Norway). The company also utilizes road transport when required. The majority of the goods transport goes from the Norwegian coast to Tollpost Globe's own transshipment terminal in Oslo for further transport to the Nordic countries, Europe and overseas destinations. The transport for the most part takes place under the company's own direction or in cooperation with reputable partners/shipowners.



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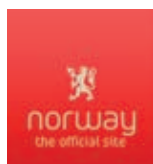
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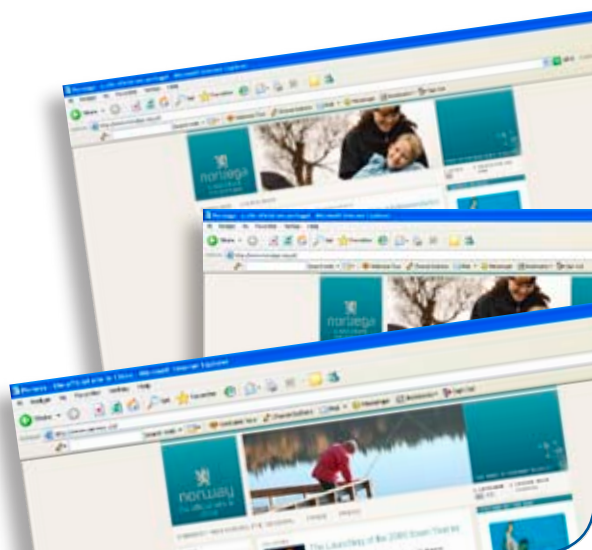
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