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# Denmark

Reaping the benefits of transferable quotas



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Danish fleet now in balance

## Transferable rights system removes fleet overcapacity

The biggest exporter of fish and seafood in the European Union (2006) Denmark is facing a number of challenges as costs increase, earnings decline, and profitability in a large part of the processing sector falls. The economic crisis has also hit the export sector as traditional markets have collapsed and in addition the financial crisis has made it difficult to get an export credit insurance, which has affected Danish seafood exports in particular to markets in Eastern Europe.

The Danish fisheries sector has seen a number of significant changes over the last few years. In 2003 transferable fishing rights in the form of Individual Transferable Quotas (ITQ) were introduced into the pelagic sector and in 2007 the demersal fleet obtained vessel

quota shares (VQS). The changes were introduced as a way of returning the fleet to profitability as well as of reducing the degree of centralised control of the individual fisher, giving vessel owners greater freedom to plan and manage their companies. It had become clear that the existing system of rationed fisheries was not working. Under this regime vessels with access to a certain fishery would know each month how many tonnes they could fish the following month. This figure, however, could be adjusted from month to month making planning even for the medium term highly In 2003 transferable fishing rights in the form of Individual Transferable Quotas (ITQ) were introduced into the pelagic sector and in 2007 the demersal fleet obtained vessel quota shares (VQS).

unreliable. With an overcapacity of 30% and the fleets suffering from a lack of profitability a new structure was really the only way forward.

## ITQ addresses several issues at once

Various working groups were constituted to look at different solutions, but ultimately it was the politicians who were convinced of the merits of a rights-based system. Among the architects of the new system was Mogens Schou, now the Minister's advisor on fisheries and aquaculture, who felt that the ITQ system was a tool to achieve several objectives at once. It could return the fleet to profitability, balance the capacity with catch opportunities,



leave room to promote social policies, and above all, contribute to a more sustainable fishery by reducing discards. But to get the support needed to implement the system, says Mr Schou, the discussion on ITQs had to "move from the chambers of the economists to the desks of the politicians." A series of meetings



Mogens Schou, Minister's advisor on fisheries and aquaculture, was among the architects of the new system of transferable rights in the Danish fisheries.

followed around the country between the fishermen's organisations and the minister of fisheries at the time, Hans Christian Schmidt. From these meetings it was apparent that among the fishermen who were competent fishers and good business men there was support for the proposal. Feedback from the meetings was incorporated into the ITQ proposal and then a further round of meetings was held, before the proposal was discussed with the other political parties in parliament. The problem was that many, not knowing the consequences of the new system, were sceptical about the benefits of an ITQ system. Ultimately, however, the governing parties with a narrow support in parliament agreed on the necessary political scheme

#### Danish exports to the world

	2008	2007	2006	2005	2004	
Values (DKK thousand)	17469022	18677502	19497284	17910560	16467039	
Volumes (tonnes)	938966	980976	1078537	1044159	1055415	
				Source: Fisheries Directorate		

#### **Danish exports to the EU**

	2008	2007	2006	2005	2004
Values (DKK thousand)	13215495	14568966	15400077	14036854	13017859
Volumes (tonnes)	639323	659316	724959	690852	70477

Source: Fisheries Directorate,

to carry the new management paradigm through.

With the new regulations vessel owners could also better adjust their fishing activity to the type of vessel and the catching methods. The idea behind the new regulations was also to increase the added value of the fishery as well as its sustainability, primarily by reducing fish discards. Each vessel that subscribes to the new regulations will be allocated a vessel quota share that release an annual volume from the total quota allocated to Denmark from EU. Vessel quota shares were allocated based on each vessel's historic catches in 2003, 2004 and 2005. The catches were weighted differently in the calculation with catches in 2005 carrying the most weight at 50%, while those in 2004 and 2003 were weighted at 30% and 20% respectively. This was the easy part, says Mogens Schou, the idea was simple and easy to understand and could be applied to most vessels. The idea behind this distribution was to ensure that the most active vessels would benefit the most. But finding a solution in other "nontypical" cases, such as if the fisher had been ill for an extended period, or had damaged his vessel, or had bought another vessel with a poor catch history, was more complex. To make the vessel quota share system as flexible as possible fishers can exchange



Since October 2008 and until the end of March 2009 Danish export of fish and fish products have fallen by approximately 28%.



#### Production values by species in million kroner

	2004	2005	2006	2007	2008
Salmonids	1679	1162	1213	1311	1955
Cods	1296	1246	1489	1434	1349
Shrimps	1155	909	905	757	650
Herring	766	886	926	845	862
Flat fish	119	94	81	97	91
Mackerel	404	466	496	441	467
Mussels	229	193	174	113	93
Other	1049	1155	1250	1098	1553
Consumption fish total	6697	6111	6535	6095	7020
Industrial fish	1813	1749	2410	1952	2058
Total	8510	7860	8945	8048	9079

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

#### Production of the most significant species in tonnes

	2004	2005	2006	2007	2008
Salmonids	27742	18479	16735	17958	36430
Cods	38757	37036	41446	37103	35346
Shrimps	23825	17351	18722	13981	13571
Herring	63912	72905	71521	60817	65789
Flat fish	1777	1364	1097	1170	1124
Mackerel	14998	16567	15143	13704	14068
Mussels	8543	8527	7210	5401	4399
Other	36093	38156	51246	36261	48761
Consumption fish total	215646	210385	223118	186395	219489
Industrial fish	412638	389415	409281	314739	346460
Total	628284	599800	632399	501134	565949

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

catch volumes between vessels within each quota year.

#### Fish fund to assist newly starting fishermen

The allocation scheme also included an incentive for coastal fishermen. Vessels that chose to enter the coastal fishery had to be less than 17 m and 80% of their fishing trips could not be longer than 3 days. Coastal vessels could buy quota shares from any vessels that were registered under the Vessel Quota Share regulations, but can only sell quota shares to other coastal vessels. Coastal vessels were also given an incentive in the form of an extra allocation of cod and sole from the annual TAC. Another part of the TAC was added to the fish fund which is used to help newly starting fishermen, by giving them a certain amount of help for the first 8 years.

Danish vessels are administered under three main headings: Individual transferable quotas; vessel quota shares; and vessels fishing with a licence. Vessels





administered under the VQS regulations are further subdivided into three groups: those with vessel quota shares; less active vessels; and other vessels. Vessels in the first subgroup, that is those with vessel quota shares, have to fulfil a minimum gross turnover requirement of DKK224,000 in 2004 or 2005 or an average of DKK205,000 in 2003-2005. In addition they should have landed fish that fall under the VQS regulation. Species that are included under this regulation are shown in Table 1. Less active vessels, the second subgroup, target fish under the VQS regulation, but do not meet the turnover requirements that would place them in the first subgroup. These are typically smaller vessels of less than 12 m in length. Finally the third subgroup, other vessels, does not meet the requirement of catches of species under the VOS regulation. These vessels are typically very small.

The system works by allowing the transfer of VQS between vessels. This will enable the VQS to be concentrated on the most efficient vessel(s). Originally when the

#### Production by product form in tonnes

2004	2005	2006	2007	2008
39705	42449	52581	28615	43023
20824	18100	14126	12218	14297
29375	22974	26367	24707	28578
125627	126862	130044	120855	133591
215531	210385	223118	186395	219489
412638	389415	409281	314739	346460
628169	599800	632399	501134	565949
	39705 20824 29375 125627 215531 412638	39705 42449   20824 18100   29375 22974   125627 126862   215531 210385   412638 389415	39705 42449 52581   20824 18100 14126   29375 22974 26367   125627 126862 130044   215531 210385 223118   412638 389415 409281	39705 42449 52581 28615   20824 18100 14126 12218   29375 22974 26367 24707   125627 126862 130044 120855   215531 210385 223118 186395   412638 389415 409281 314739

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

#### Production by category in tonnes

	2004	2005	2006	2007	2008
Cod and flatfish	52629	51396	72711	46396	40157
Herring and mackerel	67939	68134	68139	58220	65897
Shrimp and mussels	21855	21126	20616	12390	15084
Salmonids	22987	17968	30408	28087	54721
Mixed processing	52557	54121	33807	43552	54159
Consumption fish total	217968	212746	225680	188645	230019
Fishmeal factories	410316	387054	406719	312489	335930
Total	628284	599800	632399	501134	565949

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

#### Production values by product form in million kroner

	2004	2005	2006	2007	2008
Fresh fillets	854	807	893	650	1055
Frozen fillets	626	420	330	291	286
Smoked, salted dried	1522	1269	1526	1557	1695
Prepared, conserved	3695	3614	3786	3597	3985
Consumption fish total	6697	6111	6535	6095	7020
Fishmeal and oil	1813	1749	2410	1952	2058
Total	8510	7860	8945	8048	9079

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The financial and economic crises have had an impact on fish processors who have been badly affected by the lack of export credit insurance.

VQS was shifted from one vessel to another, the donor vessel, now without a VQS, could not be sold for a period of two years from the date of the transfer of the VQS. As of 2009 this requirement no longer exists. The donor vessel participates in quota fisheries outside the VQS system or in other fisheries. Vessels that have transferred their shares cannot re-enter the system without buying shares from another vessel, thereby reducing the overall fleet capacity.

### Fishing in pools increases flexibility

The ability to join pools was introduced in 2007. This allowed vessel owners within a pool to use each others catching rights. This was intended to increase flexibility with reference to catch composition as well as to facilitate the administration of quota exchanges. Vessels in a pool can optimise their common fishing opportunities. Since the introduction of the concept some 68% of the VQS vessels and over 80% of the annual quotas of species fished under the VQS regulation are attached to pools. The flexibility enables vessels that fish more than there quota share of a certain species to rent the necessary quota over the phone. Bringing all the fish into land and registering it also allows scientists to make more accurate predictions about the stock. In addition to the other advantages of the new system it has also resulted in fishers being able to access finance more readily now that they can show a vessel quota share that is allocated to their vessel. The government has also declared that the VQS regulation has an eight-year notice period if it is to be rescinded. This delivers a strong signal that the regulation is for the long-term and that fishers can plan their investments and their strategies without needing to be concerned that their quotas will suddenly be seized. The new regulation on vessel quota shares was accompanied by a new decommissioning proposal for 2006. The objective of the decommissioning was to make it possible for vessels not wanting to enter into the new system to leave the fishery. Selling the rights to other fishermen became more popular however, and the budget was only partly used.

#### Overcapacity removed without using public funds

In a paper from the Ministry of Food, Agriculture and Fisheries, which was presented to the European Parliament's Committee of Fisheries at a hearing in February 2009, the benefits of the new regulation were laid out. In the two years that it has been in force the Danish over-capacity of 30% in the demersal fleet has vanished without the use of public funds for

#### Number of firms in the different categories

	2004	2005	2006
Cod and flatfish	12	11	14
Herring and mackerel	17	17	17
Shrimp and mussels	11	13	11
Salmonids	51	51	52
Mixed processing	22	28	25
Consumption fish total	113	120	119
Fishmeal and oil	7	6	5
Total	120	126	124

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

## Species covered by the vessel quota share regulation

All areas	North Sea	Baltic Sea	Norwegian waters	Industrial vessels
Cod	Hake	Herring	Monkfish	Sprat
Saithe	Turbot			
Haddock				
Dover sole				
Plaice				
Shrimp				
Nephrops				

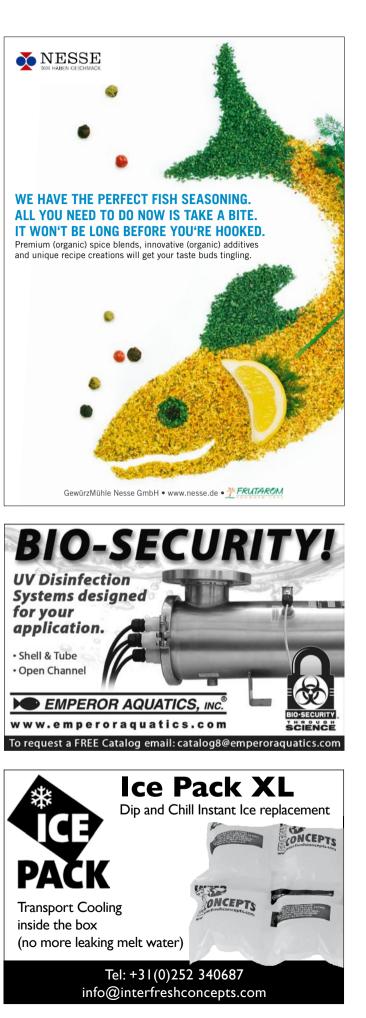
Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

decommissioning. The fisheries are earning money and fishermen are thinking in terms of increasing value rather than volume, they are investing in the business, and new generations of fishers are joining the trade. The fleet is in balance having already reached the minimum number of vessels needed to catch the Danish quotas. Earnings, taking into account falling fish prices, increasing fuel prices, and the financial and economic crises. are acceptable and the fishermen are overwhelmingly in favour of the new system.

#### Danish response to CFP Green Paper: The optional second management track

Having reformed the national fisheries policy Denmark is heavily engaged in the revision of the Common Fisheries Policy. The government has been conducting trials on what is termed an optional second management track within the CFP. This is a part of the Danish response to the Green Paper on the Common Fisheries Policy that was launched by the Commission. The second management track is based on an incentive based management where the incentive is higher quotas for the fisher while the string attached to it is that everything that is caught is registered and counted against their quota. The aim with the second management track is to give fishers a catch quota rather than a landings quota. With the latter the fisher will always try and optimise the value of his landings by discarding, while with a catch quota the fisher will become more selective not only with respect to the gear but also to fishing areas, seasons, times etc. because it does not pay to catch fish and then discard it if it is all counted against the quota. Signing up for the system is optional, however, if a fisher does sign up for it then the onus for documenting the catches lie with him. And the way to do it is with technology. Using a combination of high resolution cameras, sensors, and hard drives all on board activities can be documented. This, in fact, is also increasingly being demanded by the market. The processing industry and retailers are implementing traceability systems that can document the entire history of a product and the data generated by the second management track would be able to feed into these systems.

The idea therefore, says Mogens Schou, is that the second management track would align itself with what is demanded on the market making the incentive for fishers to participate in the system very strong. Six vessels all equipped with cameras and sensors have participated in the trial with the second







With the new regulations vessel owners could also better adjust their fishing activity to the type of vessel and the catching methods.

management track. The Danish Technical University will publish the results at the end of August and the government has invited EU ministers to discuss the perspectives at a conference to be held on 8 October. The Danish government believe the catch quota approach to have a universal relevance and a number of working papers and the conference programme are open to the public at www.fvm.dk/yieldoffish

#### MSC certification for all Danish fisheries soon

The Danish fisheries sector has recently made a big push into getting their fisheries certified by the Marine Stewardship Council. Interest in the certification is apparent both from the pelagic and the demersal sector. The Danish Pelagic Producers' Organisation's North Sea herring fishery was certified just recently and the Atlanto-Scandian herring and eries are in the final phases of the assessment. In the case of the demersal species, the aim is straightforward: all Danish commercial fisheries where the Danish Fishermen's Producer Organisation (DFPO) has the power to meet the requirements of the MSC standard will be certified by 2012. Already the certification is ongoing for three fisheries. In the case of deepwater shrimp in the Skagerrak and the Norwegian trench, the certification process was at the behest of a private processing company Launis, while for mussels in the Limfjord, it was another processor Vilsund that initiated the certification, finally the North Sea brown shrimp fishery, which Denmark shares with the Netherlands and Germany, was initiated in the Netherlands, but is now being run in collaboration between the Danish Fishermen's PO and the seven Dutch PO's.

North East Atlantic mackerel fish-

All the other fifty or so Danish demersal fisheries will undergo preassessments simultaneous to see if they qualify to enter the full assessment. Already saithe (all stocks and all gears), plaice (North Sea stock) and Baltic Sea cod (Eastern Baltic cod stock) have been selected as the first species to work with and are shortly expected to enter the full assessment. The other species including flatfish, white fish, crustaceans and species used for fishmeal and -oil will simultaneously enter the preassessment process to determine the order in which they will enter full assessment. The preassessment will reveal the kind of problems a stock may be facing. These could either be natural factors over which the fishers have little or no control, or there could be areas where the fishermen themselves can do much to improve the situation, for example, in terms of by catch or damage

to the seabed, or it could be that the knowledge about the stock is inadequate to make any predictions. The outcome of the preassessment will determine whether the stock will continue into the final assessment or whether some remedial actions are necessary before it can be assessed finally. The Danish Fishermen's Organisation is hoping to receive the necessary financial support to carry out the assessment process, as it is a deep rooted process which can take from one to three years to complete. In most cases however the certification should be completed within 9 to 12 months.

#### Fresh fish to southern Europe – a Danish speciality

The Danish case is slightly different from other nations' fisheries that have been certified to the MSC standard. Jonathan Broch



#### Percentage of main species used in production in the different categories of company

	Cod and flatfish	Mackerel	Herring	Shrimp and mussels	Salmonids	Industrial fish and fish waste	Other species and rest	Total
Cod and flatfish	72	0	0	2	1	0	24	100
Herring and mackerel	0	35	46	1	6	1	9	100
Shrimp and mussels	0	0	0	89	0	0	11	100
Salmonids	3	0	5	0	83	1	9	100
Mixed processing	19	1	10	8	19	0	45	100
Fishmeal and oil	0	0	0	0	0	100	0	100

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics

Jacobsen, a fisheries consultant with the Danish Fishermen's Association and the Danish Fishermen's Producers' Organisation, points out that while several of the large fisheries that have undergone MSC certification in the past, including Alaska pollock, New Zealand hoki, and South African hake, produce frozen fish for the market, the Danish demersal fishery specialises in supplying fresh fish to southern Europe. In contrast, the distribution of products carrying the MSC logo has been predominantly to markets in northern Europe, the USA and Japan. However, the increasing number of stocks that have been and continue to enter the certification process as the demand for the MSC label increases, made it imperative for the Danish fisheries sector to follow suit or to lose out to competitors. The fragmented nature of the Danish demersal fisheries where no single fishery dominates the production also led the DFPO to the conclusion that all the fisheries would have to be certified together. Already now, says Mr Jacobsen, one can see that for some fish, those with the MSC logo are slightly more expensive than the ones without. But more important than the premium is the fact that there are buyers who are refusing to purchase fish that does not carry the MSC label. Another reason



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# Sprat or Sardine filettingmachine

to go in for certification was that demand for fresh fish certified by the MSC is growing faster than demand for certified frozen fish. Since the Danish Fisheries sector specialises in fresh fish this will be an advantage. DFPO is therefore hoping that the certification will open new markets in Europe for their products.

#### Earning decline in processing sector

The Danish fish processing sector has seen significant consolidation over the last decade. In 2006 the number of workplace had declined to 154 employing 4,414 people compared with 254 work places employing 6,822 full time employees. Of the 124 processing firms that existed in 2006 119 were processing fish for human consumption while 5 produced fish meal. The Institute of Food and Resource Economics in their publication Economic Situation of the Danish Fishery 2009 categorises the processing industry in to six groups based on the species that are processed. These groups are: cod and flatfish; herring and mackerel; shrimp and mussels; salmonids; mixed processing; fishmeal and oil. This distribution can be justified by looking at the proportion of products that are based on the main species in these groups. As can be seen in Table 2 the raw materials used by companies will overwhelmingly belong to the main species of the group. For example in the case of the fishmeal and oil group the production is based entirely on industrial species, while in the case of the shrimps and mussels group the proportion of products based on shrimps and mussels is above 80%, and for the salmonid group it is the same. Production is also fairly specialised as can be seen in Table 3. Production in a certain group tends to be focused on a single

type of product, the shrimps and shellfish group manufactures only prepared and conserved products, which is also the case for the herring and mackerel group, though a small proportion of the production is also smoked, dried or salted.

As can be seen in Table 5 overall production of fish for human consumption in 2008 increased by 18% over 2007, but fell slightly short of the volume recorded in 2006. Salmonids showed a massive increase in 2008 compared to 2007 with more than double the tonnage produced, production of herring increased by over 8% and mackerel by somewhat less than 3%. Production of flat fish and cods was down by just under 4% and 5% respectively, but the biggest shortfall was seen in mussel production which declined by over 18%. Table 6 shows the production divided by product form. Compared to 2007 there was an increase in the manufacture of all product forms in 2008 with a 50% increase in the production of fresh fillets. In the other product categories the increase varied between 10% and 17% giving an increase in the production of consumption fish of 18%. However, over the entire period 2004 to 2008 the increase in the tonnage of consumption fish was a much more modest 2% with a big fall in the production of frozen fillets of 31%. Fishmeal and oil production also declined by 16%.



#### Significant increase in salmonids production

Dividing the production into the six different product categories as shown in Table 7 reveals that production in 2008 in almost all the categories was higher than in 2007, in some cases such as salmonids it was markedly higher, increasing by 95%. Production under the shrimps and mussels' category as well as the herring and mackerel category also showed significant increases of 22% and 13% respectively. Over the five-year period to 2008 production under the category cod and flatfish has shown a decline of 24%, while under the shrimps and mussels category production fell even further, by 31%. The pelagic fish category also registered

a slight decline in production of 3%. On the other hand, production of salmonids increased by a huge 138%. The Institute of Food and Resource Economics attribute the increased production of salmonid-based products to the increased supply while the fall in the production of cod, flatfish and shrimp is due to lower landings of these species. Some production has also moved to countries with lower processing costs.

Tables 8 and 9 show the production value in millions of Danish kroner by species and product form respectively. From 2007 to 2008 the value of consumption fish in total went up by 15% whiles the value of industrial fish increased by 5%. Over the five years to 2008 however the figures were reversed, con-

## Percentage of different types of products manufactured in the different categories

	Fresh fillets	Frozen fillets	Smoked, salted dried	Prepared, conserved	Total
Cod and flatfish	12	7	16	66	100
Herring and mackerel	2	1	6	91	100
Shrimp and mussels	0	0	0	100	100
Salmonids	27	3	60	10	100
Mixed processing	19	6	16	59	100
Fishmeal and oil	0	0	0	100	100

Source: Economic Situation of the Danish Fishery 2009, Institute of Food and Resource Economics



sumption fish increased by 5% and industrial fish by 14%. The gross revenue for the processing industry in 2006 at DKK12.8bn reflects a 14% increase over 2005 and a 9% increase over 2004. Operating costs however also increased to DKK11.29bn in 2006 from DKK9.42bn the previous year, an increase of 17%. Earnings in the sector, the difference between gross revenue and operating costs, were DKK1.2bn in 2006 down from DKK1.8bn in 2005 and DKK2.06bn in 2004. Fish factories The idea behind the new regulations was also to increase the added value of the fishery as well as its sustainability, primarily by reducing fish discards.

however showed an increase in earnings from DKK280m in 2005 to DKK345m in 2006 an increase of 23%. The net profit in the consumption fish sector in 2006 was -54 million kroner, a drop of 243 million kroner or 128% compared with 2005. The industrial fish sector increased its net profit by DKK98m to DKK147m thereby bringing the net profit for the whole industry to DKK93m a fall of 61% compared to 2005.

#### Lack of export credit insurance hits processors hard

The economic crisis will affect demand for fish and seafood due to lower purchasing power amongst consumers. Prices for many species of fish with the exception of salmon are falling with luxury products such as lobster particularly vulnerable. On the other hand the prices of cheaper products such as pelagic fish and trout may increase as consumers switch from more expensive species. For Danish processors exporting to countries that are particularly badly affected by the crisis, the financial crisis has resulted in another issue, namely the difficulty of finding export credit insurance. Russia, Eastern Europe and the UK are markets that have been particularly affected. Russia absorbed 4% of Danish fishery exports in 2007 valued at DKK717m. while EU countries in Eastern Europe took in 5% and the UK 8%. Christian Eskelund-Hansen, senior advisor at the Danish Seafood Association, an association which represents approximately 60 processing and trading companies, says that the lack of credit insurance is one of the biggest problems exporters are facing. Many of the association's members feel that private insurance companies have become much more risk averse. To aid the industry the Export Kredit Fond, a Danish state-owned institution, offers credit insurance where the private sector does not, but this is much more expensive than private insurance, says Mr Eskelund-Hansen. This may be one of the reasons fish processors have not shown much interest in applying for the insurance. Only a few fishing companies are using this new model, and the Danish Seafood Association attributes the lack of interest also to the restrictions in terms of countries covered. Exports of fish and seafood have certainly declined. Since October 2008 and until the end of March 2009 Danish exports of fish and fish products have fallen by approximately 28%.

Thus both traditional markets for Danish fish and seafood are experiencing a fall in demand, and exporting to new ones in Eastern Europe and Russia are blocked due to the lack of credit insurance. Taking the various factors into account the prognosis made by the Institute of Food and Resource Economics for the Danish fish processing industry in 2009 is somewhat bleak with profitability in all the six categories expected to fall slightly in most cases with the exception of the fish meal and oil sector and those companies processing mackerel where profitability will remain unchanged.

