



Fisheries and Aquaculture

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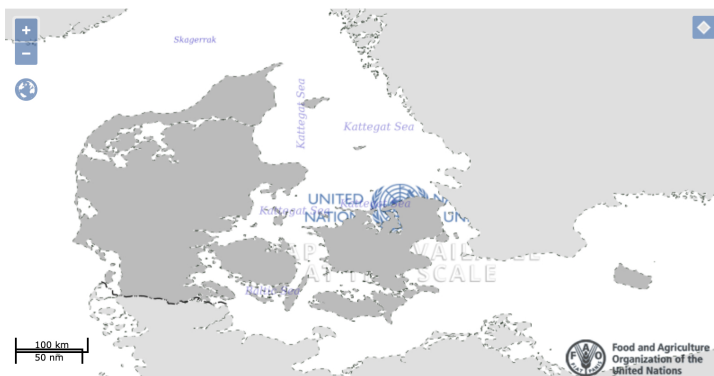


Fishery and Aquaculture Country Profiles



Denmark

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Part I Overview and main indicators

Part I of the Fishery and Aquaculture Country Profile is compiled using the most up-to-date information available from the FAO Country briefs and Statistics programmes at the time of publication. The Country Brief and the FAO Fisheries Statistics provided in Part I may, however, have been prepared at different times, which would explain any inconsistencies.

Country brief

Prepared: June 2024

The Kingdom of Denmark, with a population of 5.9 million people in 2022, consists of 400 islands of various sizes with a total of 43 100 km². The coastline is approximately 7 300 km. The main Danish fishing areas are located in the North Sea, Skagerrak/Kattegat and the Baltic Sea. Fish for fishmeal and oil production are almost exclusively caught in the North Sea.

In 2022, the Danish fishing fleet was composed of 1 890 vessels and 79 percent of the fleet consists of vessels under 10 meters of length.

Aquaculture in Denmark was estimated to be 38 000 tonnes in 2022, contributing 7.7 percent in the total fish production of 496 000 tonnes in the same year.

A significant share of Danish total fishery production is exported, with the EU as the main market with a share of about 80 percent. In 2023, exports of fish and fishery products were valued at USD 5.0 billion, and imports reached USD 4.0 billion. Denmark is a major importer of raw materials used for further processing and then re-exported. This is mainly done by Danish companies which have outsourced their processing activities due to lower wage costs. Employment in semi-processing (filleting) activities is decreasing, whereas employment in processing, wholesale and retail sale of fresh fish remains more stable.

Approximately 450 people are directly employed in aquaculture, mainly in traditional fish farming, and about 1 460 fishers operate in marine waters in 2022. Additional 3 700 people are employed for processing and preserving fish and fishery products. In 2020, the average fish consumption per capita in Denmark was approximately 26.3 kilograms, which is slightly higher than the EU average of 24 kilograms. Popular species include cod, hake, herring, mackerel, and salmon.

General geographic and economic indicators

TABLE 1 - GENERAL GEOGRAPHIC AND ECONOMIC DATA - DENMARK

		Source
EEZ area	102 693 km ²	www.seaaroundus.org
Shelf area	101 903 km ²	www.seaaroundus.org
Marine water area	41 696 km ²	www.seaaroundus.org
Length of continental coastline	7 314 km	Worldbypmap
Inland waters	660 km ²	CIA Factbook
Population	5.9 million (2022)	World Bank
Agricultural GDP	USD 4.8 billion (2022)	World Bank
Fisheries Gross Domestic Product GDP (year)	0.09 % (2020)	UNSD
Fisheries in Agricultural GDP (year)	7.11 % (2020)	UNSD

Table 2 is based on the data disseminated in 2024 by the Statistics Team of FAO's Fisheries and Aquaculture Division. The charts in this section are from the same source but are automatically updated every year with the most recent statistics.

TABLE 2 — FAO FISHERIES FLEET AND EMPLOYMENT STATISTICS – DENMARK

	1995	2000	2005	2010	2015	2020	2021	2022
PRIMARY SECTOR EMPLOYMENT (thousands)	6.49	5.45	3.82	2.56	2.26	2.10	2.09	1.91
Aquaculture	1.13	0.83	0.57	0.44	0.44	0.49	0.49	0.45
Capture	5.36	4.62	3.25	2.12	1.82	1.61	1.59	1.46
Inland	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
Marine	5.36	4.61	3.24	2.11	1.81	1.59	1.58	1.44
PROCESSING EMPLOYMENT (thousands)	8.47	6.63	5.21	3.66	3.64	3.13	3.09	2.84
FLEET (thousands)	5.18	4.14	3.26	2.83	2.36	2.03	1.96	1.89

Part II Narrative Updated 2024

Part II of the Fishery and Aquaculture Country Profile provides supplementary information that is based on national and other sources and that is valid at the time of compilation (see update year above). References to these sources are provided as far as possible.

Production sector

For centuries fisheries have been an important occupation for the coastal population of Denmark. Since medieval times the inner Danish waters - shallow and productive - have been the source of a substantial production of fish, shellfish, and mussels in spite of the brackish nature of the waters which limits species diversity.

The West coast of Jutland that faces the North Sea, has been one of the very productive fishing grounds for Denmark. During the 20th century these fishing grounds, supported the large-scale Danish fishing industry.

The Danish commercial fishery is characterized by three sub-sectors:

- A demersal fishery with trawls, Danish seines, and gill nets for round-fish species like Atlantic cod and haddock and various flatfish like European plaice, sole and turbot. In many of these fisheries Norway lobster makes up an important by-catch.
- A trawl fishery for European sprat, sand lance and Norway pout which supplies the fish meal industry.
- A pelagic fishery with purse seines and pelagic trawls for herring and mackerel.

Inland fisheries are marginal and limited to recreational fisheries.

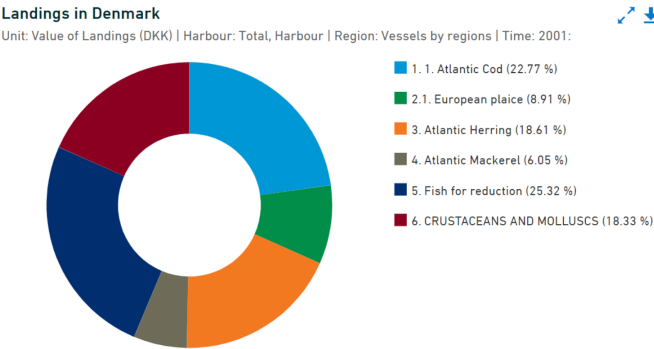
In parts of Jutland, there is a long tradition of more than 130 years of raising trout in ponds. Today there are also land-based marine fish, mussel and macroalgae farms.

In 2021, Denmark was the third largest fish producer in the EU and the eighth major producer of aquaculture products.

Marine sub-sector

Catch profile

The gross value of landings in 2023 were Danish Krone 3.6 billion or USD 480 million. This compares to around USD 400 million in 2008, with a maximum of USD 574 million in 2016 to USD 552 million in 2018. However, the total volume has decreased. This decrease is mainly due to a dramatic drop in the catches of sand eel in the North Sea and decreases in other food fish catches. The quotas were lowered for a number of species and various measures were implemented, in particular, to enable the recovery of Atlantic cod stocks. It is notable that the share of Atlantic cod in total value declined from 23 percent in 2001 to the present 7 percent.



Source: Statistics Denmark

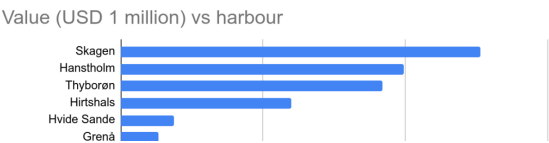
Most of the value of the landings comes from certain key species. By far the most important catches in terms of weight are from so-called "industrial fisheries" (a term used in Denmark for the trawl fishery directed at species processed into fish meal and oil). Industrial fisheries catch consisted of European sprat, sand eel and Norway pout. The herring fishery for canning and curing is the second largest fishery, with more than 10 percent in volume of landings. The remaining part is made up of a long list of fish and shellfish species including blue mussels, mackerel, flatfish (such as European plaice and European flounder) and gadoids (such as pollock and Atlantic cod).

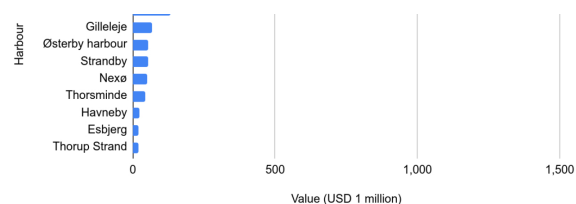
Landing sites

The key commercial fishery takes place from the harbours on the West coast of Jutland: Hvide Sande, Thyborøn, Hanstholm, Hirtshals and Skagen (from South to North) and on the east coast of Northern Jutland, Strandby.

The Baltic fishery takes place from the fishing harbour at Nexø on Bornholm and for Sealand, Gilleleje is the main harbour for commercial fishing activities.

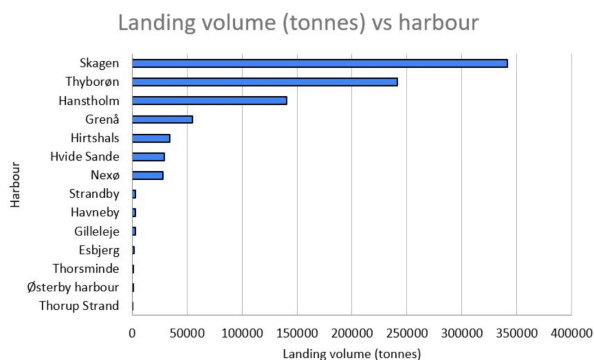
Figure 2: Value of landings in USD for the biggest harbours in Denmark year 2020.



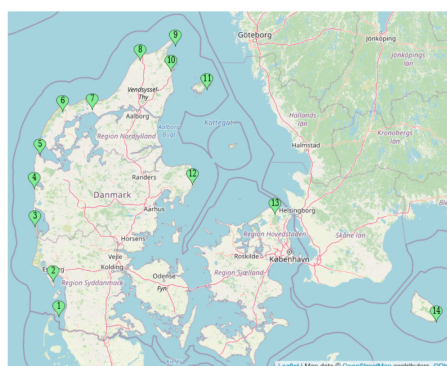


Source: Statistics Denmark

Figure 3: Landing volume (tonnes) for the biggest harbours in Denmark year 2020.



Source: Statistics Denmark



Source: Statistics Denmark

Main landing sites in Denmark. 1) Havneby, 2) Esbjerg, 3) Hvide Sande, 4) Thorsminde, 5) Thyborøn, 6) Hanstholm, 7) Thorup Strand, 8) Hirtshals, 9) Skagen, 10) Strandby, 11) Østerby harbour, 12) Grenå, 13) Gilleleje, 14) Nexø.

In addition to these fishing centres there are also commercial fishing activities from other harbours located in the inner Danish waters, but few commercial vessels are at use, or are based in, these small harbours.

As the overall number of active fishing vessels is decreasing in Denmark, supporting services and physical facilities needed for servicing fishing vessels are gradually concentrated in the bigger harbours in Denmark.

The Danish fishing vessels are, in general, flexible in their operation. Over a year most vessels take part in different fisheries and fishing patterns change from year to year. Further, vessels with a home port in one of, e.g., the West coast of Jutland harbours will often make seasonal visits to the Baltic Sea to fish e.g., Atlantic cod or sprat, and vessels from the inner Danish waters can be found fishing in the North Sea during the summer season.

Fishing practices/systems

Most of the Danish fishing fleet has been able to cope with the changing conditions over the past decades by shifting from one fishery to another and/or by adopting new fishing methods. Still, there has been a steady decrease in the size of the fishing fleet. From 2008 to 2023, the number of vessels decreased from 3 061 to 1 731 vessels. However, tonnage only slightly decreased from 82 299 GT in 2008 to 60 000 GT in 2023. About 79 percent of the fleet consisted of vessels under 10 meters of length in 2019.

Approximately three quarters of the Danish fishing vessels are small gill netters, they do not contribute much volume to catches. The trawlers are the main contributors to Danish fish landings.

Gill netters are found throughout the country. They use bottom set gill nets and trammel nets on several types: Brill, sole, and round-fish (Atlantic cod, haddock, saithe, and ling). Occasionally they fish for monkfish and hake. Gill netters are often small vessels, less than 12 meters in length overall and many of them are semi-open boats. Trawlers are generally demersal trawlers, and most of them are multi-riggers often using two trawls, side by side. These trawlers range from 10 to 30 meters and fish in all Danish waters and beyond (the North Sea, the English Channel, Skagerrak, the inner Danish waters, and the Baltic).

In the North Sea, Skagerrak, and Kattegat the trawlers target a large mix of species. The most important species are Atlantic cod, European plaice and Norway lobster. Although the quantity of catch of the Norway lobster is small, it fetches a high price on the market and can make a major part of the revenue. Monkfish, hake, turbot and sole are other important species. There are only a few trawlers left that target pelagic species using pelagic trawls. These are big vessels equipped with tanks containing refrigerated sea water (RSW) for holding the catch.

The purse seiners have their home port in Hirtshals and they are all multi-purpose vessels. They are able to fish either with pelagic trawls or purse seines. They are the biggest vessels in the Danish fleet, measuring more than 60 meters, with modern equipment, and capable of holding up to 2 500 tonnes of fish. In the Danish fishing fleet there are also anchor seiners and fly-shooters: Most of these vessels are based in the West coast harbours from where they fish in the North Sea. A few fish out of harbours located in the inner Danish waters, from where they fish in the Baltic, but they also fish part of the year in the North Sea. Anchor (or Danish) seining was a very important fishing method in the middle of the last century but has since lost out to more productive methods like trawling. However, anchor seining is now experiencing a renewed interest because of the low fuel consumption and the excellent quality of the catch taken by this fishing method.

Further, there is a large mussel fishery located in the Limfjord and the Wadden Sea, which is located in the south-east part of the North Sea. Occasionally mussel banks will also be found in other parts of Denmark i.e. the Eastern coast of Jutland and the Isefjord. Vessels employed in these

selectively harvest mussels and are found in other parts of Denmark, but the eastern coast is generally the largest. Several enterprises in these fisheries use mussel dredges or are specially designed for harvesting line mussels.

Main resources

Danish fishermen have access to certain EU waters, and through agreements with other countries, also to fishing grounds in Norwegian waters (several fish stocks) and to fishing grounds around Greenland.

In EU waters fishing rights have been distributed according to historical rights. Therefore, Danish fishermen have quotas in the English Channel, all over the North Sea, Skagerrak, Kattegat, the sounds and belts, and most of the Baltic. Furthermore, Danish fishermen will have access to fisheries based on bilateral agreements that the EU has with foreign countries.

The Atlantic cod fishery is a key fishery, and it takes place in all Danish waters. There are several Atlantic cod stocks however, many of them have been extremely low in the past decade. Strong management measures — bans, closures, quotas and selective gears — seem to have had a beneficial effect as some of the stocks are beginning to recover.

The European plaice varies between being very abundant - especially in the North Sea, and not so abundant. The prices of European plaice are generally low but due to the fluctuating presences at the fishing grounds they varied from year to year. In some years it has been difficult to catch the agreed quota.

The pelagic fishery has been closely managed for many years, partly by the industry itself. It is a relatively healthy fishery. But catches fluctuate like in most pelagic fisheries. Nevertheless, the stocks have supported the Danish purse seine fleet. The mussel fishery takes place in the Wadden Sea in the south-east corner of the North Sea, in the Limfjord and in a few other places.

Management applied to main fisheries

Management of fisheries policy in Denmark is shared under the Common Fisheries Policy (CFP) of the European Union. The central government, through the Danish Fisheries Agency, part of the Ministry for Food, Agriculture and Fisheries, is responsible for the overall legislation in accordance with EU standards. The CFP was reformed in 2013. It now requires that all catches of stocks subject to catch limits taken by fishers are counted against their quotas and that all fish must be landed, unless exemptions apply.

Today access to fishing is governed by a range of measures:

- Input controls;
- Licenses to fish;
- Days at sea;
- Output controls:
- Total allowable catch (TAC) negotiated in the EU system;
- Individual Transferable Quotas (ITQ), e.g. used in the herring and the mackerel fisheries;
- Quota shares allocated to individual vessels (can be pooled together for a group of vessels).
- Technical measures:
- For a wide range of species, minimum landing size; in some cases these are higher than those specified in the common fisheries policy (CFP);
- Fishery specific, minimum mesh size for trawl gear (and Danish seine), and for gill nets and purse seines;
- Closed areas;
- Closed seasons; established to protect fish during spawning and/or migration, but also to ensure fish quality and to reflect the market situation;
- Size limitations on vessels and on engine power;
- Restrictions in the use of certain fishing gear in specific areas (i.e. purse seine, beam trawl);
- Detailed specification for trawl attachments like protection bags, round straps, exit windows and grids; and,
- Detailed specifications for Atlantic cod-ends and for netting configurations, like square mesh (T45) panels and turned meshes (T90).

Management objectives

The responsible authority for monitoring and enforcing EU and national conservation policies is the Danish Fisheries Agency, which is a part of the Ministry of Food, Agriculture and Fisheries. The Agency carries out inspection at sea and of landings. Inspection of veterinary standards is the responsibility of the Danish Veterinary and Food Administration, also part of the Ministry of Food Agriculture and Fisheries.

Management measures and institutional arrangements

The Common Fisheries Policy (CFP) is the foundation for all Danish fisheries regulations. However, several national regulations have been formulated to reflect local fishing conditions as well as the national resource exploitation policy.

Fishing communities

The largest fishing communities are found around the harbours in Jutland. Vessels are concentrated here as are the associated service industries, like engine workshops, net manufacturers, providers of fishing tackle etc.

But the fishing industry does not have the same importance it once had in these communities. As the size of the fishing fleet declines, fishing is concentrated in fewer harbours. Formerly important fishing communities in Esbjerg, Frederikshavn, Grenå (all in Jutland) have more or less disappeared in recent years. The same fate has met several minor harbours spread along the shores of the Danish islands.

The fish processing industry is scattered all over Denmark, but – naturally - most factories are found in Northern Jutland not far from the landing sites. Another reason for the concentration in North Jutland is that this region is a transport hub for the marine traffic which inter alia brings fish and shellfish to Denmark. Export of fresh and chilled fish is taken care of by many small enterprises that engage in sorting, filleting, packing, and transporting fish. Fish, local landings as well as imports, are processed by medium to large fishing industries. The processing includes: Filleting, smoking, curing, freezing and canning. In many locations these downstream activities are important as they provide much employment in the fishing communities.

Inland sub-sector

In the old times the biggest lakes and rivers in Denmark had minor, locally based, fisheries with the main focus on eel, pike and perch. Nowadays, fisheries in lakes and rivers are very marginal in Denmark and are only of interest to recreational fishers.

Aquaculture sub-sector

Rearing rainbow trout in ponds is a more than 130 years long tradition in Denmark. Water from brooks and rivers was diverted to ponds, where rainbow trout are reared to about 300–400 g. Not long ago it used to be that the fish were fed minced fish, often sprat. However, environmental considerations and the regulations these gave rise to have forced producers to change production methods. Today, fish are fed with pellets containing high quality protein and other vital additives. Concrete ponds are gradually replacing earthen ponds and farm effluents are monitored strictly to reduce the amount of nutrients returning to the brook or river.

Today, land-based aquaculture in Denmark is carried out in more than 200 farms. This production has been increasing over the last decade – this has even been achieved with the more and more strict regulations designed to avoid excess effluent of nutrients.

Modern production technology is employed on farms in Denmark. On these farms, up to 95 percent of the water is recirculated. These so-called “model farms” have reduced the effluents of nutrients considerably. The strict Danish environmental restrictions have fostered the development of cleaner technology and have had the positive by-effect that this technology is now exported all over the world where modern water recirculation is used for fish production.

Marine aquaculture started in the 1970s, but the conditions in the inner Danish waters are not ideal: There is occasional ice cover and the sensitive ecosystems limit the discharge of nutrients, which limits growth of marine aquaculture. Furthermore, the Danish government's intention is to be a green pioneer, developing the most environmentally friendly land-based marine aquaculture systems as a lead in the sustainable development of the

aquaculture industry, and not further develop the marine aquaculture industry which is considered to contribute negatively to marine pollution.

In recent years several attempts have been made to produce line mussels and line based marine algae in marine environments. In the sheltered areas of the Limfjord and elsewhere various arrangements for producing mussel production on lines have been tested and success came in 2003. Since then, the production of especially blue mussels is increasing every year and more and more places around the coastline in Denmark (except for the West coast of Jutland – due to occasional hard storms) are being used for the production.

Algae production is a relatively new but increasing business in Denmark: In 2020 there were around six companies producing algae (both microalgae and macroalgae). In 2018, 12 tonnes of sugar kelp (a macroalgae) were produced.

Recreational sub-sector

Far more Danes have found time to stand by the shore and wait for a bite in 2020, during the COVID-19 period. Across the country, 2020 saw a sharp increase in the number of fishing licenses sold. Distributed by region, the increases were between almost 20 and over 50 percent, shows the Danish Fisheries Agency's statement of annual licenses in 2020. This means that almost 170 000 Danes redeemed annual fishing licenses last year.

It is especially in the metropolitan area that anglers have gone fishing. In 2020, just over 39 500 angling licenses were sold here - an increase of as much as 54 percent compared to the previous year. This is followed by North Jutland and Central Jutland, respectively, where the increase is 34 and 32 percent, respectively.

As part of the national strategy for angling, the website fishingindenmark.info was launched in January 2021, where both new and experienced anglers can find good advice and guidance for more than 1 600 fishing spots across the country.

All private anglers between the ages of 18 and 65 (the national pension age) must have a fishing license to fish in Denmark. Thus, young people and people above the age of 65 does not have to hold a fishing license. The national average for the increase in sold fishing licenses in 2020 is just under 24 percent. Permit-holders may fish along the Danish coasts, but fishing rights in lakes, rivers and brooks are privately held and fishing may only be done in agreement with the landowner. Several "put-and-take" lakes have been established in recent decades.

Post-harvest sector

Fish utilization

Since medieval times Denmark has been a major supplier of fish to markets in southern Europe. A large number of wholesalers maintain these old trade channels, buying fish at the morning auction in the fishing harbours, especially along the West coast of Jutland, and selling it fresh on markets all over Europe. There is very little handling of the fish, although some are filleted, before being shipped on ice by lorry and train to European cities. This quick process secures high quality – and a high price – for the products which end up in supermarkets and fish shops. The volume of Danish catches and the large volumes of imported fish place Danish wholesale enterprises in a favourable position.

In 2020 the fish processing industry in Denmark consisted of 87 companies, a decrease from 117 in 2008. In Denmark there is no large fish processing company with more than 250 employees. In total, the Danish fish processing sector employed about 3 500 people.

The Danish food production sector is famous for the high quality of its products. Blockchain technology is being explored to trace the full supply chain, from place and time of the catch to time for transportation, type of cooling. Day-degrees in the supply chain are also used to assess the storage of perishable products.

Fish markets

Denmark is a major importer of fish, which is processed and then exported. The Danish retail market for fish and fishery products is small when compared with the large quantities of fish that are processed in the country. The 87 processing companies delivered sales of USD 3.21 billion in 2018.

The Danish businesses that sell fish on the European market, find this market to be more attractive than the Danish market. Investments by Danish fish traders are therefore often made in foreign markets, while fish marketing campaigns aiming to improve public health through increased fish consumption in Denmark are often supported by the Danish authorities.

Imports originate mainly from fisheries conducted in the North-east Atlantic area. Salmon and herring are imported from Norway, and cold-water shrimp from Greenland and Canada. Whitefish has traditionally been supplied by Norway and the Faroe Islands, but supplies are expanding. Falling European supplies of Atlantic cod are replaced partially by imports of Alaska Pollack, from the USA and Russia, hoki from New Zealand, and Pangasius from South-east Asia.

Socio-economic contribution of the fishery sector

Role of fisheries in the national economy

The fishing industry is of marginal importance to the Danish GDP, as little as 0.09 percent of the GDP. But the industry is important in certain regions and remote areas where fishing, with its up-stream and down-stream activities, generate employment where few other options are available.

Trade

Commercial fish catches and aquaculture production have for more than thirty years made up a substantial part of commodities exported from Denmark, accounting for USD 5.0 billion in 2023, while the total export value in 2018 across all categories was USD 136 billion. Denmark also imports large volumes of unprocessed fish and shellfish from the Faroe Islands, Greenland, and Norway. Much of this fish is processed and exported. This makes Denmark a major supplier of seafood products to the European Union. The EU receives about 85 percent of Danish seafood exports.

Danish imports of fish and fishery products support a large part of the Danish fish processing industry. Imports arrive from foreign fishing vessels landing their catch in one of the Danish fishing harbours, or they originate in fish landed abroad, and then bought and brought to Denmark by ship or lorry. Three groups make up little over half of the imports. They are: Whole fish, fillets, and prepared-preserved fish.

Danish fish exports are composed of several very different products. The three large groups - whole fish, fillets, and prepared/preserved fish - make up 56 percent of the exports, but fish meal and oil, as well as freshwater fish and various shellfish (Norway lobster, shrimps, and blue mussel) are also prominent.

Food security

In 2022, Denmark's fish consumption per capita reached 26.3 kg. This is a slight decrease of 0.478% compared to the previous year. Historically, the highest recorded fish consumption in Denmark was 25.5 kg in 1995, while the lowest was 16.5 kg in 1961.

Employment

In Denmark, the number of people directly involved in fisheries is around 5 000 individuals who are employed in catching, selling, and processing (3 071 persons) and transporting fish. Employment was almost halved in the first decade of this century. There are several reasons for this: On the one hand the state of fish stocks has not permitted an increase in landings, while, on the other hand, there has been a constant increase in the productivity and efficiency of the harvesting and production units. Even if resources would have permitted constant landings availability, a reduction in the fishing capacity of vessels would have been needed.

In 2022, around 453 people were involved in the aquaculture industry, of whom 11 percent were women. The aquaculture industry is equally divided with about one third in classic land-based aquaculture, one third in intensive-land based recirculating aquaculture systems (RAS) and the last third in hatchery production of salmon and sea bass, and a small sector in shellfish. In 2022, the trade association Dansk Havbrugsvirksomhed reported that 2022 saw a slight increase in employment in the aquaculture sector, with 453 people employed, up from 441 in 2021.

mainly in marine aquaculture, and to a small extent in snail farming. By 2027, the trade association Dansk Akvakultur expects employment to rise to over 5 000, with the strongest growth in RAS and shellfish, and to a lesser extent in marine aquaculture, while the classic land-based aquaculture is expected to remain stable.

Rural development

A portion of the young Danish population has moved from rural areas and small towns to large city centres. This urbanisation, together with the drastic reduction in the number of fishermen and fishing vessels, has virtually emptied many of the former fishing communities. This has happened along the coasts of the inner Danish waters, on Zealand, on Funen and on the east coast of Jutland. Those fishermen who remain, struggle to run a business in an environment where there are few – if any – engine workshops, net lofts, and auction halls left. Thus, the role of the fisheries in the local communities is now narrowed down to the cities: Esbjerg, Hvide Sande, Thyborøn, Hanstholm, Hirtshals, Skagen, Østerby (Læsø), Grenå, Gilleleje and Nexø. Often tourism has offered the only viable alternative for inhabitants of the small communities. The freshwater aquaculture sector is located in Jutland, while marine aquaculture is mainly located in rural communities where it contributes to sustainable development. The companies developing and selling fish rearing systems are also mainly located in Jutland.

Trends, issues and development

Constraints and opportunities

A major challenge for fishermen and the Danish administration over the past decades was to match the capacity of the fishing sector with the catch quotas allocated to the Danish fishery. This process has been hard on the fishermen and has resulted in a dramatic cut-back in the number of vessels. However, this process seems to have been more or less completed in 2011, and further decreases in the fishing capacity of the Danish fishing fleet will only be needed to offset “technology creep”, that is, the increase in productivity per fishing vessel (and in shore-based production units), that technological development will bring about.

Future challenges will include requirements: (i) to reduce the environmental impact of fishing (bottom contact of trawls) and (ii) to reduce the emission of CO₂ and other greenhouse gases to the atmosphere. Also, part of the North Sea has been declared a “Natura 2000 area”. Trawling in this area is still under debate. Furthermore, the need to respect other marine protected areas will affect the performance of the fishing industry.

Fishers and offshore oil and gas extraction activities compete for access to fishing grounds. This has mainly been an issue in the North Sea, but recently the conflict has emerged in the Baltic Sea as gas pipelines have been laid. The price of fuel is a heavy economic burden for the Danish fisheries – also in the coming years, as there is point-in-time no clear alternative source of energy to power fishing vessels. Nevertheless, several energy saving projects have demonstrated that significant reductions in fuel consumption is possible in the Danish fishing industry. One fuel saving development is the use of thin high tensile materials in trawls. This reduces the surface area of the trawl and thus decreases resistance. Another energy saving project is the use of ‘flying’ trawl doors, which not only reduce resistance (as they do not rest on the bottom) but also reduce the impact on the bottom dwelling fauna.

Shortly after the exit of the United Kingdom of Great Britain and Northern Ireland from the European Union (called Brexit; effective 1 January 2021), the access Danish fishers had to British waters was regulated by a temporary license in the transition period from 1 January 2021 to 30 June 2026.

Government and non-government sector policies and development strategies

The mission and vision of The Ministry of Food, Agriculture and Fisheries are to ensure a sustainable development of the sector – both the fisheries and aquaculture. Both sectors are experiencing changes and development, and the production of fish and shellfish in the aquaculture sector is expected to show higher growth in coming years. The key concern is to make the most of the quantity of fish available to Denmark. This means getting the maximum value from the fish catch and conserving resources. The use of optimal fishing methods – conserving catch and limiting discards – are important focal points.

There is a great potential for development in the field of aquaculture. Especially within saltwater breeding, more species will be raised in the future than is the case today. The greatest challenge in this type of production is to reduce the impact on the environment and on ecosystems.

The Ministry works for Danish fisheries and aquaculture through:

- regulation and inspections of the fishing industry;
- support for research in fisheries and aquaculture production;
- support for the development of fisheries, the fish industry, fishery harbours and aquaculture; and, through
- fish management and fishing licence arrangements for recreational fisheries.

Denmark is employing several strategies to inform consumers about the health benefits of eating fish as well as promoting sustainable production. The official dietary guidelines recommend eating 350 gram fish (including shellfish) per week. The campaign “2 gange om ugen” = “twice per week” addresses the recommendation to eat fish twice per week and provides the consumer information about fish that are currently in season. Denmark has also introduced a new state-controlled label “NaturSkånsom” = “Nature-friendly” for coastal, gentle, and sustainable fisheries.

Research, education and training

A major restructuring of the Danish research sector took place in 2007. As a result, most of the research on fish biology is now part of the Technical University of Denmark (DTU). Previously it was handled by the Ministry of Food, Agriculture and Fisheries. The restructuring resulted in a merger of the Danish Institute for Fisheries Research (DIFRES) and DTU, which became “DTU Aqua”. The various national and international obligations within research, monitoring and data collection are performed by DTU Aqua upon request from the Ministry.

DTU Aqua handles fisheries and aquaculture, health as well as environmental technology. DTU Food handles food safety. Examples of main themes in fisheries research are:

- Low-impact, selective and effective fishing methods
- Simulation models describing selectivity of different nets
- Energy-friendly fishing
- Models and tools for evaluating fisheries options and management
- Models for estimating the impact of fishing on ecosystems
- Indicators for the condition of and pressures on fish stocks and fisheries
- Exploitation of new resources from waste products from the fish industry, macroalgae and microalgae

The main themes in aquaculture research are:

- Rearing systems and environmental impacts
- Nutrition and welfare of fish

At the University of Aalborg, the Institute for Innovative Fisheries Management (IFM) focuses on questions of governance within an ecosystem-based approach to marine management. IFM specializes in cross-disciplinary collaboration. Main research areas in IFM are:

- Fisheries co-management
- Social impact assessments
- Coastal community development

Several approved technological institutes take part in fisheries research. Among them are FORCE Technology which has hydrodynamic expertise in ship hulls and propulsion systems and the Technological Institute (TI), with expertise in fish processing and environmental aspects of food production. Some of the above institutions are present in the fisheries centre in Hirtshals, The North Sea Science Park (previously known as The North Sea Centre). The large Norwegian science foundation SINTEF Fisheries also has a section in the North Sea Science Park, where it manages a large 1.200 m³ flume tank. DTU Aqua’s section for aquaculture is also present at the North Sea Science Park.

Education and training

Young persons, 16–18 years old, who want to engage in fishing, must take a 2-year course to obtain a “Blue Certificate”. Older persons must pass a 3-week training course in safety and basic seamanship that is mandatory for everyone who wants to work on a fishing vessel.

A 2-year education for fishermen is offered at the Fisheries Training Centre in Thyborøn. Students are given basic training in safety and health, seamanship, navigation, engines, hydraulics, use of radio and other communication systems.

Fishing masters are trained at the Skippers School in Skagen, which provides courses for those who want to become Fishing Master of 3rd degree (restricted) and Fishing Master of 1st degree (unlimited), both according to international agreements. Both above schools also run a wide range of vocational training courses for the industry.

Vocational training in aquaculture is only offered in one school in Denmark, Hansenberg, as a sub-specialisation of the agricultural vocational training (specialisation in animal husbandry). For young persons (after the mandatory 10 years of school attendance), the training takes 3.5 to 4 years, where schooling is interspersed with internships. For people aged 25 and above, and those with previous aquaculture experience, the training can be shortened to 16 weeks of schooling (qualification: Agricultural assistant) or 36 weeks of schooling (qualification: farmer (Animal husbandry)).

Foreign aid

Denmark receives foreign aid through the European Maritime and Fisheries Fund (EMFF) with a focus on sustainable fisheries, aquaculture, blue bioeconomy and to improve the international governance of sustainably managed seas.

Institutional framework

The ministry dealing with fisheries is the Danish Fisheries Agency as part of the Danish Ministry for Food, Agriculture and Fisheries. The Danish Fisheries Agency is an agency under the Ministry of Food, Agriculture and Fisheries and comprises a central part with departments in both Copenhagen and Southern Jutland as well as a regional fisheries control.

Legal framework

Denmark follows the EU policy on Fisheries – the Common fisheries policy (CFP). The CFP is a set of rules for sustainably managing European fishing fleets and conserving fish stocks. Originally part of the common agricultural policy (CAP), the common fisheries policy (CFP) started with the same objectives:

- i. to increase productivity
- ii. to stabilize the markets
- iii. to provide a source of healthy food and
- iv. to ensure reasonable prices for consumers

In the course of time, the CFP obtained a separate identity: A specific legislation and structural policy for fisheries, in particular the EU market organization.

With the latest reform from 2013, the common fisheries policy is the first comprehensive legal framework, featuring: A. Fish stock management at maximum sustainable yield by 2020 for all managed stocks, B. Gradual introduction of a landing obligation by 2019, C. Continued application of the so-called multiannual plans (MAPs) to manage fisheries in different sea basins, D. Regionalization to allow EU countries with a management interest to propose detailed measures, which the Commission can then adopt as delegated or implementing act and transpose them into EU law, and; E. Fleet capacity ceilings per EU country in combination with the obligation for EU countries to ensure a stable and enduring balance between fishing capacity and fishing opportunities over time. EU countries may need to develop action plans to reduce overcapacity (for which they can use scrapping money).

The Danish fisheries act sets regulations on the management and conservation of fishery, aquaculture, and trade in related activities with the purpose of ensuring the protection and rehabilitation of natural resources in salt and fresh waters, as well as the protection of other animal and plant species providing a sustainable basis for commercial and recreational fishing, as well as the implementation of certain EU fishery provisions. The Ministry may also decide on the use, design, mesh size, location and number of authorized fishing equipment and methods. The Act includes provisions for research activities, inspection rules, provisions for prevention of IUU fishing and fishing vessel requirements. The Maritime and Fisheries Fund Act (No. 19 of 2017) holds the sets regulations regarding the financial support granted in Denmark through the European Sea and Fishery Fund.

Revision of the fisheries control system: After the evaluation of the current control system, the Commission decided in 2018 to initiate a revision of the fisheries control system. The overall objective of the revision is to modernize, strengthen and simplify the EU fisheries control system, ensure sustainability, and increase the level playing field in fisheries control. The revision is in line with the EU's REFIT program, a program that ensures that regulatory burdens are minimized, and simplification options are identified and applied.

Annexes

Acronyms	
CAP	Common Agricultural Policy
CFP	Common Fisheries Policy
DIFRES	Danish Institute for Fisheries Research
DTU	Technical University of Denmark
EMFF	European Maritimeand Fisheries Fund
EUR	Euro
EU	EuropeanUnion
FAO	Food and Agriculture Organization
FTE	Full time equivalent
GDP	Gross domestic product
IFM	Institute for Innovative Fisheries Management
IUU	Illegal, unreported and unregulated
MAPS	multiannual plans
NASO	National Aquaculture Sector Overview
RAS	recirculating aquaculture systems
REFIT	Regulatory Fitness and Performance Programme
RSW	refrigerated sea water

TI	Technological Institute
USA	United States of America
USD	United States dollar

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