

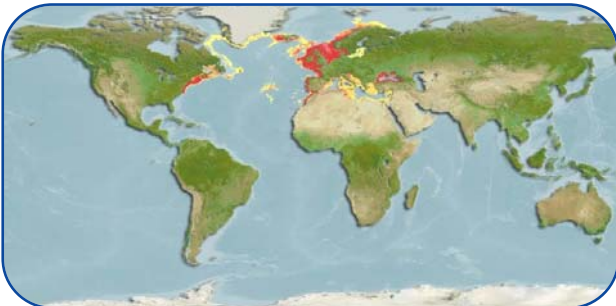
Factsheet: Mackerel

Version January 2011

Mackerel general

The Atlantic mackerel or scomber scombrus is a pelagic fish species, and they are the species that live and form shoals in the water column – in contrast to fish that live on or in the seabed. The mackerel is part of the mackerel family (scombridae) and is related to the tuna. Tuna and members of the tuna family are also referred to as large pelagic species, whilst mackerel is a small pelagic species, as are herring, sardine, and horse mackerel. The mackerel is a fish that is easy to recognise - its back is green-blue in colour with dark zebra-like stripes. The belly of the mackerel is white.

Atlantic mackerel occurs in the northeast Atlantic Ocean - from the Iberian peninsula throughout the North Sea and the British Isles to the waters around Norway. This species also occurs along the eastern seaboard of North America.



Habitat Atlantic mackerel

Mackerel mainly feeds on plankton, shrimps, and small pelagic fish, such as young herring and sand eel. This ensures that the mackerel has a relatively high oil content, which makes mackerel the fish species with most omega 3 of all (it contains twice as much omega 3 as salmon for example).

At the age of two approximately 60% of the mackerel is sexually mature, whilst 100% are sexually mature after four years. Mackerel reproduces during the first six months of the year, but the exact period depends on the area in which the mackerel lives. In southern waters, mackerel spawn early in spring, but in the north they spawn in July. The fish reaches its highest oil content before the spawning period, when up to 30% of its body weight consists of oil/fat, and after reproduction it has largely spent its oil reserves and they drop to 10% of its body weight.

Shoals of mackerel can move very quickly.

Fishing method

Mackerel can be caught with various fishing methods. Dutch fishery vessels catch mackerel almost exclusively with freezer trawlers that use the so-called pelagic 'mid-water trawl'.

These vessels make fishing journeys of two and a half to three and a half weeks and grade and freeze the mackerel after the catch in packs of approximately 20 kilos, ready for sale in the Netherlands or abroad.

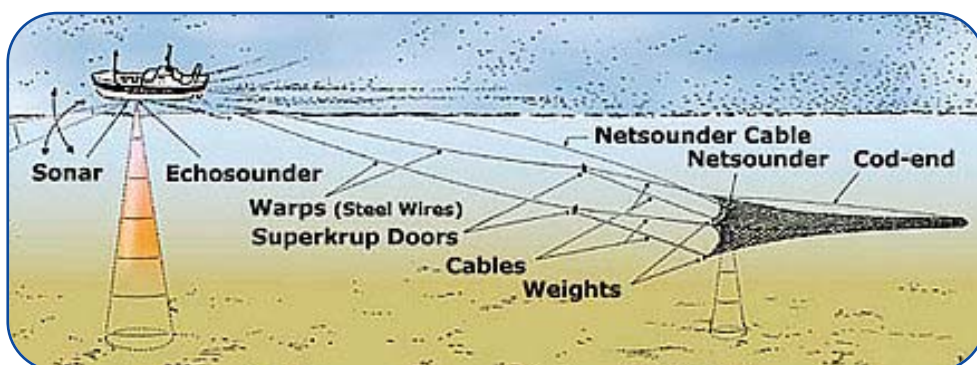


Dutch freezer trawler



Rear deck freezer trawler





Fishing areas and fishing periods of the Dutch fleet

The Dutch fleet concentrates its mackerel fishery in the months from October to February. The fishing areas are in the waters southwest of the British Isles and in the northern North Sea. However, not all Dutch freezer trawlers fish for mackerel. The other months of the year, this fleet fishes for other pelagic species, such as herring, blue whiting, or horse mackerel, or it operates in waters outside the European Union.

The larger size of the freezer trawlers is a direct result of the fact that the catch is processed, frozen, and stored onboard the vessel and not onshore. This also restricts the daily catch to the amount of fish that can be processed and frozen on the ship each day. There is no sense in catching more than this amount.

Mackerel sales

Only a small part of the mackerel catch from the Dutch trawlers is sold and consumed in Europe. European sales are mainly focused on the smokehouses. Steamed (=warm smoked) mackerel is a highly prized delicacy. The larger part of the catch is exported to countries outside the EU, in West Africa, in the former Soviet Union, and to Japan. The part of the catch that is destined for export is stored in cold stores and transported by freighter.



Stock size, stock management, and total allowable catch

The general opinion of the international scientists who are working on the mackerel population and co-operating in the framework of the International Council for the Exploration of the Sea (ICES) is that there is a single mackerel population in the northeast Atlantic waters. However, it is possible to distinguish three different components within this population - the southern component, the western component, and the North Sea component. These stock components differ mainly in respect of the area where and the time at which they spawn.

Mackerel is mainly fished for human consumption. Since 1995, the annual catch is estimated at approx. 650,000 tonnes. However, over the last three years the catch has exceeded this figure – Iceland developed a mackerel fishery, which did not exist previously, and the Faroe Isles withdrew from the management regime and started to catch more.

The mackerel stock moves in the waters of various coastal states, which makes it a so-called 'jointly managed stock'. Since 1999, the relevant coastal states have agreed a fishery management plan, which received a positive assessment from ICES, i.e. the management plan complies with the principles of a precautionary approach. On the basis of an annual stock assessment by ICES biologists - which is based on an analysis of commercial catches supplemented with their own observations from research vessels, resulting in official scientific advice - the coastal states meet each year to discuss and record the fishery options for mackerel for the following year.

Subsequently, the TAC or Total Allowable Catch that is established in this way is divided on the basis of a fixed allocation formula between those coastal states, following which the EU share is divided amongst the Member States with an interest in this stock.

The most important scientific information that gives an impression of the stock situation is the three-yearly egg survey - by fishing and counting the mackerel eggs in a large area, ICES can provide an estimate of the adult spawning stock.



The latest egg survey dates from 2010 and suggests that the mackerel stock grew significantly and reached a size of nearly 3 million tonnes - far above the precautionary level of 2.3 million tonnes. The TAC for mackerel has been relatively stable for many years with an average of 570,000 tonnes over more than 20 years and a bandwidth of 450,000 – 700,000 tonnes per year (with some upward peaks). The TAC for 2011 is set at 646,000 tonnes. Dutch vessels are allowed to fish nearly 6% of the total TAC and more than 9% of the EU share of this TAC.

For many years, the quota for the southern North Sea has been set at 0 due to the situation of the mackerel stock.

Until 2009 the mackerel stock was managed by the relevant coastal states, being the EU, Norway and the Faroe Isles. Because of the significant overall growth of the mackerel stock over the past years, the stock has expanded in a north-westerly direction and therefore it is present in Icelandic waters during a few summer months. The Icelandic government has allowed Icelandic fishermen to develop a mackerel fishery, and this exploded into a catch of 130,000 tonnes in 2009 (nearly a quarter of the TAC). As a 'management measure' Iceland determined its own quota of 130,000 tonnes for 2010 and 2011. These amounts are over and above the TAC for the coastal states and they are not based on scientific advice.

The 2009 negotiations between the EU, Norway and the Faroe Isles on the one hand and Iceland on the other did not lead to Iceland joining the existing management regime and acquiring a formal status as coastal state.

The background is that Iceland had, and still has, hyped-up expectations in relation to its share in the fishery. Subsequently the Faroe Isles decided to leave the coastal-states management and determined their own higher quota, which happened in 2010. At the moment (early 2011), the situation is that the EU and Norway jointly determine a TAC that is based on scientific advice and that Iceland and the Faroe Islands determine autonomous quota that go over and above.

Consequently, the total catch for 2011 will exceed the amount advised by scientists.

This mackerel problem has become a major issue in the relationship between the EU and Iceland and may well affect Iceland's accession to the EU. In 2011 negotiations continue between EU and Norway on the one hand and Iceland and the Faroe Isles on the other. Everyone will benefit from a fast and acceptable solution to this problem.

The following provides the catch advice and the determined TACs since 1987 and the key data from the latest ICES advice (from 2008).

Year	Catch advice ('000 tonnes)	TAC ('000 tonnes)
1987		442
1988		610
1989		532
1990		562
1991		612
1992		707
1993		767
1994		837
1995		645
1996	-	452
1997	-	470
1998	498	549
1999	437	562
2000	642	612
2001	665	670
2002	694	683
2003	542	583
2004	545	532
2005	[320-420]	422
2006	[373-487]	444
2007	[390-509]	502
2008	[349 - 456]	456
2009	[604 - 649]	605
2010	[592 – 646]	646

Social Debate

Nature organisations such as the WWF and the North Sea Foundation have put mackerel in the green column of their fish-purchase guide, which means an 'excellent choice'.

MSC

In 2009, the Dutch mackerel fishery was MSC certified (MSC= Marine Stewardship Council). The MSC certificate is awarded to fisheries that catch fish responsibly. For Dutch mackerel fishermen this means that they fish on a stock that is managed properly and that they strive towards a responsible mackerel catch with the fewest possible harmful effects on the ecosystem. They also undertake to develop more modern fishing methods in order to reduce any possible undesired bycatch to an absolute minimum.

Availability and processing

As mackerel is frozen onboard, the fish is available throughout the year - either fresh, steamed, or smoked. The larger part of mackerel is offered as processed mackerel filets – smoked, steamed, with or without spices - or tinned in oil or in a sauce. Mackerel landed in the Netherlands is either exported or finds its way to the smokehouses. Of the export mackerel, some 6% is smoked and 95% is exported whole. The most important export countries are the Ukraine, Poland and Nigeria. For the domestic Dutch market, mackerel is mainly smoked or steamed.

Consumption in the Netherlands

Mackerel is a relatively affordable fish species, and 20% of Dutch households eat mackerel on occasion. They mainly eat steamed mackerel. Mackerel fillets, with pepper for example, or tinned mackerel are also popular. Increasingly hotels, bars and restaurants have fresh mackerel on the menu. The expectation is that this trend will also continue in domestic consumption.

Steamed and smoked

Smoked mackerel is smoked for 6 hours at a temperature of 70°C to 90°C, which makes the meat beautifully soft. The colour of the meat is white. In the Netherlands, cold-smoked mackerel is sold slightly less than steamed mackerel. Prior to smoking, the mackerel is immersed in brine, after which it is placed in a kiln with a temperature of approximately 30°C. For six hours, the smoke works on the mackerel, and because of the low temperature the mackerel stays more or less raw. The colour of the meat

is slightly grey and looks a little glassy, and the meat is more compact and saltier in flavour. Smoked mackerel is delicious on toast with a drink.

The difference between steamed and smoked is hard to tell from the outside. A steamed mackerel is yellow-gold in colour and has a slightly wrinkled skin, whilst smoked mackerel also has a golden sheen. Steamed mackerel (or hot-smoked) is a well-known product in the Netherlands. Smoked mackerel has a tighter skin.

Nutritional value

Mackerel is an oily fish. In order to reach the daily recommended amount of 450 mg omega 3 per day, you only need to eat 70 grams of steamed mackerel a week. Every 100 grams of fish contains:



	Raw	Steamed	Smoked	Tinned, oil
kJ	1459	1306	1434	1141
kcal	352	315	346	275
Protein (g)	19	19,5	18,9	21,3
Fat (g)	30,7	26,1	30,1	21,1
of which omega 3 (g)	6,1	6,4	7,5	4,5
Sodium (mg)	95	250	537	440
Iron (mg)	1,2	1,2	1,2	1,6
Vitamin D	4,8	4,3	8,0	3,0
Vitamin E	1,3	0,7	0,3	3,5

Source: Nevotabel 2006



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WOULD YOU LIKE TO KNOW MORE?

If you would like to know more about the developments and management of the mackerel stocks and/or the measures taken by the Dutch fishery industry, please visit www.pvis.nl where you will find more information.