

# Fish facts: Mackerel (version September 2009)



## Mackerel general

Atlantic mackerel (*Scomber scombrus*) is a pelagic fish species that lives and forms shoals in the water column – in contrast to fish that live directly on or near the seabed. Mackerel and tuna are both members of the mackerel family (Scombridae). In fisheries, tuna is generally regarded as a large pelagic species, whereas mackerel, herring, sardine, and horse mackerel are referred to as small pelagic species.

Mackerel is easy to identify by its green-blue zebra-like stripes on its back and its white belly. Atlantic mackerel occurs in the Northeast Atlantic Ocean, from the Iberian peninsula throughout the North Sea and around the British Isles to the waters of Norway. This species also occurs along the eastern seaboard of North America – see figure 1.

Mackerel become sexually mature between the age of 2 and 4. They reproduce during the first six months of the year, although the exact period depends on the area in which they spawn. In Southern waters, mackerel spawn early in spring, whereas in the North they spawn in summer. Mackerel mainly feed on plankton, shrimps, and small pelagic fish, such as juvenile herring and sand eel. This diet is the reason for the mackerel's relative high oil content and for making the species one of the species containing the highest level of omega 3. For example, mackerel contains twice as much omega 3 as salmon. The fish reach their highest oil content level just before the spawning period, when up to 30% of an individual's body weight consists of oil. In comparison, just after the spawning period, oil reserves have largely been utilised and drop to 10% of the body weight.

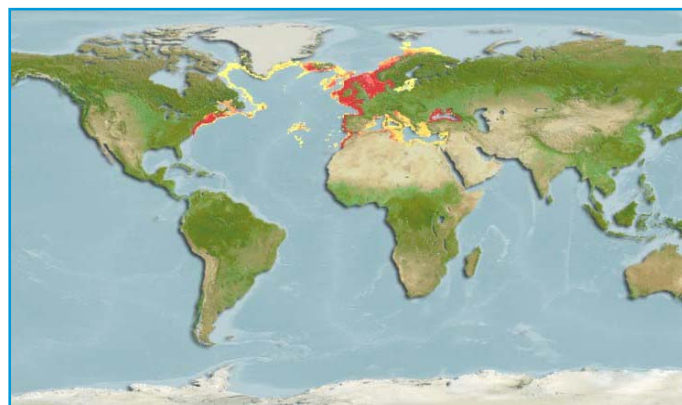


Figure 1: Habitat Atlantic mackerel

## Social debate

The nature organisations WWF and the North Sea Foundation categorise

mackerel in their fish purchase guide 2009 - 2010 as 'green' (good choice)

## The facts in brief

- The Dutch mackerel fishery, organized in the European Pelagic Freezer-trawler Association (PFA), has been certified under the MSC scheme in 2009 (MSC = Marine Stewardship Council);
- For many years, the fishing effort for mackerel has been below the level that fishery biologists consider to be a responsible limit, See figure 2 'fishing mortality'
- Mackerel stock has been fairly stable for many years;
- Since 1999, mackerel fishery takes place on the basis of a management plan that complies with the principles of a precautionary approach and that received a positive assessment from ICES;
- Mackerel lives in shoals and is relatively easy to catch and virtually without an undesired bycatch. Nevertheless, fishermen continue to invest in developing modern fishing methods to reduce any possible undesired bycatch to an absolute minimum.

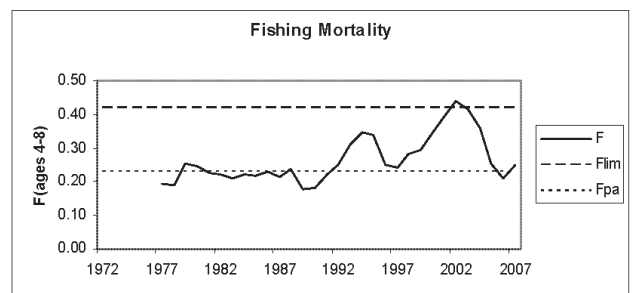


Figure 2: Fishing mortality

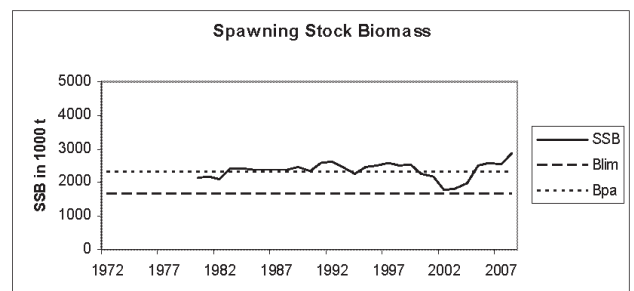


Figure 3: Spawning Stock Biomass



## Catch method

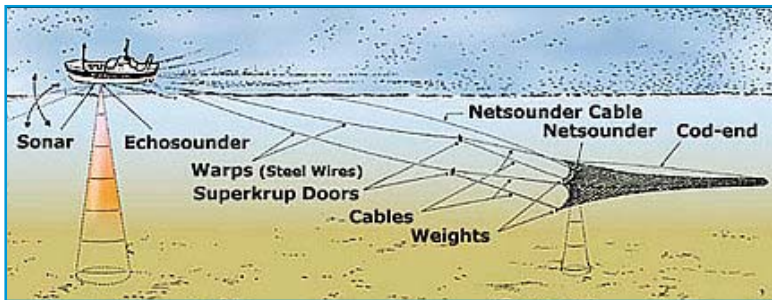


Figure 4: Midwater trawl

Mackerel can be caught by various fishing methods. Dutch fishery vessels catch mackerel almost exclusively with freezer trawlers that use the so-called pelagic 'midwater trawl'. These vessels make fishing journeys of two and a half to three and a half weeks and sort and freeze the mackerel after the catch in packs of approx. 20 kilos; ready for sale in the Netherlands or abroad.



## Catch areas and catch periods of the Dutch fleet

The Dutch fleet concentrates its mackerel fishery in the months from October to February. The catch 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.



## 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 with respect to the area and the time of spawning.

Mackerel is mainly fished for human consumption. Since 1995, the annual catch is estimated at approximately 650.000 tonnes.

The mackerel stock migrates through waters of various coastal nations, i.e. the EU, Norway, and the Faroe Isles, which makes it a so-called 'jointly managed stock'. Since 1999, these 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 three coastal states meet each year to discuss and agree the fishing opportunities for mackerel for the following year. Total Allowable Catch (or TAC) that is established is distributed among the EU, Norway, and the Faroe Isles, based on a set allocation formula. Subsequently, the EU share is distributed among the mackerel catching EU Member States.

The three-yearly egg survey is the most important survey for providing scientific data so that the stock situation can be assessed. By fishing and counting the mackerel eggs in a large area, ICES provides an estimate of the size of the spawning stock. The most recent egg survey dates from 2007 and suggests that the mackerel stock is still at its fairly stable size just above the safe precautionary level of 2.3 million tonnes. The TAC for mackerel has been reasonably stable for many years with an average over 20 years of 570,000 tonnes and a bandwidth of 450,000 – 700,000 tonnes per year with some upward peaks.

The TAC for 2008 is set at more than 450,000 tonnes and the TAC for 2009 is expected to be adjusted upwards. 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.

The mackerel stock-management plan allows the establishment of the TAC, but also regular evaluation of management rules. In some catch areas that are closed during certain periods, minimum landing sizes are in place.

Below, a list of the catch advice and the TAC since 1998 and the key data from the most recent ICES advice of 2008

year	Catch advice ('000 tonnes)	TAC ('000 tonnes)
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

# Fish facts: Mackerel (version September 2009)



## MSC

The Dutch mackerel fishery has obtained MSC certification (MSC = Marine Stewardship Council) in 2009. The MSC certificate is awarded to fisheries that catch fish responsibly. For the Dutch mackerel fleet this means for example that they fish for a well managed stock and they strive towards a responsible mackerel catch with the lowest possible negative impact on the ecosystem. They also undertake to develop more modern fishing methods in order to reduce any possible undesired bycatch to an absolute minimum.

## Trade 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.

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. The 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.

## Warm-smoked and cold-smoked

Warm-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 the warm-smoked mackerel. Prior to smoking, the cold-smoked 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. Cold-smoked mackerel is delicious on toast with a drink. The difference between warm-smoked and cold-smoked is hard to tell from the outside. A warm-smoked mackerel is yellow-gold in colour and has a slightly wrinkled skin. A cold-smoked mackerel also has a golden sheen, but the slightly salted stomach is a little greener in colour and it has a tighter skin.



### Responsible Fishing Committee

Postbus 72                      telephone: +31(0)70 336 96 00  
2280 AB Rijswijk              fax: +31(0)70 399 94 26  
The Netherlands              e-mail: info@pvis.nl  
www.pvis.nl

### WOULD YOU LIKE TO KNOW MORE?

If you would like to know more about mackerel and/or the measures taken by the Dutch fishery sector, please visit [www.pvis.nl](http://www.pvis.nl) where you will find more information.