



North Sea plaice

Plaice is one of the most commonly sold fish species in the Netherlands, and it is one of the most important fish species for the Dutch fishing industry. In 2006, plaice accounted for more than 45% of all fish that was sold at our auctions. The larger part of the plaice products is exported. In the North Sea, Dutch fishermen have 37% of the European catch quota for this fish. In order to ensure that we will be able to enjoy plaice in future, measures are being taken to safeguard its future - at European level, at national level, and by the fishermen themselves.

Plaice (*Pleuronectes platessa*) belongs to the plaice family, a large flatfish family comprising many well-known species, such as halibut, flounder, dab, and lemon sole. Plaice lives on the seabed where it eats molluscs and worms. It is an oval flatfish and is easily recognised by the bright orange-red dots on its upper side; the underside of plaice is white. The sea fish can reach a maximum size of 90cm with a weight of 7kg, but it seldom grows beyond 50cm and a weight of 2-3kg.

Social debate on North Sea plaice

Nature organisations such as the WWF and the North Sea Foundation have put the plaice in the red column of their fish-purchase guide, the Fish Guide (Viswijzer). The message is that it is 'better not to eat now', because the catch imposes too great a burden on nature and the environment. The first objection they mention is overfishing, which can endanger the

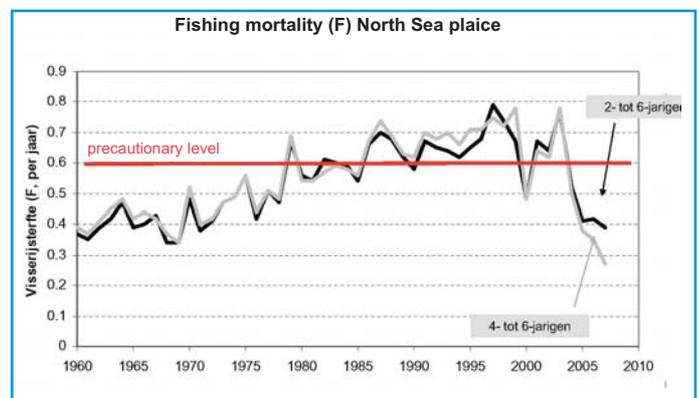
reproduction of the fish species. They also criticise the most important fishing method, the beam-trawl, as this is said to 'plough over' the North Sea and cause major damage to life on the seabed. They also point out that too many young fish are thrown back with minimal chances of survival.

The facts in brief

- The fishing mortality for North Sea plaice has been below the level that fisheries biologists consider to be a responsible limit for a number of years, which means that North Sea plaice is fished sustainably¹. See figure 1
- In the past, the plaice stock used to fluctuate strongly but it has been very stable since the 1990s. The stock is now above the precautionary level above which the stock is fully healthy according to the fisheries biologists¹. See figure 2
- Besides the fishing mortality, the size of the stock is also influenced by other factors, such as changes in the food supply and climatological conditions. However, the fishing mortality is the only factor we can influence.
- The fishery for plaice and sole is the first bottom fishery in the North Sea with a management plan on the basis of the Maximum Sustainable Yield principle. The first phase is aimed at achieving safe biological levels². See figure 3
- A large part of the North Sea plaice is caught in the beam-trawl fishery for sole in the southern North Sea. Twinriggers, fly-shooters (a form of seine fishery) and outriggers are used for targeted plaice fishing throughout the North Sea. In the central and northern parts of the North Sea there is also a targeted plaice fishery with beam-trawls.

- The fishery by Dutch beam-trawlers is limited to a third of the total North Sea area, 80% of the fishery is concentrated in 30% of this fished area³
- In targeted plaice fisheries with large mesh sizes, there are almost no discards, i.e. fish that cannot or may not be landed and must be put overboard.

Figure 1: Historical development of fishing mortality of North Sea plaice



F_{pa} = precautionary level fishing mortality = 0.6
 F_{lim} = limit level for fishing mortality = 0.74
 F 2009 = 0.39

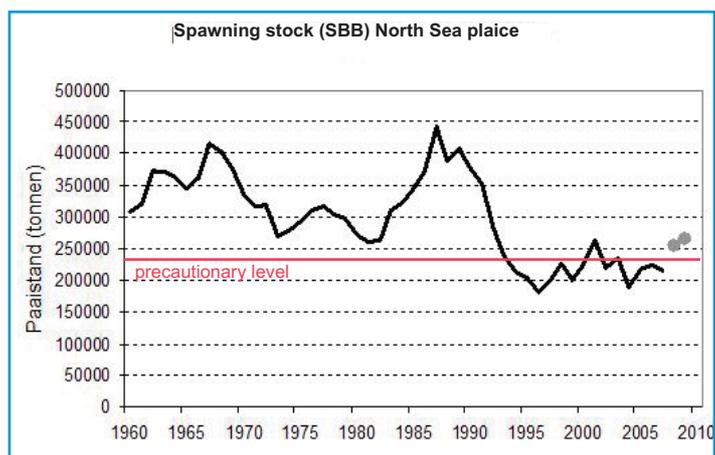


Bycatch and discards

Besides the target species of the fishery, fishermen inevitably catch other species. These by-catches can be divided in commercial by-catch and discards. By-catches are commercially interesting species which a fisherman is allowed to land. Undesirable catches, however, must be thrown overboard or discarded. These discards contain commercial species for which a fisherman does not have quota (anymore) or fish smaller than the legal minimum size. Other discards concerns species of no commercial value and other organisms, such as benthic fauna.

- Plaice discards mainly occur in the 80 mm beam-trawl fishery in the Southern North Sea. This fishery is targeted at Dover sole. The 80 mm mesh size for Dover sole is not in line with the 100 mm mesh size to catch marketable plaice.
- The plaice discards in the beam-trawl fishery are likely to be lower than assumed until now. The Dutch institute IMARES samples just 10 fishing trips per year, which is less than 0.25% of the fishing effort of the beam-trawl fleet. Weekly sampling on approximately 25 fishing vessels demonstrated that approximately 30% in volume of all plaice that is caught must be put overboard, whereas international fishery researchers calculate 50% in volume⁴.

Figure 2: Development North Sea plaice stock



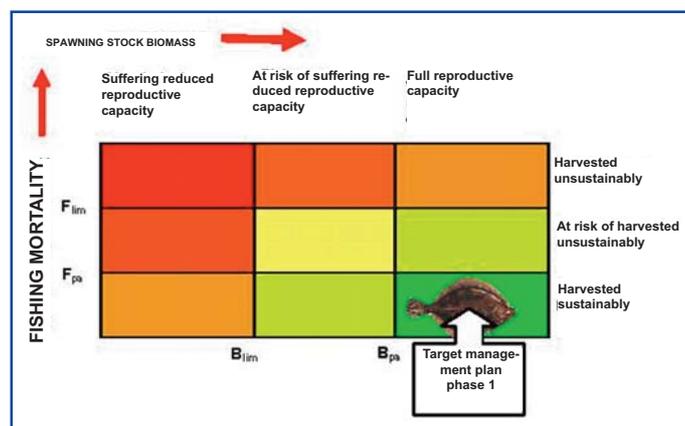
B_{pa} = precautionary level spawning stock biomass = 230,000t
 B_{lim} = limit level spawning stock biomass = 160,000t
 SBB 2009 = 265,000t

European management measures

For most fish species, measures are taken in a European context in order to safeguard the sustainability of the stock, and this applies to North Sea plaice too. Quotas for the amount that may be caught, restricting the fishing capacity that may be used, minimum landing sizes and mesh sizes form part of the standard package of European management measures. There are also a number of specific measures that have been taken for North Sea plaice:

- As of 1 January 2008 a multi-annual management plan has taken effect for North Sea plaice and sole². The plan is based on the Maximum Sustainable Yield (MSY) principle. The plan has two phases. In the first phase, the fishing mortality is annually reduced by 10% in order to bring and maintain the stock within safe biological limits. See figure 3. The total allowable catch and the fishing effort are aligned to this. For the second phase, targets in accordance with the MSY will be developed.
- A large area of the North Sea has been a prohibited catch area for large North Sea beam trawlers since 1989. The purpose of this so-called Plaice Box is to protect young plaice in this nursery ground.

Figure 3: Actual status North Sea plaice in relation to phase 1 objectives multiannual management plan



lim = limit / lower limit; pa = precautionary level

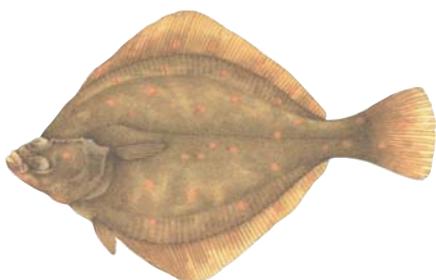


Management measures Dutch fishing fleet

In addition to European management, the Dutch flatfish fleet has taken the initiative to introduce a number of its own measures to manage the plaice stocks.

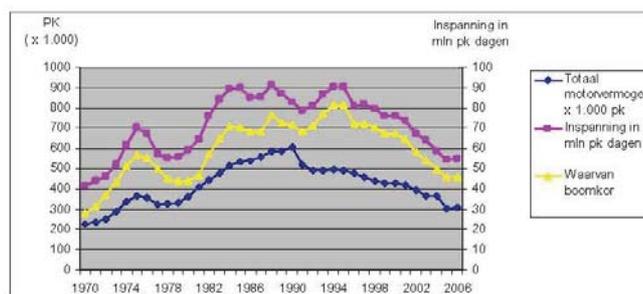
- A good knowledge of the stocks is the basis for sound fisheries management. For many years, the Dutch fleet has collaborated actively with fisheries researchers in order to assess the development of the plaice stock, and it is in the vanguard of the European Union in this respect. Some of the fishing vessels form part of a research fleet that collect detailed data about catches and discards for scientific stock research.
- Over the past years, the catch capacity of the beam-trawl fleet has fallen dramatically - in 2008 23 vessels were decommissioned, which reduced the number of large traditional North Sea beam-trawlers to 81. See figure 4
- Heavy engines mean an increased catching capacity, and therefore there are European and national maximum levels for the engine capacity. The Dutch fleet is the only fleet in the European Union that has checkable seals on the permitted engine capacity in all vessels.
- Dutch fishermen are taking a number of measures to prevent discards as much as possible and to enable small flatfish to grow into mature fish. Increasing the European minimum mesh size for the beam-trawl nets from 80mm to 90mm did not produce the anticipated reduction in plaice discards, but led to large losses in the catch of Dover sole, the main species of this fishery⁶. Together with fisheries researchers tests are now being carried out with escape panels in the beam-trawl gear, and the initial results are most promising; similar panels are also being tested in the targeted twin-rig fishery for plaice.

- The fishing industry works actively on alternative fishing methods, where reducing undesired bycatch, minimisation of seabed disturbance, and fuel savings are central. Examples include the pulse trawl, which is an adapted beam-trawl gear where the tickler chains that are used to startle the fish have been replaced with electrical pulses, and the sum-wing, which is a fully floating beam-trawl gear.



- In 2008, Dutch fishermen voluntarily reduced the fishing effort by 25% during the period the plaice reproduces, the spawning season, in order to give the fish more rest.
- Fishing areas with very large concentrations of young plaice are closed voluntarily during a 2-week period, the so-called Real Time Closures.

Figure 4: Historic development capacity and effort Dutch demersal fleet



Agricultural Economics Research Institute, C. Taal, Nov. 2007.



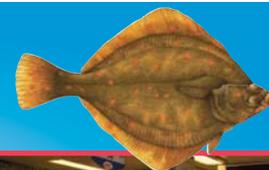
Export

The larger part of the plaice and plaice products, some 80%, is exported, with Italy being the main purchaser, followed by Germany and Great Britain. Within Europe, the Netherlands is one of the main exporters of flatfish. In Italy, some 90% of the plaice that enters the market comes from the Netherlands, whilst Germany takes second place with more than 80%.

Export trends for frozen plaice

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------|------|------|------|------|------|------|------|
| index | 100 | 97 | 103 | 107 | 100 | 101 | 86 |

Source: Eurostat - Comext



Plaice processing

The flatfish industry consists predominantly of companies that specialise in processing and selling flatfish from the North Sea. Most companies purchase fresh raw materials from the Dutch auctions. The processing takes place afterwards, usually within the company's premises, and this includes filleting, coating in bread crumbs, and freezing. Frozen and fresh sole and plaice products account for the largest part of the sector's turnover. Sales are mainly focused on markets in other EU countries, such as Italy, Belgium, France, Germany, the UK, and Spain.

The total landings of fish have fallen by 26% since 2000, whilst the landing of plaice was 30% lower in 2005. This level of 42,000 tonnes is less than half of the amount of plaice that was landed in the record year of 1989⁶.

In the larger part of the companies, the processing and wholesale activities are fully integrated. Apart from a few filleting companies, nearly all companies are active in the export market. Approximately 90% of these companies are also active in the domestic market. Around 60% of production takes place in-house, whilst around 15% is outsourced to other companies in the Netherlands and 25% of the end products are imported.

The larger part, approximately 85%, of production is supplied in wholesale packaging. The products in consumer packaging mainly consist of frozen products.⁶

Landings and import of plaice in 2007

| | Tonnes landing |
|-------------------------|----------------|
| Landings Dutch auctions | 41.000 |
| - Dutch vessels | 20.000 |
| - Foreign vessels | 21.000 |
| Import | 11.000 |
| Total | 52.000 |

Agricultural Economics Institute, J. Smit, March 2008

Dutch fish processing and wholesale in 2007

| | Tonnes landing |
|----------------|----------------|
| Total | 52.000 |
| - fresh market | 11.000 |
| - frozen | 41.000 |
| Sales | |
| - Domestic | 4.000 |
| - Export | 48.000 |

Agricultural Economics Institute, J. Smit, March 2008

WOULD YOU LIKE TO KNOW MORE?

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

References

- 1 ICES Advisory Committee (2008). Plaice in Subarea IV (North Sea). Copenhagen: ICES.
- 2 European Community (2007). Council Regulation (EC) No 676/2007 of 11 June 2007 establishing a multiannual plan for fisheries exploiting stocks of plaice and sole in the North Sea. Brussels: EC.
- 3 Rijnsdorp, A.D., G.J. Piet, F. Storbeck & E. Visser (2000). De microverspreiding van de Nederlandse boomkorvloot in de periode 1993-1999 en de effecten van de boomkorvisserij op het bodemecosysteem. [Microdistribution of the Dutch beam-trawl fleet in the 1993-1999 period and the effects of beam-trawl fishery on the seabed ecosystem] IJmuiden: RIVO.
- 4 Aarts, G. M. & A.T.M. van Helmond (2007). Discard sampling of plaice (*Pleuronectes platessa*) and cod (*Gadus morhua*) by the Dutch demersal fleet from 2004 to 2006. Report C120/07. IJmuiden: IMARES.
- 5 Quirijns, F. & N. Hintzen (2007). Effect van de maaswijdte op de vangstsamenstelling in de boomkorvisserij. [Effect of mesh width on the catch composition in beam-trawl fishery] Report C122/07. IJmuiden: IMARES.
6. Ir. J.G.P. Smit, Agriculture-Economic Institute. Wageningen



Responsible Fishing Committee
Dutch Fish Product Board

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