

## Stock Annex: Pollack (*Pollachius pollachius*) in Subarea 4 and Division 3.a (North Sea, Skagerrak and Kattegat)

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Stock specific documentation of standard assessment procedures used by ICES.

<b>Stock:</b>	Pollack
<b>Working Group:</b>	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)
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### A. General

#### A.1. Stock definition

There is little published information on pollack (*Pollachius pollachius*, Linnaeus, 1758) biology. The species is restricted to the Northeast Atlantic with a main distribution from the Portuguese continental coast northwards around the British Isles, into the Skagerrak and along the Norwegian coast where it is fairly common up to the Lofoten Islands, and catches have occasionally been recorded as far north as Bear Island. It is rare at Faroe and Iceland and in the Baltic and was never registered in Spanish landings in 9.a South (Gulf of Cádiz).

According to FAO Fishbase pollack is benthopelagic, found mostly close to the shore over hard bottom (Svetovidov, 1986) and wrecks and other obstacles (Quero and Vayne, 1997). It usually occurs at 40–100 m depth but is found down to 200 m. A long time series of hauls with a beach seine on the Skagerrak coast shows that 0-group pollack are regularly found in shallow areas close to the shore, but generally in more exposed areas than 0-group cod. Pollack are therefore protected from the fisheries in the early life stages. A single tagging experiment on young (30–35 cm) pollack on the Norwegian west coast gave only local recaptures (Jakobsen, 1985).

According to Fishbase spawning takes place from January to May, depending on the area, and mostly at 100 m depth. Reinsch (1976) gives main spawning in March–April, taking place in the open waters of Skagerrak and the North Sea as well as in coastal waters, FAO Fishbase gives a maximum length of 130 cm, maximum published weight of 18.1 kg and maximum reported age of 8 years based on Cohen *et al.* (1990). This age, however, seems low compared to the maximum size reported. Female length-at-maturity was considered as 35 cm (Cardinale *et al.* 2012), at the age of 3 years. According to Reinsch (1976), the Pollack grows at approximately 7 cm per year after age 3, reaching nearly 90 cm and 5 kg at age 10. Feeding is mainly on fish, and incidentally on crustaceans and cephalopods.

French observations from the Western Channel/Celtic Sea region may also be relevant for the North Sea/Skagerrak. They mainly support the information in Fishbase, although a higher maximum age (15 years) is found. Growth is thus fairly rapid, approaching 10 cm per year. Pollack move gradually away from the coast into deeper waters as they grow. French observations also show that it is most available for fishing when it forms spawning aggregations. Otherwise its preference for wrecks and rocky bottom makes it difficult to catch them with trawls. For this reason trawl surveys are probably not very well suited for monitoring this species.

Charrier *et al.* (2006) used six microsatellite markers to assess the stock structure of pollack in the NE Atlantic by comparing samples collected in four locations along the Atlantic French coast and from one location off southern Norway. Overall results showed limited genetic differentiation among samples which may be related: i) with the existence of gene flow between spawning units due to the larvae dispersal or ii) with a recent origin of populations which prevents significant genetic drift. However, authors remark that results should be carefully analysed due to the small sample sizes and the limited number of microsatellites used which might have hampered the detection of population differentiation for pollack. There are no morphological studies that could be used to separate stocks for this species.

Data from the fishery indicate three main areas of exploitation: one in the northern North Sea/Skagerrak extending north along the Norwegian coast, one in the Western Channel extending into the Eastern Channel, the Celtic Sea, the Irish Sea, and the northern part of the French west coast (areas 7.e-j and 8.a,b - landings from the intermediate areas 6.a and 4.c are generally small), and one in the Iberian waters (areas 8.c and 9.a. WGNEW proposed, based on a pragmatic approach, to distinguish three different stock units: the southern European Atlantic shelf (Bay of Biscay and Iberian Peninsula), the Celtic Seas, and the North Sea (including 7.d and 3.a). This implies that Pollack in Division 2.a also is a separate stock unit, but this is not discussed in the WGNEW report.

In the ICES advice it was decided to deal with Pollack in Division 7.d as a part of the Celtic Sea ecosystem.

## **A.2. Fishery**

Pollack is mainly a bycatch in various commercial fisheries. Monthly Norwegian catches, averaged over the years 1992–2011, show that catches peak in the months of March and April, coinciding with the spawning time, and this may be associated with spawning aggregations. In Norway the most important gear are gillnets and otter trawl, responsible for 70 and 14 % of the catches respectively. When catches within and outside the 12-miles zone are compared it is seen that, for 2011, in Division 3.a, 97% was from within the 12-miles zone (by gillnet and *Pandalus* trawl). In Subarea 4, 66% of the catches were made within the 12-miles zone (again by gillnets), whereas in the area beyond the 12-miles zone the main catches were made by otter trawl. The geographical distribution of pollack in Norwegian otter trawl catches closely corresponds to that of saithe.

Pollack is also often caught in recreational fisheries, but no data about these catches are known to the working group.

### **A.3. Ecosystem aspects**

No information on the ecosystem aspects of this stock has been collated by the working group. Feeding is reported to be mainly on fish, and incidentally on crustaceans and cephalopods.

## **B. Data**

### **B.1. Commercial catch**

Historical landings statistics for pollack are available from ICES, but they are clearly incomplete in earlier years. The introduction of the EEZs in 1977 represented a change in reporting and from 1977 the data series appears to be reasonably consistent and adequate for allocating catches at least to ICES subareas. Considering that pollack is not subject to TAC regulations, a major incentive for mis- or underreporting is not present and landings figures are thus probably reflecting main trends in landings in the different areas.

### **B.2. Biological**

There has been some collection of biological parameters in Subarea 4 and Division 3.a by Norway in the most recent years, but the data have not yet been processed.

### **B.3. Surveys**

Pollack is being caught in the IBTS survey in small numbers only. They are distributed mainly over the north-western North Sea (along the Norwegian Deep) and into the Skagerrak. Time series of abundance in the IBTS are shown for Subarea 4, and Division 3.a separately, for quarter 1 (from 1977 onwards) and quarter 3 (from 1996 onwards). The catches seem rather irregular, and no clear patterns emerge. A possible exception is the time series for quarter 1 in 3.a that seems to mirror the decrease in abundance of pollack in this area, as also reported in Cardinale *et al.* (2012).

### **B.4. Commercial CPUE**

### **B.5. Other relevant data**

## **C. Assessment: data and method**

Only trends in landings and surveys are available as potential indicators of stock trends but are not presently used as a basis for advice. In 2018 advice was changed from a biennial to a triennial advice. From 2018-2021 ICES was not requested to give advice on catches for pollack. From 2021 catch advice is again provided. The present advice is based on the averaged landings for the last three years and the calculated, averaged discards for these years modified by applying a precautionary buffer, i.e. multiplying this number by 0.8. Six groupings are currently used to raise the discards; Three groupings for division 3a; i) one grouping for all OTB trawls across all seasons/year, ii) one grouping for all GNS gear across all seasons/year and iii) one “bucket grouping” for all remaining fleets. These same three groupings are also used for subarea 4.

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