

3.12.3.b Response to the Government of the United Kingdom on the utility of the Western Mackerel Box

UK has requested ICES to evaluate:

The utility of the western mackerel box

ICES Comments:

The restrictions on fishing for mackerel inside the regulated area known as the 'Mackerel Box' are described in Council Regulation (EC) No 894/97 Article 9.

The Mackerel Box (Figure 3.12.3.b.1) is defined by the area bounded by the following co-ordinates:

- a point on the south coast of the UK at longitude 02°00' W
- latitude 49°30' N longitude 02°00' W
- latitude 49°30' N longitude 07°00' W
- latitude 52°00' N longitude 07°00' W
- a point on the West coast of the UK at latitude 52°00' W

The restrictions were introduced in order to reduce the fishing effort on juvenile mackerel (defined as ages 1, 2, and 3 in quarters 1 and 2 and ages 0, 1, and 2 in quarters 3 and 4), which are considered to be concentrated in the area and vulnerable to targeted exploitation. A seasonal closure was imposed from 1980 and the area was permanently closed in 1985 to all methods of mackerel fishing, except quota-regulated vessels using gillnets or handlines. Mackerel may also be taken legally inside the Box as a by-catch in the Danish industrial fishery for horse mackerel and sardines and the Dutch human consumption fisheries targeted at horse mackerel.

The Mackerel Box is not the only area in which there are restrictions on the fishing of mackerel. The North Sea Divisions IVb and c, in which large numbers of juvenile mackerel from the western area occur in the south during the third quarter of the year, are closed to a targeted mackerel fishery throughout the year.

The fishery in the area of the Mackerel Box

ICES Divisions VIIefgh include parts of the Mackerel Box. The average yearly total landing for the last 10 years from Divisions VIIefgh is 25 000 tonnes, with a range of 18 – 40 000 tonnes. The majority of the catches are reported from Divisions VIIe and f.

The age compositions of the commercial catch in number-at-age recorded within Divisions VIIefgh in the years 1988 – 2001 is dominated by juvenile mackerel. Juvenile fish constitute 70–85% in numbers, see Figure 3.12.3.b.2. In recent years, catches in Division VIIefgh

have generated 38% of the total 1 year old and 26% of the 2 year old mackerel catches, and accordingly the same proportions of the fishing mortality at those ages,

Research surveys inside the Mackerel Box

The commercial catch proportions are in agreement with survey information collected by CEFAS, UK from within the Mackerel Box. The proportional number of immature fish within samples taken from the Mackerel Box was 91% in 1990, 60% in 1991, 76% in the winter of 1995/6, and 69% in 1998.

The potential yield and biomass contribution from mackerel taken in the area of the Mackerel Box

Figure 3.12.3.b.3 illustrates that the average weight of a fish caught in the Divisions VIIefgh is lower than in other areas.

The calculated percentage loss of yield when taking a fish in Divisions VIIefgh compared to the remainder of the areas in which mackerel are distributed, is at the current fishing mortality rate of 0.2, 15% in yield. The loss is due to the low weight of fish taken in Divisions VIIefgh and the low modal age of capture. At the current fishing mortality rate of 0.2 the loss of SSB per recruit from fish taken in the Box area is 20%.

Both the yield- and SSB-per-recruit analyses assume that the fish taken within the Mackerel Box are of similar age composition and weight as the commercial samples from Divisions VIIefgh. The Mackerel Box is known to have large schools of 1- and 2-year-old fish. Directed fishing at these schools may result in higher local fishing mortality and result in even greater losses than those calculated at the *status quo* levels.

Conclusions

ICES considers that the loss of potential yield and the increased risk to the spawning stock of the NEA mackerel from an opening of the box should be avoided. The Mackerel Box should remain closed to targeted mackerel fishing. This advice is consistent with previous studies by this Working Group and the recommendations from the EU Scientific Technical Committee for Fisheries.

Details and further results are presented in the assessment group report.

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy, 10–19 September 2002 (ICES CM 2003/ACFM:07).

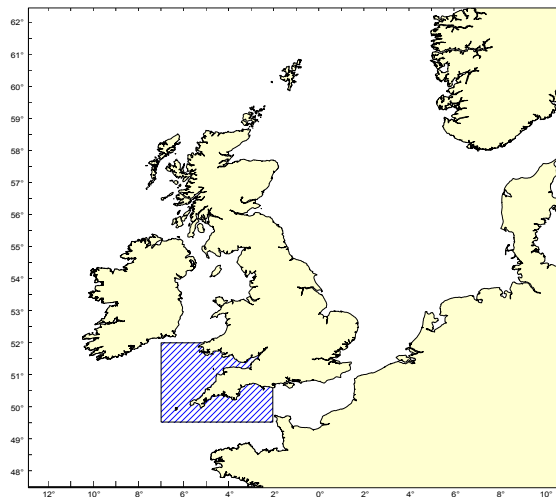


Figure 3.12.3.b.1. The Mackerel Box.

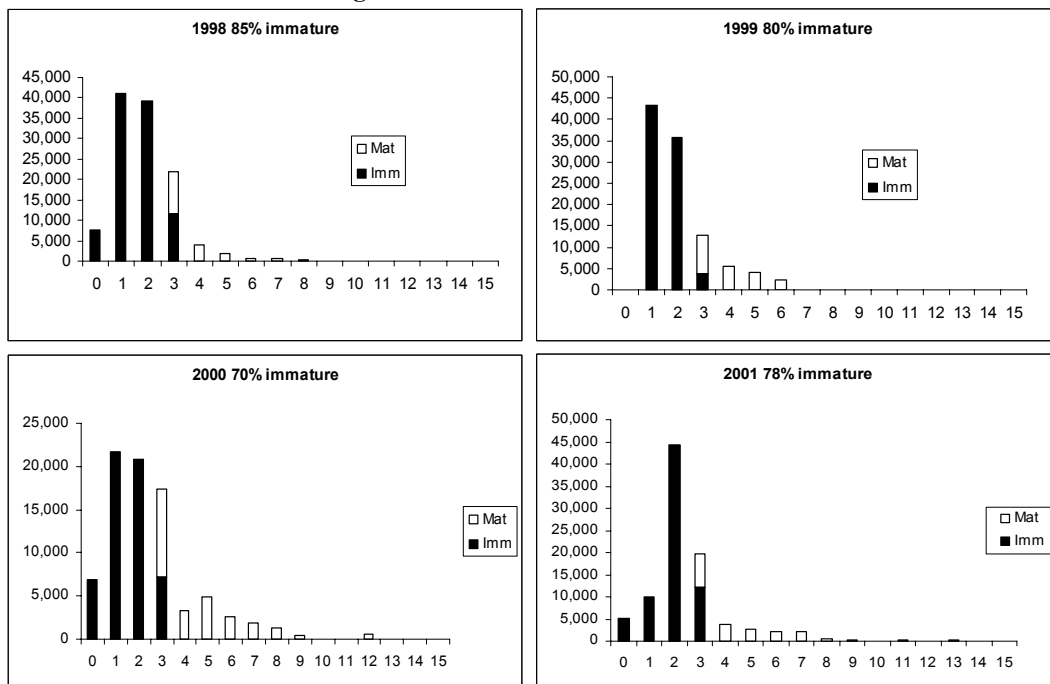


Figure 3.12.3.b.2. The percentage of mature and immature fish recorded in commercial landings from ICES Divisions VIIefgh for the years 1998–2001. Ages 0–2 are assumed to be immature, while age 3 is assumed to be immature in quarters 1 and 2 and mature in quarters 3 and 4.

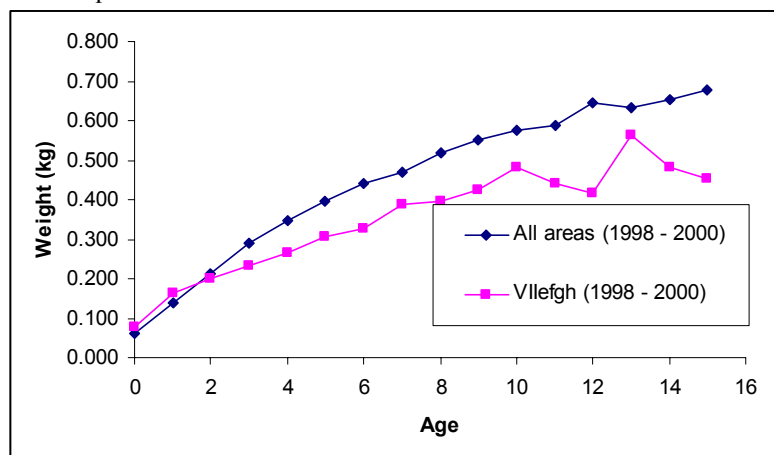


Figure 3.12.3.b.3 The average weight-at-age of mackerel caught in ICES Divisions VIIefgh and in all ICES Divisions, illustrating the relatively low weight-at-age of fish taken from Divisions VIIefgh.