Stock Annex: Brill (*Scophthalmus rhombus*) in Subdivisions 22–32 (Baltic Sea)

Stock specific documentation of standard assessment procedures used by ICES.

Stock:	Brill
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A. General

A.1. Stock definition

Lack of available information for brill did not allow identifying stock structure for this species (ICES, 2010). Brill is distributed mainly in the western part of the Baltic Sea and Brill fishery is dominated by Denmark in SD 22 (95% of the catches in 1985–2009, ICES, 2010). Yearly landings within the Baltic Sea have varied between 19 and 106 tonnes during the last ten years (ICES, 2010). The eastern border of its occurrence is not clearly described. The range of its distribution extends to the SD 25 but in the southern part of SD 24–25 (Poland EEZ) only single specimens are caught occasionally (unpublished data, E. Gosz). In SDs 26-32 these species was recorded few times during the last century (Plikšs and Aleksejevs, 1998). Additional information have been available based on the international coordinated Baltic International Trawl Survey (BITS) since 2001 where standard gear were applied and common survey design were used. Spatial distributions of brill during BITS suggest that the brill stock SD 22–32 is related with brill in SD 21, at least (Figure 1, spatial distribution of brill during BITS in quarter 4 2008). Most eastern reported catch of brill during BITS of quarter 1 and 4 from 2001 onwards were observed at 15 °E in quarter 1 2009. Genetic or tagging or any other study are not available that could be used to infer population structure within the Baltic, hence no suggestions for possible assessment stocks based on biological information can be given.

Biological and fishery data of brill for the Baltic Sea were only available from German fishery parameters like catch volume, discard volume, discard length distribution, discard age distribution, length distribution – commercial catches, length distribution – survey, catch at age in numbers, weight at age in the catch, fishing effort, commercial catch per unit of effort are available by quarter and subdivision for different periods (WKFLABA, 2010).

Minimum mesh opening size for brill is 120 mm and minimum landing size is 30 cm. There is no protection season for brill.



Figure 1: Spatial distribution of brill during BITS in quarter 4 2008. CPUE of brill is given in catch in number per hour in units of TVS. The colour identifies the level of CPUE.

A.2. Fishery

Brill is targeting during a small trammel net fishery by Demark in SD 22 in spring and is captured as by catch during trawl fishery. Brill is mainly landed in SD 22 where more than 80% of total landings were realized by Denmark (Figure 2). The landings of Germany and Sweden in SD 22–30 are of minor importance with exceptions in 1982 and 1983 where 47% and 76% of total landing, respectively, were realized by Sweden in SD 24–28. Three periods of landings of more than 60 tons were observed followed by years of lower landings. In 1997 the landings of brill reached the level of more than 60 tons the first time within the period of observations. The landings decreased to the minimum of one ton in 1990. In the nineties the ladings again increased to values above 60 tons between 1994 and 1996 with the overall total maximum of 160 tons in 1995. After a period of landings around 20 tons (1997–2002) landings of more than 55 tons were observed until 2011 followed by landings of ~ 30t.



Figure 2: Landings of brill (tons) by ICES subdivisions from 1970 - 2011

B. Data

B.1. Commercial catch

Landings by countries and ICES Subdivisions are available. In addition, biological and fishery data for the Baltic Sea were only available from Germany. Parameters such as catch volume, discard volume, discard length and age distribution, weight at age in the catch and fishing effort are available by quarter and subdivision for different periods (ICES, 2010) based on German data, but not from other countries. Therefore the commercial catch data were not used for stock assessment.

B.2. Surveys (BITS in quarter 1 and 4)

National bottom trawl surveys were conducted in the Baltic Sea between 1978 and 2000 in quarter 1 and quarter 4. However, large parts of ICES SD 22 were not be covered by the surveys. International Baltic International Trawl Survey (BITS) was established in 2001 which is coordinated by WGBIFS. A new design of the survey was applied with random selected station taken from Tow Database. Small and larger versions of standard gear (TVS and TVL) which were adapted to the different sizes of research vessels were used and conversion factors were estimated based in inter-calibration experiments to transfer the catch per unit effort data of TVS into units of TVL. The mesh size in the cod end of the standard gears is 10 cm suggesting that the catchability of brill larger than 11 cm is not influenced by the cod end mesh size if it is assumed that the selectivity characteristics of brill and flounder are comparable (Oeberst, 2007).

The highest observed catch numbers per hour were 4 brill. Minimum observed length of brill during BITS was 11 cm and the maximum length was 55 cm. Truncation of length range for the stock assessment is not supported by the length distributions observed during BITS. Brill was mainly observed west of 13 °E, but, brill was also captured at 15 °E 2009. Highest cpue values were observed between 10 m and 30 m depth. Age determination analyses started in 2011.

C. Assessment: data and method

Landings by countries and ICES Subdivisions are presented. In addition, mean catch in numbers per hour of brill \geq 20 cm length based on BITS Q1+Q4 in SD 22–24 combined

indices (arithmetic mean) are presented. Hauls which were realized between 10 m and 19 m depth (BITS stratum 8) are taken into account. The mean cpue values were estimated according the procedures given in the BITS manual. Constant conversion factor of 1.4 was used to transfer the cpue values of the small standard gear (TVS) into units of the large standard gear (TVL).

I. References

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