Conclusions and findings of International Council for the Exploration of the Sea (ICES) eastern Baltic cod benchmark report published on 5th April 2019.

ICES. 2019. Benchmark Workshop on Baltic Cod Stocks (WKBALTCOD2). ICES Scientific Reports. 1:9. 310 pp. http://doi.org/10.17895/ices.pub.4984

http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2019/WKBALTCOD2/WKBALTCOD2%202019.pdf

Conclusions and findings of ICES benchmark report on eastern Baltic cod:

The benchmark uses a new stock assessment model to allow an analytical assessment for the stock, which has been lacking since 2014. Moreover, reference points taking into account changes in productivity of the stock were also estimated, and procedures to conduct short-term forecasts were agreed. Section 4.10, page 79, last para: *"...the quality of the assessment was found reasonable and the assessment appropriate to be used as the basis for advice for the eastern Baltic cod."*

Regarding the defining of appropriate new reference points the ICES benchmark report states: Section 4.8, page 77, para 2 & 3: *"The latest relatively strong year-class was formed in 2012 from an SSB of 98 000 t (Fig. 4.34). Therefore, Blim was set to this level, i.e. 98 000 t". "Due to the presently very dynamic biological situation for the eastern Baltic cod, the current Blim at 98 000 t is considered to be applicable only in short term. The reproductive capacity of the stock needs to be closely monitored in coming years, and when new information becomes available, the Blim value needs to be re-evaluated."*

Furthermore, the report concludes regarding establishing an F_{MSY} value: Section 4.8, page 77, last two para's: *"... analyses showed that even with FMSY at 0 the SSB would not be kept above Blim (98 000 t) in the long term, with 95% probability. (...) Even when applying a substantially lower value for Blim (53000 t), the result in terms of the stock being below Blim with more than 5% probability even at FMSY = 0 remained unchanged. In other words, following the ICES MSY framework for this stock, the estimated FMSY is equal to 0. For this reason, no F reference points were defined for this stock."*

Regarding the procedures to conduct short-term forecasts: Section 4.9, page 78, para 2: *"As there is no F reference point for this stock, probabilistic forecast with MCMC was proposed to be used instead. In this approach, catch and SSB levels corresponding to different F factors are calculated as in typical deterministic short term forecast but using MCMC to make it possible to also include the associated probability/risk of the SSB to be below Blim and Btrigger for each year of forecast. At the benchmark, this approach was approved to be used, and the actual forecast will be performed in the next WGBFAS."*

Regarding stock status, reproductive capacity and recruitment: Section 4.8, page 77, para 1: *"The year classes from 2015 and 2016 are estimated to be among the lowest since the 1990s (Fig. 4.34). Preliminary information from the BITS Q4 2018 survey indicates a weak year-class also for 2017. Moreover, preliminary information from the 2018 ichthyoplankton surveys shows very low larval abundances throughout the spawning season, suggesting a poor year-class also for 2018. This sequence of poor year-classes raises concerns about the current reproductive capacity of the stock, the recruitment possibly being impaired by the quality of the spawning stock. Therefore, the size of spawning stock (SSB) in tons alone is not considered representative for reproductive capacity for the stock at present, as the quality of the SSB needs to be considered as well".*

For further information, latest correspondence and documents concerning Eastern Baltic cod visit: https://www.fishsec.org/2019/04/02/update-on-eastern-baltic-cod

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