

EU standing request on catch scenarios for zero TAC stocks 2020; the eastern Baltic cod (*Gadus morhua*) stock in subdivisions 24–32

Service summary

ICES has provided estimates of the likely catches of eastern Baltic cod (*Gadus morhua*) under the assumption that the TACs for the other stocks are set in line with ICES advice.

For the eastern Baltic cod stock ICES estimates that 1532 tonnes will be caught in a mixed fisheries with western Baltic cod in Subdivision 24 in 2021, assuming that western Baltic cod commercial catches are in line with ICES advice, and that the proportions of catches as well as the ratios of both stocks remain the same in Subdivision 24 as those observed in 2019.

Request

EU DGMARE has requested ICES to evaluate the following:

For by-catch and for target stocks where ICES is advising zero TACs but the stock is caught in mixed-fisheries with other species where non-zero catches are advised, where possible ICES will provide the EU with illustrative catch scenarios that are consistent with the advice for the main target species in the fishery.

Where the zero TAC advice is given for a target stock subject to a MAP the catch scenarios for the zero TAC stock should include scenarios consistent the F_{MSY} range in the target stock (e.g. F_{MSY} , $F_{MSY\ Lower}$ and intermediate values) and quantify the corresponding changes in biomass. Scenarios should therefore also be produced that give, as a minimum, a stable biomass and increasing biomass if F_{MSY} ranges do not†. This may involve carrying out mixed fisheries forecast or providing F -multipliers consistent with the advice for the target stocks or where forecasts are not possible the catch scenario should be based the best available scientific information. Where possible ICES should provide catch scenarios which include changes in fishing pattern if they considered likely by ICES.*

For stocks where ICES is advising zero TACs but where a monitoring fishery would be useful to monitor stock development, where possible ICES will provide catch scenarios for a monitoring TAC. This should be the minimum level of catches needed to provide sufficient data for ICES to continue providing scientific advice on the state of this stock.

Basis of the advice

Eastern Baltic cod is caught in mixed fisheries with western Baltic cod in Subdivision (SD) 24. If the commercial catch of western Baltic cod in 2021 is in line with the advised catch of 4635 tonnes, it is expected that 1532 tonnes of eastern Baltic cod will be caught in SD 24 in 2021 (Table 1, scenario b). This is based on two assumptions: (a) the geographical distribution of commercial catches from the western stock in 2021 is the same as that observed in 2019 (26% in SD 24), and (b) the ratio between the eastern and the western stocks in the commercial cod catch in SD 24 is the same as observed in 2019 (1.27).

ICES assumes that catches of eastern Baltic cod in 2020 will be in the order of 7500 tonnes, based on an EU TAC of 2000 tonnes and a Russian quota of 5500 tonnes. To guide management decisions, further catch scenarios are provided that assume catches in 2021 of 7500 tonnes or, with a 25% reduction in catches, 5625 tonnes (Table 2). All options, including the zero catches, show a small increase in SSB between 2021 and 2022; however, all scenarios result in an SSB 2022 that is below the SSB 2020 of 68 652 tonnes from the assessment model.

* This is because the safeguards in the MAPs are measured in rebuilding of biomass, not fishing mortality levels.

† E.g. northern seabass 2020 catch advice (from June 2019), where both F_{MSY} and $F_{MSY\ Lower}$ generated negative biomass for a stock slightly above B_{lim} .

Results

Table 1 The scenarios illustrate various examples giving the implications of different management scenarios on bycatches of eastern Baltic (EB) cod in SD 24. Weights are in tonnes.

Area	Commercial catch WB cod stock			Commercial catch EB cod stock			Commercial catch of cod by management area (TAC)				
	A	B	C	D	E	F	G		H		
	Advice total	SDs 22–23	SD 24	Total	SD 24	SDs 25–32	SDs 22–24	% TAC change (SDs 22–24)*	SDs 25–32	% TAC change (SDs 25–32)**	
a. Assuming no catch of EB cod in the Western Baltic management area, total TAC is taken in SD 22-23											
Calculation		= A × 1.0	= A × 0.0		= C × 1.27 ^^	= D – E	= B + C + E			= F	
EU MAP: F _{MSY}	4635	4635	0	0	0	0	4635	22	0	-100	
b. Assuming no change in Western Baltic historic catch distribution by area and EBC status quo catch											
Calculation		= A × 0.74^	= A × 0.26^		= C × 1.27^^	= D – E	= B + C + E			= F	
EU MAP: F _{MSY}	4635	3430	1205	7500	1532	5968	6167	62	5968	-20	
c. Assuming EB cod catches in SD 24 limited to 10% of the total EBC status quo catch											
Calculation		= A – C	= E/1.27		10% of total EBC catch^^^	= D – E	= B + C + E			= F	
EU MAP: F _{MSY}	4635	4045	590	7500	750	6750	5385	41	6750	-10	

* Compared to the 2020 TAC for subdivisions 22–24 (3806 tonnes).

** Compared to the 2020 TAC for subdivisions 25–32 (7500 tonnes, Russia + EU).

^ Same proportions of the WB cod stock commercial catch that have been harvested in subdivisions 22–23 and Subdivision 24 in the latest data year (2019).

^^ The EB cod catch / WB cod commercial catch ratio is similar to that observed in Subdivision 24 in the latest data year (2019).

^^^ Same commercial catch ratio between subdivisions 24 and 25–32 as in 2019.

Table 2 Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2021)	F (2021)	SSB (2021)	SSB (2022)	Probability of SSB (2022) > B _{lim} (%)	% SSB change	% Catch change**
ICES advice basis							
F = 0	0	0	61169	67233	< 0.01	10	-100
Other scenarios							
F = 0.05	4133	0.050	59411	64082	< 0.01	8	-65
F = F (2019)	9390	0.117	57155	60033	< 0.01	5	-21
Catch = TAC (2020)	7500	0.097	57914	61204	< 0.01	6	-37
Catch = 0.75 × TAC (2020)	5625	0.072	58711	62717	< 0.01	7	-53
Catch in SD 24*	1532	0.019	60504	66005	< 0.01	9	-87

* Due to the mixed fisheries of eastern and western Baltic cod in SD 24, it would be expected that 1532 tonnes of eastern Baltic cod is harvested in SD 24 in 2021, when the commercial catch of 4635 tonnes is taken from the western Baltic cod stock (see Table 5 in ICES, 2020a). It is assumed that the geographical distribution of commercial catches from the western stock in 2021 is the same as that observed in 2019 (26% in SD 24), and the ratio between the eastern and western stocks in the commercial cod catch in SD 24 is the same as that observed in 2019 (1.27).

**Catch in 2021 compared to catch in 2019 (11 938 tonnes).

Sources and references

ICES. 2020a. Cod (*Gadus morhua*) in subdivisions 22–24, western Baltic stock (western Baltic Sea). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, cod.27.22-24. <https://doi.org/10.17895/ices.advice.5942>.

ICES. 2020b. Cod (*Gadus morhua*) in subdivisions 24–32, eastern Baltic stock (eastern Baltic Sea). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, cod.27.24–32. <https://doi.org/10.17895/ices.advice.5943>.

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