

## Belgium request for a revision of catch advice in 2019 and 2020 for sole (*Solea solea*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea)

### Advice summary

**Please note: The present advice replaces the advice given on 1 October 2019.**

ICES advises that when the MSY approach is applied using the assessment conducted in spring 2019, which incorporates the 2019 inter-benchmark settings, catches in 2019 should be no more than 1488 tonnes.

ICES notes that the advice provided in June 2019 for 2020 for this stock assumed that catches in 2019 would be equal to the established TAC for 2019 of 841 tonnes. ICES advises that if the TAC for 2019 is revised, the advice for 2020 from June 2019 would no longer be valid. Depending on the scenario retained, the corresponding advice for 2020 would be as follows:

- a) If the TAC for 2019 is revised to 1488 tonnes (fishing at  $F_{MSY}$  in 2019), ICES advises that catches in 2020 that correspond to the F ranges in the MAP are between 918 tonnes and 2402 tonnes. According to the MAP, catches higher than those corresponding to  $F_{MSY}$  (1559 tonnes) can only be taken under conditions specified in the MAP, while the entire range is considered precautionary when applying the ICES advice rule.
- b) If the TAC for 2019 is revised to 1009 tonnes (the management scenario assumed for 2019 in the request, and equivalent to the 2019 TAC +20%), ICES advises that when the EU multiannual plan (MAP) for Western waters and adjacent waters is applied, catches in 2020 that correspond to the F ranges in the MAP are between 993 tonnes and 2597 tonnes. According to the MAP, catches higher than those corresponding to  $F_{MSY}$  (1686 tonnes) can only be taken under conditions specified in the MAP, while the entire range is considered precautionary when applying the ICES advice rule.

### Request

The present advice is in response to a request from Belgium received on 31 July 2019, and a follow-up request received on 4 October 2019. Belgium initially requested “a revision of advice 2019 on Sole VII,f,g taking into account the latest information of the inter-benchmark.”

The follow-up request was as follows:

*“On the basis of the advice released regarding the revised advice on basis of the IBP of sole in VII,f,g, Belgium requested the Commission to increase the TAC for 2019 with +20% to take into account the fishing capacity for the remaining of the year. This means that the TAC for 2019 will be set at 1.009t. ICES is requested to provide the MSY point value based on a TAC for 2019 at 1.009t for the TAC setting in 2020.”*

### Elaboration on the advice

In June 2019, ICES provided advice on fishing opportunities for sole in divisions 7.f and 7.g in 2020, based on a stock assessment that incorporated the assessment protocol agreed during the inter-benchmark held 29–31 January 2019 (ICES, 2019a) and updated reference points (ICES, 2019b). To respond to the request from Belgium, a prediction of catches for 2019 – based on the results of the 2019 assessment (ICES, 2019b) and using the maximum sustainable yield (MSY) approach instead of the established TAC of 841 tonnes – have been provided. ICES advises that when the MSY approach is applied, catches in 2019 should be no more than 1488 tonnes.

**Table 1** Sole in divisions 7.f and 7.g. Predicted catch at  $F = F_{MSY} = 0.297$  for 2019, using the 2019 assessment of the stock (ICES, 2019b) that incorporates the most recent inter-benchmark conducted 29–31 January 2019. All weights are in tonnes.

Basis	Catch (2019)	Wanted catch * (2019)	Unwanted catch * (2019)	F wanted catch ** (2019)	SSB (2020)	% SSB change ***	% TAC change ^	% Advice change ^^
MSY approach: $F_{MSY}$	1488	1356	132	0.297	4869	10.1%	62%	60%

\* Total catches are calculated from wanted catch (fish that would be landed in the absence of the EU landing obligation), based on the average discard rate in 2016–2018 (8.9% in weight).

\*\* “Wanted” and “unwanted” catch are used to describe fish that would be landed and discarded, respectively, in the absence of the EU landing obligation.

\*\*\* SSB 2020 relative to SSB 2019.

^ Total catch in 2019 relative to the TAC in 2018 (920 t).

^^ Advice value for 2019 relative to the advice value for 2018 (931 t).

The advice for 2020 issued by ICES in June 2019 (ICES, 2019c) assumed that catches in 2019 would be equal to the established TAC for 2019 of 841 tonnes (EU, 2019). If the TAC for 2019 is not revised, then the advice for the stock issued in June 2019 for 2020 is still valid. However, if the TAC for 2019 is revised upwards and is caught, the spawning biomass for the stock will be lower at the beginning of 2020 than predicted in the June 2019 advice for 2020, which assumed catches of 841 tonnes in 2019.

Catch scenarios were prepared in response to both the initial request and the follow-up request, and are provided below:

- a) If the TAC for 2019 is revised to the value corresponding to fishing at  $F_{MSY}$  (1488 tonnes) and is caught, ICES advises that catches in 2020 that correspond to the F ranges in the MAP are between 918 tonnes and 2402 tonnes (Table 2a). According to the MAP, catches higher than those corresponding to  $F_{MSY}$  (1559 tonnes) can only be taken under conditions specified in the MAP, while the entire range is considered precautionary when applying the ICES advice rule.

**Table 2a** Sole in divisions 7.f and 7.g. Catch scenarios for 2020 assuming catches of 1488 tonnes ( $F = F_{MSY}$ ) in 2019. Weights are in tonnes.

Basis	Total catch * (2020)	Wanted catch ** (2020)	Unwanted catch ** (2020)	F Wanted (2020)	SSB (2021)	% SSB change ***	% TAC change ^	% Advice change ^^
<b>ICES advice basis</b>								
EU MAP <sup>^^^</sup> : $F_{MSY}$	1559	1420	139	0.297	4734	-2.8	85	4.8
EU MAP $F_{MSY}$ lower	918	836	82	0.165	5309	9.0	9.2	-38
EU MAP $F_{MSY}$ upper	2402	2188	214	0.499	3982	-18.2	186	61
<b>Other scenarios</b>								
$F = 0$	0	0	0	0	6136	26	-100	-100
$F_{pa}$	2090	1904	186	0.420	4259	-12.6	149	40
$F_{lim}$	2691	2452	239	0.578	3724	-24	220	81
$SSB_{2021} = B_{lim}$	5146	4688	458	1.65	1592	-67	512	246
$SSB_{2021} = B_{pa} =$	4399	4008	391	1.21	2228	-54	423	196
$F = F_{2019}$	1559	1420	139	0.297	4734	-2.8	85	4.8

\* Total catches are calculated from wanted catch (fish that would be landed in the absence of the EU landing obligation), based on the average discard rate in 2016–2018 (8.9% in weight).

\*\* “Wanted” and “unwanted” catch are used to describe fish that would be landed and discarded, respectively, in the absence of the EU landing obligation.

\*\*\* SSB 2021 relative to SSB 2020.

^ Total catch in 2020 relative to the TAC in 2019 (841 tonnes).

^^ Advice value for 2020 relative to the advice value assuming fishing at  $F_{MSY}$  in 2019 (1488 tonnes).

^^^ EU multiannual plan (MAP) for the Western waters and adjacent waters (EU, 2019).

- b) If the TAC for 2019 is revised to the value corresponding to the 2019 TAC +20% (1009 tonnes) and is caught, ICES advises that when the EU multiannual plan (MAP) for Western waters and adjacent waters is applied, catches in 2020 that correspond to the F ranges in the MAP are between 993 tonnes and 2597 tonnes (Table 2b). According to the MAP, catches higher than those corresponding to  $F_{MSY}$  (1686 tonnes) can only be taken under conditions specified in the MAP, while the entire range is considered precautionary when applying the ICES advice rule.

**Table 2b** Sole in divisions 7.f and 7.g. Catch scenarios for 2020 assuming catches of 1009 t (2019 TAC +20%) in 2019. Weights are in tonnes.

Basis	Total catch * (2020)	Wanted catch ** (2020)	Unwanted catch ** (2020)	F Wanted (2020)	SSB (2021)		% SSB change ***	% TAC change ^	% Advice change ^^
ICES advice basis									
EU MAP <sup>^^^</sup> : $F_{MSY}$	1686	1536	150	0.297	5081		-4.0	100	13.3
EU MAP $F_{MSY\ lower}$	993	905	88	0.165	5704		7.8	18	-33
EU MAP $F_{MSY\ upper}$	2597	2366	231	0.499	4266		-19.4	209	75
Other scenarios									
F = 0	0	0	0	0	6601		25	-100	-100
$F_{pa}$	2260	2059	201	0.420	4566		-13.7	169	52
$F_{lim}$	2910	2651	259	0.578	3988		-25	246	96
$SSB_{2021} = B_{lim}$	5664	5160	504	1.73	1592		-70	573	281
$SSB_{2021} = B_{pa} = MSY\ B_{trigger}$	4916	4479	437	1.29	2228		-58	485	230
F = $F_{2019}$	1146	1044	102	0.193	5566		5.2	36	-23

\* Total catches are calculated from wanted catch (fish that would be landed in the absence of the EU landing obligation), based on the average discard rate in 2016–2018 (8.9% in weight).

\*\* “Wanted” and “unwanted” catch are used to describe fish that would be landed and discarded, respectively, in the absence of the EU landing obligation.

\*\*\* SSB 2021 relative to SSB 2020.

^ Total catch in 2020 relative to the TAC in 2019 (841 tonnes).

^^ Advice value for 2020 relative to the advice value assuming fishing at  $F_{MSY}$  in 2019 (1488 tonnes).

^^^ EU multiannual plan (MAP) for the Western waters and adjacent waters (EU, 2019).

## Basis of the advice

### Background

ICES provided advice in June 2018 on fishing opportunities for 2019 for the sole stock in divisions 7.f and 7.g. An inter-benchmark on the stock was subsequently held 29–31 January 2019, which changed the perception of the stock and resulted in an upward revision of the stock size and recruitment. In June 2019, ICES provided advice on fishing opportunities for sole in divisions 7.f and 7.g in 2020, based on a stock assessment that incorporated the assessment protocol agreed during the inter-benchmark and updated reference points. In the forecast for 2020, the assumption for catches in 2019 was based on a catch constraint corresponding to the established TAC for 2019 of 841 tonnes. This led to a fishing mortality for 2019 that was well below the updated  $F_{MSY}$  for the stock. An initial request for revised advice for 2019, based on the assessment results that would include the inter-benchmark settings and updated reference points, was received on 31 July 2019 and a follow-up request was received on 4 October 2019. The advice provided in the response to the initial request is based on  $F = F_{MSY}$  in 2019 and 2020. For the follow-up request, the advice for 2020 is based on a catch constraint of 1009 tonnes (2019 TAC +20%) in 2019 and fishing at  $F_{MSY}$  in 2020.

### Methods

The results of the 2019 assessment (ICES, 2019b) were used to make an in-year prediction of the catch assuming the MSY approach ( $F = F_{MSY} = 0.297$ ) for 2019, and for a revised forecast for 2020.

**Table 3** Sole in divisions 7.f and 7.g. Main input parameters for generating the updated advice for 2019.

Variable	Value	Notes
F <sub>ages 4-8</sub> (2019)	0.297	F <sub>MSY</sub>
SSB <sub>2019</sub>	4420	Model output from ICES (2019b) – in tonnes.
R <sub>age 1</sub> (2019)	4975	GM(1971–2016) – in thousands.

**Table 4a** Sole in divisions 7.f and 7.g. Main input parameters for generating the forecast for 2020 (assuming catches at F = F<sub>MSY</sub> of 1488 tonnes in 2019).

Variable	Value	Notes
SSB <sub>2020</sub>	4870	Biomass at the beginning of 2020 – in tonnes.
R <sub>age 1</sub> (2020)	4975	GM(1971–2016) – in thousands.
Catch (2019)	1488	Revised advised catches 2019 (MSY approach F <sub>MSY</sub> = 0.297 applied to landings) – in tonnes.
Wanted catch (2019)	1356	Revised advised catches 2019 minus an 8.9% discard ratio in weight – in tonnes.
Unwanted catch (2019)	132	Average ratio of 2016–2018 (8.9%) – in tonnes.

**Table 4b** Sole in divisions 7.f and 7.g. Main input parameters for generating the forecast for 2020 (assuming catches of 1009 t in 2019).

Variable	Value	Notes
F <sub>ages 4-8</sub> (2019)	0.193	Catch constraint (Wanted catch 2019=919 tonnes).
SSB <sub>2020</sub>	5291	Fishing at F = 0.193 – in tonnes.
R <sub>age 1</sub> (2020)	4975	GM(1971–2016) – in thousands.
Catch (2019)	1009	TAC 2019+20% – in tonnes.
Wanted catch (2019)	919	(TAC 2019+20%) minus an 8.9% discard ratio in weight – in tonnes.
Unwanted catch (2019)	90	Average ratio of 2016–2018 (8.9%) – in tonnes.

## Sources and references

EU. 2019. Council Regulation (EU) 2019/124 of 30 January 2019 fixing for 2019 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. Official Journal of the European Union, L 29: 1–166. <http://data.europa.eu/eli/reg/2019/124/oj>.

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ICES. 2019b. Report of the Working Group for the Celtic Seas Ecoregion. ICES Scientific Reports, 1:29. 1587 pp. <http://doi.org/10.17895/ices.pub.4982>.

ICES. 2019c. Sole (*Solea solea*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, sol.27.7fg. 7 pp. <https://doi.org/10.17895/ices.advice.4805>.

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