

## Norway request to provide a catch scenario for 2019 corresponding to the Norway–EU–Faroe long-term management strategy for mackerel (*Scomber scombrus*) in subareas 1–8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters)

### Service summary

ICES was requested to add a catch scenario to the advice sheet for mackerel in the northeast Atlantic (mac.27.nea). The scenario requested was for a catch option based on the 2017 long-term management strategy agreed by the Coastal States Delegates from Norway, the European Union (EU), and the Faroe Islands (Annex 1).

The requested scenario is provided below and has been added to the mackerel advice sheet for 2019.

### Request

*Please find the agreed record for management of mackerel for 2018, with the current joint management plan attached in annex 1. The plan is dealt with in paragraphs 7 and 8 in the agreed record.*

*Norway confirm our statement at the coastal States' meeting in London 8 October, that this plan should be included in the catch option table, in accordance with standard ICES procedures.*

*Norway also add, as the parties to the coastal State agreement on mackerel (EU, Norway and EU), in principle should base their decision on TAC on this plan, it is rather important that it is presented in the ICES advice in future advices.*

### Elaboration on the service

In October 2017, the Coastal States delegations from Norway, the EU, and the Faroe Islands recalled the 2014 Mackerel Arrangement between the EU, the Faroe Islands and Norway signed in London on 12 March 2014 (Anon., 2014). This arrangement constituted an *ad hoc* arrangement, as it was without prejudice to future fisheries arrangements between the parties. The Coastal States delegations agreed on a long-term management strategy (Annex 1), based on a precautionary HCR option from ICES evaluation in 2017 concerning the long-term management strategy for mackerel (ICES, 2017).

Since there is no long-term management strategy for Northeast Atlantic (NEA) mackerel agreed by all parties involved in the mackerel fishery, ICES does not provide its advice on the basis of this plan. However, ICES does provide catch scenarios in the advice sheet to indicate likely short-term impacts for different management scenarios. In ICES advice for mackerel for 2019, none of the scenarios given correspond to the management plan adopted by the Norway, EU, and Faroes delegations. The present document provides the missing catch scenario relevant to this management plan (Table 1).

### Basis of the service

The assessment produced by WGWISE (ICES, 2018) was used as the basis to produce the catch scenario. The short-term forecast provides estimates of SSB and catch in 2019 and 2020 corresponding to the application of the harvest control rule (HCR) and the long-term management strategy (LTMS). The deterministic short-term forecast was calculated using the Fisheries Library for R (FLR; Kell *et al.*, 2007). All procedures used this year follow those used in the benchmark of 2014, as described in the Stock Annex (ICES, 2014).

### Methods

The same procedures used by WGWISE (ICES, 2018) were used to provide the additional catch scenario.

## Results<sup>§</sup>

Spawning stock biomass (SSB) at spawning time in 2019 is forecast to be below 2.57Mt. Applying the HCR (point 4 of the LTMS) leads to Target F = 0.173 in 2019, implying a TAC for 2019 of 318 403 t . Following point 6 of the LTMS, the TAC constraint does not apply.

**Table 1** Mackerel in subareas 1–8 and 14, and in Division 9.a. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2019)	F <sub>4–8</sub> (2019 and 2020)	SSB spawning time (2019)	SSB spawning time (2020)	% SSB change *	% Catch change **	% TAC change ***
LTMS basis							
Norway–EU–Faroe LTMS <sup>§</sup> : Target F = 0.21 × SSB(2019) /2.57Mt	318403	0.173	2117257	2333959	10.2%	-68.2%	-61.0%

\* SSB 2020 relative to SSB 2019.

\*\* Catch in 2019 relative to estimated catches in 2018 (1 000 559 t).

\*\*\* TAC change is calculated compared to the value agreed by the Delegations for 2018 (816 797 t).

‡ SSB is forecast to be below B<sub>trigger</sub> (2 570 000 t) at spawning time in 2019, so the TAC change constraint is not applied (Anon., 2017).

## Sources and references

Anon. 2014. Agreed Record on a Fisheries Arrangement between the European Union, the Faroe Islands and Norway on the management of Mackerel in the north-east Atlantic from 2014 To 2018. London, 12 March 2014. 9 pp. [https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/2014-2018-agreed-record-eu-faroe-islands-norway-mackerel\\_en.pdf](https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/2014-2018-agreed-record-eu-faroe-islands-norway-mackerel_en.pdf)

Anon. 2017. Agreed record of conclusions of fisheries consultations between Norway, the European Union and the Faroe Islands on the management of mackerel in the northeast Atlantic for 2018, London, 11 October 2017. 8 pp. <http://www.ices.dk/community/groups/Documents/EU-Nor-Faroe%20Agreed%20Record%20for%20Mackerel%20Oct%202017.pdf>

ICES. 2014. Stock Annex: Northeast Atlantic mackerel. *In* Report of the Working Group on Widely Distributed Stocks (WGWIDE), 26 August–1 September 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014/ACOM:15, Annex 02A. 28 pp.

ICES. 2017. Report of the Workshop on management strategy evaluation for the mackerel in subareas 1–7 and 14, and in divisions 8.a–e and 9.a (Northeast Atlantic) (WKMCMSE), 28–29 August 2017, Copenhagen, Denmark. ICES CM 2017/ACOM:48, Annex 1: 61–65.

ICES. 2018. Report of the Working Group on Widely Distributed Stocks (WGWIDE), 28 August–3 September 2018, Torshavn, Faroe Islands. ICES CM 2018/ACOM: 23. 488 pp.

Kell, L. T., Mosqueira, I., Grosjean, P., Fromentin, J-M., Garcia, D. G., Hillary, R., Jardim, E., *et al.* 2017. FLR: an open-source framework for the evaluation and development of management strategies. ICES Journal of Marine Science, 64: 640–646. <https://doi.org/10.1093/icesjms/fsm012>

<sup>§</sup> Version 2: The LTMS catch scenario has been corrected and results updated. Point 6 of the LTMS was previously not applied.

## Annex 1

The 2017 long-term management strategy as agreed by the Coastal States Delegates from Norway, the European Union (EU), and the Faroe Islands.

### LONG-TERM MANAGEMENT STRATEGY FOR MACKEREL

1. Reference is made to the Agreed Record on a fisheries arrangement between European Union, the Faroe Islands and Norway on the management of mackerel in the Northeast Atlantic from 2014 to 2018, signed in London on 12 March 2014.
2. The Parties agree to implement a long-term management strategy for mackerel in the Northeast Atlantic, aiming at fishing mortality rate that maximizes long-term yield. It shall be consistent with the precautionary approach, which ensures with a probability of 95 % that the size of the stock is maintained above  $B_{lim}$ .
3. In the case that the spawning stock biomass (SSB) is forecast to be above or equal to 2.57 million tonnes at spawning time in the year for which the total allowable catch (TAC) is to be set, the TAC shall be fixed at a fishing mortality equal to 0.21.
4. In the case that the SSB is forecast to be less than 2.57 million tonnes at spawning time in the year for which the TAC is to be set, the TAC shall be fixed that is consistent with a fishing mortality that is given by:

$$\text{Target } F \leq 0.21 * \text{SSB}/2.57\text{Mt}$$

5. When the rules in paragraph 3 would lead to a TAC which deviates by more than 20% below or 25% above the TAC of the preceding year, the Parties shall fix a TAC that is respectively no more than 20% less or 25% more than the TAC of the preceding year.
6. When the rules in paragraph 4 apply, the TAC constraint in paragraph 5 shall not apply.
7. Each Party may transfer to the following year unutilised quantities of up to 10 % of the quota allocated to it. The quantity transferred shall be in addition to the quota allocated to the Party concerned in the following year. This quantity cannot be transferred further to the quotas for subsequent years.
8. Each Party may authorise fishing of up to 10 % beyond the quota allocated. All quantities fished beyond the allocated quota for one year shall be deducted from the Party's quota allocated for the following year.
9. This long-term management strategy shall be applied in fixing the 2018 TAC level and thereafter.
10. The Parties shall review and, if deemed necessary, revise this long-term management strategy at the latest in 2021 on the basis of, inter alia, the ICES benchmark report. If the Parties receive new and relevant information, an earlier review of the long-term management strategy will be considered.

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