Request from	Joint EU/Norway/UK request
Committee making the request	
Contact within organisation	
Content contact person	
Request announced	
Request received	
Outcome of request required by client	An evaluation report describing the performance of a set of Harvest Control Rules described in the request below. The outcome of this request will be the basis for making an informed choice regarding an agreed Long Term Management Strategy for SAITHE IN SUBAREAS 4 AND 6, AND IN DIVISION 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat).
Request code (client)	
Request code (ICES)	[completed by ICES]
Details of request	

Request from Norway, UK and EU regarding a long-term management strategy for saithe

The Parties will formally consult on implementation of a long-term management strategy for saithe in Subareas 4, 6 and Division 3a after ICES evaluates the strategy consisting of the following elements:

Objective

The Parties agree to manage fishing opportunities, based on a fishing pressure that maximises sustainable yield from the stock given additional elements regarding stability, the use of a biomass buffer and while being consistent with a precautionary approach.

The following describes a range of management measures that will impact the stock and the fishery to a varying degree.

1. *The Harvest control rule (HCR)*

$$F = F_{target} \cdot \frac{SSB}{B_{trigger}}$$
$SSB < B_{trigger}$

$$F = \frac{F_{target}}{SF}\left(1 - \frac{SSB}{B_{trigger}}(1 - SF)\right) \qquad B_{trigger} \leq SSB \leq B_{high}$$

TAC held constant at that obtained at B_{high} $\qquad SSB > B_{high}$

The SSB in the first equation is that at the beginning of the advice year. The second equation introduces the Stability Factor (SF). When $SSB \geq B_{trigger}$ SF=1 corresponds to a constant $F=F_{target}$, while SF<1 corresponds to a linear reduction in F with increasing SSB. The SF<1 creates a limitation on F which results in the F decreasing with increasing SSB in order to provide a more stable catch. The corresponding TAC would increase and reach a maximum before starting to decline. The SSB corresponding to this maximum TAC level is defined as B_{high} and TAC should be kept constant for SSB above that level. This is a novel approach and may need to be refined during the management evaluation process.

The Parties want to compare the performance of sets of HCRs defined by varying the parameters $B_{trigger}$, F_{target} and SF. For the HCRs with SF=1 the performance should also be explored with and without the traditional TAC stability clause added, limiting the TAC change to no more than 25% up or 20% down compared to the previous year's TAC advice (both with and without the stability constraint) as long as the stock is above $B_{trigger}$ at the beginning of the intermediate year.

2. Varying the parameters in the HCR

a) Setting $B_{trigger}$ to 1.0, 1.2, 1.4 and 1.6 times the ICES MSY $B_{trigger}$

b) For each of these, estimate a precautionary F_{target} (conditional on the choice of $B_{trigger}$) that maximises long-term yield and a precautionary F_{target} that produces 95% of the conditional maximum long-term yield

c) For each of the $B_{trigger}$ and F_{target} pairs above set SF=1, 0.9, 0.8 and 0.7.

Parameters		Sets
$B_{trigger}$	1.0, 1.2, 1.4 and 1.6 times the ICES MSY $B_{trigger}$	4
F_{target}	"Maximum" F_{target} and F_{target} producing 95 % of maximum yield	2
SF	1, 0.9, 0.8, 0.7	4

3. Banking and borrowing

The Parties recognises that banking and borrowing is difficult to simulate. The Parties will ask ICES to check if a worst-case scenario of banking and borrowing when the stock is above $B_{trigger}$ still can be considered precautionary following the approach in WKNSMSE 2019.

Evaluation

ICES is requested to evaluate the performance of the described management measures and to what degree they contribute to meeting the stated objectives.

ICES is asked to tabulate the long-term yield, long term SSB, inter annual TAC variability, the fraction of years with SSB below $B_{trigger}$ and the risk of SSB falling below B_{lim}, for the range of combinations described above.

ICES is in addition requested to evaluate the risks and potential loss in yield by applying the 25%/20% stability clause.

Additional information

For background information, the impact of changing the exploitation pattern towards older fish in steps of 0.5, 1.0 and 1.5 years should be explored for a few HCR sets to answer the question: "How much may a change in exploitation pattern result in increased yield?". This task is not part of the regular evaluation of the HCR and is instead an analysis that can be used as basis for a potential future decision to improve on the exploitation pattern.

<u>ICES response</u>

In order to respond to this request an 18 month timeline is required. The process will start with a scoping meeting that should include the experts from WGNSSK and the advice requesters in order to best plan the work, and to make sure that experts understand well the details of the request included here. Below is an outline of the timeline as currently envisaged.

Description	Date	Meeting format and composition	Additional information
New reference point calculation			Work by stock assessment team prior to first meeting
Scoping meeting	Early 2026 - dates TBD (3 days)	In person + managers + reviewers if possible + stakeholders	Presentation of code from previous MSE – discussion over what we need to add. New reference points included.
	April 2026		WGNSSK
Inter-sessional work		Online meetings as necessary	
Final meeting	Late autumn 2026 (October)	In person + managers + reviewers + stakeholders	
Stakeholder meeting			List of stakeholders needed. May be a separate meeting, may be part of the scoping/final meeting.
	November and Early December 2026		Report to ICES and advice sheet issue
	April 2027		WGNSSK

At the scoping meeting, the specifications of the LTMS evaluations will be agreed on following the WGMSE2 template, including the operating models to use, performance statistics to be presented, and criteria to use in order to draw conclusions on the performance of the various MSEs. The approach and tools should be agreed upon for the evaluation at this point.

An in-person meeting with two reviewers present will take place after the summer in 2026 to present and agree on the work undertaken.

Extra considerations.

1. As the harvest control role proposed in **1.** above is a new approach, it would be useful and interesting to look at a more traditional approach informally, if there is enough time. The idea of introducing a Bhigh was to get around the issue of F going negative at some SSB>Btrigger value (which happens sooner the further SF is below 1). The problem with mixing an F-based HCR with a TAC-based one is that it is difficult to properly define the HCR, because in a stochastic, non-equilibrium situation, there is not a one-to-one relationship between F, SSB and TAC. It is conceptually simpler to have a rule solely based on F, so in the above example you could:

1. Get rid of Bhigh
2. Define F as F=max[2nd row of formula; Fmin]
3. Get rid of the third row

The role of Fmin would be to prevent F from going negative and from reducing too far the TAC for high SSB.

2. Referring to the Ftarget line in **2.** Given recent experience with the recent North sea herring LTMS, it may be that the yield surface is so flat that you will struggle to define (for a given SF and Btrigger) the F that gives 95% of the maximum yield (the F range might be quite broad). If it occurs in this case, the report needs to make clear to the managers what the trade-offs are.

3. It should be mentioned in the final report that this is only being developed in the single species context, and currently ignoring ecosystem interactions. A simple addition would be to include a YPR recruit curve. It may also be possible to re-run one of the simulations with a different selectivity.

4. Under additional information. As steps are not whole years for step = 1.5 and 0.5 we would take the mean between the ages above and below, but keeping an annual time step.

This can be visualised in the plot below, where the selection pattern is shifted to the right.

It may be fine assuming age 3 becomes zero when shifting the pattern to the right (or at least a lower value); but this should be clearly spelt out.
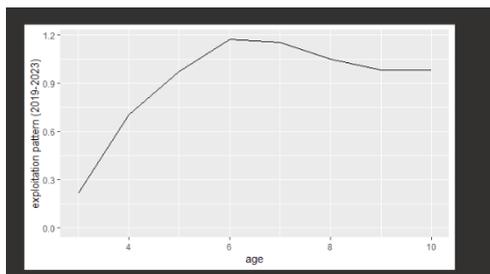
Intended use of the request output	The evaluation report will facilitate the comparison of different choices regarding HCR's and additional elements.

Planning ICES	As above
ICES contact person	
WG(s) involved	WGNSSK
Preparation timing	See above
Review group	RGSAITHE throughout 2026
Advice drafting group	ADGSAITHE 18-19 November 2026
ACOM Web-conference	WCSAITHE 1 December 2026
Release date	4 December 2026