

ECOREGION North Sea
SUBJECT EU request on interannual quota flexibility for saithe in the North Sea

Advice summary

ICES concludes that the evaluated harvest control rules are robust to the inclusion of interannual quota flexibility in terms of the probability of the stock biomass falling below B_{lim} , and without substantial changes in average yield. This conclusion is conditional on the interannual quota flexibility being suspended when the stock is estimated to be outside safe biological limits. ICES repeats its 2012 advice that the management plan should be re-evaluated no later than 2016.

Request

In 2012, the EU and Norway submitted the following request ICES to evaluate a number of options for revising the jointly agreed long term management plan for saithe.

“In accordance with point 5.3.3 of the Agreed record of Fisheries Consultations between Norway and the European Union for 2012, signed on 2 December 2011, it was agreed to convene a seminar on long term management plans. The objective of this seminar was to establish the basis for further developing long-term management plans for joint stocks. Based on the most recent assessment of the stock of saithe in ICES Subarea IV, Division IIIa and Subarea VI, ICES is requested to conduct an evaluation, by 1 October 2012, of the current harvest control rule with the following variations:

1. *Applying the current management plan unchanged.*
2. *Applying the harvest control rule with no TAC stability mechanism.*
3. *Applying the HCR with the following stability mechanisms when the SSB is above B_{lim} :*
 - a) *Setting a TAC in the TAC year based on the average of the projected TACs at target F over three years starting with the TAC year.*
 - b) *Setting the TAC to be the average of the current TAC and the TAC that would result from the application of the HCR for the TAC year.*
 - c) *Applying a TAC constraint of +/- 15%, but where the resulting fishing mortality is not allowed to deviate by more than 15%, 20% or 25% from the target F .*
4. *Applying the HCR with the above mentioned stability mechanisms, but applying them only when the stock is above B_{pa} .*
5. *Allowing an inter-annual quota flexibility of +/- 10%*

ICES delivered its response in November 2012, but due to time constraints did not evaluate the impact of an inter-annual quota flexibility of +/- 10%. ICES is therefore requested to complete its evaluations with the inclusion of inter-annual quota flexibility.

Elaboration on the advice

ICES has evaluated the $\pm 10\%$ interannual quota flexibility scheme in the context of the saithe management plan.

The saithe simulations were made based on three of the 12 harvest control rules (HCRs) studied in 2012 (ICES, 2012a – options 1, 3b, and 3c with 15% maximum F deviation). These HCR options were evaluated with some worst case examples of interannual quota flexibility implementation, based on the argument that if the plan is found to be precautionary in worst cases, the overall conclusion is that the HCR is robust to the inclusion of flexibility.

The different scenarios showed that adding interannual quota flexibility did not substantially increase the probability of SSB falling below B_{lim} compared to scenarios without interannual quota flexibility. Average yield did not change substantially either.

A suspension rule where interannual quota flexibility is not allowed when the stock is estimated to be outside safe biological limits (SBL) is applied. Previous explorations with North Sea herring (ICES, 2012b) suggest that such a suspension rule is essential to the conclusion.

The present advice is an addendum to the advice issued in November 2012 (ICES, 2012a) and should be read in that context. The advice then stated “... all HCR options ... result in less than 5% annual risks of the stock being below the limit biomass reference point (B_{lim}) in the short term (next 4 years). The long-term performance of the HCRs is less clear, as it is uncertain whether the stock will develop in accordance with the precautionary approach...”. The addition

of interannual quota flexibility does not change that perception. The management plan should be re-evaluated no later than 2016.

Basis of the advice

Interannual quota flexibility is an addition to the HCRs that were evaluated by ICES (2012a). The simulations forming the basis for the present advice were performed using the same software and model formulation as in the previous ICES advice in 2012, and uses the precautionary criterion recommended by ICES (2013). The evaluation was done for the current regime, based on the time-series since 1988, which has lower recruitment and growth than if the full historical time-series is considered. Full details of the evaluation can be found in De Oliveira (2013).

Based on discussion with clients, ICES has studied the following options:

- Option 1: The “Current Plan”.
- Option 3b: The HCR which sets the TAC (when $SSB > B_{lim}$) to be the average of the current TAC and the TAC that would result from the application of the HCR for the TAC year.
- Option 3c: The HCR which applies a TAC constraint of $\pm 15\%$ (when $SSB > B_{lim}$), but where the resulting fishing mortality is not allowed to deviate by more than 15% from the target F. The alternatives with 20% or 25% maximum deviation from target F are intermediate options between the 15% deviation and option 1 (the current plan), and have not been evaluated further.

The use of interannual quota flexibility is based on considerations that are beyond the ICES simulation-testing studies and is largely a socio-economic decision. For this reason, and because the implementation of the regulation is at the Member State level and the decision to use the interannual quota flexibility option in a given year may vary between Member States, it is not possible to assign probabilities of occurrence to the different scenarios that were considered. As noted earlier, the scenarios tested are meant to represent some worst case examples of interannual quota flexibility implementation, where the amount banked or borrowed always reaches 10% of the total stock TAC (i.e. the maximum possible).

ICES has studied the following scenarios:

- Scenario 1 (“null”): No banking or borrowing in any year.
- Scenario 2 (“banking”): Banking 10% every year (using it in the following year).
- Scenario 3 (“borrowing”): Borrowing 10% every year (paying back in the following year).
- Scenario 4 (“alternate”): 10% banking and borrowing in alternate years (e.g. bank in year 1; borrow in year 2; bank in year 3; borrow in year 4;...).
- Scenario 5 (“worst case”): Following a period of successive poor recruitments, 10% banking in year 1; 10% borrowing in each subsequent year.
- Scenario 6 (“yield stability”): Use the interannual quota flexibility scheme to keep the yield as close as possible (within the limits of the banking and borrowing flexibility) to the actual yield in the previous year.

The interannual quota flexibility rules have been interpreted as follows:

Interannual quota flexibility

The percentage (maximum 10%) that can be banked or borrowed in year y (to be used or paid back in year y+1), will be **calculated based on the initial quota** for year y, without taking into account modifications of the year y quota arising from banking or borrowing in year y-1.

For example, if in year 2013 a quantity X is banked to or borrowed from 2014, this quantity X can be used or must be paid back in 2014. Subsequent banking or borrowing that is done in 2014 (relating to 2015) will be based on the **initial 2014 quatum** (the country’s quatum share of the TAC), without adding or subtracting quantity X.

Implementation error

The evaluation assumes no implementation error will take place (i.e. landings will adhere to the interannual quota flexibility rules, and will not exceed whatever these rules dictate).

Thresholds

The threshold rule to suspend interannual quota flexibility will be applied when the stock is **outside safe biological limits** (SBL) which means that, according to the assessment performed in year y , either $F(y-1) > F_{pa}$ or $SSB(y) < B_{pa}$, or both.

Timing of suspending interannual quota flexibility

If the stock is outside SBL in year y , according to advice for year $y+1$, flexibility is allowed in year y (banking to/borrowing from $y+1$), but suspended between $y+1$ and $y+2$ – to be reinstated when the stock is in a good condition again.

For example, if the 2013 advice for 2014 considers the stock **outside SBL in 2013** (F_{2012} , SSB_{2013}):

- no interannual quota flexibility will be allowed between **2014 and 2015**;
- interannual quota flexibility will still be allowed to continue in year 2013, and whatever amount is banked or borrowed during year 2013 can be used or must be paid back in year 2014.

Timing of reopening interannual quota flexibility

If the stock is inside SBL in year y according to advice for year $y+1$ (after a period of being outside SBL), interannual quota flexibility is allowed from year $y+1$ onwards (in year $y+1$ banking to/borrowing from year $y+2$ is allowed).

For example, if the 2013 advice for 2014 considers the stock **inside SBL in 2013** (F_{2012} , SSB_{2013}), after a period of no interannual quota flexibility:

- interannual quota flexibility will be allowed again between **2014 and 2015**.

Sources

- De Oliveira, J. 2013. Evaluation of a banking and borrowing scheme for saithe – Addendum to De Oliveira *et al.* (2012) “North Sea saithe management strategy evaluation”. ICES CM 2013/ACOM:65.
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- ICES. 2012a. Joint EU–Norway request to ICES on options to revise the long-term management plan for saithe in the North Sea. *In* Report of the ICES Advisory Committee, 2012, Section 6.3.3.5. ICES Advice, 2012, Book 6: 33–38.
- ICES. 2012b. Joint EU–Norway request to ICES on options to revise the long-term management plan for herring in the North Sea. *In* Report of the ICES Advisory Committee, 2012, Section 6.3.3.6. ICES Advice, 2012, Book 6: 39–49.
- ICES. 2013. Report of the Workshop on Guidelines for Management Strategy Evaluations (WKG MSE), 21–23 January 2013, ICES HQ, Copenhagen, Denmark. ICES CM 2013/ACOM:39. 127 pp.