



**Scientific, Technical and Economic
Committee for Fisheries (STECF)**

**REVIEW OF SCIENTIFIC ADVICE FOR 2011
Part 3**

**ADDENDUM
Allocation of separate TACs for plaice in
ICES Divisions VII d and VII e**

ADOPTED BY THE STECF BY WRITTEN PROCEDURE ON 1 DECEMBER 2010

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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF)

ADDENDUM to the STECF Review of advice for 2011 – Part 3.

Allocation of separate TACs for plaice in ICES Divisions VIIId and VIIe.

Following the publication of the Commission's proposals for TACs for 2011, STECF notes that for the first time separate TACs are proposed for plaice in ICES Divisions VIIId and VIIe and that the proposals are based on the second of two candidate methods suggested by STECF in response to a special request from the Commission and published in the STECF Review of advice for 2011 - Part 3 (STECF 2010). The two candidate methods are reproduced below at Annex I.

The second method suggested by STECF to arrive at separate TACs for plaice in VIIId and VIIe aims to limit the fishing mortality on the stock of plaice in VIIId and VIIe independently, by taking into account the migration of plaice into VIIId from VIIe and Sub-area IV in the first quarter of the year (Q1). However, having given further thought to the proposed method, STECF wishes to draw the Commission's attention to the fact that in order to limit the fishing mortality on plaice from the VIIe stock to the intended level, catches of plaice from Division VIIId in Q1, need to be restricted to no greater than 25% of the advised annual TAC.

STECF suggests that this be done by the insertion of a conditional clause into the TAC regulation which would make the provision that no greater than 25% of the annual TAC for plaice in Division VIIId, shall be taken during Q1 (months January, February and March).

The basis for this suggested condition is that the proposed TAC for plaice in VIIId is made on the assumption that catches in Q1 will amount to 25% of the annual TAC, and that 15% of the catches taken in Q1 will comprise fish originating from the stock in Division VIIe. Hence catches in Q1 from VIIId in excess of 25% of the annual TAC for VIIId will result in a higher than intended catch of plaice from the VIIe stock and a higher than intended fishing mortality rate on that stock.

Restricting catches in VIIId in Q1 to 25% of the annual TAC for plaice in VIIId also means that the catch of plaice in VIIId in Q1 that is assumed to originate from Sub-area IV (assumed to be 50% of the Q1 VIIId plaice catches) will not be exceeded.

In addition, STECF also advises that if future TACs for plaice in Divisions VIIId and VIIe are to be set separately, consideration should be given to the maximum catch of fish originating from the VIIe stock that may be taken in Division VIIId in Q1. For example, if the future trends in the stocks of plaice in VIIId and VIIe diverge, the assumption that 15% of the plaice caught in VIIId in Q1 originate from VIIe is likely to be violated. In such circumstances the maximum proportion of the VIIId TAC that may be taken in Q1 would therefore need to be adjusted accordingly.

In order to provide more appropriate advice on separate TACs in the future, it is desirable that stock assessments are undertaken using models that explicitly take into account the spatio-temporal mixing of the stocks from the different areas. Mixing rates could be derived using techniques such as otolith structure or genetic markers thereby allowing for a more precise estimation of the spatio-temporal pattern of distribution of the different stocks.

Reference

Scientific, Technical and Economic Committee for Fisheries (STECF). Review of Scientific advice for 2011 – Part 3 (eds. Casey, J., Vanhee, W. & Druon, J.-N.) 2010. Publications Office of the European Union, Luxembourg, ISBN 978-92-79-18741-4, JRC 61942, 286 pp. Section 3.3. Special request on plaice in Divisions VIIId,e

ANNEX I. Extract of the STECF Review of Advice for 2011 – Part 3

Special request on plaice in VIId,e

Background

Advice provided for plaice in VIIe and for plaice in VIId for 2010 are substantially different, concomitant with the advice that these two stocks are biologically distinct. At present, these two stocks are managed under a single TAC which makes it impossible to independently manage each stock towards precautionary criteria or towards maximum sustainable yield. The Commission is considering proposing the separation of the VIId,e TAC into two separate TACs in order that separate biological objectives can be reached.

Request to STECF

STECF is requested to advise whether such an approach is appropriate to attempt to achieve stock-specific biological objectives and if not, to advise (given current knowledge of stock identities and migrations) on an alternative approach to attaining the same goal.

STECF is requested to deliver its advice in July in the course of its review of ICES advice.

STECF response

STECF notes that benchmark assessments were undertaken for the plaice stocks in VIId and VIIe by the ICES WKFLAT in 2010. WKFLAT examined available data and information on tagging studies to investigate the degree of migration of plaice between VIId, VIIe and sub-area IV.

The results of the investigation indicate that there is significant migration of mature plaice from VIIe and IV into VIId in the first quarter of the year when spawning takes place. Mature plaice undertake a return migration to their original area by the second quarter of the year. There is no information to indicate that there is migration of mature plaice between divisions at other times of the year.

STECF notes that assessment and advice are provided separately for VIId and VIIe and that because of the different stock status in the two areas, the biological objectives for advice are also different. It would seem logical to conclude that in order to independently control the exploitation rate on both stocks, each area should be subject to different management measures including separate TACs. However, STECF notes that because a proportion of the fishing mortality on the VIIe stock occurs in VIId during the spawning season, the setting of separate TACs alone will not necessarily limit the fishing mortality on VIIe plaice to the intended level. At the same time, fishing mortality on plaice in VIId is likely to be less than intended, since removals from VIId in the 1st quarter will consist of a significant proportion of fish from VIIe and IV.

STECF therefore advises that while it would be appropriate to limit the fishing mortality on the stock of plaice in VIId and VIIe independently, measures in addition to separate TACs would be required. Such measures should be designed to restrict the catch of plaice originating from VIIe and IV but caught in Q1 in VIId.

Allocation of TACs for plaice in 2011 to Divisions VIId and VIIe separately

Candidate procedures designed to calculate separate TACs for subarea VIId and VIIe plaice for 2011 while attempting to ensure that the removals from each stock component are consistent with the advised fishing mortality as proposed below:

1. Allocation of TACs to VIIe and VIId separately based on the advised fishing mortality rates for each stock component and in an attempt to ensure that there is no catch of plaice that migrate into VIId from VIIe and IV, Division VIId could be closed in Q1 to all gears likely to catch plaice.
2. Allocation of TACs to VIIe and VIId separately based on the advised fishing mortality rates for each stock component and adjusting the TAC according to the following method:

Based on the assumption that a **fixed** percentage of 15% of the quarter 1 (Q1) catches (landings) taken in VIIId are actually removed from the VIIe stock and not from the VIIId stock since some VIIe fish temporarily residence in VIIId area during Q1.

Calculating the respective TACs, as catches (landings) to be removed from the respective stocks based on the intended fishing mortality and assessed stock numbers are referred to as TAC_{stockd} (3400 t = advice VIIId) and TAC_{stocke} (950 t = advice VIIe) for stocks VIIId and VIIe respectively.

The aim is to arrive at adjusted TACs, representing the allowed catches (landings) to be taken from areas VIIId and VIIe respectively, which will be referred to as TAC_{aread} and TAC_{areae} .

- a. The TAC_{areae} should be a certain amount lower than the TAC_{stocke} , to account for the fact that additional catches will be removed from the VIIe stock caught elsewhere than in area VIIe (namely in area VIIId).
- b. An equivalent amount should be added to the TAC_{stockd} to arrive at an adjusted TAC_{aread} , accounting for the fact that, although these catches will be taken in area VIIId they will not actually be removed from stock VIIId (but instead from stock VIIe).

The amount to be added to the TAC_{stockd} and subtracted from the TAC_{stocke} should be calculated as follows:

- a. Whatever amount X caught in Q1 in area VIIId, is assumed to consist for 85% of VIIId fish and for 15% of VIIe fish.
- b. Assuming that catches are always distributed equally over the 4 quarters, X is the amount taken from area VIIId in Q1. Therefore, the total amount taken from area VIIId for the whole year equals to 4 X.
- c. The above assumptions can be expressed as:
 - i. $TAC_{aread} = TAC_{stockd} + 0.15 X$
 - ii. $TAC_{aread} = 4 X$
- d. It follows that $TAC_{stockd} = 3.85 X$, and from that $X = TAC_{stockd} / 3.85$.
- e. Substitution in (ii) gives: $TAC_{aread} = (4/3.85) * TAC_{stockd}$

Therefore 3.9% (132 t) of the TAC_{stockd} (3400 t) is the amount that should be added to the TAC_{stockd} , and subtracted from TAC_{stocke} , to arrive at the adjusted values for TAC_{aread} (3532 t) and TAC_{areae} (818 t) respectively.

With the TAC_{aread} (3532 t) and TAC_{areae} (818 t) set for areas VIIId and VIIe respectively, and assuming that the 15% is fixed and that catches are distributed equally over the 4 quarters, the actual removals from the respective stocks VIIId and VIIe are expected to be equal to the TAC_{stockd} (3400 t) and TAC_{stocke} (950 t) respectively calculated based on intended F and assessed stock numbers.

Implications for plaice in subarea IV (North Sea)

STECF notes that ICES has estimated from tagging data that approximately 50% the catches from VIIId in Q1 also comprises fish from VIIId. Hence, following the same rational on the assumption that also a **fixed** percentage of 50% of the quarter 1 (Q1) catches (landings) taken in VIIId are actually removed from the area IV stock and not from the VIIId stock, the extra amount that should be added to the TAC_{stockd} , and subtracted from $TAC_{stockIV}$ is 486 t, resulting in a North Sea plaice TAC of 72,914 t (73,400 t – 486 t). The resulting overall adjusted TAC_{aread} for subdivision VIIId should therefore be 4018 t (3400 t + 132 t + 486 t).

Using the above procedure to set the TACs for 2011, the adjusted TACs for VIIe, VIId and Subarea IV would be as follows:

	Plaice VIIe	Plaice VIId	Plaice IV
Landings corresponding to STECF advice (stock landings)	950	3,400	73,400
Adjusted landings(area landings)	818	4,018	72,914

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Abstract

This is an addendum to the Section 3.3. Special request on plaice in Divisions VIIId,e of the report: Scientific, Technical and Economic Committee for Fisheries (STECF). Review of Scientific advice for 2011 – Part 3 (eds. Casey, J., Vanhee, W. & Druon, J.-N.) 2010. Publications Office of the European Union, Luxembourg, ISBN 978-92-79-18741-4, JRC 61942, 286 pp.

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