

EU/UK request to ICES on lemon sole, witch, turbot, and brill: review of ICES advice provided in 2018 on the contribution of TACs to fisheries management and stock conservation

Advice summary

ICES advises that its conclusions from 2018 remain valid, meaning that:

1. Removing the EU/UK TACs for the following stocks may generate a high risk of the stocks being exploited unsustainably:
 - Witch (*Glyptocephalus cynoglossus*) in ICES Division 3.a, Subarea 4, and Division 7.d
 - Turbot (*Scophthalmus maximus*) in ICES Subarea 4
 - Brill (*Scophthalmus rhombus*) in ICES Division 3.a, Subarea 4, and divisions 7.d and 7.e
2. Removing the EU/UK TACs for lemon sole (*Microstomus kitt*) in ICES Division 3.a, Subarea 4, and Division 7.d stock may generate a lower risk of the stock being exploited unsustainably.
3. For all stocks, management should be using a single-species TAC covering the stock distribution area.

Request

The EU and the UK request ICES to provide advice on the alignment of the management areas and the assessment units used by ICES, with a view to meeting the legal obligation contained in Article 504(1) of the Trade and Cooperation Agreement between the European Union and the United Kingdom.

Specifically, this request concerns the following stocks (ICES stock area):

- lemon sole (Subarea 4 and Divisions 3a and 7d)
- witch (Subarea 4 and Divisions 3a and 7d)
- turbot (Subarea 4)
- brill (Subarea 4 and Divisions 3a and 7d–e).

In 2018, the EU sent a special request to ICES, asking for advice on the contribution of a certain number of TACs to fisheries management and stock conservation. According to the resulting ICES advice from 20 September 2018[†],

ICES advised that witch, turbot and brill should each be managed using a single-species TAC in line with the stock distribution area. In addition, ICES found that removing the EU TAC for lemon sole would generate a low risk of the stock being exploited unsustainably.

The EU and the UK seek confirmation from ICES that its conclusions from 2018 remain valid, and request ICES to update that advice if needed, including the catch distribution within the stock areas, and whether the current stock areas assessed by ICES are up to date and how robust these defined stock areas are. ICES is also asked to inform on the data sources used for the stock assessments.

ICES is furthermore requested to reflect on why ICES advice does not cover division 2a and the possible effects on stock conservation from removing area 2a, which is currently included in many North Sea TACs for control and monitoring purposes.

[†] <https://doi.org/10.17895/ices.pub.4531>

Elaboration and basis of the advice

Background

In 2018 the European Commission submitted a special request to ICES to investigate the contribution of total allowable catches (TACs) to fisheries management and stock conservation for brill (27.3a47de), turbot (27.4), lemon sole (27.3a47d), witch (27.3a47d), and whiting (27.3a). ICES was requested to analyse the role of the TAC instrument and to assess the risks of removing TACs in light of the requirement to ensure that the stock concerned remains within safe biological limits in the short and medium term.

In 2022 the EU and UK submitted a new request to ICES to investigate whether the conclusions from 2018 remain valid – and to update the advice if needed. This advice does not address the questions of whether the current stock areas assessed by ICES are up to date, how robust these defined stock areas are, or why ICES advice does not cover Division 2.a.

A key question in the assessments forming the basis for the advice is whether the TACs have been restrictive. The analyses of TAC utilization have been done on a total catch/landing and management area level. ICES recognizes that although a TAC may not have been restrictive at the level of total catches/landings, the associated quotas allocated to EU Member States, fleet segments, or individual vessels may have been restrictive. This means that catches may increase if the TAC is removed, in some cases where the TAC has not been overshot. ICES does not have the information required to do a systematic analysis of the extent to which a TAC has been restrictive at national quota levels; the assessments of the restrictiveness of the TACs are therefore done only at the level of total catches.

To evaluate each stock included in the request, six questions pertaining to the fishery were examined. The same approach was used to evaluate the request from 2018. These were as follows:

1. Was the TAC restrictive in the past?
Removal of a restrictive TAC could lead to increased catches.
2. Is there a targeted fishery for the stock or is the species mainly discarded?
If there is targeting of a stock and the TAC is removed, targeting could increase, leading to increased catch.
3. Is the stock of large economic importance or is the species of high value?
High-value stocks are more likely to be targeted when restrictions are removed.
4. How are the most important fisheries for the stock managed?
Technical measures such as minimum landing size and trip limits can also promote sustainability.
For stocks in the request that are mainly caught as bycatch: sustainable management of the main target species for the fisheries can limit fishing pressure on the bycatch species.
5. What are the fishing effort and stock trends over time?
Stocks with poor biological status and/or substantial fishing effort would benefit from tailored management approaches, such as single-stock TACs.
6. What maximum effort of the main fleets can be expected under management based on F_{MSY} (ranges) for the target stocks, and has the stock experienced similar levels of fishing effort before?
Catches of any stock in a mixed fishery are impacted by the fishing effort related to the maximum advised fishing mortality on the other stocks in the fishery. This level of effort may exert an unsustainable fishing mortality on some of the stocks in the fishery.

Stocks

1. **Lemon sole in ICES divisions 3.a and 7.d and Subarea 4, and witch in ICES divisions 3.a and 7.d and Subarea 4. These stocks are currently managed under a joint TAC.**

Was the TAC restrictive in the past?

The combined TAC for witch and lemon sole has not been restrictive in the past when only the TAC area is considered. Taking into account the landings from the whole stock area, i.e. including divisions 3.a and 7.d, the TAC was overshoot in 2006, 2007, and 2016. Furthermore, looking at the total catch, i.e. including the discards, and considering the whole stock area, the TAC has been overshoot in most of the years since 2006, but not in the last three years (Figure 1).

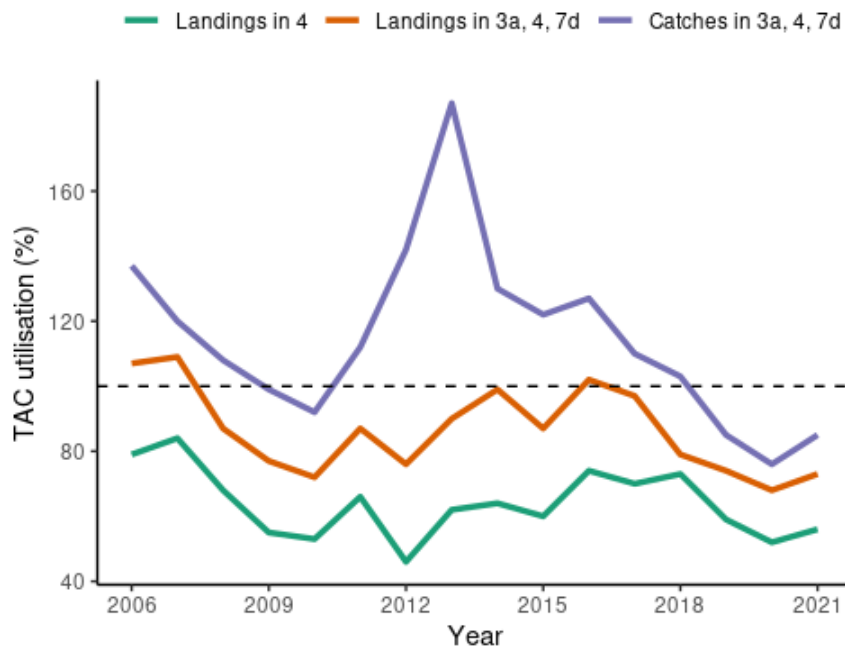


Figure 1 TAC utilization for landings in Subarea 4 (green line), landings in divisions 3.a and 7.d and Subarea 4 (orange line), and catches in divisions 3.a and 7.d and Subarea 4 (purple line) for lemon sole and witch combined. The dashed horizontal line shows the full uptake of the TAC.

Is there a targeted fishery for the stock/s?

Lemon sole

Lemon sole is mainly a bycatch species in mixed demersal fisheries, and ICES notes that there is currently little evidence of the species being targeted. In 2021 otter trawlers accounted for 62% and beam trawlers 33% of the landings of the species. Lemon sole is a very small part of the landings (by volume) of these fisheries in Subarea 4 and Division 3.a and forms an even smaller part of the landings for fleets in Division 7.d. Fishing mortality of lemon sole seems to be driven more by effort towards other species in these fisheries.

Discards in weight of lemon sole have been fluctuating between 10% and 38% in most years reaching a peak of 61% in 2013, although ICES noted that there were problems with data submissions in that year, which may have artificially inflated the discard estimate.

Witch

Witch is mainly a bycatch species in mixed fisheries. Ninety-one percent of witch landings in 2021 were from bottom otter trawls. Witch is a very small part of the landings by these fisheries, and there is little evidence of the species being targeted in Subarea 4.

In ICES Subdivision 20, the mixed-fisheries analysis indicates that witch may be subject to targeted fisheries (ICES, 2017).

Discards in weight of witch have been fluctuating between 8% and 29% in most years.

Is the stock of large economic importance?

Both witch and lemon sole are medium to high-value species (particularly lemon sole). Discard rates are relatively high, which is unlikely to arise through fishermen choosing to discard and instead could be due to a combination of the often-restrictive total quota (Figure 1) and a lack of local markets or processing options.

How are the important fisheries for the stocks managed?

ICES considers lemon sole in ICES divisions 3.a and 7.d and Subarea 4 to be one stock and witch in ICES divisions 3.a and 7.d and Subarea 4 to be one stock. ICES provides annual advice on stock status and fishing opportunities for both these stocks. The latest advice was issued in 2022.

The joint TAC for lemon sole and witch covers EU and UK waters of ICES Division 2.a and Subarea 4.

Fishing effort and stock trends over time

Lemon sole in ICES divisions 3.a and 7.d and Subarea 4

ICES advice is based on the MSY approach and follows the framework for category 3 stocks.

Fishing pressure on the stock is below F_{MSY} proxy. The stock-size index is above MSY $B_{trigger}$ proxy ($I_{trigger}$).

Witch in ICES divisions 3.a and 7.d and Subarea 4

ICES advice is based on the MSY approach and follows the framework for category 1 stocks.

Fishing pressure on the stock is above F_{MSY} and F_{pa} and below F_{lim} ; spawning-stock size is below MSY $B_{trigger}$ and between B_{pa} and B_{lim} .

What maximum effort of the main fleets can be expected under management based on F_{MSY} (ranges) for the target stocks, and has the stock experienced similar levels of fishing effort before?

No information for these stocks.

Potential risk to the stock of removing the TAC

The continuance of a joint witch–lemon sole TAC is unlikely to contribute to the long-term sustainability of either stock. The combined TAC has been restrictive for most of the available time-series. If TACs are to remain, then they should be implemented for witch and lemon sole separately and applied (if possible) to the same area as currently used for the stock assessments (divisions 3.a and 7.d and Subarea 4).

The main reasons supporting the implementation of single-stock, area-specific TACs for both stocks are as follows:

- The combined TAC has generally been restrictive in the past. In most years, catches of lemon sole are higher than catches of witch. It seems likely that the removal of a TAC for either could lead to an increase in exploitation and therefore mortality.

- Lemon sole is a high-value species, intermediate in unit price between common sole and plaice. This could also lead to an increase in targeting and overexploitation were the TAC to be removed.
- In Division 3.a, which is at the moment outside the TAC area, there are indications that witch is to some extent targeted. Removing the TAC could lead to the further targeting of witch in Subarea 4 and to the overexploitation of the stock.
- ICES notes there is currently no evidence of targeting for lemon sole, either now or in the past. Fishing mortality on lemon sole therefore seems to be driven more by effort towards other species in the key demersal fisheries (bottom trawl with some beam trawl). In this regard, removing the joint TAC for lemon sole and witch may not necessarily lead to overexploitation of lemon sole.
- The implementation of single-species TACs that matches the stock area is considered by ICES to be the best approach to managing these stocks.

2. Turbot in ICES Subarea 4 and brill in ICES Subarea 4 and divisions 3.a and 7.d–e. These stocks are currently managed under a joint TAC.

ICES advises that removing the EU TAC for turbot in Subarea 4 may generate a high risk of the stock being exploited unsustainably. Removing the EU TAC for brill in Subarea 4 and divisions 3.a and 7.d–e may generate a high risk of the stock being exploited unsustainably.

Was the TAC restrictive in the past?

The combined TAC for brill (BLL) and turbot (TUR) was overshoot by 10% in 2007 and 2016 and by 1% in 2015 (Figure 2). From 2018 to 2022, brill and turbot landings remained at or under 67 % of TAC.

Landings of turbot and brill in the areas covered by the joint TAC have in many years been higher than the TAC (Figure 2).

Due to a fear of overshooting the turbot and brill quota in 2016 and 2017, the Netherlands (responsible for more than 50% of the landings of both species) and some other countries asked for an advance of their 2017 and 2018 quota, respectively. In addition Dutch producer measures were introduced (limiting minimum landings size and weekly landing capacity per trip; e.g. in 2016 and 2017) to avoid overshooting the national quota when the TAC became restrictive.

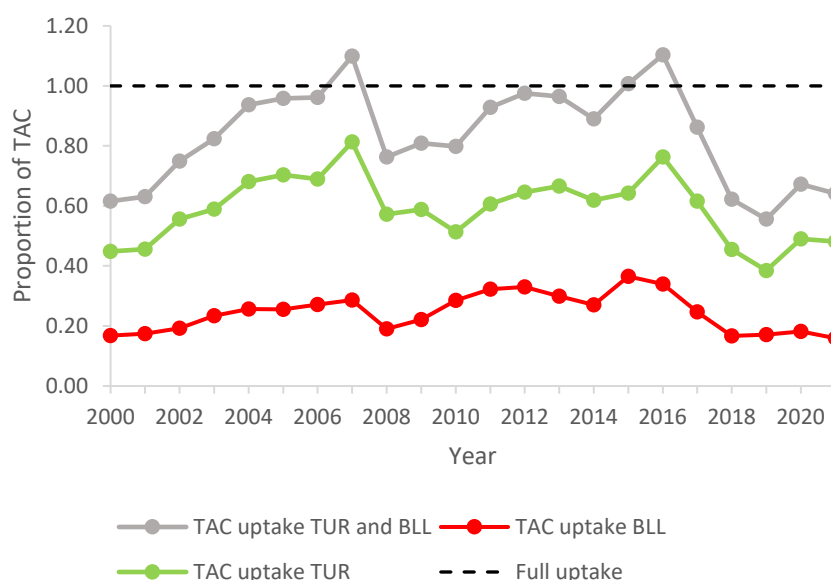


Figure 2[‡] TAC uptake for brill and turbot over the period 2000–2021.

[‡] Version 2: Figure legend corrected.

Is there a targeted fishery for the stock/s?

ICES WGMIXFISH data from the Greater North Sea ecoregion were explored in order to analyse the targeting behaviour of fleets catching brill and turbot (ICES, 2022a).

Brill

Targeting behaviour was considerably higher in divisions 7.d and 3.a, which are currently not constrained by a TAC, compared to Subarea 4. Targeting behaviour was identified for fisheries that make up at least 5% of brill in their landings over the period 2009–2021. In the beginning of this time-series, targeting behaviour was also present for fisheries that made up at least 15% of brill in their landings.

Turbot

There is evidence for targeting behaviour in Subarea 4 for fisheries having up to 45% of turbot in their landings; however, this is less clear in the most recent years. Nevertheless, up to 90% of total turbot landings occur in fisheries where turbot constitutes up to 5% of the landings by value. This indicates that when turbot is caught, it is often landed because of its high value.

Is the stock of large economic importance?

Both turbot and brill are high-value species.

How are the important fisheries for the stocks managed?

ICES considers turbot in ICES Division 3.a and Subarea 4 as two separate stocks and brill in ICES Subarea 4 and divisions 3.a and 7.d–e as one stock.

The joint TAC for turbot and brill covers the EU and UK waters of ICES Subarea 4.

Fishing effort and stock trends over time

Turbot

ICES advice is based on the MSY approach and follows the framework for category 1 stocks.

Fishing pressure on the stock is below F_{MSY} , and spawning-stock size is above $MSY B_{trigger}$, B_{pa} , and B_{lim} .

Brill

ICES advice is based on the MSY approach and follows the framework for category 3 stocks.

Fishing pressure on the stock is above $F_{MSY proxy}$. The stock-size index is above $MSY B_{trigger proxy} (I_{trigger})$.

Fisheries

According to ICES estimates, brill and turbot are not heavily discarded, with discard rates generally lower than 11%. (The exceptions to this are 15.1% and 16.3% for brill in 2018 and 2019 and 16.0%, 12.6%, and 13.4% for turbot in 2016, 2017, and 2018 respectively; this was the period during which a series of producer organization (PO) measures were instituted to help control catches of turbot.)

Management measures

EU and UK catches of turbot and brill are managed by a joint TAC covering the EU and UK waters of ICES Division 2.a and Subarea 4. EU and UK catches in Norwegian waters of Subarea 4 are managed under the other species' TAC. Catches of brill in divisions 3.a and 7.d–e are not subject to a TAC.

Turbot is exempt from the landing obligation when caught with beam trawls (TBB) with a codend equal to or larger than 80 mm in Subarea 4. No exemptions are in place for brill.

No restriction on the minimum length for landing turbot or brill is imposed by the EU or UK. Some national authorities or POs have however introduced minimum conservation reference sizes (MCRS).

What maximum effort of the main fleets can be expected under management based on F_{MSY} (ranges) for the target stocks, and has the stock experienced similar levels of fishing effort before?

Removing the brill and turbot TAC would mean that management of turbot and brill would rely on managing the main target species (plaice and sole) to within their F_{MSY} ranges. Although the analysis undertaken here shows that managing plaice under MSY could simultaneously allow sustainable management of turbot and brill, the upper level of the F_{MSY} range for turbot lies a little lower than the effort corresponding to MSY effort for plaice. Considering the poor state of the North Sea sole stock and the long period of overfishing, no link between managing the sole stock and turbot and brill can be made.

Potential risk to the stock of removing the TAC

The general conclusion is the same as formulated in the 2018 TACMAN request (ICES, 2018), meaning ICES cannot recommend the removal of the TAC for brill and turbot without implementing other management measures. When keeping the TAC, ICES strongly recommends implementing an individual TAC for brill and turbot. This will also allow alignment of the TAC of brill with the actual stock area of the species (i.e., in addition to Subarea 4, include divisions 3.a, 7.d, and 7.e).

It should be noted that catches in Division 2.a are negligible for both stocks and that this division is not part of the stock area for either stock. Management of brill and turbot under a combined TAC prevents effective control of the single-species exploitation rates and could potentially lead to the overexploitation of either species.

This general conclusion relies on several factors:

- The joint TAC for brill and turbot is sometimes restrictive when considering only Subarea 4 and Division 2.a, but even more so when considering the other areas for brill that are not currently covered by a TAC. Furthermore, PO measures were needed (limiting minimum landings size and weekly landing capacity per trip; e.g. in 2016 and 2017) to avoid overshooting the national quota when the TAC became restrictive.
- Both brill and especially turbot are high-value species when considering both their value per kg and their substantial contribution to the total value of demersal landings.
- Targeting of both turbot and brill occurs. For brill this is particularly evident outside of the TAC area. It is likely that the targeting of these species would increase if a TAC were removed, particularly given the value of these species.

Methods

To evaluate each stock included in the request, six questions pertaining to the fishery were examined. The same approach was used to evaluate the request from 2018. These were as follows:

1. Was the TAC restrictive in the past?
2. Is there a targeted fishery for the stock or is the species mainly discarded?
3. Is the stock of large economic importance or is the species of high value?

4. How are the most important fisheries for the stock managed?
5. What are the fishing effort and stock trends over time?
6. What maximum effort of the main fleets can be expected under management based on F_{MSY} (ranges) for the target stocks, and has the stock experienced similar levels of fishing effort before?

Several data sources were consulted to address this special request. To answer the first question, official landings as reported to ICES and published TACs were used, which are both listed in the ICES advice sheets (ICES, 2022b, 2022c, 2022d, 2022e). For the second question, ICES estimates on landings and discards served as input. Similarly, questions 4, 5, (partly), and 6 were answered using data and analyses done for the calculation of the advice (Batsleer *et al.*, 2022).

For questions 3 and 5 (partly), the most recent data as submitted to the 2021 DCF Fisheries Dependent Information (FDI) data call were used (STECF, 2021). These data contain information from 2014–2020 and still include information on UK. However, a number of fields were marked as confidential. These were excluded from the analyses, which may cause a slight underestimation of the totals.

Sources and references

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Recommended citation: ICES. 2022. EU/UK request to ICES on lemon sole, witch, turbot, and brill: review of ICES advice provided in 2018 on the contribution of TACs to fisheries management and stock conservation. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, sr.2022.19, <https://doi.org/10.17895/ices.advice.21739322>