

Starry ray (*Amblyraja radiata*) in subareas 2 and 4 and Division 3.a (Norwegian Sea, North Sea, Skagerrak, and Kattegat)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, there should be zero catches in each of the years 2020–2023.

Stock development over time

The stock size indicator has continuously declined since the 1990s.

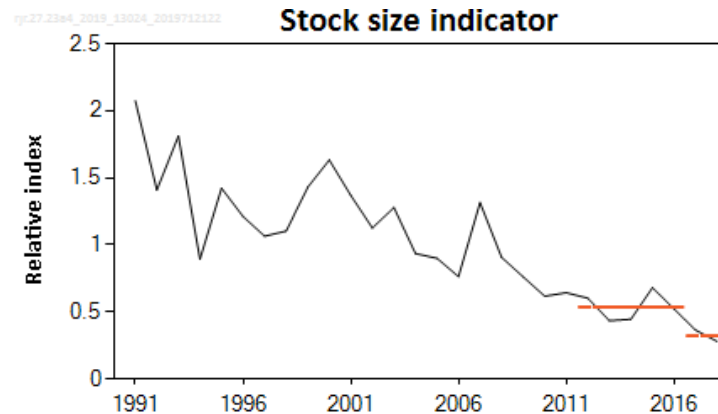


Figure 1 Starry ray in Subareas 2 and 4 and Division 3.a. Average of survey indices of abundance ($n\ h^{-1}$, relative to the time-series mean) from trawl surveys (NS-IBTS-Q1, NS-IBTS-Q3). The horizontal lines show the mean stock indicators for 2017–2018 and 2012–2016.

Stock and exploitation status

ICES cannot assess the stock and exploitation status relative to maximum sustainable yield (MSY) and precautionary approach (PA) reference points because the reference points are undefined.

Table 1 Starry ray in subareas 2 and 4 and Division 3.a. State of the stock and fishery relative to reference points.

| | | Fishing pressure | | | Stock size | | | | | |
|---------------------------|-------------------|------------------|------|------|----------------|--------------------|------|---|---|----------------|
| | | 2016 | 2017 | 2018 | 2016 | 2017 | 2018 | | | |
| Maximum sustainable yield | F_{MSY} | ? | ? | ? | Unknown | $MSY\ B_{trigger}$ | ? | ? | ? | Unknown |
| Precautionary approach | F_{pa}, F_{lim} | ? | ? | ? | Unknown | B_{pa}, B_{lim} | ? | ? | ? | Unknown |
| Management plan | F_{MGT} | — | — | — | Not applicable | B_{MGT} | — | — | — | Not applicable |
| Qualitative evaluation | - | ? | ? | ? | Unknown | - | ↘ | ↘ | ↘ | Decreasing |

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). Abundance indices derived from two surveys (NS-IBTS-Q1 and NS-IBTS-Q3) were used to provide an overall stock size indicator. The advice is based on a comparison of the two latest index values (index A) with the five preceding values (index B), combined with the advised landings in 2016–2019. The index is estimated to have decreased by more than 20%, which means that the uncertainty cap would have been applied in estimating the landings advice if this had been above zero. The stock status relative to candidate reference points is unknown and the stock size indicator has shown a continuous decline since 1990. Therefore, the precautionary buffer would also have been applied to the landings advice if this had been above zero.

Discarding is known to occur but has not been quantified, and discard survival has not been estimated.

Table 2 Starry ray in subareas 2 and 4 and Division 3.a. The basis for the catch scenarios.

| | | |
|---|----------------|----------|
| Index A (2017–2018) | | 0.32 |
| Index B (2012–2016) | | 0.54 |
| Index ratio (A/B) | | 0.60 |
| Uncertainty cap | Not applicable | - |
| Advised landings for 2016–2019 (issued in 2015) | | 0 tonnes |
| Discard rate | | Unknown |
| Precautionary buffer | Not applicable | - |
| Landings advice * | | 0 tonnes |
| % Advice change ** | | 0% |

* Advised landings for 2016–2019.

** Advice value for 2020, 2021, 2022, and 2023 relative to the advice value for 2016–2019.

The advice for 2020–2023 has not changed from the previous advice.

Basis of the advice

Table 3 Starry ray in subareas 2 and 4 and Division 3.a. The basis of the advice.

| | |
|-----------------|--|
| Advice basis | Precautionary approach. |
| Management plan | There is no species-specific management plan for this stock. |

Quality of the assessment

There is insufficient information to present historical trends in species-specific landings for this stock. Since legal obligations to declare most demersal elasmobranchs to species level were introduced, a greater proportion of the data have been reported to this level, but data remain incomplete. For the starry ray a zero TAC has been implemented since 2015. In addition, in 2015 the species has been included in the list of prohibited species for fishing, retaining on board, tranship, or landing (EU, 2019).

Fishery-independent trawl surveys provide the longest time-series of species-specific information and cover most of the stock area.

Issues relevant for the advice

This species is widespread in the Central and Northern North Sea and is a common bycatch of bottom trawls.

Survey indices have declined since 1990, following the previous increase between 1970 and 1990 (Walker and Heessen, 1996).

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 4 Starry ray in subareas 2 and 4 and Division 3.a. The basis of the assessment.

| | |
|--------------------------|--|
| ICES stock data category | 3 (ICES, 2018). |
| Assessment type | Survey-based trends (ICES, 2019). |
| Input data | Surveys: NS-IBTS-Q1 and NS-IBTS-Q3. |
| Discards and bycatch | Unknown. |
| Indicators | None. |
| Other information | None. |
| Working group | Working Group on Elasmobranch Fishes (WGEF). |

Information from stakeholders

There is no additional available information.

History of advice, catch, and management

Table 5 Starry ray in subareas 2 and 4 and Division 3.a. History of ICES advice and ICES estimates of landings. Weights are in tonnes.

| Year | ICES advice | Catch corresp. to advice | ICES landings |
|------|---|--------------------------|---------------|
| 2011 | No specific advice | | 1 |
| 2012 | No specific advice | | 0 |
| 2013 | No TAC, species-specific measures needed, catch to decrease by at least 36% | - | 0 |
| 2014 | No new advice, same as 2013 | - | 0 |
| 2015 | No new advice, same as 2014 | - | 0 |
| 2016 | Precautionary approach, no targeted fishery and reduce bycatch | 0 | 0 |
| 2017 | Quadrennial advice | 0 | 0 |
| 2018 | Quadrennial advice | 0 | 1 |
| 2019 | Quadrennial advice | 0 | |
| 2020 | Precautionary approach | 0 | |
| 2021 | Same advice as in 2020 | 0 | |
| 2022 | Same advice as in 2020 | 0 | |
| 2023 | Same advice as in 2020 | 0 | |

History of catch and landings

The distribution of this species may extend into the NEAFC Regulatory Area, but the main component of the stock occurs in shelf seas. Catches from the NEAFC Regulatory Area are not quantified, but are assumed negligible.

Table 6 Starry ray in subareas 2 and 4 and Division 3.a. Catch distribution by fleet in 2018 as estimated by ICES.

| Total catch (2018) | Landings | Discards |
|--------------------|--|----------|
| Unknown | 1 tonne Proportion by fleet is unquantified | Unknown |

Table 7 Starry ray in subareas 2 and 4 and Division 3.a. History of commercial landings (ICES estimates) is presented for each country participating in the fishery. Blank = no data reported; + = data less than 0.5 t. Weights are in tonnes. *

| Year | Belgium | Germany | France | UK (incl. Scotland) | Netherlands | Grand total |
|------|---------|---------|--------|------------------------|-------------|-------------|
| 2012 | | | | + | + | + |
| 2013 | | | + | + | | + |
| 2014 | + | | + | + | | + |
| 2015 | | | + | | | + |
| 2016 | | | + | | | + |
| 2017 | | | + | | | + |
| 2018 | | + | 1 | + | + | 1 |

* The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

Summary of the assessment

Table 8 Starry ray in subareas 2 and 4 and Division 3.a. Assessment summary. Standardized indices of abundance from trawl surveys (NS-IBTS-Q1 and NS-IBTS-Q3, originally in $n\ h^{-1}$) and mean combined stock size indicator.

| Year | NS-IBTS-Q1 | NS-IBTS-Q3 | Stock size indicator |
|------|------------|------------|----------------------|
| 1991 | 1.04 | 3.10 | 2.07 |
| 1992 | 1.92 | 0.90 | 1.41 |
| 1993 | 2.96 | 0.66 | 1.81 |
| 1994 | 1.00 | 0.79 | 0.89 |
| 1995 | 2.12 | 0.73 | 1.42 |
| 1996 | 1.50 | 0.92 | 1.21 |
| 1997 | 1.27 | 0.86 | 1.06 |
| 1998 | 1.34 | 0.86 | 1.10 |
| 1999 | 1.78 | 1.08 | 1.43 |
| 2000 | 2.05 | 1.21 | 1.63 |
| 2001 | 0.71 | 2.03 | 1.37 |
| 2002 | 1.10 | 1.15 | 1.13 |
| 2003 | 1.22 | 1.34 | 1.28 |
| 2004 | 1.14 | 0.73 | 0.94 |
| 2005 | 0.97 | 0.83 | 0.90 |
| 2006 | 0.60 | 0.92 | 0.76 |
| 2007 | 1.12 | 1.51 | 1.32 |
| 2008 | 0.83 | 0.99 | 0.91 |
| 2009 | 0.35 | 1.17 | 0.76 |
| 2010 | 0.37 | 0.87 | 0.62 |
| 2011 | 0.34 | 0.95 | 0.64 |
| 2012 | 0.44 | 0.76 | 0.60 |
| 2013 | 0.31 | 0.56 | 0.44 |
| 2014 | 0.29 | 0.60 | 0.45 |
| 2015 | 0.51 | 0.85 | 0.68 |
| 2016 | 0.36 | 0.68 | 0.52 |
| 2017 | 0.26 | 0.48 | 0.36 |
| 2018 | 0.07 | 0.49 | 0.28 |

Sources and references

EU. 2019. Council Regulation (EU) 2019/124 of 30 January 2019 fixing for 2019 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. Official Journal of the European Union, L 29: 1–166. <http://data.europa.eu/eli/reg/2019/124/oj>.

ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp. <https://doi.org/10.17895/ices.pub.5322>.

ICES. 2018. Advice basis. In Report of the ICES Advisory Committee, 2018. ICES Advice 2018, Book 1, Section 1.2. <https://doi.org/10.17895/ices.pub.4503>.

ICES. 2019. Working Group on Elasmobranch Fishes (WGEF). ICES Scientific Reports. 1:25. <http://doi.org/10.17895/ices.pub.5594>.

Walker, P. A., and Heessen, H. J. L. 1996. Long-term changes in ray populations in the North Sea. ICES Journal of Marine Science, 53: 1085–1093. <https://doi.org/10.1006/jmsc.1996.0135>.

Recommended citation: ICES. 2019. Starry ray (*Amblyraja radiata*) in subareas 2 and 4, and Division 3.a (Norwegian Sea, North Sea, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, rjr.27.23a4, <https://doi.org/10.17895/ices.advice.4841>.