

Plaice (*Pleuronectes platessa*) in divisions 7.h–k (Celtic Sea South, southwest of Ireland)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2022 should be no more than 114 tonnes.

Stock development over time

Fishing pressure on the stock is above F_{MSY} (figure 2); no reference points for stock size have been defined.

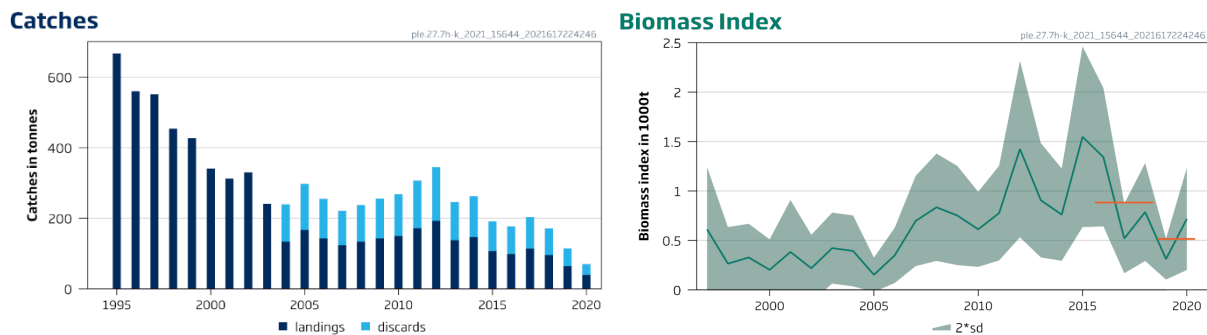


Figure 1 Plaice in divisions 7.h–k. Summary of the stock assessment. Discard estimates are available from 2004; prior to this, discards are unknown due to lack of sample information. Survey combined biomass index shown with the relevant confidence intervals. The short orange lines in the relative biomass plot indicate the average values of the respective years (2016 to 2018 and 2019 to 2020).

Catch scenarios

ICES framework for category 3 stocks was applied (ICES, 2012). The advice is based on the rfb rule to provide MSY advice (ICES, 2020). A survey combined biomass index was used as an indicator of stock development. The advice is based on the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B), multiplied by the recent catches, a ratio of observed mean length in the catch relative to the target mean length, a biomass safeguard, and a precautionary multiplier. The stability clause was considered and applied ($b = 1$) to recent catches since previous advice was zero. A discard rate (2004–2019) of 44% was calculated.

Table 1 Plaice in divisions 7.h-k. The basis for the catch scenarios. Catches are in tonnes.

| | |
|--|-------------|
| Index A (2020, 2019) | 516 |
| Index B (2016, 2017, 2018) | 883 |
| r: Index ratio (A/B) | 0.58 |
| m: multiplier to maintain the biomass above B_{lim} to with 95% probability | 0.95 |
| f: multiplier for relative mean length in catches ($L_{mean}/L_{F=M 2020}$) | 1.03 |
| b: multiplier for index relative to trigger ($I_{2020}/I_{trigger}$; $I_{trigger} = I_{loss} * 1.4 = 1.05$) | 1 |
| Stability clause | Applied 0.7 |
| C_y : average catches of the last three years (2017, 2018, 2019) [^] | 163 tonnes |
| Discard rate | 44% |
| Catch advice for 2022** ($C_y \times$ stability clause) | 114 tonnes |
| % advice change** | - |

* 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.

**Advice value for 2022 relative to the advice value for 2021 (0 tonnes).

[^]Catches in 2020 not considered representative because of COVID-19 restrictions.

This year's advice is non-zero compared to the previous advice because of a change in the method used to provide advice and in the perception of the stock.

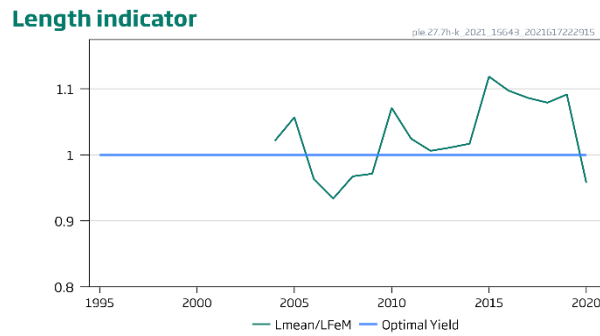


Figure 2 Plaice in divisions 7.h–k. Length indicator

Basis of the advice

Table 2 Plaice in divisions 7.h–k. The basis of the advice.

| | |
|-----------------|--|
| Advice basis | MSY approach |
| Management plan | The EU multiannual plan (MAP) for stocks in Western Waters and adjacent waters (EU, 2019) takes into account bycatch of this species. There is no agreed shared management plan with UK for this stock, and ICES provides advice according to ICES MSY approach. |

Quality of the assessment

The benchmark in 2021 introduced a survey index which covers the whole stock area (VAST combined six surveys: EVOHE, IE-IAMS, IE-IGFS, UK-WGCFS, UK-Q4SWIBTS, and UK-Q1SWBeam) and estimates total catches by incorporating discards. Because of high interannual variability in discard rates, the benchmark concluded to apply a long-term average discard rate to the data years for which discard data are available.

Although there was a decrease in the number of commercial catch samples as a result of COVID-19, there were sufficient samples available to estimate a discard rate for 2020. The survey index used in this assessment differed slightly from that proposed in the benchmark, as improved data became available for the Q1 SWBEAM trawl survey through DATRAS.

Issues relevant for the advice

Plaice in divisions 7.h–k is primarily a bycatch fishery. There is no quantitative mixed-fishery analysis that includes plaice in this area. Although not incorporated into this assessment, there is some information available on the discard survivability of plaice in this area, which is estimated to range between 10 and 33% in the beam trawl (Uhlmann *et al.*, 2018) and be 70% in the seine net fishery (Oliver *et al.*, 2020).

A new advice rule was applied this year (ICES, 2021a). The “rfb” harvest control rule provides MSY advice for category 3 stocks based on the “two-over-three rule”, which compares the trend in a biomass index of the two most recent years (index A) to the preceding three years (index B). The rfb rule expands on the two-over-three rule with the addition of multipliers based on the stock’s life-history characteristics, the status of the stock in terms of relative biomass, and the status of the stock relative to a target reference length.

As this is the first year of advice using this rule, the starting point is not based on advice in 2021 (which was 0 tonnes) but on the average catches in recent years (2017–2019).

The stability was not considered, as this was the first time this rfb rule was implemented.

Reference points

Table 3 Plaice in divisions 7.h–k. Reference points, relative values, and their technical basis.

| Framework | Reference point | Value | Technical basis | Source |
|------------------------|-----------------------------------|----------------------------------|--|-------------|
| MSY approach | MSY B _{trigger proxy} | Not defined | | |
| | F _{MSY proxy} | $\frac{L_{mean}}{L_{F=M}} = 1 *$ | Relative value from LBI analysis, assuming M/K = 1.5. L _{F=M} is based on L _c (length at 50% of modal abundance), which varies each year | ICES (2020) |
| Precautionary approach | B _{lim} | Not defined | | |
| | B _{pa} | Not defined | | |
| | F _{lim} | Not relevant | | |
| | F _{pa} | Not relevant | | |
| Management plan | SSB _{MGT} | Not relevant applicable | | |
| | F _{MGT} | Not relevant applicable | | |

* No reference points are defined for this stock in terms of absolute values. The LBI-estimated values of the ratio $L_{mean}/L_{F=M}$ are used to estimate exploitation status relative to the proxy MSY reference point.

Basis of the assessment

Table 4 Plaice in divisions 7.h–k. Basis of the assessment and advice.

| | |
|--------------------------|---|
| ICES stock data category | 3 (ICES, 2021b) |
| Assessment type | Trends from combined biomass index and length-based indicator (ICES, 2021a) |
| Input data | Commercial landings and discards, six surveys combined in VAST (spatial temporal model [Thorson <i>et al.</i> , 2019]) index: EVOHE (G9527), IE-IAMS(G3098), IE-IGFS (G7212), UK-WGCFS (G9863), UK-Q4SWIBTS (G9863) and UK-Q1SWBeam (B2732) |
| Discards and bycatch | Discard estimates are not available for the early part of the time-series (1995–2003). An average discard rate was derived from the years where discard estimates are available (2004–2020). |
| Indicators | Length-based indicator |
| Other information | Benchmarked in 2021 (ICES, 2021c) |
| Working group report | Working Group for the Celtic Seas Ecoregion (WGCSE) |

History of the advice, catch, and management

Table 5 Plaice in divisions 7.h–k. ICES advice and official landings. All weights are in tonnes.

| Year | ICES advice | Catches corresponding to advice | Landings corresponding to advice | Agreed TAC | Official landings | Discards | ICES landings |
|------|--|---------------------------------|----------------------------------|------------|-------------------|----------|---------------|
| 1993 | - | | - | - | 667 | | |
| 1994 | - | | - | - | 560 | | |
| 1995 | - | | - | - | 667 | | |
| 1996 | - | | - | - | 560 | | |
| 1997 | - | | - | - | 551 | | |
| 1998 | - | | - | - | 454 | | |
| 1999 | - | | - | - | 437 | | |
| 2000 | - | | - | - | 341 | | |
| 2001 | - | | - | 1215 | 313 | | |
| 2002 | - | | - | 1080 | 330 | | |
| 2003 | Reduce TAC to recent average (1998–2000) | | 450 | 582 | 241 | | |
| 2004 | Reduce TAC to recent average (2000–2002) | | 320 | 466 | 232 | | 134 |
| 2005 | Reduce TAC to recent average (2001–2003) | | 271 | 466 | 170 | 45 | 167 |

| Year | ICES advice | Catches corresponding to advice | Landings corresponding to advice | Agreed TAC | Official landings | Discards | ICES landings |
|------|--|---------------------------------|----------------------------------|------------|-------------------|----------|---------------|
| 2006 | Reduce TAC to recent average (2002–2004) | | 245 | 396 | 143 | 55 | 143 |
| 2007 | Reduce TAC to recent average (2003–2005) | | 196 | 337 | 141 | 78 | 124 |
| 2008 | Reduce TAC to recent average (2004–2006) | | 177 | 303 | 124 | 53 | 133 |
| 2009 | Same advice as last year | | 177 | 256 | 149 | 56 | 143 |
| 2010 | Reduce TAC | | - | 218 | 155 | 168 | 150 |
| 2011 | See scenarios | | - | 185 | 178 | 13 | 172 |
| 2012 | Reduce catches | | | 176 | 201 | 84 | 193 |
| 2013 | Decrease catches by 36% (20% decrease, followed by 20% PA reduction) | | < 100 | 141 | 141 | 118 | 137 |
| 2014 | Decrease landings by 4% (20% increase, followed by 20% PA reduction) | | < 135 | 135 | 153 | 116 | 147 |
| 2015 | The same landings advice as for 2014 | | < 135 | 135 | 103 | 392* | 107 |
| 2016 | Precautionary approach (same advised value as for 2015) | | ≤ 135 | 135 | 100 | 22 | 99 |
| 2017 | Precautionary approach (36% reduction in advised landings) | | ≤ 86 | 128 | 116 | 43 | 114 |
| 2018 | Precautionary approach | | 0 | 128 | 96 | 223 | 96 |
| 2019 | Precautionary approach | | 0 | 109 | 63* | 43 | 64 |
| 2020 | Precautionary approach | | 0 | 67 | 39* | 36 | 39 |
| 2021 | Precautionary approach | | 0 | 67 | | | |
| 2022 | MSY approach | 114 | | | | | |

* Preliminary.

History of the catch and landings

Table 6 Plaice in divisions 7.h–k. Catch distribution by fleet in 2020 as estimated by ICES.

| Catch | Landings | | | Discards | |
|-----------|-------------|------------|-------------|-------------|------------|
| | Otter trawl | Beam trawl | Other gears | Otter trawl | Beam trawl |
| 75 tonnes | 58% | 33% | 9% | 100% | < 0.01% |
| | 39 tonnes | | | 36 tonnes | |

Table 7 Plaice in divisions 7.h–k. History of official landings by country and ICES estimated landings (tonnes).

| Year | Belgium | France | Ireland | UK | Other | Official landings | ICES landings |
|------|---------|--------|---------|-----|-------|-------------------|---------------|
| 1995 | 0 | 60 | 321 | 286 | 0 | 667 | |
| 1996 | 0 | 48 | 305 | 155 | 52 | 560 | |
| 1997 | 0 | 69 | 344 | 138 | 0 | 551 | |
| 1998 | 0 | 49 | 286 | 106 | 13 | 454 | |
| 1999 | 45 | 0 | 299 | 82 | 1 | 437 | |
| 2000 | 4 | 54 | 200 | 76 | 7 | 341 | |
| 2001 | 27 | 50 | 160 | 73 | 3 | 313 | |
| 2002 | 69 | 45 | 155 | 59 | 2 | 330 | |
| 2003 | 20 | 32 | 127 | 56 | 6 | 241 | |
| 2004 | 67 | 32 | 91 | 36 | 6 | 232 | 134 |
| 2005 | 32 | 20 | 90 | 28 | 0 | 170 | 166 |
| 2006 | 22 | 36 | 66 | 18 | 1 | 143 | 143 |
| 2007 | 7 | 30 | 72 | 20 | 13 | 141 | 124 |
| 2008 | 25 | 13 | 73 | 12 | 1 | 124 | 134 |
| 2009 | 1 | 44 | 72 | 32 | 0 | 149 | 144 |
| 2010 | <1 | 54 | 66 | 35 | 0 | 155 | 150 |
| 2011 | 4 | 58 | 72 | 44 | 0 | 178 | 172 |

| Year | Belgium | France | Ireland | UK | Other | Official landings | ICES landings |
|-------|---------|--------|---------|----|-------|-------------------|---------------|
| 2012 | 2 | 62 | 99 | 38 | 0 | 201 | 198 |
| 2013 | 0 | 49 | 52 | 40 | 0 | 141 | 138 |
| 2014 | 4 | 52 | 82 | 15 | 0 | 153 | 148 |
| 2015 | 0 | 60 | 25 | 18 | 0 | 103 | 106 |
| 2016 | 7 | 46 | 32 | 15 | 0 | 100 | 99 |
| 2017 | 11 | 53 | 42 | 10 | 0 | 116 | 114 |
| 2018 | 17 | 35 | 32 | 0 | 11 | 95 | 97 |
| 2019* | 6 | 17 | 30 | 9 | 1 | 63 | 64 |
| 2020* | 7 | 12 | 12 | 7 | 1 | 39 | 39 |

* Preliminary official landings.

Summary of the assessment

Table 8 Plaice in divisions 7.h–k. Assessment summary. High and low refer to $2 \times SD$ (approximately 95% confidence intervals) for biomass index. All weights are in tonnes.

| Year | Biomass index | | | ICES landings | ICES discards* |
|------|---------------|-------|------|---------------|----------------|
| | Low | Value | High | | |
| 1995 | | | | 667 | |
| 1996 | | | | 560 | |
| 1997 | 0 | 613 | 1243 | 551 | |
| 1998 | 0 | 265 | 635 | 454 | |
| 1999 | 0 | 328 | 668 | 437 | |
| 2000 | 0 | 203 | 511 | 341 | |
| 2001 | 0 | 384 | 909 | 313 | |
| 2002 | 0 | 219 | 558 | 330 | |
| 2003 | 63 | 422 | 781 | 241 | |
| 2004 | 35 | 394 | 753 | 134 | 105 |
| 2005 | 0 | 153 | 326 | 167 | 131 |
| 2006 | 70 | 350 | 630 | 143 | 112 |
| 2007 | 240 | 697 | 1153 | 124 | 98 |
| 2008 | 292 | 835 | 1378 | 133 | 105 |
| 2009 | 250 | 751 | 1253 | 143 | 113 |
| 2010 | 232 | 612 | 992 | 150 | 118 |
| 2011 | 297 | 776 | 1256 | 172 | 135 |
| 2012 | 532 | 1424 | 2317 | 193 | 152 |
| 2013 | 328 | 907 | 1486 | 138 | 108 |
| 2014 | 294 | 761 | 1228 | 147 | 116 |
| 2015 | 635 | 1548 | 2461 | 107 | 84 |
| 2016 | 641 | 1342 | 2043 | 99 | 78 |
| 2017 | 168 | 519 | 871 | 114 | 90 |
| 2018 | 292 | 787 | 1283 | 96 | 75 |
| 2019 | 104 | 312 | 520 | 64 | 51 |
| 2020 | 201 | 719 | 1237 | 39 | 31 |

*ICES discards are derived from a long-term average of discards.

Sources and references

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[Download the stock assessment data and figures.](#)

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