ICES International Council for
CIEM the Exploration of the Sea
Conseil International pour
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## Plaice (*Pleuronectes platessa*) in Division 7.d (eastern English Channel)

### ICES advice on fishing opportunities

ICES advises that when the EU multiannual plan (MAP) for the Western Waters is applied, catches from the Division 7.d plaice stock in 2020 that correspond to the F ranges are between 6545 tonnes and 12 029 tonnes. According to the MAP, catches higher than those corresponding to $F_{MSY}$ (9073 tonnes) can only be taken under conditions specified in the MAP, whilst the entire range is considered precautionary when applying the ICES advice rule.

### Stock development over time

The spawning-stock biomass (SSB) has increased rapidly from 2010 following a period of high recruitment between 2009 and 2015, and is now still well above the MSY $B_{trigger}$, despite a decline since 2016. Fishing mortality (F) has declined since the early 2000s, with an increase in the recent years to slightly below $F_{MSY}$. Recruitment (R) is currently around the average of the last 10 years of the time series.
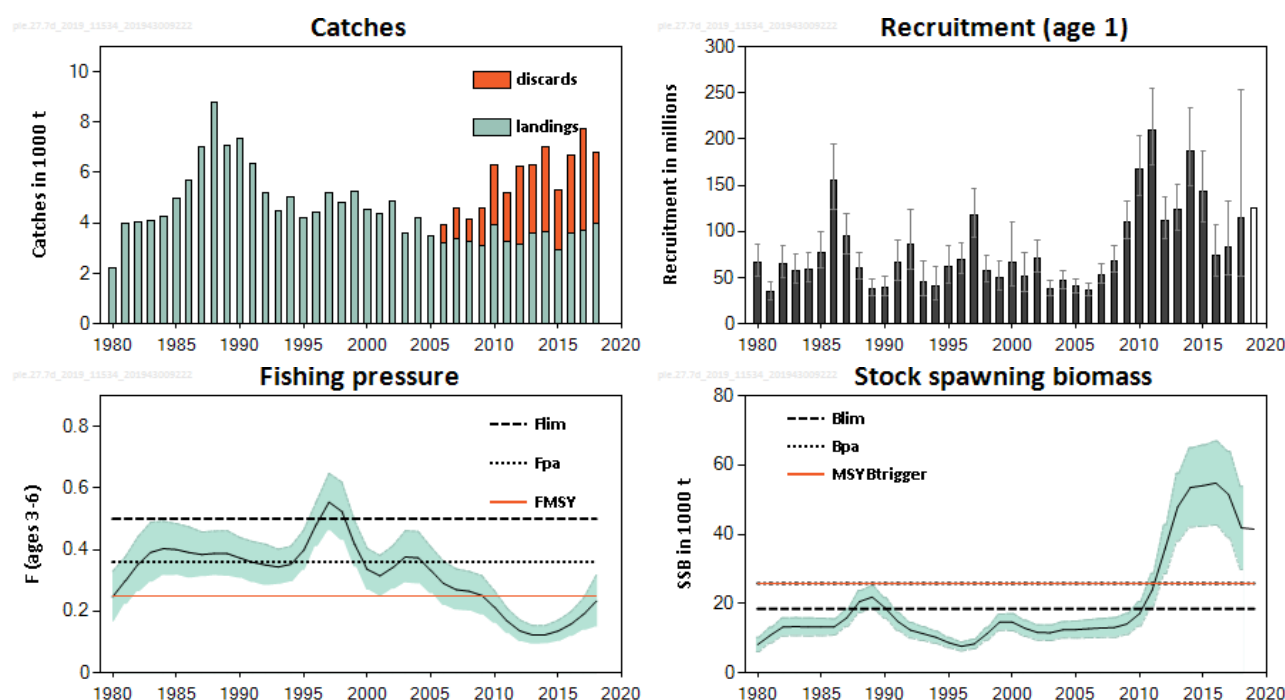


**Figure 1**      Plaice in Division 7.d. Summary of the stock assessment. Predicted values of recruitment are not shaded. Shaded areas (F, SSB) and error bars (R) indicate ±2 standard errors (approximately 95% confidence intervals). The assumed recruitment is unshaded. Discards are only available from 2006.

### Stock and exploitation status

ICES assesses that fishing pressure on the stock is below $F_{MSY}$, $F_{pa}$, and $F_{lim}$, and spawning stock size is above MSY $B_{trigger}$, $B_{pa}$, and $B_{lim}$.

**Table 1**      Plaice in Division 7.d. State of the stock and fishery relative to reference points.

| | | Fishing pressure | | | | Stock size | | |
|---|---|---|---|---|---|---|---|---|
| | | 2016 | 2017 | 2018 | | 2017 | 2018 | 2019 |
| Maximum sustainable yield | $F_{MSY}$ | ✓ | ✓ | ✓ Below | MSY $B_{trigger}$ | ✓ | ✓ | ✓ Above trigger |
| Precautionary approach | $F_{pa}$, $F_{lim}$ | ✓ | ✓ | ✓ Harvested sustainably | $B_{pa}$, $B_{lim}$ | ✓ | ✓ | ✓ Full reproductive capacity |
| Management plan | $F_{MGT}$ | ✓ | ✓ | ✓ Within range | MAP MSY $B_{trigger}$ | ✓ | ✓ | ✓ Above trigger |

## Catch scenarios

**Table 2**        Plaice in Division 7.d. Assumptions made for the interim year and in the forecast for Division 7.d plaice stock only.

| Variable | Value | Notes |
|---|---|---|
| $F_{ages\ 3-6}$ (2019) | 0.23 | Average exploitation pattern (2016–2018), scaled to $F_{ages}$ 3–6 in 2018 |
| SSB (2020) | 40 933 | Short-term forecast (STF), in tonnes |
| $R_{age1}$ (2019–2020) | 125 134 | Geometric mean 2013–2016, in thousands |
| Catch (2019) | 8189 | STF, in tonnes |
| Landings (2019) | 4524 | STF, in tonnes; projection based on the average landing ratio (2016–2018) by age |
| Discards (2019) | 3665 | STF, in tonnes; projection based on the average discard ratio (2016–2018) by age |

**Table 3**    Plaice in Division 7.d. Annual catch scenarios. All weights are in tonnes (t).

| Basis | Division 7.d plaice stock | | | | | | | | | | Plaice in Division 7.d # | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total catch (2020)^ | Wanted catch * (2020) | Unwanted catch * (2020) | $F_{total}$ (ages 3–6) (2020) | $F_{wanted}$ (ages 3–6) (2020) | $F_{unwanted}$ (ages 3–6) (2020) | SSB (2021) | % SSB change ** | % change in wanted catch *** | % advice change$ | Total catch (2020) | Wanted catch* (2020) | Unwanted catch* (2020) | % change in wanted catch ^^ | % change in the 7.d portion of the TAC ## | % advice change ### |
| ICES advice basis | | | | | | | | | | | | | | | | |
| EU MAP ^^^: $F_{MSY}$ | 9073 | 4697 | 4376 | 0.25 | 0.115 | 0.135 | 41084 | 0.37 | 18.0 | 15.4 | 10687 | 5533 | 5155 | 10.6 | 36 | 15.9 |
| F= MAP $F_{MSY\ lower}$ | 6545 | 3389 | 3156 | 0.175 | 0.081 | 0.094 | 43874 | 7.2 | −14.8 | −16.8 | 7710 | 3992 | 3718 | −20 | −1.92 | −16.4 |
| F= MAP $F_{MSY\ upper}$ | 12029 | 6225 | 5804 | 0.344 | 0.159 | 0.185 | 37864 | −7.5 | 56 | 53 | 14170 | 7333 | 6837 | 47 | 80 | 54 |
| Other scenarios | | | | | | | | | | | | | | | | |
| MSY approach: $F_{MSY}$ | 9073 | 4697 | 4376 | 0.25 | 0.115 | 0.135 | 41084 | 0.37 | 18.0 | 15.4 | 10687 | 5533 | 5155 | 10.6 | 36 | 15.9 |
| F = 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51248 | 25 | −100 | −100 | 0 | 0 | 0 | −100 | −100 | −100 |
| $F_{pa}$ | 12510 | 6473 | 6037 | 0.36 | 0.166 | 0.194 | 37344 | −8.8 | 63 | 59 | 14737 | 7625 | 7112 | 52 | 87 | 60 |
| $F_{lim}$ | 16468 | 8514 | 7954 | 0.50 | 0.23 | 0.27 | 33127 | −19.1 | 114 | 109 | 19399 | 10029 | 9370 | 100 | 147 | 110 |
| SSB (2021) = $B_{lim}$ | 31231 | 16016 | 15215 | 1.22 | 0.56 | 0.66 | 18447 | −55 | 300 | 300 | 36790 | 18867 | 17923 | 280 | 370 | 300 |
| SSB (2021) = $B_{pa}$ | 23575 | 12156 | 11420 | 0.80 | 0.37 | 0.43 | 25826 | −37 | 210 | 200 | 27771 | 14319 | 13452 | 186 | 250 | 200 |
| SSB (2021) = MSY $B_{trigger}$ | 23575 | 12156 | 11420 | 0.80 | 0.37 | 0.43 | 25826 | −37 | 210 | 200 | 27771 | 14319 | 13452 | 186 | 250 | 200 |
| F = $F_{2019}$ | 8498 | 4400 | 4099 | 0.23 | 0.107 | 0.125 | 41715 | 1.91 | 10.5 | 8.1 | 10011 | 5183 | 4828 | 3.6 | 27 | 8.5 |

* "Wanted" and "unwanted" catch are used to describe fish that would be landed and discarded in the absence of the EU landing obligation, based on discard rate estimates for 2016–2018.

** SSB 2021 relative to SSB 2020.

*** Wanted catch in 2020 relative to the ICES estimates of landings in 2018 (3980 t) for the Division 7.d plaice stock.

$ Total catch in 2020 relative to advice value 2019 (7864 t) for the Division 7.d plaice stock.

^ Differences between the total catch and the sum of wanted and unwanted catches result from rounding.

^^ Wanted catch in 2020 relative to the ICES estimates of landings in 2018 (5 004 t) for plaice caught in Division 7.d.

^^^ EU multiannual plan (MAP) for the Western Waters (EU, 2019).

# All plaice in Division 7.d, including plaice originating from the North Sea and the western English Channel, according to a ratio calculated over the years 2003–2018: 15.1% of the plaice landed in Division 7.d is assumed to originate from the North Sea and the western English Channel, and this is added to the predicted values for the Division 7.d plaice stock. The ratio is applied to total catch, wanted catch, and unwanted catch.

## Total catch in 2020 relative to the Division 7.d proportion of the TAC in 2019 (10 354 t), assuming the same proportion of the TAC is taken from Division 7.e as during 2003–2018.

### Total catch in 2020 relative to advice value 2019 (9225 t) for plaice caught in Division 7.d.

The advice change (+15.4% for the Division 7.d plaice stock) is the result of applying the same F ($F_{MSY}$) to an estimated stock size that is expected to be higher due to higher recruitment.

## Basis of the advice

**Table 4**          Plaice in Division 7.d. The basis of the advice.

| Advice basis | EU multiannual management plan (MAP) plan for the Western Waters (EU, 2019) |
|---|---|
| Management plan | The EU multiannual plan (MAP) for stocks in North Sea and adjacent waters applies to this stock. The plan specifies conditions for setting fishing opportunities depending on stock status and making use of the $F_{MSY}$ range for the stock.<br><br>In accordance with the MAP, catches higher than those corresponding to $F_{MSY}$ can only be taken providing SSB is greater than MSYB$_{trigger}$, and one of the following conditions is met:<br>a)  if it is necessary for the achievement of objectives of mixed fisheries;<br>b) if it is necessary to avoid serious harm to a stock caused by intra- or inter-species stock dynamics;<br>c) in order to limit variations in fishing opportunities between consecutive years to not more than 20 %.<br><br>ICES considers that the $F_{MSY}$ range for this stock used in the MAP is precautionary. |

## Quality of the assessment

There is uncertainty about the landing statistics of the Division 7.d plaice stock because of migrations between this area and the North Sea and the western English Channel during the spawning period. The current assessment results are dependent on the proportion of quarter 1 removals estimated from the historical tagging survey (ICES, 2010).
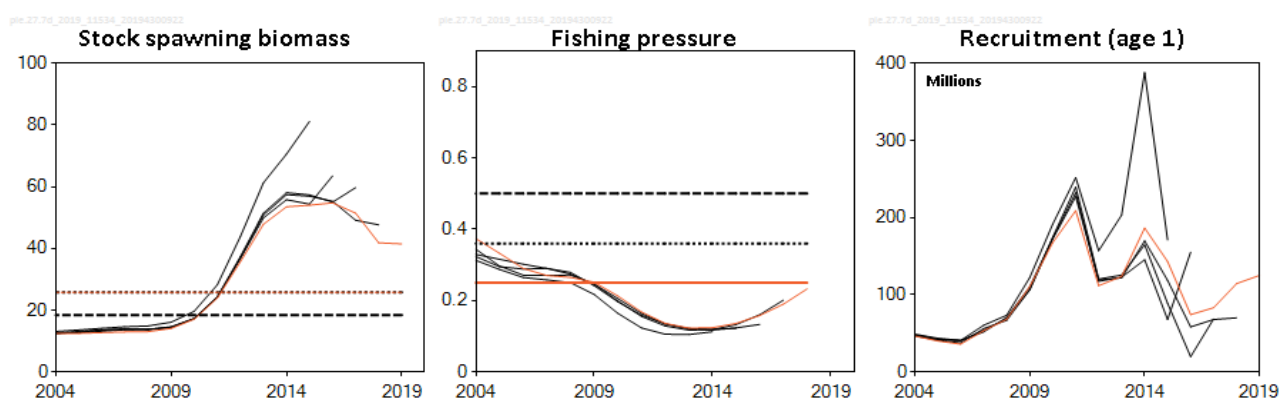


**Figure 2**          Plaice in Division 7.d. Historical assessment results.

## Issues relevant for the advice

ICES provides advice based on the EU MAP for the Western Waters (EU, 2019).

A single TAC covers both divisions 7.d and 7.e; management should ensure that fishing opportunities are in line with the stock status for each of the stocks in the combined management area, to ensure that both stocks are exploited sustainably.

The European Commission (EC) has requested that ICES estimate catches for plaice in Division 7.d consistent with the advice. Assuming the same proportion of the Division 7.e and Subarea 4 plaice stocks is taken in Division 7.d as during 2003–2018, catches of plaice in Division 7.d in 2020 should be between 7710 tonnes and 14 170 tonnes.

Plaice is caught in a mixed fishery targeting sole, with 80 mm mesh size. This leads to a large number of plaice being discarded because this mesh size is not matched to the minimum conservation reference size (MCRS). This stock is under the EU landing obligation since 1 January 2019.

## Reference points

**Table 5**  Plaice in Division 7.d. Reference points, values, and their technical basis. All weights are in tonnes.

| Framework | Reference point | Value | Technical basis | Source |
|---|---|---|---|---|
| MSY approach | MSY $B_{trigger}$ | 25 826 | $B_{pa}$ | ICES (2015a) |
| | $F_{MSY}$ | 0.25 | EQsim analysis based on recruitment period 1981–2014 | ICES (2015a) |
| Precautionary approach | $B_{lim}$ | 18 447 | Break-point of hockey stick stock–recruit relationship, based on recruitment period 1981–2014 | ICES (2015a) |
| | $B_{pa}$ | 25 826 | $B_{lim} \times \exp(1.645 \times 0.2) \approx 1.4 \times B_{lim}$ | ICES (2015a) |
| | $F_{lim}$ | 0.50 | EQsim analysis based on recruitment period 1981–2014 | ICES (2016) |
| | $F_{pa}$ | 0.36 | $F_{lim} \times \exp(-1.645 \times 0.2) \approx F_{lim} / 1.4$ | ICES (2016) |
| EU Management plan (MAP)* | MAP MSY $B_{trigger}$ | 25 826 | MSY $B_{trigger}$ | ICES (2015a) |
| | MAP $B_{lim}$ | 18 447 | $B_{lim}$ | ICES (2015a) |
| | MAP $F_{MSY}$ | 0.25 | $F_{MSY}$ | ICES (2015a) |
| | MAP range $F_{lower}$ | 0.175-0.25 | Consistent with ranges provided by ICES (2015a), resulting in no more than 5% reduction in long-term yield compared with MSY. | ICES (2015a) |
| | MAP range $F_{upper}$ | 0.25-0.344 | Consistent with ranges provided by ICES (2015a), resulting in no more than 5% reduction in long-term yield compared with MSY | ICES (2015a) |

* EU multiannual plan (MAP) for the Western Waters (EU, 2019).

## Basis of the assessment

**Table 6**  Plaice in Division 7.d. Basis of the assessment and advice.

| | |
|---|---|
| ICES stock data category | 1 (ICES, 2018). |
| Assessment type | Age-based analytical assessment (Aarts and Poos, 2009) that uses catches in the model and in the forecast (ICES, 2019). |
| Input data | Commercial catch (international landings, with age frequencies from catch sampling covering 83% of the landings), two survey indices UK-BTS, FR-GFS. Constant natural mortality by age is calculated from Peterson and Wroblewski (1984). Fixed maturity ogive is based on biological sampling. |
| Discards and bycatch | Discards are included in the assessment and all major fleets are covered. In 2018, 77% of the landings had associated discard information, with age frequencies from catch sampling covering 79% of the discards. 73% of the discard estimates are based on observations. The model reconstructs discards for years where data are not available (before 2006). |
| Indicators | None. |
| Other information | Last benchmarked in 2015 (WKPLE; ICES, 2015b). |
| Working group | Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK) |

## Information from stakeholders

There is no additional available information.

### History of the advice, catch, and management

Table 7    Plaice in Division 7.d. History of ICES advice, official landings for plaice in 7.d, agreed TAC for 7.d and 7.e, and ICES estimates for landings and discards of 7.d plaice, and for plaice in 7.d. All weights are in tonnes.

| Year | ICES advice | Landings corresponding to advice | | | Catch corresponding to advice | | Agreed TAC 7.d, e | Official landings of plaice in 7.d * | ICES landings of plaice in 7.d * | ICES landings 7.d plaice | ICES discards of 7.d plaice | ICES discards of plaice in 7.d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7.d plaice | Plaice in 7.d | Plaice in 7.d, e | 7.d plaice stock | Plaice in 7.d | | | | | | |
| 1987 | Precautionary TAC for 7.d,e | | | 6800 | | | 8300 | 7867 | 8366 | 7006 | | |
| 1988 | Precautionary TAC for 7.d,e | | | 6900 | | | 9960 | 9103 | 10420 | 8785 | | |
| 1989 | No increase in effort for 7.d,e | | | 11700 | | | 11700 | 7115 | 8758 | 7093 | | |
| 1990 | No increase in F; TAC for 7.d,e | | | 10700 | | | 10700 | 8367 | 9047 | 7349 | | |
| 1991 | TAC for 7.d,e | | | 8800 | | | 10700 | 7913 | 7813 | 6362 | | |
| 1992 | *Status quo* F gives mean SSB | | 7600 | | | | 9600 | 6232 | 6337 | 5219 | | |
| 1993 | *Status quo* F within safe biological limits | | 6400 | | | | 8500 | 4771 | 5331 | 4479 | | |
| 1994 | No long-term gains in increased F | | - | | | | 9100 | 5633 | 6121 | 5047 | | |
| 1995 | No increase in F | | 5600 | | | | 8000 | 4569 | 5130 | 4196 | | |
| 1996 | No long-term gains in increasing F | | 6500 | | | | 7530 | 4598 | 5393 | 4430 | | |
| 1997 | No advice | | - | | | | 7090 | 5316 | 6307 | 5180 | | |
| 1998 | Reduce F in 98 by 30% from 96 value | | 4300 | | | | 5700 | 4830 | 5762 | 4831 | | |
| 1999 | Fishing at $F_{pa}$ | | 6300 | | | | 7400 | 5437 | 6326 | 5268 | | |
| 2000 | Fishing at $F_{pa}$ | | 4900 | | | | 6500 | 5235 | 6014 | 4521 | | |
| 2001 | Fishing at < $F_{pa}$ | | < 4400 | | | | 6000 | 4968 | 5266 | 4380 | | |
| 2002 | Fishing at < $F_{pa}$ | | < 5800 | | | | 6700 | 5496 | 5777 | 4846 | | |
| 2003 | Fishing at < $F_{pa}$ | | < 5300 | | | | 5970 | 4650 | 4086 | 3610 | | |
| 2004 | Fishing at < $F_{pa}$ ** | | < 5400 | | | | 6060 | 4312 | 4750 | 4206 | | |
| 2005 | Fishing at < $F_{pa}$ ** | | < 4400 | | | | 5150 | 3706 | 3991 | 3485 | | |
| 2006 | No effort increase ** | | | | | | 5151 | 3525 | 3646 | 3225 | 727 | 749 |
| 2007 | Average landings ** | | < 4000 | | | | 5050 | 3845 | 4001 | 3381 | 1220 | 1252 |
| 2008 | Average landings ** | | < 3500 | | | | 5050 | 3609 | 3864 | 3278 | 888 | 936 |

| Year | ICES advice | Landings corresponding to advice | | | Catch corresponding to advice | | Agreed TAC 7.d, e | Official landings of plaice in 7.d * | ICES landings of plaice in 7.d * | ICES landings 7.d plaice | ICES discards of 7.d plaice | ICES discards of plaice in 7.d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7.d plaice | Plaice in 7.d | Plaice in 7.d, e | 7.d plaice stock | Plaice in 7.d | | | | | | |
| 2009 | Average landings (2006–2008) ** | | < 3500 | | | | 4646 | 3522 | 3560 | 3124 | 1473 | 1528 |
| 2010 | Average landings (2007–2009) | | < 3500 | | | | 4274 | 3892 | 4411 | 3910 | 2412 | 2511 |
| 2011 | Average landings (2008–2010) | | < 3500 | | | | 4665 | 3593 | 3649 | 3291 | 1926 | 2024 |
| 2012 | No increase in catches and reduce discards | | - | | | | 5062 | 3611 | 3723 | 3178 | 3043 | 3336 |
| 2013 | Transition to $F_{MSY}$ proxy for data-limited stocks by 2015 and reduce discards | | < 4300 | | | | 6400 | 4182 | 4127 | 3604 | 2696 | 2955 |
| 2014 | Transition to $F_{MSY}$ proxy for data-limited stocks by 2015 and reduce discards | < 3016 | < 3925 | | | | 5322 | 4326 | 4320 | 3675 | 3325 | 3886 |
| 2015 | ICES DLS approach ($F_{MSY}$ proxy) | < 2811 | < 3469 | | | | 6223 | 3749 | 3727 | 2957 | 2368 | 2821 |
| 2016 | MSY approach | ≤ 10855 | ≤ 12512 | ≤ 16249 | ≤ 16923 | ≤ 19506 | 12446 | 4658 | 4638 | 3617 | 3090 | 3603 |
| 2017 | MSY approach | ≤ 7550 | ≤ 8764 | ≤ 11381 | ≤ 12805 | ≤ 14864 | 10022 | 4576 | 4613 | 3689 | 4075 | 5065 |
| 2018 | MSY approach | ≤ 7132 | ≤ 8335 | ≤ 10909 | ≤ 10592 | ≤12378 | 10360 | 4977 | 5004 | 3980 | 2846 | 3425 |
| 2019 | MSY approach | | | | ≤ 7864 | ≤ 9225 | 10354 | | | | | |
| 2020 | Managment Plan | | | | 9073 (range 6545–12029) | 10687 (range 7710–14170) | | | | | | |

* Plaice in Division 7.d, taking into account fish caught in the first quarter in Division 7.d that come from Division 7.e and Subarea 4 to spawn.  
** Single-stock boundary and the exploitation of this stock should be conducted in the context of mixed fisheries.  
*** Based on historical (2003–2018) proportion of landings in 7.e relative to 7.d,e  
^ EU multiannual plan (MAP) for the Western Waters (EU, 2019).

## History of the catch and landings

**Table 8**    Plaice in Division 7.d. Catch distribution of 7.d plaice by fleet in 2018 as estimated by ICES.

| Catch (2018) | Wanted catch | | | | Unwanted catch |
|---|---|---|---|---|---|
| 6 826 tonnes | 41% beam trawl | 39% otter trawl | 5.4% trammel nets | 14.6% other gears | 2 846 tonnes |
| | 3 980 tonnes | | | | |

**Table 9**    Plaice in Division 7.d. History of commercial catch and landings; both the official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

| Year | Belgium | France | UK(E+W) | Others | Official landings in 7.d | Unallocated in 7.d | ICES estimated landings of plaice in 7.d | Quarter 1 removals ^ | ICES estimated landings for 7.d plaice ^ | ICES estimated landings for plaice in 7.e | Agreed TAC for 7.d,e * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1976 | 147 | 1439 | 376 | | 1962 | 1 | 1963 | | 1963 | 640 | |
| 1977 | 149 | 1714 | 302 | | 2165 | 81 | 2246 | | 2246 | 702 | |
| 1978 | 161 | 1810 | 349 | | 2320 | 156 | 2476 | | 2476 | 784 | |
| 1979 | 217 | 2094 | 278 | | 2589 | 28 | 2617 | | 2617 | 977 | |
| 1980 | 435 | 2905 | 304 | | 3644 | −994 | 2650 | 427 | 2223 | 1178 | |
| 1981 | 815 | 3431 | 489 | | 4735 | 34 | 4769 | 760 | 4009 | 1676 | |
| 1982 | 738 | 3504 | 541 | 22 | 4805 | 60 | 4865 | 825 | 4040 | 1878 | |
| 1983 | 1013 | 3119 | 548 | | 4680 | 363 | 5043 | 950 | 4093 | 1714 | |
| 1984 | 947 | 2844 | 640 | | 4431 | 730 | 5161 | 912 | 4249 | 1758 | |
| 1985 | 1148 | 3943 | 866 | | 5957 | 65 | 6022 | 1022 | 5000 | 1677 | |
| 1986 | 1158 | 3288 | 828 | | 5274 | 1560 | 6834 | 1161 | 5673 | 2078 | |
| 1987 | 1807 | 4768 | 1292 | | 7867 | 499 | 8366 | 1360 | 7006 | 2272 | 8300 |
| 1988 | 2165 | 5688 | 1250 | | 9103 | 1317 | 10420 | 1635 | 8785 | 2835 | 9960 |
| 1989 | 2019 | 3713 | 1383 | | 7115 | 1643 | 8758 | 1665 | 7093 | 2742 | 11700 |
| 1990 | 2149 | 4739 | 1479 | | 8367 | 680 | 9047 | 1698 | 7349 | 2985 | 10700 |
| 1991 | 2265 | 4082 | 1566 | | 7913 | −100 | 7813 | 1451 | 6362 | 2183 | 10700 |
| 1992 | 1560 | 3099 | 1572 | 1 | 6232 | 105 | 6337 | 1118 | 5219 | 1882 | 9600 |
| 1993 | 877 | 2792 | 1102 | | 4771 | 560 | 5331 | 852 | 4479 | 1614 | 8500 |
| 1994 | 1418 | 3199 | 1007 | 9 | 5633 | 488 | 6121 | 1074 | 5047 | 1404 | 9100 |
| 1995 | 1157 | 2598 | 814 | | 4569 | 561 | 5130 | 934 | 4196 | 1247 | 8000 |
| 1996 | 1112 | 2630 | 856 | | 4598 | 795 | 5393 | 963 | 4430 | 1266 | 7530 |
| 1997 | 1161 | 3077 | 1078 | | 5316 | 991 | 6307 | 1127 | 5180 | 1583 | 7090 |
| 1998 | 854 | 3276 | 700 | | 4830 | 932 | 5762 | 931 | 4831 | 1346 | 5700 |
| 1999 | 1306 | 3388 | 743 | | 5437 | 889 | 6326 | 1058 | 5268 | 1543 | 7400 |
| 2000 | 1298 | 3183 | 754 | | 5235 | 779 | 6014 | 1494 | 4521 | 1625 | 6500 |
| 2001 | 1346 | 2962 | 660 | | 4968 | 298 | 5266 | 886 | 4380 | 1310 | 6000 |
| 2002 | 1204 | 3450 | 841 | 1 | 5496 | 281 | 5777 | 931 | 4846 | 1472 | 6700 |
| 2003 | 998 | 2893 | 756 | 3 | 4650 | −564 | 4086 | 476 | 3610 | 1387 | 5970 |
| 2004 | 954 | 2766 | 582 | 10 | 4312 | 438 | 4750 | 544 | 4206 | 1337 | 6060 |
| 2005 | 832 | 2432 | 421 | 21 | 3706 | 285 | 3991 | 506 | 3485 | 1319 | 5150 |
| 2006 | 1024 | 1935 | 550 | 16 | 3525 | 121 | 3646 | 421 | 3225 | 1411 | 5151 |
| 2007 | 1355 | 2017 | 463 | 10 | 3845 | 156 | 4001 | 620 | 3381 | 1146 | 5050 |
| 2008 | 1386 | 1740 | 471 | 12 | 3609 | 255 | 3864 | 586 | 3278 | 1112 | 5050 |
| 2009 | 1002 | 1892 | 612 | 16 | 3522 | 38 | 3560 | 436 | 3124 | 1024 | 4646 |
| 2010 | 1123 | 2190 | 517 | 62 | 3892 | 519 | 4411 | 501 | 3910 | 1208 | 4274 |
| 2011 | 1067 | 1994 | 472 | 60 | 3593 | 56 | 3649 | 358 | 3291 | 1417 | 4665 |
| 2012 | 1045 | 1962 | 542 | 63 | 3612 | 111 | 3723 | 544 | 3178 | 1492 | 5062 |
| 2013 | 1295 | 2159 | 641 | 87 | 4182 | −55 | 4127 | 523 | 3604 | 1472 | 6400 |
| 2014 | 1389 | 2229 | 633 | 76 | 4327 | −7 | 4320 | 645 | 3675 | 1490 | 5322 |

| Year | Belgium | France | UK(E+W) | Others | Official landings in 7.d | Unallocated in 7.d | ICES estimated landings of plaice in 7.d | Quarter 1 removals ^ | ICES estimated landings for 7.d plaice ^ | ICES estimated landings for plaice in 7.e | Agreed TAC for 7.d,e * |
|------|---------|--------|---------|--------|--------------------------|--------------------|------------------------------------------|----------------------|------------------------------------------|-------------------------------------------|------------------------|
| 2015 | 1600 | 1702 | 392 | 54 | 3748 | −21 | 3727 | 770 | 2957 | 1424 | 6223 |
| 2016 | 2247 | 1557 | 795 | 60 | 4659 | −21 | 4638 | 1020 | 3617 | 2013 | 12446 |
| 2017 | 2189 | 1487 | 814 | 86 | 4576 | 37 | 4613 | 924 | 3689 | 2128 | 10022 |
| 2018 | 1876 | 2171 | 832 | 98 | 4977 | 27 | 5004 | 1024 | 3980 | 1644 | 10360 |

* TACs for divisions 7.d and 7.e.

^ Takes into account the 'quarter 1 removal' of 65% of the quarter 1 Division 7.d catches of plaice that originate from Division 7.e and Subarea 4.

## Summary of the assessment

**Table 10**     Plaice in Division 7.d. Assessment summary. Recruitment in thousands. Weights are in tonnes.

| Year | Recruitment | | | SSB | | | Landings | Discards * | F | | |
|------|-------------|------|-----|-----|------|-----|----------|------------|---------|------|-----|
|      | Age 1 | High | Low | SSB | High | Low |          |            | Ages 3–6 | High | Low |
| 1980 | 66523 | 85502 | 51725 | 8173 | 10274 | 6072 | 2223 | | 0.25 | 0.33 | 0.165 |
| 1981 | 34250 | 44970 | 26062 | 10864 | 13108 | 8620 | 4009 | | 0.3 | 0.38 | 0.22 |
| 1982 | 65076 | 84691 | 49973 | 13263 | 15870 | 10656 | 4040 | | 0.35 | 0.44 | 0.26 |
| 1983 | 57703 | 75691 | 43984 | 13333 | 15930 | 10736 | 4093 | | 0.39 | 0.49 | 0.29 |
| 1984 | 59250 | 77545 | 45314 | 13265 | 15845 | 10685 | 4249 | | 0.4 | 0.49 | 0.32 |
| 1985 | 77463 | 99064 | 60626 | 13236 | 15770 | 10702 | 5000 | | 0.4 | 0.48 | 0.32 |
| 1986 | 154684 | 194530 | 122966 | 13245 | 15583 | 10907 | 5673 | | 0.39 | 0.47 | 0.31 |
| 1987 | 94580 | 118900 | 75204 | 15871 | 18334 | 13408 | 7006 | | 0.38 | 0.46 | 0.31 |
| 1988 | 60571 | 76582 | 47948 | 20561 | 23744 | 17378 | 8785 | | 0.39 | 0.46 | 0.31 |
| 1989 | 38059 | 48916 | 29618 | 21861 | 25124 | 18598 | 7093 | | 0.39 | 0.46 | 0.31 |
| 1990 | 39315 | 52108 | 29641 | 18774 | 21709 | 15839 | 7349 | | 0.37 | 0.44 | 0.31 |
| 1991 | 65893 | 91243 | 47606 | 14872 | 17467 | 12277 | 6362 | | 0.36 | 0.43 | 0.29 |
| 1992 | 85312 | 123197 | 59069 | 12324 | 14597 | 10051 | 5219 | | 0.35 | 0.42 | 0.28 |
| 1993 | 45131 | 67547 | 30134 | 11309 | 13334 | 9284 | 4479 | | 0.34 | 0.4 | 0.29 |
| 1994 | 40223 | 62540 | 25860 | 10271 | 12059 | 8483 | 5047 | | 0.35 | 0.41 | 0.29 |
| 1995 | 61309 | 84445 | 44540 | 8724 | 10212 | 7237 | 4196 | | 0.4 | 0.46 | 0.33 |
| 1996 | 68911 | 88015 | 54000 | 7663 | 8956 | 6371 | 4430 | | 0.48 | 0.56 | 0.41 |
| 1997 | 117480 | 146946 | 93918 | 8347 | 9759 | 6936 | 5180 | | 0.55 | 0.65 | 0.46 |
| 1998 | 57702 | 73665 | 45194 | 11267 | 13058 | 9476 | 4831 | | 0.52 | 0.62 | 0.43 |
| 1999 | 49355 | 68058 | 35806 | 14613 | 16963 | 12263 | 5268 | | 0.42 | 0.49 | 0.34 |
| 2000 | 66726 | 110521 | 40257 | 14650 | 17107 | 12193 | 4521 | | 0.34 | 0.4 | 0.27 |
| 2001 | 51769 | 76992 | 34841 | 12861 | 15168 | 10554 | 4380 | | 0.32 | 0.38 | 0.25 |
| 2002 | 70699 | 89804 | 55638 | 11650 | 13876 | 9424 | 4846 | | 0.34 | 0.41 | 0.27 |
| 2003 | 38044 | 46964 | 30787 | 11579 | 13811 | 9347 | 3610 | | 0.38 | 0.46 | 0.29 |
| 2004 | 46503 | 57098 | 37854 | 12424 | 14794 | 10054 | 4206 | | 0.37 | 0.46 | 0.29 |
| 2005 | 40153 | 48577 | 33160 | 12492 | 14970 | 10014 | 3485 | | 0.33 | 0.41 | 0.26 |
| 2006 | 35960 | 43264 | 29880 | 12729 | 15331 | 10127 | 3225 | 727 | 0.29 | 0.36 | 0.22 |
| 2007 | 53434 | 64220 | 44441 | 12959 | 15706 | 10212 | 3381 | 1220 | 0.27 | 0.34 | 0.2 |
| 2008 | 68264 | 84206 | 55325 | 13064 | 15919 | 10209 | 3278 | 888 | 0.26 | 0.33 | 0.2 |
| 2009 | 110669 | 132797 | 92173 | 14101 | 17127 | 11075 | 3124 | 1473 | 0.25 | 0.32 | 0.187 |
| 2010 | 167472 | 203269 | 138097 | 17083 | 20617 | 13549 | 3910 | 2412 | 0.21 | 0.27 | 0.16 |
| 2011 | 209111 | 253957 | 172315 | 23911 | 28692 | 19130 | 3291 | 1926 | 0.168 | 0.21 | 0.127 |
| 2012 | 111866 | 136730 | 91513 | 35669 | 42766 | 28572 | 3178 | 3043 | 0.136 | 0.171 | 0.101 |
| 2013 | 123708 | 151324 | 101197 | 47855 | 57660 | 38050 | 3604 | 2696 | 0.123 | 0.153 | 0.092 |
| 2014 | 186536 | 233300 | 149033 | 53506 | 64935 | 42077 | 3675 | 3325 | 0.124 | 0.154 | 0.094 |
| 2015 | 143106 | 187100 | 109382 | 54025 | 65718 | 42332 | 2957 | 2368 | 0.136 | 0.171 | 0.101 |
| 2016 | 74247 | 106628 | 51684 | 54787 | 66885 | 42689 | 3617 | 3090 | 0.158 | 0.198 | 0.118 |
| 2017 | 83165 | 132699 | 52165 | 51457 | 63971 | 38943 | 3689 | 4075 | 0.19 | 0.24 | 0.137 |
| 2018 | 114548 | 253860 | 51713 | 41845 | 53834 | 29856 | 3980 | 2846 | 0.23 | 0.32 | 0.148 |
| 2019 | 125134 ** | | | 41483 | | | | | | | |

* Raised discards estimates from observer program. The model reconstructs discards for years where data are not available (before 2006) but the estimates are not shown here.

** Geometric mean 2013–2016.

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