# Herring (*Clupea harengus*) in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k (Irish Sea, Celtic Sea, and Southwest of Ireland)

## ICES advice on fishing opportunities

ICES advises that when the MSY approach and precautionary considerations are applied, there should be zero catch in 2024.

## ICES advice on conservation aspects

Activities that have a negative impact on the spawning habitat of herring are considered a source of risk for the species. For the time being, ICES has not identified any further conservation actions.

## Stock development over time

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

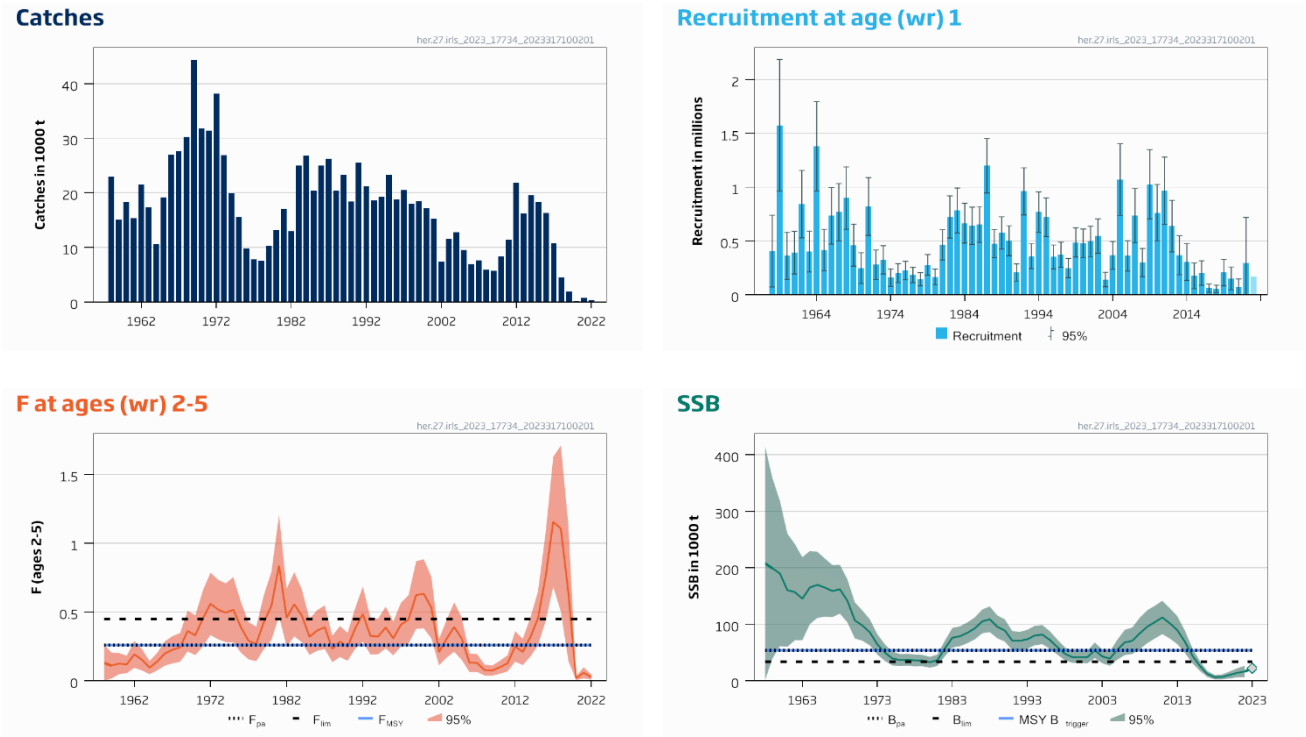


**Figure 1** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Summary of the stock assessment. The assumed recruitment is in a lighter shade, and the forecast spawning-stock biomass (SSB) value is indicated with a grey diamond. Wr is winter ring.

## Conservation status

ICES is not aware of any information on stock/species-specific conservation status.

## Catch scenarios

**Table 1** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Assumptions made for the interim year and in the forecast.

| Variable | Value | Notes |
|---|---|---|
| $F_{ages\ (wr)\ 2–5}$ (2023) | 0.048 | The F that corresponds to the monitoring TAC |

| Variable | Value | Notes |
|---|---|---|
| $R_{age\ (wr)\ 1}$ (2023–2024) | 171915 | Stock–recruitment relationship based on the $SSB_{2021}$ from the assessment output; in thousands |
| SSB (2023) | 22149 | Short-term forecast; in tonnes |
| Total catch (2023) | 869 | Monitoring TAC; in tonnes |

**Table 2** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Annual catch scenarios. Weights are in tonnes.

| Basis | Total catch (2024) | $F_{2–5}$ (2024) | SSB* (2024) | % SSB change** | SSB* (2025)# | % TAC change*** | % advice change^ |
|---|---|---|---|---|---|---|---|
| ICES advice basis | | | | | | | |
| MSY approach: zero catch | 0 | 0 | 23998 | 8.4 | 25850 | –100 | |
| Other scenarios | | | | | | | |
| $F_{MSY}$ | 4927 | 0.26 | 21454 | –3.1 | 19677 | 467 | |
| $F_{MSY} \times SSB_{2023}/MSY\ B_{trigger}$ | 2171 | 0.11 | 22911 | 3.4 | 23035 | 150 | |
| F = 0 | 0 | 0 | 23998 | 8.4 | 25850 | –100 | |
| $F_{pa}$ | 4927 | 0.26 | 21454 | –3.1 | 19677 | 467 | |
| $F_{lim}$ | 7858 | 0.45 | 19791 | –10.6 | 16382 | 804 | |
| $SSB_{2024} = B_{lim}$^^ | | | | | | | |
| $SSB_{2024} = B_{pa}$^^ | | | | | | | |
| $SSB_{2024} = MSY\ B_{trigger}$^^ | | | | | | | |
| $F = F_{2023}$ | 1000 | 0.048 | 23504 | 6.1 | 24535 | 15.1 | |
| TAC = monitoring TAC | 869 | 0.042 | 23569 | 6.4 | 24728 | 0 | |

* For this autumn- and winter-spawning stock, the SSB is determined at spawning time (October) and is influenced by fisheries between 1 April and spawning.
** SSB 2024 relative to SSB 2023.
*** Total catch in 2024 relative to the advised monitoring TAC in 2023 (869 tonnes).
^ This is not provided because catch advice for 2023 is zero.
^^ These catch scenarios are left blank because the stated SSB cannot be achieved, even with F = 0.
# Assuming the same catch scenario in 2025 as in 2024.

There are no catch scenarios that will rebuild the stock above $B_{lim}$ by 2025, and the ICES advice for zero catch is the same as last year.

## Basis of the advice

**Table 3** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. The basis of the advice.

| | |
|---|---|
| Advice basis | MSY approach |
| Management plan | ICES is not aware of any agreed precautionary management plan for herring in this area |

## Quality of the assessment

SSB is consistently overestimated, and fishing mortality had been underestimated until the current year; however, this bias does not impact the outcome of the advice.

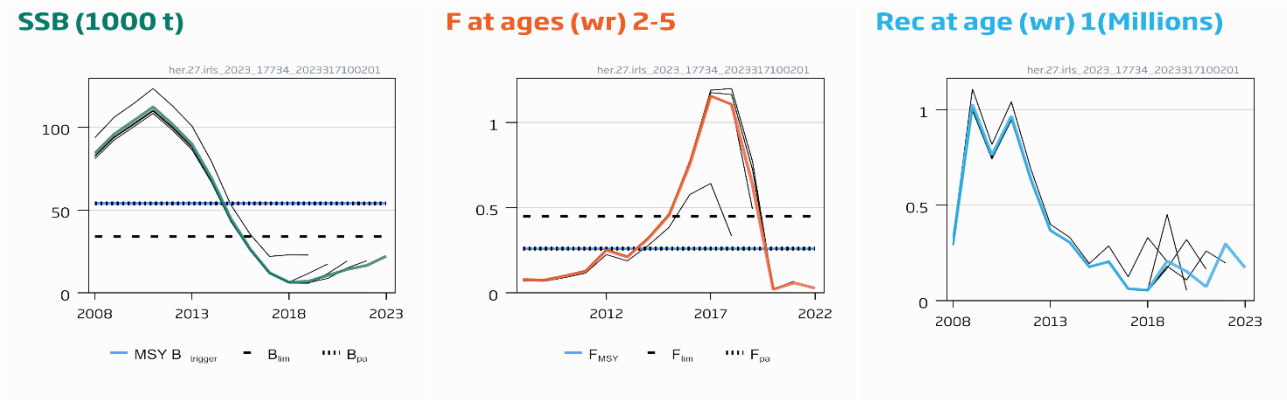


**Figure 2** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Historical assessment results. Final-year recruitment and SSB estimates included. *Wr* is winter ring.

## Issues relevant for the advice

Recruitment estimates are uncertain because of a lack of recruitment indices. It is known that Celtic Sea herring and adjacent populations mix with the Irish Sea stock, but the level of mixing is unknown. Recent genetic analyses of the 2021 and 2022 Irish Sea Acoustic Survey samples indicated mixing of populations primarily in the area to the west of the Isle of Man. This included immature and mature individuals. The consequences of this mixing need to be further evaluated for management and advice.

There has been an increase in marine anthropogenic activity. Activities that have a negative impact on the spawning habitat of herring – such as the dumping of dredge spoil, the extraction of marine aggregates (e.g. gravel and sand), and the erection of structures such as wind turbines in the vicinity of spawning grounds – are a cause for concern (see e.g. de Groot, 1979, 1996; ICES, 2003, 2015a), as a gravel substratum is an essential habitat for herring spawning in autumn (Frost and Diele, 2022). Activities that have a negative impact on the spawning of herring should not occur unless the effects of these activities have been assessed and shown not to be detrimental to the productivity of the stock (ICES, 2003, 2015a).

## Reference points

**Table 4** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Reference points, values, and their technical basis. Weights are in tonnes.

| Framework | Reference point | Value | Technical basis | Source |
|---|---|---|---|---|
| MSY approach | MSY $B_{trigger}$ | 54000 | $B_{pa}$ | ICES (2018b) |
| | $F_{MSY}$ | 0.26 | Stochastic simulations using a segmented regression stock–recruitment relationship from 1970–2014 | ICES (2018b) |
| Precautionary approach | $B_{lim}$ | 34000 | $B_{loss}$ = the lowest observed SSB (1980) | ICES (2018b) |
| | $B_{pa}$ | 54000 | $B_{pa} = B_{lim} \times \exp(1.645 \times \sigma_B)$, with $\sigma_B = 0.29$ from assessment uncertainty in the terminal year | ICES (2018b) |
| | $F_{lim}$ | 0.45 | Equilibrium F maintaining SSB > $B_{lim}$ with 50% probability | ICES (2018b) |
| | $F_{pa}$ | 0.26 | The F that provides a 95% probability for SSB to be above $B_{lim}$ ($F_{P05}$ with advice rule [AR]) | ICES (2018b) |
| Management Plan | $SSB_{mgt}$ | Not defined | | |
| | $F_{mgt}$ | Not defined | | |

## Basis of the assessment

**Table 5** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Basis of the assessment and advice.

| | |
|---|---|
| ICES stock data category | 1 (ICES, 2023a) |
| Assessment type | Age-based analytical assessment (ASAP; ICES, 2023b) that uses catches in the model and in the forecast |
| Input data | Commercial catches (weights, ages, and length frequencies from catch sampling); Acoustic survey index (CSHAS [A4057], excluding 2017); annual weights-at-age in the stock; fixed maturity ogive; natural mortality assumed constant |
| Discards and bycatch | Included in the assessment |
| Indicators | None |
| Other information | Benchmarked in WKWEST (ICES, 2015b) and inter-benchmarked in 2018 (ICES, 2018).<br>Assessed on a seasonal basis, 1 April–31 March, to allow for the inclusion of the spawning cycle in the assessment period. This is an autumn-/winter-spawning stock. Age is given in winter rings (wr), so e.g. a 2-year-old fish is termed "1-winter ring", as fish do not lay down a ring in their first winter. |
| Working group | Herring Assessment Working Group for the Area South of 62°N (HAWG) |

## History of the advice, catch, and management

**Table 6** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. ICES advice, agreed TAC, ICES landings, and ICES estimated catch. Weights are in tonnes and by calendar year.

| Year | ICES advice | Catch corresponding to advice | Agreed TAC | ICES landings | Discards | ICES estimated catch |
|---|---|---|---|---|---|---|
| 1988 | TAC | 13000 | 18000 | 16800 | 2400 | 19200 |
| 1989 | TAC | 20000 | 20000 | 19200 | 3500 | 22700 |
| 1990 | TAC | 15000 | 17500 | 17700 | 2500 | 20200 |
| 1991 | TAC (TAC excluding discards) | 15000 (12500) | 21000 | 21700 | 1900 | 23600 |
| 1992 | TAC | 27000 | 21000 | 20900 | 2100 | 23000 |
| 1993 | Precautionary TAC (including discards) | 20000–24000 | 21000 | 19200 | 1900 | 21100 |
| 1994 | Precautionary TAC (including discards) | 20000–24000 | 21000 | 17400 | 1700 | 19100 |
| 1995 | No specific advice | | 21000 | 18300 | 700 | 19000 |
| 1996 | TAC | 9800 | 16500–21000** | 18800 | 3000 | 21800 |
| 1997 | If required, precautionary TAC | < 25000 | 22000 | 18100 | 700 | 18800 |
| 1998 | Catches below 25 | < 25000 | 22000 | 20300 | 0 | 20300 |
| 1999 | F = 0.4 | 19000 | 21000 | 18100 | 0 | 18100 |
| 2000 | F < 0.3 | 20000 | 21000 | 18267 | 0 | 18267 |
| 2001 | F < 0.34 | 17900 | 20000 | 17729 | 0 | 17729 |
| 2002 | F < 0.35 | 11000 | 11000 | 10550 | 0 | 10550 |
| 2003 | Substantially less than recent catches | | 13000 | 10875 | 0 | 10875 |
| 2004 | 60% of average catch 1997–2000 | 11000 | 13000 | 11065 | 0 | 11065 |
| 2005 | 60% of average catch 1997–2000 | 11000 | 13000 | 8452 | 0 | 8452 |
| 2006 | Further reduction 60% average catch 2002–2004 | 6700 | 11000 | 8530 | 0 | 8530 |
| 2007 | No fishing without rebuilding plan | | 9400 | 8268 | 0 | 8268 |
| 2008 | No targeted fishing without rebuilding plan | | 7900 | 6853 | 0 | 6853 |
| 2009 | No targeted fishing without rebuilding plan | | 5900 | 5760 | 0 | 5760 |
| 2010 | $F_{mgt}$ = 0.19 | 10150 | 10150 | 8406 | 0 | 8406 |
| 2011 | See scenarios | | 13200 | 11503 | 0 | 11503 |
| 2012 | MSY approach | < 26900 | 21100 | 21604 | 161 | 21765 |
| 2013 | MSY approach | < 18500 | 17200 | 16067 | 118 | 16185 |
| 2014 | MSY approach | < 35942 | 22300 | 18930 | 644 | 19574 |
| 2015 | MSY approach | < 15140 | 15700* | 17579 | 247 | 17826 |
| 2016 | MSY approach | < 23164 | 15400* | 16659 | 182 | 16841 |
| 2017 | MSY approach | < 16145 | 14500* | 11194 | 130 | 11324 |
| 2018 | MSY approach | ≤ 5445 | 10100* | 4589 | 0 | 4589 |

| Year | ICES advice | Catch corresponding to advice | Agreed TAC | ICES landings | Discards | ICES estimated catch |
|---|---|---|---|---|---|---|
| 2019 | MSY approach | ≤ 4742 | 4742 | 1841 | 0 | 1841 |
| 2020 | MSY approach | 0 | 869^ | 132 | 0 | 132 |
| 2021 | MSY approach | 0 | 869^ | 609 | 0 | 609 |
| 2022 | MSY approach and precautionary considerations | 0 | 869^ | 483 | 0 | 483 |
| 2023 | MSY approach and precautionary considerations | 0 | 869^ | | | |
| 2024 | MSY approach and precautionary considerations | 0 | | | | |

* Initial TAC before carry-over of unused quota from previous year.
** Revised in 1996 after the ACFM May meeting.
^ Monitoring TAC.

## History of the catch and landings

**Table 7** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Catch distribution by fleet in 2022/2023 (1 April 2022–31 March 2023) as estimated by ICES.

| Catch | Landings | Discards |
|---|---|---|
| 350 tonnes | Pelagic trawlers 100% | Negligible |
| | 350 tonnes | |

**Table 8** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. ICES estimates of landings by country and ICES estimates of total annual unallocated/misreported, discards, and catch by assessment year (1 April–31 March). Weights are in tonnes.

| Year | Denmark | France | Germany | Ireland | Netherlands | UK | Unallocated/misreported | Discards | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1988/1989 | - | - | - | 17000 | - | - | - | 3400 | 20400 |
| 1989/1990 | - | + | - | 15000 | 1900 | - | 2600 | 3600 | 23100 |
| 1990/1991 | - | + | - | 15000 | 1000 | 200 | 700 | 1700 | 18600 |
| 1991/1992 | - | 500 | 100 | 21400 | 1600 | - | −100 | 2100 | 25600 |
| 1992/1993 | - | - | - | 18000 | 1300 | - | −100 | 2000 | 21200 |
| 1993/1994 | - | - | - | 16600 | 1300 | + | −1100 | 1800 | 18600 |
| 1994/1995 | - | + | 200 | 17400 | 1300 | + | −1500 | 1900 | 19300 |
| 1995/1996 | - | 200 | 200 | 20000 | 100 | + | −200 | 3000 | 23300 |
| 1996/1997 | - | 1000 | - | 17900 | 1000 | - | −1800 | 750 | 18850 |
| 1997/1998 | - | 1300 | - | 19900 | 1400 | - | −2100 | - | 20500 |
| 1998/1999 | - | + | - | 17700 | 1200 | - | −700 | - | 18200 |
| 1999/2000 | - | - | 200 | 18300 | 1300 | + | −1300 | - | 18500 |
| 2000/2001 | - | 573 | 228 | 16962 | 44 | 1 | −617 | - | 17191 |
| 2001/2002 | - | - | - | 15236 | - | - | - | - | 15236 |
| 2002/2003 | - | 734 | - | 7465 | 257 | - | −991 | - | 7465 |
| 2003/2004 | - | 800 | - | 11536 | 610 | 14 | −1424 | - | 11536 |
| 2004/2005 | - | 801 | 41 | 12702 | - | - | −801 | - | 12743 |
| 2005/2006 | - | 821 | 150 | 9494 | 799 | - | −1770 | - | 9494 |
| 2006/2007 | - | - | - | 6944 | 518 | 5 | −523 | - | 6944 |
| 2007/2008 | - | 379 | 248 | 7636 | 327 | - | −954 | - | 7636 |
| 2008/2009 | - | 503 | 191 | 5872 | 150 | - | −844 | - | 5872 |
| 2009/2010 | - | 364 | 135 | 5745 | - | - | −499 | - | 5745 |
| 2010/2011 | - | 636 | 278 | 8370 | 325 | - | −1239 | n/a | 8370 |
| 2011/2012 | - | 241 | - | 11470 | 7 | - | −248 | n/a | 11470 |
| 2012/2013 | - | 3 | 230 | 16132 | 3135 | - | 2104 | 161 | 21765 |
| 2013/2014 | - | - | 450 | 14785 | 832 | - | - | 118 | 16185 |
| 2014/2015 | - | 244 | 578 | 17287 | 821 | - | - | 644 | 19574 |
| 2015/2016 | - | - | 477 | 16320 | 1304 | + | - | 254 | 18355 |
| 2016/2017 | - | - | 419 | 14585 | 1025 | 559 | −451 | 182 | 16319 |
| 2017/2018 | - | - | 298 | 9627 | 648 | 64 | - | 130 | 10767 |

| Year | Denmark | France | Germany | Ireland | Netherlands | UK | Unallocated/misreported | Discards | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2018/2019 | - | - | - | 4227 | 436 | - | −245 | - | 4418 |
| 2019/2020 | - | - | - | 1803 | 38 | - | - | - | 1841 |
| 2020/2021 | 1 | - | - | 132 | + | - | - | - | 133 |
| 2021/2022 | - | - | - | 745 | - | - | - | - | 745 |
| 2022/2023 | - | - | - | 350 | - | - | - | - | 350 |

+ Designates catch of less than 0.5 tonnes.

## Summary of the assessment

**Table 9** Herring in divisions 7.a South of 52°30'N, 7.g–h, and 7.j–k. Assessment summary. Weights are in tonnes and recruitment is in thousands. High and Low refer to 95% confidence intervals.

| Year^ | Recruitment-at-age (wr) 1 | High | Low | SSB** | High | Low | Total catch^ | F at ages (wr) 2–5 | High | Low |
|---|---|---|---|---|---|---|---|---|---|---|
| 1958 | 407026 | 740563 | 73497 | 208079 | 416644 | 0 | 22978 | 0.130 | 0.27 | 0.00 |
| 1959 | 1575120 | 2187522 | 962678 | 199297 | 359514 | 39086 | 15086 | 0.111 | 0.21 | 0.0168 |
| 1960 | 361935 | 580382 | 143498 | 190175 | 319093 | 61267 | 18283 | 0.125 | 0.20 | 0.048 |
| 1961 | 392846 | 591535 | 194165 | 160525 | 260917 | 60143 | 15372 | 0.119 | 0.183 | 0.056 |
| 1962 | 842972 | 1156100 | 529840 | 156984 | 242264 | 71696 | 21552 | 0.193 | 0.29 | 0.094 |
| 1963 | 402358 | 592370 | 212350 | 145418 | 219000 | 71840 | 17349 | 0.154 | 0.23 | 0.076 |
| 1964 | 1380460 | 1795902 | 965098 | 165209 | 230119 | 100301 | 10599 | 0.096 | 0.145 | 0.048 |
| 1965 | 415829 | 608649 | 223011 | 169938 | 228517 | 111363 | 19126 | 0.140 | 0.20 | 0.075 |
| 1966 | 734437 | 997531 | 471349 | 165132 | 216758 | 113502 | 27030 | 0.199 | 0.29 | 0.110 |
| 1967 | 767627 | 1034504 | 500756 | 158940 | 205174 | 112706 | 27658 | 0.23 | 0.33 | 0.126 |
| 1968 | 898891 | 1189009 | 608771 | 162169 | 205447 | 118893 | 30236 | 0.24 | 0.35 | 0.138 |
| 1969 | 461580 | 656006 | 267154 | 141818 | 180242 | 103398 | 44389 | 0.36 | 0.51 | 0.21 |
| 1970 | 248305 | 390939 | 105681 | 107013 | 139176 | 74844 | 31727 | 0.33 | 0.48 | 0.187 |
| 1971 | 821055 | 1089933 | 552187 | 97902 | 124827 | 70977 | 31396 | 0.45 | 0.66 | 0.25 |
| 1972 | 279093 | 417197 | 140983 | 85840 | 109033 | 62647 | 38203 | 0.56 | 0.79 | 0.33 |
| 1973 | 325107 | 456281 | 193939 | 64539 | 82615 | 46463 | 26936 | 0.52 | 0.74 | 0.30 |
| 1974 | 160135 | 240682 | 79598 | 50036 | 64897 | 35175 | 19940 | 0.50 | 0.71 | 0.28 |
| 1975 | 201789 | 289304 | 114276 | 39602 | 51892 | 27312 | 15588 | 0.52 | 0.75 | 0.28 |
| 1976 | 225842 | 312078 | 139602 | 36763 | 47560 | 25966 | 9771 | 0.39 | 0.57 | 0.20 |
| 1977 | 184486 | 255844 | 113136 | 37358 | 47950 | 26768 | 7833 | 0.29 | 0.43 | 0.155 |
| 1978 | 145377 | 206365 | 84395 | 36104 | 46642 | 25566 | 7559 | 0.27 | 0.39 | 0.142 |
| 1979 | 278252 | 373914 | 182586 | 35958 | 46049 | 25867 | 10321 | 0.43 | 0.62 | 0.23 |
| 1980 | 166205 | 240567 | 91853 | 32945 | 42743 | 23145 | 13130 | 0.55 | 0.79 | 0.30 |
| 1981 | 464491 | 605332 | 323648 | 36455 | 46565 | 26345 | 17103 | 0.84 | 1.21 | 0.47 |
| 1982 | 723789 | 919927 | 527653 | 57365 | 71390 | 43340 | 13000 | 0.46 | 0.67 | 0.25 |
| 1983 | 784109 | 992517 | 575703 | 76306 | 93691 | 58921 | 24981 | 0.56 | 0.79 | 0.32 |
| 1984 | 665672 | 850868 | 480472 | 78917 | 96594 | 61240 | 26779 | 0.47 | 0.67 | 0.28 |
| 1985 | 641875 | 814462 | 469298 | 84997 | 103421 | 66573 | 20426 | 0.32 | 0.45 | 0.188 |
| 1986 | 653472 | 820456 | 486484 | 92974 | 112547 | 73401 | 25024 | 0.37 | 0.51 | 0.22 |
| 1987 | 1199270 | 1452610 | 945990 | 105361 | 126593 | 84127 | 26200 | 0.39 | 0.55 | 0.23 |
| 1988 | 475158 | 605426 | 344894 | 108867 | 131682 | 86058 | 20447 | 0.23 | 0.33 | 0.136 |
| 1989 | 575256 | 725643 | 424877 | 95607 | 115960 | 75254 | 23254 | 0.29 | 0.40 | 0.173 |
| 1990 | 503026 | 642551 | 363509 | 89137 | 108948 | 69324 | 18404 | 0.25 | 0.35 | 0.146 |
| 1991 | 207218 | 287590 | 126850 | 70979 | 88103 | 53855 | 25562 | 0.38 | 0.53 | 0.23 |
| 1992 | 961732 | 1181054 | 742406 | 70891 | 86759 | 55023 | 21127 | 0.48 | 0.69 | 0.28 |
| 1993 | 359515 | 475444 | 243596 | 73574 | 90376 | 56772 | 18618 | 0.33 | 0.46 | 0.191 |
| 1994 | 768209 | 956307 | 580113 | 80334 | 97693 | 62975 | 19300 | 0.32 | 0.45 | 0.192 |
| 1995 | 721691 | 900838 | 542542 | 81841 | 98825 | 64857 | 23305 | 0.39 | 0.54 | 0.24 |
| 1996 | 352152 | 463307 | 240993 | 72377 | 88079 | 56675 | 18816 | 0.31 | 0.43 | 0.186 |
| 1997 | 372720 | 488942 | 256498 | 59849 | 73299 | 46399 | 20496 | 0.41 | 0.57 | 0.25 |
| 1998 | 248764 | 338254 | 159266 | 47968 | 59640 | 36296 | 18041 | 0.45 | 0.62 | 0.27 |
| 1999 | 486727 | 622258 | 351202 | 42001 | 52240 | 31762 | 18485 | 0.62 | 0.87 | 0.38 |
| 2000 | 478254 | 611761 | 344739 | 42115 | 52632 | 31598 | 17191 | 0.63 | 0.88 | 0.38 |
| 2001 | 496519 | 638610 | 354430 | 41853 | 52907 | 30799 | 15269 | 0.53 | 0.76 | 0.31 |

| Year^ | Recruitment-at-age (wr) 1 | High | Low | SSB** | High | Low | Total catch^ | F at ages (wr) 2–5 | High | Low |
|---|---|---|---|---|---|---|---|---|---|---|
| 2002 | 545855 | 706188 | 385532 | 54179 | 68140 | 40218 | 7465 | 0.21 | 0.31 | 0.113 |
| 2003 | 142195 | 210073 | 74327 | 43177 | 55336 | 31018 | 11536 | 0.31 | 0.44 | 0.168 |
| 2004 | 365937 | 495308 | 236572 | 39450 | 52127 | 26773 | 12743 | 0.39 | 0.57 | 0.21 |
| 2005 | 1071370 | 1404737 | 738063 | 55138 | 72906 | 37370 | 9494 | 0.31 | 0.46 | 0.151 |
| 2006 | 361670 | 502684 | 220656 | 68041 | 90460 | 45624 | 6944 | 0.132 | 0.200 | 0.064 |
| 2007 | 735976 | 987977 | 483983 | 70940 | 94591 | 47289 | 7636 | 0.130 | 0.195 | 0.065 |
| 2008 | 299693 | 430947 | 168433 | 84178 | 112210 | 56146 | 5872 | 0.078 | 0.118 | 0.039 |
| 2009 | 1027200 | 1348875 | 705525 | 95875 | 125055 | 66695 | 5745 | 0.075 | 0.112 | 0.038 |
| 2010 | 762359 | 1025118 | 499602 | 103921 | 132989 | 74851 | 8370 | 0.099 | 0.147 | 0.052 |
| 2011 | 967730 | 1279860 | 655600 | 112227 | 141844 | 82616 | 11470 | 0.128 | 0.187 | 0.068 |
| 2012 | 638149 | 877780 | 398520 | 101864 | 128814 | 74906 | 21820 | 0.25 | 0.36 | 0.139 |
| 2013 | 368570 | 550482 | 186658 | 89799 | 114716 | 64882 | 16247 | 0.21 | 0.31 | 0.114 |
| 2014 | 305090 | 475096 | 135084 | 69469 | 89296 | 49642 | 19574 | 0.32 | 0.46 | 0.176 |
| 2015 | 177058 | 297247 | 56873 | 44896 | 58554 | 31238 | 18355 | 0.45 | 0.65 | 0.26 |
| 2016 | 202804 | 316413 | 89187 | 26533 | 35321 | 17745 | 16318 | 0.76 | 1.08 | 0.43 |
| 2017 | 62180 | 101411 | 22949 | 12127 | 17491 | 6763 | 10767 | 1.16 | 1.63 | 0.68 |
| 2018 | 55467 | 90354 | 20578 | 6474 | 10436 | 2511 | 4418 | 1.11 | 1.71 | 0.50 |
| 2019 | 206633 | 329234 | 84026 | 7024 | 11454 | 2595 | 1841 | 0.64 | 1.13 | 0.142 |
| 2020 | 152616 | 258838 | 46382 | 10563 | 16814 | 4312 | 132 | 0.020 | 0.034 | 0.0055 |
| 2021 | 72139 | 148585 | 0 | 14215 | 22280 | 6150 | 745 | 0.058 | 0.099 | 0.0180 |
| 2022 | 297217 | 718875 | 0 | 16539 | 26767 | 6311 | 350 | 0.028 | 0.047 | 0.0089 |
| 2023 | 171915*** | | | 22149* | | | | | | |

* From the short-term forecast.

** SSB estimated at spawning time (1 October).

*** Stock–recruitment relationship based on $SSB_{2021}$ from the assessment output.

^ Assessment year (1 April–31 March).

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