

Megrim (*Lepidorhombus* ssp.) in Division 6.b (Rockall)

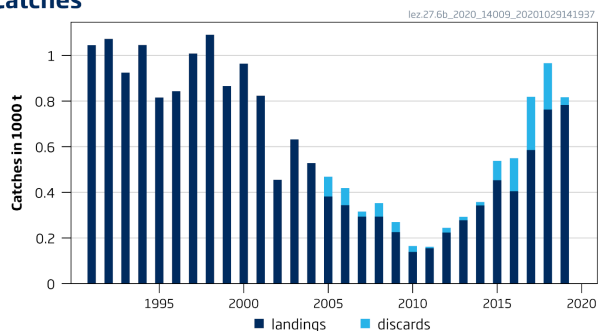
ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2021 should be no more than 512 tonnes.

Note: This advice sheet is abbreviated due to the COVID-19 disruption. The previous advice issued for 2020 is attached as Annex 1.

Stock development over time

Catches



Biomass Index

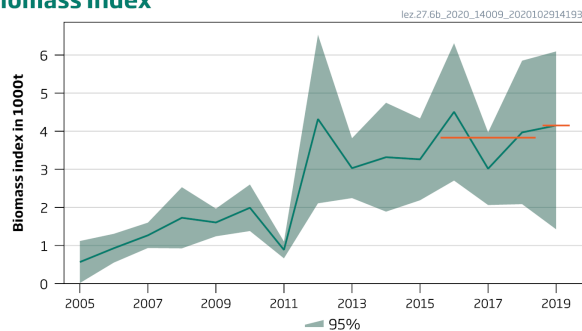


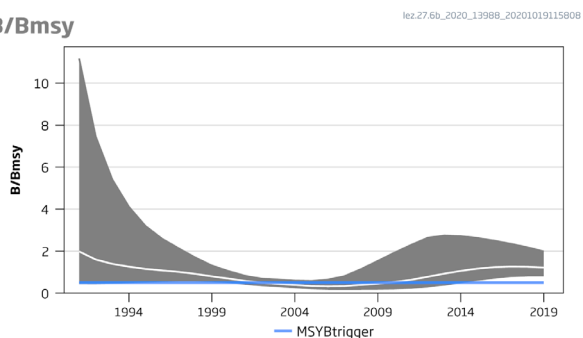
Figure 1 Megrim in Division 6.b. Summary of the stock assessment. Catches and stock-size indicator (biomass from the SIAMISS–Q2 survey). The horizontal lines in the biomass plot indicate the average of the respective year range. The horizontal orange lines indicate the average of the most recent two years (with 2020 not available) and the previous three years.

Stock and exploitation status

Table 1 Megrim in Division 6.b. State of the stock and the fishery relative to reference points.

| | Fishing pressure | | | Stock size | | | | | |
|---------------------------|--------------------|------|------|------------|---------------------------------|------------------------|---|---|--|
| | 2017 | 2018 | 2019 | 2018 | 2019 | 2020 | | | |
| Maximum sustainable yield | F_{MSY} | ✓ | ✓ | ✓ | Below proxy | MSY $B_{trigger}$ | ✓ | ✓ | ⊗ Above trigger |
| Precautionary approach | F_{pa} F_{lim} | ✓ | ✓ | ✓ | Below possible reference points | B_{pa} B_{lim} | ✓ | ✓ | ⊗ Undefined |
| Management plan | F_{MGT} | — | — | — | Not applicable | B_{MGT} | ✓ | ✓ | ⊗ Not applicable |
| Qualitative evaluation | — | — | — | — | | — | — | — | ✓ Likely above possible reference points |

B/B_{msy}



F/F_{msy}

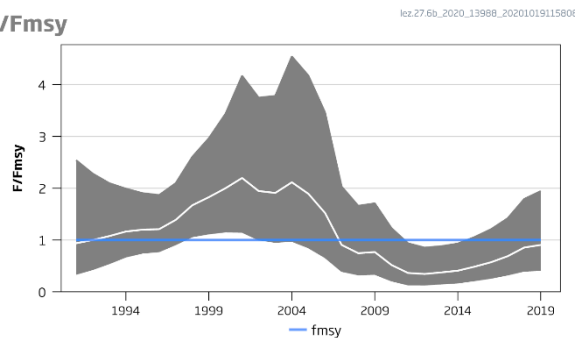


Figure 2 Megrim in Division 6.b. SPiCT analysis showing exploitable biomass relative to B_{MSY} , and fishing mortality relative to F_{MSY} . $MSY B_{trigger}$ corresponds to $0.5 \times B_{MSY}$.

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The Scottish–Irish Anglerfish and Megrin Industry–Science Survey in Subarea 6 and Division 4.a (SIAMISS-Q2) was used as the index of stock development. The survey was cancelled in 2020 due to COVID-19. The advice is based on the ratio of the mean of the last two index values (Index A, with 2020 treated as missing) and the mean of the three preceding values (Index B), multiplied by the recent advised catch. This is equivalent to assuming that the 2020 value is equal to the 2019 biomass index.

The precautionary buffer has not previously been applied for this stock. SPiCT analysis indicates that fishing pressure is below proxies of the MSY reference points. While there is no estimate for stock size in 2020, the high estimate for 2019 relative to the MSY $B_{trigger}$ indicates that the stock size in 2020 is likely to be above MSY $B_{trigger}$ (Figure 2). Therefore, the precautionary buffer was not applied to the advice. The discard rate in 2019 was 4% of the total catch.

Table 2 Megrin in Division 6.b. The basis for the catch scenarios. All weights are in tonnes. *

| | | |
|---|-------------|-------------|
| Index A (2019–2020; 2020 not available) | | 4150 tonnes |
| Index B (2016–2018) | | 3835 tonnes |
| Index ratio (A/B) | | 1.08 |
| Uncertainty cap | Not applied | |
| Advised catch for 2020 | | 473 tonnes |
| Precautionary buffer | Not applied | |
| Catch advice ** | | 512 tonnes |
| % advice change ^ | | 8.2% |

* 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.

** [Advised catch for 2020] × [index ratio].

^ Advice value for 2021 relative to the advice value for 2020.

Quality of the assessment

The SIAMISS-Q2 survey was not completed in 2020 because of the COVID-19 disruption; therefore, the stock-size indicator is unknown for 2020.

History of the advice, catch, and management

Table 3 Megrim in Division 6.b. ICES advice, official landings, and ICES estimated discards. All weights are in tonnes.

| Year | ICES advice * | Catches corresponding to advice | Landings corresponding to advice | Agreed TAC Division 5.b (EC) and subareas 6, 12, and 14 | Official landings Division 6.b | ICES discards ** |
|------|---|---------------------------------|----------------------------------|---|--------------------------------|------------------|
| 1990 | Not assessed | | - | 4840 | 804 | |
| 1991 | No advice | | - | 4840 | 1045 | |
| 1992 | No advice | | - | 4840 | 1073 | |
| 1993 | No long-term gain in increased F | | - | 4840 | 925 | |
| 1994 | No long-term gain in increased F | | - | 4840 | 1046 | |
| 1995 | No advice | | - | 4840 | 816 | |
| 1996 | No advice | | - | 4840 | 843 | |
| 1997 | No advice | | - | 4840 | 1009 | |
| 1998 | Adequate catch controls | | - | 4840 | 1091 | |
| 1999 | Maintain current TAC | | 4840 | 4840 | 866 | |
| 2000 | Maintain current TAC | | 4840 | 4840 | 964 | |
| 2001 | Maintain current TAC | | 4840 | 4360 | 824 | |
| 2002 | Maintain current TAC | | 4360 | 4360 | 455 | |
| 2003 | Maintain current TAC | | 4360 | 4360 | 632 | |
| 2004 | Reduce TAC to recent landings | | 3600 | 3600 | 528 | |
| 2005 | Reduce TAC to recent landings | | 2300 | 2880 | 382 | 87 |
| 2006 | Reduce TAC to recent landings | | 2300 | 2880 | 344 | 75 |
| 2007 | Reduce TAC to recent landings | | 2100 | 2880 | 106 | 22 |
| 2008 | Reduce TAC to recent landings | | 1400 | 2592 | 294 | 59 |
| 2009 | Same advice as last year | | 1400 | 2799 | 226 | 44 |
| 2010 | No increase in effort | | - | 3079 | 139 | 26 |
| 2011 | No increase in catches | | - | 3387 | 155 | 7 |
| 2012 | No increase in catches | | - | 3387 | 224 | 21 |
| 2013 | Catch decrease by 7% | | < 160 | 3387 | 278 | 15 |
| 2014 | Landings increase of no more than 20% | | < 207 | 4074 | 343 | 15 |
| 2015 | Landings increase of no more than 20% | | < 262 | 4129 | 453 | 85 |
| 2016 | Precautionary approach (no more than 20% increase of recent advised landings) | | ≤ 314 | 5214 | 405 | 145 |
| 2017 | Precautionary approach | ≤ 379 | ≤ 342 | 5682 | 586 | 233 |
| 2018 | Precautionary approach | ≤ 443 | - | 5432 | 763 ^ | 203 |
| 2019 | Precautionary approach | ≤ 419 | - | 5782 | 783 ^ | 34 |
| 2020 | Precautionary approach | ≤ 473 | - | 5901 | | |
| 2021 | Precautionary approach | ≤ 512 | | | | |

* Prior to 2011, advice was given for megrim in divisions 4.a, 6.a, and 6.b combined.

** Discard data are only available from 2005 onwards.

^ Preliminary.

Summary of the assessment

Table 4 Megrim in Division 6.b. Assessment summary. High and low refers to 95% confidence intervals. All weights in tonnes.

| Year | Biomass index | | | B/B _{MSY} | | | Landings | Discards | Low | F/F _{MSY} | High |
|------|---------------|-------|------|--------------------|-------|-------|----------|----------|-------|--------------------|-------|
| | Low | Value | High | Low | | High | | | | | |
| 1991 | NA | NA | NA | 0.477 | 1.99 | 8.29 | 1045 | NA | 0.347 | 0.938 | 2.54 |
| 1992 | NA | NA | NA | 0.474 | 1.6 | 5.41 | 1073 | NA | 0.438 | 1.00 | 2.28 |
| 1993 | NA | NA | NA | 0.493 | 1.4 | 3.95 | 925 | NA | 0.552 | 1.08 | 2.10 |
| 1994 | NA | NA | NA | 0.520 | 1.26 | 3.06 | 1046 | NA | 0.681 | 1.16 | 1.99 |
| 1995 | NA | NA | NA | 0.547 | 1.15 | 2.44 | 816 | NA | 0.755 | 1.20 | 1.91 |
| 1996 | NA | NA | NA | 0.578 | 1.08 | 2.03 | 843 | NA | 0.783 | 1.21 | 1.87 |
| 1997 | NA | NA | NA | 0.602 | 1.01 | 1.71 | 1009 | NA | 0.919 | 1.39 | 2.10 |
| 1998 | NA | NA | NA | 0.602 | 0.917 | 1.40 | 1091 | NA | 1.07 | 1.67 | 2.61 |
| 1999 | NA | NA | NA | 0.573 | 0.802 | 1.12 | 866 | NA | 1.13 | 1.83 | 2.97 |
| 2000 | NA | NA | NA | 0.523 | 0.697 | 0.929 | 964 | NA | 1.16 | 2.00 | 3.44 |
| 2001 | NA | NA | NA | 0.449 | 0.585 | 0.762 | 824 | NA | 1.16 | 2.20 | 4.17 |
| 2002 | NA | NA | NA | 0.373 | 0.495 | 0.657 | 455 | NA | 1.01 | 1.95 | 3.75 |
| 2003 | NA | NA | NA | 0.330 | 0.449 | 0.610 | 632 | NA | 0.964 | 1.91 | 3.78 |
| 2004 | NA | NA | NA | 0.278 | 0.394 | 0.558 | 528 | NA | 0.984 | 2.11 | 4.54 |
| 2005 | 14 | 566 | 1118 | 0.227 | 0.345 | 0.525 | 382 | 87 | 0.858 | 1.89 | 4.17 |
| 2006 | 551 | 929 | 1308 | 0.199 | 0.329 | 0.541 | 344 | 75 | 0.670 | 1.52 | 3.46 |
| 2007 | 934 | 1267 | 1601 | 0.190 | 0.343 | 0.617 | 106 | 22 | 0.403 | 0.91 | 2.03 |
| 2008 | 925 | 1728 | 2531 | 0.200 | 0.399 | 0.797 | 294 | 59 | 0.335 | 0.746 | 1.66 |
| 2009 | 1241 | 1605 | 1968 | 0.205 | 0.457 | 1.02 | 226 | 44 | 0.345 | 0.768 | 1.71 |
| 2010 | 1380 | 1991 | 2602 | 0.219 | 0.53 | 1.29 | 139 | 26 | 0.219 | 0.519 | 1.23 |
| 2011 | 663 | 885 | 1107 | 0.254 | 0.637 | 1.60 | 155 | 7 | 0.142 | 0.364 | 0.938 |
| 2012 | 2107 | 4320 | 6533 | 0.316 | 0.782 | 1.94 | 224 | 21 | 0.140 | 0.345 | 0.853 |
| 2013 | 2244 | 3030 | 3816 | 0.404 | 0.927 | 2.13 | 278 | 15 | 0.160 | 0.375 | 0.881 |
| 2014 | 1888 | 3318 | 4748 | 0.514 | 1.06 | 2.19 | 343 | 15 | 0.179 | 0.408 | 0.932 |
| 2015 | 2187 | 3262 | 4336 | 0.631 | 1.17 | 2.17 | 453 | 85 | 0.223 | 0.485 | 1.06 |
| 2016 | 2704 | 4507 | 6311 | 0.733 | 1.24 | 2.09 | 405 | 145 | 0.270 | 0.571 | 1.21 |
| 2017 | 2061 | 3015 | 3970 | 0.807 | 1.27 | 1.99 | 586 | 233 | 0.333 | 0.687 | 1.42 |
| 2018 | 732 | 3984 | 6460 | 0.843 | 1.26 | 1.88 | 763 | 203 | 0.408 | 0.855 | 1.79 |
| 2019 | 1424 | 4150 | 6095 | 0.845 | 1.22 | 1.76 | 783 | 34 | 0.421 | 0.905 | 1.95 |
| 2020 | NA | NA | NA | NA | NA | NA | | | | | |

NA = not available.

Sources and references

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