

## Megrim (*Lepidorhombus* spp.) in Division 6.b (Rockall)

### ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2022 should be no more than 994 tonnes.

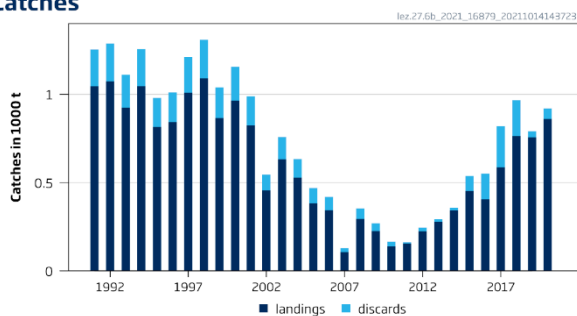
ICES notes the existence of a precautionary management plan, developed and adopted by one of the relevant management authorities for this stock.

Management should be implemented at the stock level.

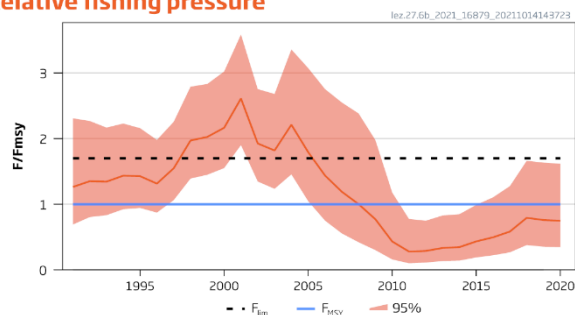
### Stock development over time

Fishing pressure on the stock is below  $F_{MSY}$  and biomass is above MSY  $B_{trigger}$  and  $B_{lim}$ .

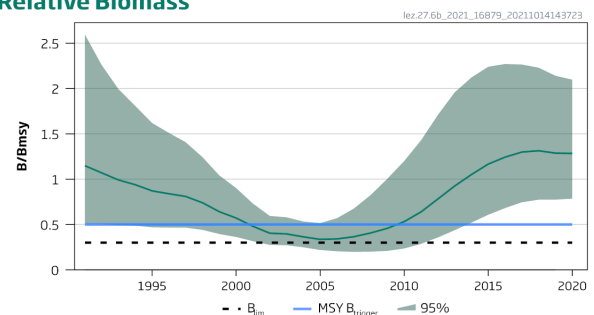
#### Catches



#### Relative fishing pressure



#### Relative Biomass



**Figure 1** Megrim in Division 6.b. Summary of the stock assessment.

### Catch scenarios

**Table 1** Megrim in Division 6.b. Assumptions made for the interim year and in the forecast.

Variable	Value	Notes
$F(2021)/F_{MSY}$	0.81	F corresponding to <i>status quo</i> catch
$B(2022)/B_{MSY}$	1.25	Short term forecast (STF) with <i>status quo</i> catch
Catch (2021)	896	Status quo catch (average 2018-2020) ; in tonnes

**Table 2** Megrim in 6.b. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2022)	F <sub>2022</sub> /F <sub>MSY</sub>	B <sub>2023</sub> /B <sub>MSY</sub>	% B change <sup>^</sup>	% advice change <sup>^^</sup>
ICES advice basis					
MSY approach (35 <sup>th</sup> percentile of predicted catch distribution under F = F <sub>MSY</sub> )	994	0.91	1.22	-2.68	94
Other scenarios					
F <sub>MSY</sub>	1105	1.00	1.22	-4.57	116
F <sub>2020</sub>	726	0.64	1.30	1.44	42
F=0	0	0.0	1.44	12.9	-100

<sup>^</sup> Biomass 2023 relative to biomass 2022.

<sup>^^</sup> Advice value for 2022 relative to the advice value for 2021 (512 tonnes).

The change in the advice is due to a new assessment approach following the 2021 benchmark.

### Basis of the advice

**Table 3** Megrim in Division 6.b. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is aware of the multiannual management plan (MAP) which has been adopted by the EU for this stock (EU, 2019) and which ICES considers to be precautionary. There is no agreed shared management plan with UK for this stock, and ICES provides advice according to its MSY approach.

### Quality of the assessment

This stock assessment was benchmarked in 2021 (ICES, 2021b) and, as a result, the stock was changed from category 3 to category 2. The assessment, which is now based on a stochastic surplus production model that includes revised assumptions and model priors. Reference points were also revised. These changes have resulted in a more reliable assessment and the methodology is appropriate to determine stock status and a short-term catch forecast.

### Issues relevant for the advice

Advice for the stock has changed from a precautionary approach to an MSY approach due to the change to category 2. The advice is now based on the 35th percentile of predicted catch distribution under F = F<sub>MSY</sub>.

There is a mismatch between management and assessment area, and as a result there is a potential for catches to exceed advice.

## Reference points

**Table 4** Megrim in Division 6.b. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger}}$	0.5 *	Relative value ( $B/B_{\text{MSY}}$ ) from the SPiCT assessment model. $B_{\text{MSY}}$ is estimated directly from the SPiCT model and changes when the assessment is updated	ICES (2021b)
	$F_{\text{MSY}}$	1*	Relative value ( $F/F_{\text{MSY}}$ ) from the SPiCT assessment model. $F_{\text{MSY}}$ is estimated directly from the SPiCT model and changes when the assessment is updated.	ICES (2021b)
Precautionary approach	$B_{\text{lim}}$	0.3 *	Relative value ( $B/B_{\text{MSY}}$ ) (equilibrium yield at this biomass is 50% of MSY)	ICES (2021b)
	$B_{\text{pa}}$	Not defined		
	$F_{\text{lim}}$	1.7*	Relative value ( $F/F_{\text{MSY}}$ ) (the F that drives the stock to $B_{\text{lim}}$ )	ICES (2021b)
	$F_{\text{pa}}$	Not defined		
Management plan	$SSB_{\text{mgt}}$	Not defined		
	$F_{\text{mgt}}$	Not defined		

\* No reference points are defined for this stock in terms of absolute values. The SPiCT estimated values of the ratios  $F/F_{\text{MSY}}$  and  $B/B_{\text{MSY}}$  are used to estimate stock status relative to the MSY reference points.

## Basis of the assessment

**Table 5** Megrim in Division 6.b. Basis of the assessment and advice.

ICES stock data category	2 ( <a href="#">ICES, 2021a</a> )
Assessment type	Surplus Production model in Continuous Time (SPiCT; ICES, 2021b)
Input data	Commercial landings and discard estimates; one dedicated industry–science survey index (SCO-IV-VI-AMISS-Q2 [G1794])
Discards and bycatch	Discard estimates are available from 2005 onwards. Prior to 2005 a 1.2 ratio derived from the observed ratio 2017 to 2020.
Indicators	None
Other information	Last benchmarked in 2021 (ICES, 2021b)
Working group	Working Group for the Celtic Seas Ecoregion ( <a href="#">WGCSE</a> )

## History of the advice, catch, and management

**Table 6** 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 landings	ICES discards**
1990	Not assessed		-	4840	804		
1991	No advice		-	4840	1045	1254	
1992	No advice		-	4840	1073	1288	
1993	No long-term gain in increased F		-	4840	925	1110	
1994	No long-term gain in increased F		-	4840	1046	1255	
1995	No advice		-	4840	816	979	
1996	No advice		-	4840	843	1012	
1997	No advice		-	4840	1009	1211	
1998	Adequate catch controls		-	4840	1091	1309	
1999	Maintain current TAC		4840	4840	866	1039	
2000	Maintain current TAC		4840	4840	964	1157	
2001	Maintain current TAC		4840	4360	824	989	
2002	Maintain current TAC		4360	4360	455	546	
2003	Maintain current TAC		4360	4360	632	758	
2004	Reduce TAC to recent landings		3600	3600	528	634	
2005	Reduce TAC to recent landings		2300	2880	382	382	87
2006	Reduce TAC to recent landings		2300	2880	344	344	75
2007	Reduce TAC to recent landings		2100	2880	106	106	22
2008	Reduce TAC to recent landings		1400	2592	294	294	59
2009	Same advice as last year		1400	2799	226	226	44
2010	No increase in effort		-	3079	139	139	26
2011	No increase in catches		-	3387	155	155	7
2012	No increase in catches		-	3387	224	224	21
2013	Catch decrease by 7%		< 160	3387	278	278	15
2014	Landings increase of no more than 20%		< 207	4074	343	343	15
2015	Landings increase of no more than 20%		< 262	4129	453	453	85
2016	Precautionary approach (no more than 20% increase of recent advised landings)		≤ 314	5214	405	405	145
2017	Precautionary approach	≤ 379	≤ 342	5682	586	586	233
2018	Precautionary approach	≤ 443	-	5432	762	764	203
2019	Precautionary approach	≤ 419	-	5782	795^	757	34
2020	Precautionary approach	≤ 473	-	5901	866^	861	59
2021	Precautionary approach	≤ 512	-	5225			
2022	MSY approach	≤ 994					

\* 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.

## History of the catch and landings

**Table 7** Megrim in Division 6.b. Catch distribution by fleet in 2020 as estimated by ICES.

Catch	Landings	Discards
920 tonnes	Otter trawls ~ 87%	59 tonnes
	861 tonnes	

**Table 8** Megrim in Division 6.b. History of catch and landings; official landings presented by country and ICES estimated catch. All weights are in tonnes.

Year	France	Ireland	Spain	UK (England, Wales, & Northern Ireland)	UK (England & Wales)	UK (Scotland)	UK	Official landings	ICES catch
1990	-	196	363	19	-	226	-	804	-
1991	-	240	587	14	-	204	-	1045	-
1992	-	139	683	53	-	198	-	1073	-
1993	-	128	594	56	-	147	-	925	-
1994	-	176	574	38	-	258	-	1046	-
1995	-	117	520	27	-	152	-	816	-
1996	-	124	515	92	-	112	-	843	-
1997	-	141	628	76	-	164	-	1009	-
1998	-	218	549	116	-	208	-	1091	-
1999	-	127	404	57	-	278	-	866	-
2000	4	167	427	57	-	309	-	964	-
2001	< 0.5	176	370	42	-	236	-	824	-
2002	< 0.5	87	120	41	-	207	-	455	-
2003	-	83	93	74	-	382	-	632	-
2004	-	43	71	42	-	372	-	528	-
2005	-	68	88	19	-	207	-	382	469
2006	-	95	59	9	-	181	-	344	419
2007	-	87	19	-	-	-	-	106	128
2008	-	68	84	-	1	141	-	294	353
2009	-	48	0	-	-	178	-	226	270
2010	-	47	0	-	-	-	92	139	165
2011	-	72	17	-	-	-	66	155	162
2012	-	120	15	-	-	-	89	224	245
2013	-	181	39	-	-	-	58	278	293
2014	-	230	18	-	-	-	95	343	358
2015	-	256	67	-	-	-	130	453	538
2016	-	272	27	-	-	-	106	405	550
2017	-	358	46	15	-	167	-	586	819
2018	-	438	61	-	-	-	263	763	967
2019*	25	452	94	-	-	-	223	795	791
2020*	41	467	112	-	-	-	246	866	920

\* Landing values are preliminary.

## Summary of the assessment

**Table 9** Megrim in Division 6.b. Assessment summary. High and low refers to 95% confidence intervals. All weights in tonnes.

Year	Relative biomass			Landings	Discards	Relative fishing pressure		
	Relative B	High	Low			Relative F	High	Low
1991	1.15	2.60	0.51	1254	209	1.26	2.31	0.69
1992	1.07	2.26	0.51	1288	215	1.35	2.27	0.80
1993	0.99	1.99	0.49	1110	185	1.34	2.17	0.83
1994	0.94	1.81	0.49	1255	209	1.43	2.23	0.92
1995	0.87	1.62	0.47	979	163	1.43	2.16	0.94
1996	0.84	1.51	0.47	1012	169	1.31	1.98	0.87
1997	0.81	1.41	0.47	1211	202	1.55	2.26	1.06
1998	0.74	1.24	0.44	1309	218	1.97	2.79	1.39
1999	0.64	1.04	0.39	1039	173	2.03	2.83	1.45
2000	0.57	0.90	0.36	1157	193	2.16	3.02	1.55
2001	0.48	0.73	0.32	989	165	2.61	3.59	1.90
2002	0.40	0.60	0.27	546	91	1.93	2.75	1.35
2003	0.40	0.58	0.27	758	126	1.82	2.68	1.23
2004	0.36	0.53	0.25	634	106	2.21	3.36	1.46
2005	0.34	0.52	0.22	382	87	1.79	3.07	1.05
2006	0.34	0.57	0.20	344	75	1.44	2.75	0.75
2007	0.37	0.68	0.20	106	22	1.19	2.55	0.56
2008	0.41	0.83	0.20	294	59	1.00	2.38	0.42
2009	0.46	1.01	0.21	226	44	0.77	1.98	0.30
2010	0.53	1.20	0.24	139	26	0.43	1.18	0.16
2011	0.64	1.43	0.29	155	7	0.28	0.78	0.10
2012	0.78	1.71	0.36	224	21	0.29	0.75	0.11
2013	0.92	1.96	0.44	278	15	0.33	0.83	0.13
2014	1.05	2.12	0.52	343	15	0.35	0.85	0.14
2015	1.17	2.24	0.61	453	85	0.43	0.99	0.19
2016	1.24	2.27	0.68	405	145	0.50	1.10	0.22
2017	1.30	2.26	0.75	586	233	0.58	1.28	0.27
2018	1.31	2.23	0.77	764	203	0.79	1.66	0.38
2019	1.29	2.14	0.77	757	34	0.76	1.63	0.35
2020	1.28	2.10	0.79	861	59	0.75	1.62	0.35
2021	1.27	2.06	0.78					

## Sources and references

EU. 2019. Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. Official Journal of the European Union, L 83: 1–17. <http://data.europa.eu/eli/reg/2019/472/oj>.

ICES. 2021a. Advice on fishing opportunities. In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, section 1.1.1. <https://doi.org/10.17895/ices.advice.7720>.

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

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