

Megrim (*Lepidorhombus whiffiagonis*) in divisions 7.b–k, 8.a–b, and 8.d (west and southwest of Ireland, Bay of Biscay)

ICES advice on fishing opportunities

ICES advises that when the EU multiannual plan (MAP) for Western Waters and adjacent waters is applied, catches in 2021 that correspond to the F ranges in the MAP are between 12 706 tonnes and 27 748 tonnes. According to the MAP, catches higher than those corresponding to F_{MSY} (19 184 tonnes) can only be taken under conditions specified in the MAP, whilst the entire range is considered precautionary when applying the ICES advice rule.

Management of catches of the two megrim species, *L. whiffiagonis* and *L. boscii*, under a combined species TAC prevents effective control of the single-species exploitation rates, and could lead to overexploitation of either species.

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

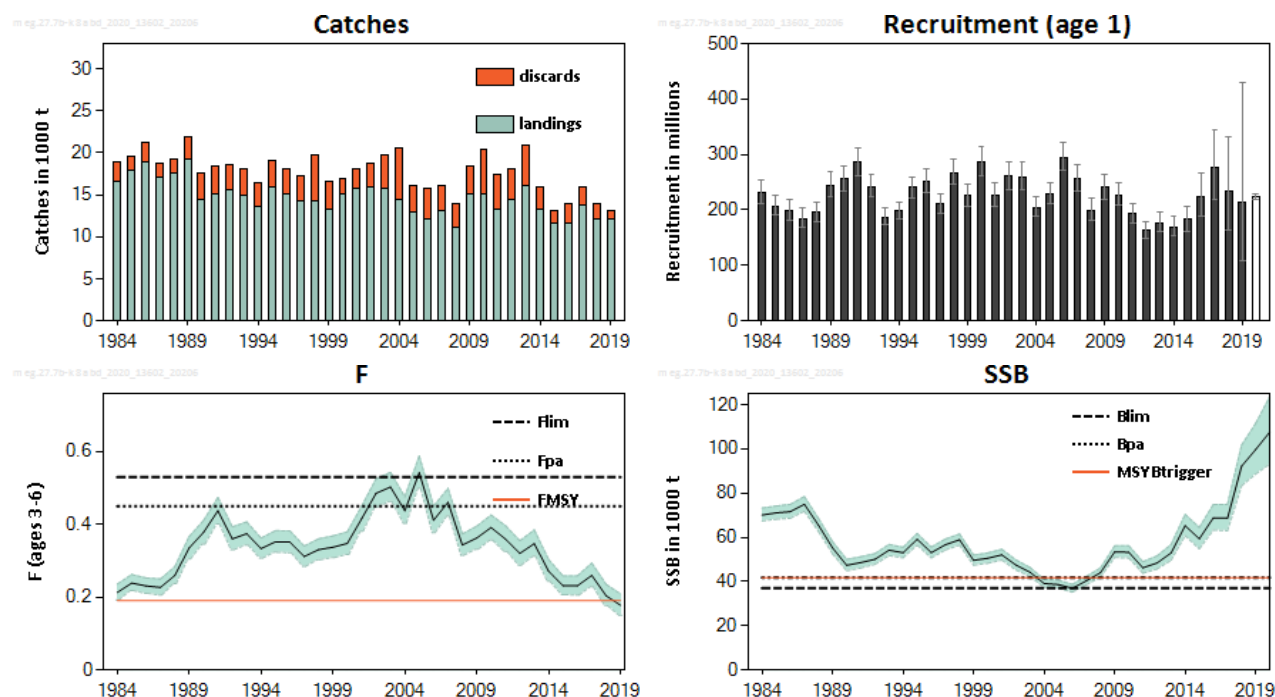


Figure 1 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Summary of the stock assessment. Recruitment (R), fishing mortality (F), and spawning-stock biomass (SSB) are displayed with confidence intervals (95%). Assumed values for recruitment are unshaded.

Stock and exploitation status

Table 1 Megrim in divisions 7.b–k, 8.a–b, and 8.d. 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		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 the range		B_{MGT}	✓	✓ Above

Catch scenarios

Table 2 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Assumptions made for the interim year and in the forecast.

Variable	Value	Notes
F (2020)	0.21	Average F (2017–2019) (not rescaled to 2019, owing to the retrospective pattern).
SSB (2021)	111674	Assessment forecast; tonnes.
R (2020–2021)	223393	Geometric mean of recruitment (1984–2017); thousands.
Catch (2020)	20350	Based on F (2020); tonnes.
Landings (2020)	17201	Average landing rate of 2017–2019; tonnes.
Discards (2020)	3149	Average discard rate of 2017–2019; tonnes.

Table 3 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Annual catch scenarios. All weights are in tonnes. Note: The % change in TAC is not computed because the TAC is for the two species (*Lepidorhombus whiffiagonis* and *L. boscii*) combined.

Basis	Total catch (2021)	Projected landings (2021)	Projected discards (2021)	F_{total} (2021)	SSB (2022)	% SSB change *	% advice change **
ICES advice basis							
EU MAP ***: F_{MSY}	19184	16454	2730	0.191	115734	3.6	–4.0
$F = MAP$ F_{MSY} lower	12706	10911	1795	0.122	122644	9.8	–3.9
$F = MAP$ F_{MSY} upper	27748	23756	3992	0.289	106695	–4.5	–3.8
Other scenarios							
MSY approach = F_{MSY}	19184	16454	2730	0.191	115734	3.6	–4.0
$F = 0$	0	0	0	0.000	136281	22	–100
F_{pa}	40123	34250	5874	0.451	93752	–16.0	101
F_{lim}	45727	38978	6749	0.533	87852	–21	129
$SSB(2022) = B_{lim}$	96223	80131	16092	1.871	37100	–67	382
$SSB(2022) = B_{pa}$	91298	76284	15014	1.649	41800	–63	357
$SSB(2022) = MSY$ $B_{trigger}$	91298	76284	15014	1.649	41800	–63	357
$F = F_{2020}$	21310	18269	3041	0.210	113491	1.63	6.6

* SSB 2022 relative to SSB 2021 (111 674 tonnes)

** Advice values for 2021 relative to their corresponding 2020 values (MAP advice of 19 982, 13 218 and 28 838 tonnes respectively, others are relative to the 2020 F_{MSY}).

*** The EU multiannual plan (MAP; EU, 2019).

The advice for 2021 is slightly lower than the advice for 2020 because the biomass estimates have been revised downwards in this assessment.

Quality of the assessment

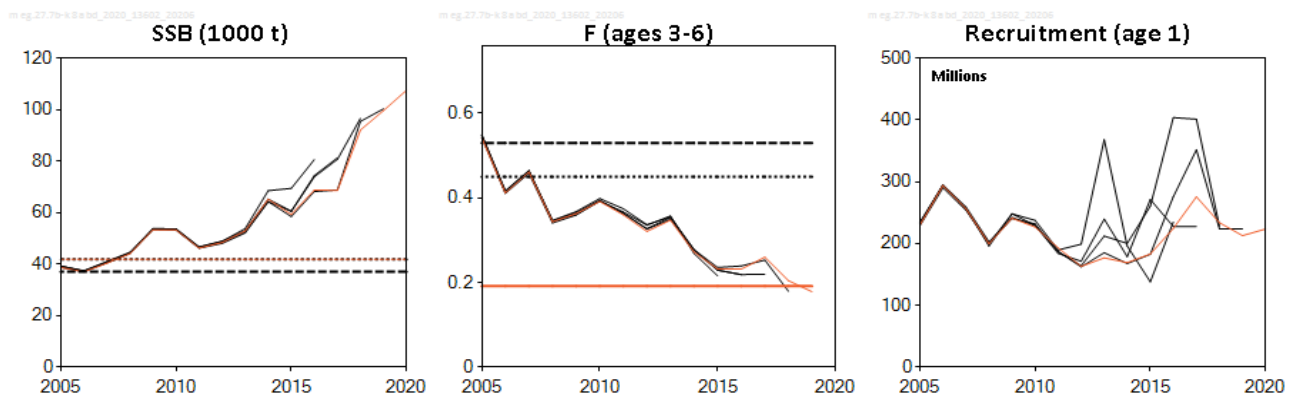


Figure 2 Megrim in divisions 7.b-k, 8.a-b, and 8.d. Historical assessment results (2020 recruitment estimate included).

History of the advice, catch, and management

Table 4 Megrim in divisions 7.b-k, 8.a-b, and 8.d. ICES advice and landings. All weights are in tonnes.

Year	ICES advice	Catch/landings corresponding to advice	Agreed TAC *	ICES landings	Discards	ICES catch
1987	Not assessed	-	16460	17114	1705	18819
1988	Not assessed	-	18100	17577	1725	19302
1989	Not assessed	-	18100	19233	2582	21815
1990	Not assessed	-	18100	14370	3284	17654
1991	No advice	-	18100	15094	3282	18376
1992	No advice	-	18100	15600	2988	18588
1993	Within safe biological limits	-	21460	14929	3108	18037
1994	Within safe biological limits	-	20330	13684	2700	16384
1995	No particular concern	-	22590	15862	3206	19068
1996	No long-term gain in increased F	16600	21200	15109	3026	18135
1997	No advice	14300	25000	14230	3066	17296
1998	No increase in F	15200	25000	14345	5371	19716
1999	Reduce F below F_{pa}	14600	20000	13305	3297	16601
2000	Reduce F below F_{pa}	< 14200	20000	15031	1870	16901
2001	Reduce F below F_{pa}	< 14100	16800	15778	2262	18040
2002	Reduce F below F_{pa}	< 13000	14900	15987	2813	18800
2003	Reduce F below F_{pa}	< 16100	16000	15711	4008	19719
2004	Reduce F below F_{pa}	< 20200	20200	14358	6243	20602
2005	Reduce F below F_{pa}	< 22600	21500	12888	3275	16163
2006	Reduce F below F_{pa}	< 13600	20425	12037	3751	15788
2007	Less than average landings 2003–2005	< 14200	20425	13060	3033	16092
2008	Less than average landings 2004–2006	< 13000	20425	11048	2860	13908
2009	Same advice as last year	< 13000	20425	15064	3278	18342
2010	No increase in effort	< 13000	20425	15101	5343	20444
2011	See scenarios	-	20106	13226	4187	17413
2012	Catch and effort reduction	-	19101	14433	3704	18137
2013	Decrease landings by 4% (20% increase, followed by 20% PA reduction)	< 12000	19101	16025	4885	20910
2014	Same advice as 2013	< 12000	19101	13277	2569	15846
2015	Increase landings by no more than 13%	< 15180	19101	11569	1507	13076

Year	ICES advice	Catch/landings corresponding to advice	Agreed TAC *	ICES landings	Discards	ICES catch
2016	Precautionary approach (increase recent advised landings by no more than 20%)	≤ 18216	20056	11548	2445	13992
2017	MSY approach	≤ 16021 ***	15043	13784	2173	15957
2018	MSY approach	≤ 15720 ***	13528	12147	1738	13885
2019	MSY approach	≤ 18976 ***	19836	12164 ^	989 ^	13153 ^
2020	Management plan	19982 (range 13218–28838) **, ***	20526			
2021	Management plan	19184 (range 12706–27748) **, ***				

* Includes *L. boschii* and divisions 7.a and 8.e.

** Catches corresponding to F_{MSY} , EU MAP range in brackets (EU, 2019).

*** Advice is for catches.

^ Preliminary.

Summary of the assessment

Table 5 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Assessment summary. Highs and lows refer to confidence intervals (95%). All weights are in tonnes and recruitment is in thousands.

Year	Recruitment			Spawning-stock biomass			Landings	Discards	Fishing mortality		
	Recruitment (age 1)	High	Low	SSB	High	Low			F (ages 3–6)	High	Low
	thousands			tonnes			tonnes				
1984	231344	253230	212342	70073	73191	67349	16659	2169	0.21	0.24	0.193
1985	207325	227047	190190	71057	74127	68194	17865	1732	0.24	0.26	0.22
1986	198092	217437	180284	71605	74865	68596	18927	2321	0.23	0.25	0.21
1987	184198	202919	167416	74941	78422	71776	17114	1705	0.23	0.25	0.21
1988	194881	214209	178228	65513	68546	62668	17577	1725	0.26	0.28	0.24
1989	244280	268607	223995	55179	58020	52538	19233	2582	0.34	0.37	0.31
1990	256301	278774	234626	47335	50013	44832	14370	3284	0.38	0.41	0.35
1991	287228	312219	262223	48571	51185	46143	15094	3282	0.44	0.47	0.40
1992	242006	264519	224120	50060	52599	47720	15600	2988	0.36	0.39	0.33
1993	187048	203019	172256	54160	56778	51734	14929	3108	0.37	0.41	0.34
1994	197895	214234	182869	53022	55465	50721	13684	2700	0.33	0.36	0.31
1995	240291	259929	220551	59107	61771	56477	15862	3206	0.35	0.38	0.32
1996	250666	273088	230010	53080	55587	50672	15109	3026	0.35	0.38	0.32
1997	210743	229933	193181	56649	59213	54282	14230	3066	0.31	0.34	0.29
1998	267512	291510	245636	58893	61482	56460	14345	5371	0.33	0.36	0.30
1999	224991	245461	205502	49575	51950	47385	13305	3297	0.34	0.37	0.31
2000	285201	313037	261136	50513	52913	48268	15031	1870	0.35	0.38	0.32
2001	225053	247603	205064	52069	54552	49714	15778	2262	0.42	0.45	0.38
2002	260348	286976	237451	47469	49781	45195	15987	2813	0.49	0.53	0.45
2003	258974	285459	235566	44197	46351	42308	15711	4008	0.50	0.54	0.46
2004	204573	224040	187617	39116	41035	37358	14358	6243	0.44	0.48	0.40
2005	229735	249884	211191	38661	40572	36945	12888	3275	0.54	0.59	0.50
2006	293981	321425	270135	36955	38732	35194	12037	3751	0.41	0.45	0.38
2007	256423	282190	234851	40344	42325	38558	13060	3033	0.46	0.50	0.42
2008	199539	221008	181940	44055	46182	42046	11048	2860	0.34	0.37	0.32
2009	240984	264997	219584	53376	56140	50886	15064	3278	0.36	0.40	0.33
2010	226735	248663	208460	53227	56179	50618	15101	5343	0.39	0.43	0.36
2011	192914	210862	175979	46225	48948	43750	13226	4187	0.36	0.40	0.33
2012	162888	178384	148859	48384	51573	45659	14433	3704	0.32	0.36	0.29

Year	Recruitment			Spawning-stock biomass			Landings	Discards	Fishing mortality		
	Recruitment (age 1)	High	Low	SSB	High	Low			F (ages 3–6)	High	Low
	thousands			tonnes					tonnes		
2013	176745	195721	160542	52921	56732	49585	16025	4885	0.35	0.38	0.31
2014	169030	189059	152200	65220	70366	60728	13277	2569	0.27	0.30	0.24
2015	182977	206961	160378	59296	64446	54744	11569	1507	0.23	0.26	0.21
2016	224385	265346	188960	68801	74862	63284	11548	2445	0.23	0.26	0.21
2017	275726	345340	219795	68652	74902	62960	13784	2173	0.26	0.29	0.23
2018	233695	330997	163795	92132	101668	83311	12147	1738	0.20	0.24	0.177
2019	212697	429285	107682	99708	111492	88629	12164	989	0.178	0.21	0.150
2020	223393 *	229387	218024	107600	123589	93126					

* Geometric mean (1984–2017).

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. 17 pp. <http://data.europa.eu/eli/reg/2019/472/oj>.

ICES. 2020. Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE). ICES Scientific Reports. 2:49. <http://doi.org/10.17895/ices.pub.6033>

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Annex 1

ICES Advice on fishing opportunities, catch, and effort
Bay of Biscay and the Iberian Coast, Celtic Seas, Greater North Sea,
and Oceanic Northeast Atlantic ecoregions
Published 28 June 2019

Megrim (*Lepidorhombus whiffiagonis*) in divisions 7.b–k, 8.a–b, and 8.d (west and southwest of Ireland, Bay of Biscay)

ICES advice on fishing opportunities

ICES advises that when the EU multiannual plan (MAP) for Western waters and adjacent waters is applied, catches in 2020 that correspond to the F ranges in the MAP are between 13 218 tonnes and 28 838 tonnes. According to the MAP, catches higher than those corresponding to F_{MSY} (19 982 tonnes) can only be taken under conditions specified in the MAP, while the entire range is considered precautionary when applying the ICES advice rule.

Management of catches of the two megrim species, *L. whiffiagonis* and *L. boscii*, under a combined species TAC prevents effective control of the single-species exploitation rates, and could lead to overexploitation of either species.

Stock development over time

The spawning-stock biomass (SSB) has been above $MSY B_{trigger}$ since 2008, and continues to increase. SSB is now at its highest point in the time series. The fishing mortality (F) has decreased since 2005, and it is below F_{MSY} in 2018. Recruitment (R) has been relatively stable throughout the time series, although the last two years are above the time series average.

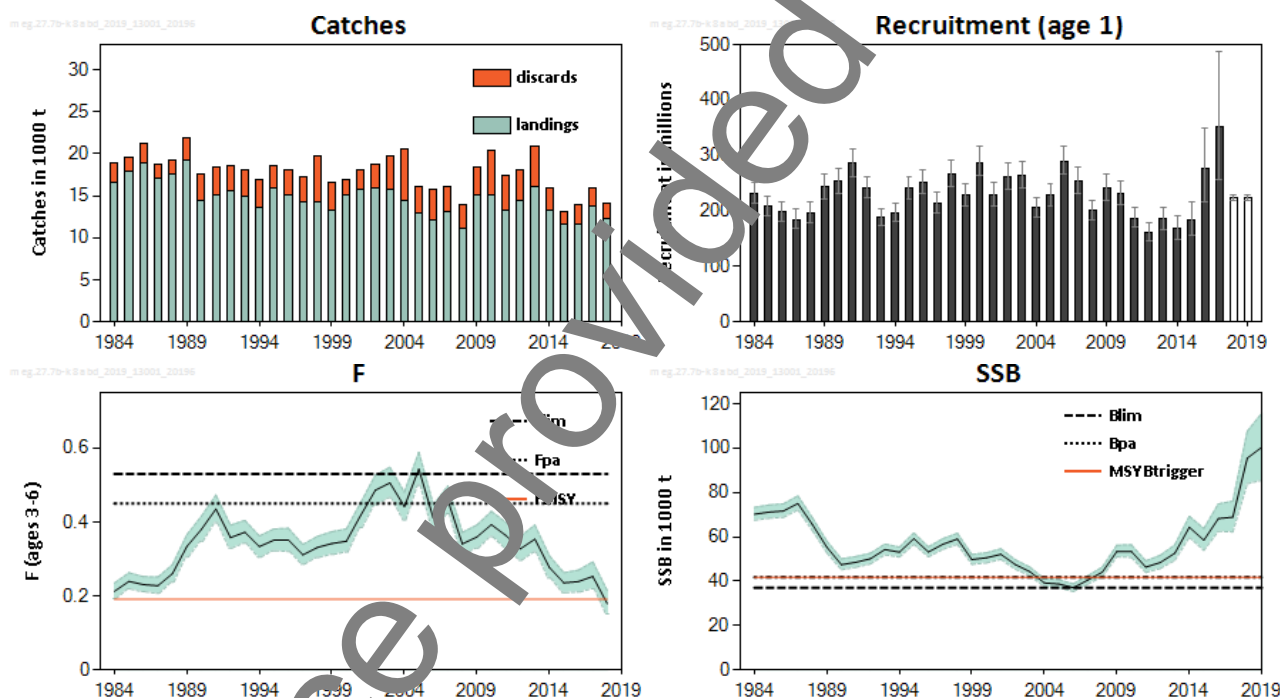


Figure 1 Megrim, divisions 7.b–k, 8.a–b, and 8.d. Summary of the stock assessment. Recruitment, F, and SSB are displayed with confidence intervals (95%). Assumed values of recruitment are unshaded.

Stock and exploitation status

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

Table 1 Megrim in divisions 7.b–k, 8.a–b, and 8.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	✓	✓	Above trigger
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓	Harvested sustainably	B_{pa}, B_{lim}	✓	✓	Full reproductive capacity
Management plan	F_{MGT}	✓	✓	✓	Within the range	B_{MGT}	✓	✓	Above trigger

Catch scenarios

Table 2 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Assumptions made for the interim year and in the forecast. All weights are in tonnes, recruitment in thousands.

Variable	Value	Notes
F (2019)	0.18	Average F at age (2016–2018) rescaled to F_{2018}
SSB (2020)	112798	Tonnes; assessment forecast.
R (2018–2020)	223736	Thousands; geometric mean of recruitment (1984–2016).
Catch (2019)	16197	Tonnes; based on F(2019)
Wanted catch (2019)	12614	Tonnes; average landing rate of 2016–2018
Unwanted catch (2019)	3591	Tonnes; average discard rate of 2016–2018

Table 3 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Annual catch scenarios. All weights are in tonnes. Note: The % change in TAC is not computed because the TAC is for the two species (*L. whiffiagonis* and *L. boscii*) combined.

Basis	Total catch (2020)	Wanted catch (2020)	Unwanted catch (2020)	F_{total} (2020)	SSB (2021)	% SSB change *	% Advice change **
ICES advice basis							
EU MAP [^] : F_{MSY}	19982	16174	3808	0.191	118129	5%	6%
F = MAP	13218	10720	2498	0.122	125760	11%	–30%
F_{MSY} lower							
F = MAP	28838	23285	5553	0.29	108262	–4%	53%
F_{MSY} upper							
Other scenarios							
MSY approach = F_{MSY}	19982	16174	3808	0.191	118129	5%	6%
F = 0	0	0	0	0.0	140732	25%	–100%
F_{pa}	41586	33417	8139	0.45	94097	–17%	120%
F_{lim}	47214	392	9323	0.53	87862	–22%	150%
SSB (2021) = B_{lim}	94951	73980	20970	1.74	37100	–67%	400%
SSB (2021) = B_{pa}	90176	70657	19619	1.54	41800	–63%	380%
SSB (2021) = MSY $B_{trigger}$	12276	70657	19619	1.54	41800	–63%	380%
F = F_{2019}	13559	15351	3608	0.180	119286	6%	0%

* SSB 2021 relative to SSB 2020.

** Catches 2020 relative to the advised catch in 2019 (18976 tonnes).

[^] MAP multi-annual plan (EU, 2019).

The decrease of fishing mortality and the above average recruitment in previous years has led to an increase in catch advice.

Basis of the advice

Table 4 Megrim in divisions 7.b–k, 8.a–b, and 8.d. The basis of the advice.

Advice basis	Management plan approach
Management plan	The EU multiannual plan (MAP) for stocks in the Western Waters 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. In accordance with the MAP, catches higher than those corresponding to F_{MSY} can only be taken providing SSB is greater than $MSY_{Btrigger}$, and one of the following conditions is met: a) if it is necessary for the achievement of objectives of mixed fisheries; b) if it is necessary to avoid serious harm to a stock caused by intra- or inter-species stock dynamics; c) in order to limit variations in fishing opportunities between consecutive years to not more than 20%. ICES considers that the F_{MSY} range for this stock used in the MAP is precautionary. Full details of the plan are described in EU (2019).

Quality of the assessment

The 2018 recruitment value has high uncertainty and has been replaced with the geometric mean for the forecast.

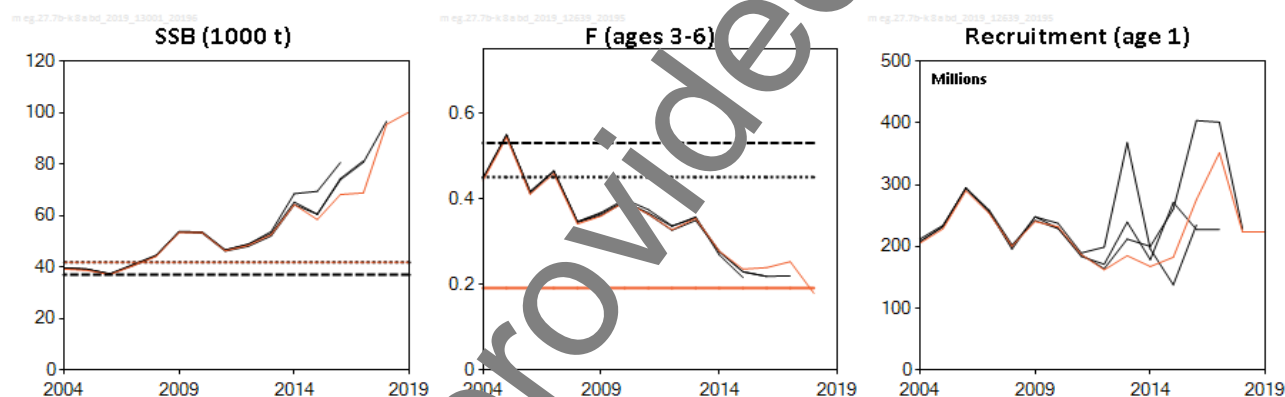


Figure 2 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Historical assessment results (year 2018 and 2019 recruitment estimates included).

Issues relevant for the advice

The two megrim species (*L. whiffiagonis* and *L. boschii*) are not totally separated in the landings. A single TAC covers both species and species-specific landings are estimated by ICES. ICES considers that management of the catches of the two megrim species under a combined TAC prevents effective control of the single-species exploitation rates, and could lead to overexploitation of either species.

Reference points

Table 5 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Reference points, values, and their technical basis. All weights are in tonnes.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	41800	B_{pa}	ICES (2016a)
	F_{MSY}	0.191	Stochastic simulations based on a segmented regression, with the breakpoint fixed at the lowest observed biomass.	ICES (2016a)
Precautionary approach	B_{lim}	37100	B_{loss} , which is the lowest biomass observed, corresponding to year 2006.	ICES (2016a)
	B_{pa}	41800	$B_{lim}e^{1.645\sigma_B}$; $\sigma_B = 0.07$	ICES (2016a)
	F_{lim}	0.53	The F that gives 50% probability of SSB being above B_{lim} .	ICES (2016a)
	F_{pa}	0.45	$F_{lim}e^{-1.645\sigma_F}$; $\sigma_F = 0.102$	ICES (2016a)
Management plan	SSB _{mgt}	Not defined		ICES (2016a)
	F_{mgt}	Not defined		ICES (2016a)
	MAP MSY $B_{trigger}$	41800	MSY $B_{trigger}$	ICES (2016b) and EU (2019)
	MAP B_{lim}	37100	B_{lim}	ICES (2016b) and EU (2019)
	MAP F_{MSY}	0.191	F_{MSY}	ICES (2016b) and EU (2019)
	MAP range F_{lower}	0.122	Consistent with ranges provided by ICES (2016b), resulting in no more than 5% reduction in long-term yield compared with MSY.	ICES (2016b) and EU (2019)
	MAP range F_{upper}	0.29	Consistent with ranges provided by ICES (2016b) resulting in no more than 5% reduction in long-term yield compared with MSY.	ICES (2016b) and EU (2019)

Basis of the assessment

Table 6 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2018).
Assessment type	Bayesian statistical catch-at-age (ICES, 2019) using catches in the model and forecast.
Input data	Commercial catches (international landings, ages, and length frequencies from catch sampling). Survey indices: FR-EVHOE-WIBTS-Q4 and SP-PORC-WIBTS-Q3. Commercial indices: SP-VIGOTR7 (VIGO84, VIGO99), and IRTB. Maturity ogive from Anon. (1998). Natural mortality: a fixed value of 0.2 is used for all age groups and all years.
Discards and bycatch	Discards are included in the assessment.
Indicators	None.
Other information	Last benchmark in 2016 (ICES, 2016a).
Working group	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE)

Information from stakeholders

There is no additional available information.

History of the advice, catch, and management

Table 7 Megrim in divisions 7.b–k, 8.a–b, and 8.d. ICES advice and landings. All weights are in tonnes.

Year	ICES advice	Catch / landings corresponding to advice	Agreed TAC *	ICES landings	Discards	ICES catch
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2012	Catch and effort reduction	-	19101	14433	3704	18137
2013	Decrease landings by 4% (20% increase, followed by 20% PA reduction)	< 12000	19101	16025	4885	20910
2014	Same advice as 2013	< 12000	19101	13277	2569	15846
2015	Increase landings by no more than 12%	< 15180	19101	11569	1507	13076
2016	Precautionary approach (increase recent advised landings by no more than 20%)	≤ 18216	20056	11548	2445	13992
2017	MSY approach	≤ 16021 ***	15043	13784	2173	15957
2018	MSY approach	≤ 15720 ***	13528	12279	1855	14133

Year	ICES advice	Catch / landings corresponding to advice	Agreed TAC *	ICES landings	Discards	ICES catch
2019	MSY approach	≤ 18976 ***	19836			
2020	Management plan	19982 (range 13218–28838) **, ***				

* Includes *L. boschii* and divisions 7.a and 8.e.

** Catches corresponding to F_{MSY} , EU MAP range in brackets.

*** Advice is for catches.

History of the catch and landings

Table 8 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings		Discards
14133 tonnes	97% Trawl	3% Other gears	1854 tonnes
	12279 tonnes		

Table 9 Megrim in divisions 7.b–k, 8.a–b, and 8.d. History of commercial catch and landings; ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

Year	France	Spain	U.K. (England & Wales)	U.K. (Scotland)	Ireland	Belgium	Unallocated	ICES estimated landings	ICES estimated discards	ICES estimated catch
1984								16659	2169	18828
1985								17865	1732	19597
1986	4896	10242	2048		1563	178		18927	2321	21248
1987	5056	8772	1600		1561	125		17114	1705	18819
1988	5206	9247	1956		995	173		17577	1725	19302
1989	5452	9482	1451		2541	300		19233	2582	21815
1990	4336	7127	1380		1501	147		14370	3284	17654
1991	3709	7780	1617		1956	32		15094	3282	18376
1992	4104	7349	1982		2113	52		15600	2988	18588
1993	3640	6526	2131		2592	40		14929	3108	18037
1994	3214	5624	2309		2420	117		13684	2700	16384
1995	3945	6129	2658		2927	203		15862	3206	19068
1996	4146	5572	2493		2699	199		15109	3026	18135
1997	4333	5472	2805		1420	130		14230	3066	17296
1998	4232	4870	2400		2621	129		14345	5371	19716
1999	3751	4615	2193		2597	149		13305	3297	16601
2000	4173	6047	2185		2512	115		15031	1870	16750
2001	3645	7575	1110		2767	80		15778	2262	18040
2002	2929	8797	1787		2413	62		15987	2813	18800
2003	3227	8300	1732		2249	163		15711	4008	19719
2004	2817	7520	1622		2288	106		14358	6243	20602
2005	2972	5801	1764		2155	156		12888	3275	16163
2006	2763	5916	1509		1751	99		12037	3751	15788
2007	2745	5095	1462		1763	195		13060	3033	16092
2008	2578	5402	1387		1514	167		11048	2860	13908
2009	2032	8062	1840		1918	209		15064	3278	18342
2010	3651	7095	1805		2283	261		15101	5343	20444
2011	3235	3500	1845		2227	330	2089	13226	4187	17413
2012	4012	4055	1744		3047	609	966	14433	3704	18137
2013	4549	4982	2918		3038	538		16025	4885	20910
2014	4311	3318	2753	176	2391	179	150	13277	2569	15846
2015	3073	2864	2804	147	2436	246	1	11569	1507	13076

Year	France	Spain	U.K. (England & Wales)	U.K. (Scotland)	Ireland	Belgium	Unallocated	ICES estimated landings	ICES estimated discards	ICES estimated catch
2016	3141	2672	2694	145	2593	302	1	11548	2445	13992
2017	5101	3178	2512	176	2458	360		13784	2773	15957
2018 *	4812	2276	2337	118	2128	347	261	12279	1851	14133

* Preliminary.

Summary of the assessment

Table 10 Megrim in divisions 7.b–k, 8.a–b, and 8.d. Assessment summary. Highs and lows are confidence intervals (95%). All weights are in tonnes and recruitment is in thousands.

Year	Recruitment (Age 1)	High	Low	SSB	High	Low	Landings	Discards	F (Ages 3–6)	High	Low
1984	231583	252322	212755	70170	73263	67442	15951	2111	0.21	0.23	0.193
1985	208446	226579	191203	71135	74328	68328	17561	2539	0.24	0.26	0.22
1986	198323	217178	181461	71619	74834	68776	11075	2483	0.23	0.25	0.21
1987	184563	203041	167638	75015	78456	72109	15777	2575	0.23	0.25	0.21
1988	195641	216252	178581	65548	68584	62767	25738	2786	0.26	0.28	0.24
1989	243125	267248	221912	55274	58044	52731	17519	2923	0.33	0.37	0.31
1990	253201	277199	232097	47415	50068	45101	15444	2819	0.38	0.42	0.35
1991	285337	310882	261219	48531	51102	46058	15620	2898	0.44	0.47	0.40
1992	241829	262038	222479	50107	52572	47781	13860	2856	0.36	0.39	0.33
1993	187595	203669	172493	54241	56735	51962	14717	3173	0.37	0.40	0.34
1994	196774	213671	182018	53076	55348	50841	12793	2766	0.33	0.36	0.30
1995	240046	261611	221136	59159	61712	56593	15381	3001	0.35	0.38	0.32
1996	251308	274435	231178	53175	56481	50920	14633	2681	0.35	0.38	0.32
1997	212945	232860	195339	56656	59160	54320	13584	3105	0.31	0.34	0.29
1998	266058	290492	243463	58995	61605	56574	14967	4048	0.33	0.36	0.30
1999	227518	248601	207791	49731	52057	47538	13693	2813	0.34	0.37	0.31
2000	287337	315489	262707	50539	52796	48228	13923	2574	0.35	0.38	0.32
2001	228158	251542	207569	53117	54586	49805	15512	3566	0.42	0.45	0.39
2002	260985	286997	237663	47471	49640	45362	15614	3642	0.49	0.53	0.45
2003	263288	289517	240113	44304	46340	42399	15011	3432	0.51	0.55	0.47
2004	205143	224404	188611	39194	41103	37519	13286	2936	0.44	0.48	0.41
2005	228545	250041	209444	38711	40596	37017	13427	3623	0.54	0.59	0.50
2006	290202	316797	265881	37066	38806	35333	11721	2408	0.41	0.45	0.38
2007	254015	278648	229204	40479	42459	38630	12294	3113	0.46	0.50	0.42
2008	200480	219685	182811	44100	46364	42059	10659	2980	0.34	0.37	0.31
2009	240459	265823	219684	53399	56218	50957	13013	3983	0.36	0.39	0.33
2010	231803	256600	211350	53393	56375	50713	15106	3724	0.39	0.43	0.36
2011	187046	207797	169797	46324	49135	43902	13217	3311	0.36	0.40	0.33
2012	162159	179325	146794	48423	51680	45700	13510	2327	0.33	0.36	0.30
2013	185064	207390	165774	52601	56358	49356	15333	2708	0.35	0.39	0.32
2014	167599	188993	148082	64290	69266	59768	14040	2002	0.28	0.31	0.25
2015	182114	215112	155330	58462	63707	53855	10572	1349	0.24	0.26	0.21
2016	275797	350064	216482	68221	74825	62435	12649	2019	0.24	0.27	0.21
2017	352617	486122	255432	68846	76081	62185	12677	2145	0.25	0.29	0.22
2018	22736 *	229855	218099	95488	107587	83887	12320	2875	0.179	0.21	0.151
2019	223156 *	229855	218099	100393	115755	85459					

* Geometric mean of recruitment (1984–2016).

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