

Haddock (*Melanogrammus aeglefinus*) in divisions 7.b–k (southern Celtic Seas and English Channel)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2023 should be no more than 11 901 tonnes.

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

Stock development over time

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

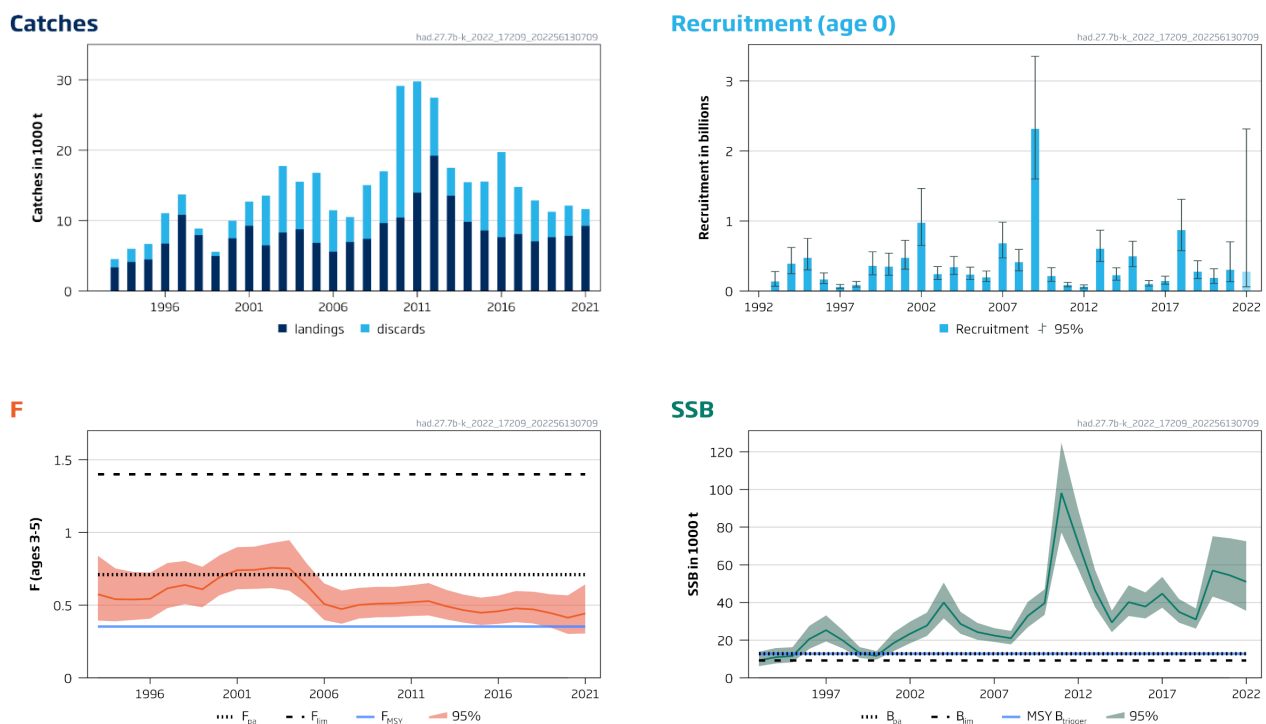


Figure 1 Haddock in divisions 7.b–k. Summary of the stock assessment. The assumed recruitment value for 2022 is shaded in a lighter colour.

Catch scenarios

Table 1 Haddock in divisions 7.b–k. Values in the forecast and for the interim year.

Variable	Value	Notes
$F_{ages\ 3-5}$ (2022)	0.443	$F = F_{Average\ (2019-2021)}$ rescaled to F_{2021}
SSB (2023)	47 157	Short-term forecast; in tonnes
$R_{age\ 0}$ (2022, 2023)	275 943	Median resampled (1993–2021); in thousands
Total catch (2022)	15 320	Short-term forecast; in tonnes
Projected landings (2022)	12 308	Short-term forecast, assuming average 2018–2021 landing pattern; in tonnes
Projected discards (2022)	3 012	Short-term forecast, assuming average 2018–2021 discard pattern; in tonnes

Table 2 Haddock in divisions 7.b–k. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2023)	Projected landings (2023)	Projected discards (2023)	F_{total} (2023)	$F_{\text{projected landings}}$ (2023)	$F_{\text{projected discards}}$ (2023)	SSB (2024)	% SSB change*	% advice change^
ICES advice basis									
MSY approach: F_{MSY}	11901	9064	2837	0.353	0.31	0.044	48157	2.1	–25
Other scenarios									
EU MAP ^^: F_{MSY}	11901	9064	2837	0.353	0.31	0.044	48157	2.1	–25
EU MAP ^^ $F_{\text{MSY lower}}$	7862	6030	1832	0.22	0.194	0.027	52430	11.2	–26
EU MAP ^^ $F_{\text{MSY upper}}$	16424	12419	4005	0.52	0.46	0.064	43270	–8.2	–25
$F = 0$	0	0	0	0	0	0	61031	29.4	–100
F_{pa}	20787	15604	5183	0.71	0.62	0.088	38652	–18.0	30
F_{lim}	32583	23767	8816	1.400	1.23	0.170	26386	–44	104
$\text{SSB}_{2024} = B_{\text{lim}}$	50807	34676	16131	4.05	3.55	0.50	9227	–80	219
$\text{SSB}_{2024} = B_{\text{pa}} = \text{MSY } B_{\text{trigger}}$	46662	32469	14193	3.08	2.70	0.38	12822	–72.8	193
$F = F_{2022}$	14401	10923	3478	0.44	0.39	0.06	45431	–3.7	–9.7
$\text{SSB}_{2024} = \text{SSB}_{2023}$	12788	9731	3057	0.384	0.337	0.047	47157	0.00	–19.8

* SSB_{2024} forecast relative to SSB_{2023} .

^ Advice values for 2023 relative to the MSY value for 2022 (15 946 tonnes).

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

The reduction in catch advice is caused by a downward revision in estimated stock size and low recruitments.

Basis of the advice

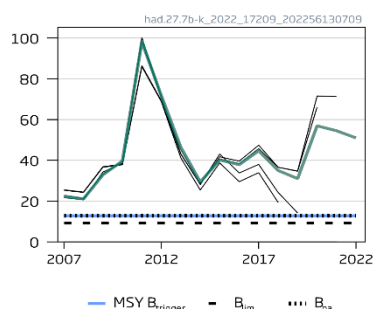
Table 3 Haddock in divisions 7.b–k. The basis of the advice.

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 ICES MSY approach. Catch scenarios consistent with the MAP F_{MSY} ranges are provided.

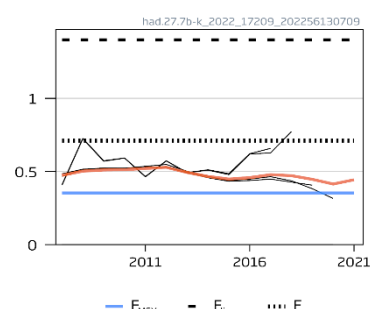
Quality of the assessment

Catch sampling in 2021 increased compared to 2020 when it was impacted owing to the COVID 19 pandemic and is considered sufficient to describe the stock.

SSB (1000 t)



F (ages 3-5)



Rec (age 0; Billions)

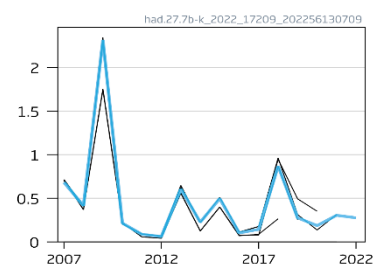


Figure 2 Haddock in divisions 7.b–k. Historical assessment results (final-year recruitment assumption and SSB estimate included). The assessment was benchmarked in 2020, prior to which a different method was applied. The reference points were revised in 2020 [following the benchmark], and only assessment results from the last three years should be compared to the reference points indicated.

Issues relevant for the advice

The assessment and advice are for divisions 7.b–k, including rectangles 33E2 and 33E3 in Division 7.a, as they are considered part of this stock. The 2021 reallocation (827 tonnes) from Division 7a accounts for 9% of ICES estimated division 7.b–k landings and 68% of the Irish Sea (Division 7.a) landings. This should be considered when setting TACs, as a portion of the catch taken under the Division 7.a TAC is considered to be part of the division 7.b–k stock.

The assumed recruitment in 2022 and 2023 used in the forecast would constitute a minor part of the projected catches in 2023 (8%) and approximately 31% of the SSB in 2024.

Mixed-fisheries considerations

Haddock in divisions 7.b–k is caught as part of a mixed fishery with cod and whiting.

Reference points

Table 4 Haddock in divisions 7.b–k. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	12822	B_{pa} ; in tonnes	ICES (2020)
	F_{MSY}	0.353	Based on simulation using a segmented regression stock–recruitment relationship (EqSim)	ICES (2020)
Precautionary approach	B_{lim}	9227	Lowest observed SSB; in tonnes	ICES (2020)
	B_{pa}	12822	B_{lim} combined with the assessment error; $B_{lim} \times \exp(1.645 \times \sigma)$; $\sigma = 0.20$ (default setting); in tonnes	ICES (2020)
	F_{lim}	1.40	F with 50% probability of $SSB < B_{lim}$	ICES (2020)
	F_{pa}	0.71	$F_{0.05}$; the F that leads to $SSB \geq B_{lim}$ with 95% probability	ICES (2020)
EU MAP	MAP MSY $B_{trigger}$	12822	MSY B_{pa} ; in tonnes	EU (2019), ICES (2020)
	MAP B_{lim}	9227	Lowest observed SSB; in tonnes	EU (2019), ICES (2020)
	MAP F_{MSY}	0.353	F_{MSY}	EU (2019), ICES (2020)
	MAP range F_{lower}	0.221	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	EU (2019), ICES (2020)
	MAP range F_{upper}	0.521	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	EU (2019), ICES (2020)

Basis of the assessment

Table 5 Haddock in divisions 7.b–k. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2022a)
Assessment type	Age-based stochastic analytical assessment (SAM; ICES, 2022b)
Input data	Commercial catches (age composition of landings and discards); vector autoregressive spatio-temporal (VAST) standardized survey index (combined IGFS-WIBTS-Q4 [G7212] and EVHOE-WIBTS-Q4 [G9527]); maturity data (surveys and observer data; constant for all years); age-dependent natural mortality (Lorenzen, 1996)
Discards and bycatch	Included in the assessment for the full time-series. Full observer-based estimates from 2005, partial observer-based estimates from 1993 to 2004.
Indicators	None
Other information	This stock was benchmarked in 2020 (ICES, 2020)
Working groups	Working Group for the Celtic Seas Ecoregion (WGCSE)

History of the advice, catch, and management

Table 6 Haddock in divisions 7.b–k. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice	Landings corresponding to advice	Agreed TAC	Official landings	ICES landings ^{##}	ICES discards ^{^^^}	ICES catch
1987	Not dealt with				3000 ^{^^}	2600 ^{^^}	n/a	2600 ^{^^}
1988	Not dealt with				4000 ^{^^}	3600 ^{^^}	n/a	3600 ^{^^}
1989	Not dealt with				4200 ^{^^}	3200 ^{^^}	n/a	3200 ^{^^}
1990	Not dealt with				2900 ^{^^}	2000 ^{^^}	n/a	2000 ^{^^}
1991	Not dealt with				2900 ^{^^}	2300 ^{^^}	n/a	2300 ^{^^}
1992	Not dealt with				2900 ^{^^}	2700 ^{^^}	n/a	2700 ^{^^}
1993	Not dealt with				3400 ^{^^}	3348	1208	4556
1994	Not dealt with				4076	4131	1886	6017
1995	Not dealt with			6000*	4468	4470	2218	6688
1996	Not dealt with			7000**	6653	6756	4309	11 065
1997	Not dealt with			14 000	10270	10827	2883	13 710
1998	Not dealt with			20 000	7361	7928	934	8862
1999	Not dealt with			22 000***	5247	4970	586	5556
2000	No expansion of catches			16 600***	6656	7499	2503	10 002
2001	No expansion of catches			12 000***	9702	9278	3418	12 696
2002	No expansion of catches		8000	9300***	7089	6488	7073	13 561
2003	No expansion of catches		7200	8185***	8241	8292	9456	17 748
2004	No increase in F			9600***	8453	8777	6750	15 527
2005	No increase in effort			11 520***	6859	6839	9953	16 792
2006	No increase in effort			11 520***	5647	5592	5899	11 491
2007	No increase in effort			11 520***	6629	6961	3552	10 513
2008	Same advice as last year			11 579***	6234	7392	7660	15 052
2009	Same advice as last year			11 579 [^]	9307	9664	7322	16 986
2010	Same advice as last year			11 579 [^]	9998	10 429	18 701	29 130
2011	See scenarios			13 316 [^]	13 709	13 957	15 807	29 764
2012	No increase in catch and technical measures to reduce discard rates			16 645 [^]	18 221	19 196	8285	27 481
2013	MSY transition		< 9500	14 148 [^]	13099	13 538	3962	17 501
2014	MSY transition	< 5281	< 3602	9479 [^]	9371	9846	5619	15 464
2015	MSY approach	< 10 434	< 5605	8342 [^]	8229	8608	6941	15 549
2016	MSY approach	≤ 8590	≤ 6078	7258 [^]	7024	7648	12 065	19 713
2017	MSY approach	≤ 12 444	≤ 7751	7751 [^]	7374	8099	6691	14 789
2018	MSY approach	≤ 8358	≤ 5911	6910 [^]	6595	7046	5798	12 844
2019	MSY approach	≤ 6317		8329 [^]	8342	7656	3603	11 259
2020	Management plan	16 671 (range 11 418–23 262)		10 859 [^]	6476 [#]	7859	4260	12 119
2021	Management plan	18 382 (range 12 128–25 454)		15 000	8447 [#]	9260	2385	11645
2022	MSY approach	≤15 946		15 000				
2023	MSY approach	≤11 901						

* Applies to subareas 7–10.

** Increased in-year to 14 000 tonnes.

*** Includes separate Division 7.a allocation.

[^] Applies to divisions 7.b–k and subareas 8–10.

^{^^} Values presented to the nearest 100.

^{^^^} Discard estimates are available from 2005; prior to 2005, discard estimates are based on limited sampling.

[#] Preliminary.

^{##} Including landings from rectangles 33E2 and 33E3 since 2003.

History of the catch and landings

Table 7 Haddock in divisions 7.b–k. Catch distribution by fleet in 2021, as estimated by ICES.

Catch	Landings				Discards			
	Otter trawls	Beam trawls	Gillnets	Other	Otter trawls	Beam trawls	Gillnets	Other
	73%	6%	3%	18%	57%	22%	3%	18%
11 645 tonnes	9260 tonnes				2385 tonnes			

Table 8 Haddock in divisions 7.b–k. History of commercial catch and landings and ICES estimates. All weights are in tonnes.

Year	Official landings							ICES estimates		
	Belgium	France	Ireland	UK	Others	Total	Landings taken or reported in rectangles 33E2 and 33E3**	Landings	Discards ***	Catch
1993	51	1839	1262	256	0	3408		3348	1208	4556
1994	123	2788	908	240	17	4076		4131	1886	6017
1995	189	2964	966	266	83	4468		4470	2218	6688
1996	133	4527	1468	439	86	6653		6756	4309	11065
1997	246	6581	2789	569	85	10270		10827	2883	13710
1998	142	3674	2788	444	312	7360		7928	934	8862
1999	51	2725	2034	278	159	5247		4970	586	5556
2000	90	3088	3066	289	123	6656		7499	2503	10002
2001	165	4842	3608	422	665	9702		9278	3418	12696
2002	132	4348	2188	315	106	7089		6488	7073	13561
2003	118	5781	1867	393	82	8241	64	8292	9456	17748
2004	136	6130	1715	313	159	8453	53	8777	6750	15527
2005	167	4174	2037	292	197	6867	35	6839	9953	16792
2006	99	3191	1874	274	183	5621	26	5592	5899	11491
2007	119	4143	1931	385	50	6627	222	6961	3552	10513
2008	109	3638	1800	566	121	6234	194	7392	7660	15052
2009	131	5430	2983	716	48	9307	285	9664	7322	16986
2010	170	6240	2609	852	128	9998	267	10429	18701	29130
2011	211	8389	3323	1657	129	13709	374	13957	15807	29764
2012	232	11793	4129	1901	166	18221	473	19196	8285	27481
2013	174	8747	2699	1455	23	13099	410	13538	3962	17501
2014	99	6375	2092	785	21	9371	444	9846	5619	15464
2015	118	5679	1657	769	6	8229	322	8608	6941	15549
2016	88	4487	1730	692	27	7024	468	7648	12065	19713
2017	110	4885	1677	690	12	7374	715	8099	6691	14789
2018	89	4470	1444	583	9	6595	532	7046	5798	12844
2019	90	4259	1323	516	74	6262	760	7656	3603	11259
2020*	106	3522	2203	543	102	6475	554	7859	4260	12119
2021*	156	4249	3379	515	149	8447	827	9260	2385	11645

* Preliminary official landings.

** Landings in the southern part of Division 7.a (rectangles 33E2 and 33E3) are included in the assessment and are considered part of the stock.

*** Prior to 2005, discard estimates are based on limited sampling.

Summary of the assessment

Table 9 Haddock in divisions 7.b–k. Assessment summary. ‘High’ and ‘Low’ refer to 95% confidence intervals. All weights are in tonnes and recruitment in thousands.

Year	Recruitment (age 0)			SSB			Landings	Discards**	Fishing mortality ages 3–5		
	Low	Value	High	Low	Value	High			Low	Value	High
1993	67900	137524	278540	6188	9267	13880	3348	1208	0.39	0.57	0.84
1994	247144	392005	621773	7617	10974	15810	4131	1886	0.39	0.54	0.75
1995	300708	475242	751076	8259	11602	16297	4470	2218	0.40	0.54	0.73
1996	106170	165752	258771	15368	20604	27625	6756	4309	0.41	0.54	0.72
1997	38128	59509	92881	19321	25319	33177	10827	2883	0.48	0.62	0.79
1998	56018	87806	137632	15556	19822	25258	7928	934	0.51	0.64	0.80
1999	231157	359811	560067	10534	13115	16328	4970	586	0.49	0.61	0.76
2000	225057	348755	540440	9688	11742	14231	7499	2503	0.57	0.69	0.84
2001	312325	475463	723813	14106	18392	23980	9278	3418	0.61	0.74	0.90
2002	650852	976184	1464136	18383	23438	29883	6488	7073	0.61	0.74	0.90
2003	166214	241122	349789	22230	27763	34672	8292	9456	0.62	0.76	0.93
2004	235849	341271	493815	31562	39966	50608	8777	6750	0.60	0.75	0.95
2005	162874	236237	342644	23356	28620	35071	6839	9953	0.52	0.64	0.79
2006	133225	195043	285545	20233	24306	29198	5592	5899	0.40	0.51	0.65
2007	472854	681770	982989	19091	22460	26424	6961	3552	0.37	0.47	0.60
2z008	288369	414184	594892	17755	21044	24942	7392	7660	0.41	0.50	0.62
2009	1600195	2316405	3353174	26829	32887	40312	9664	7322	0.42	0.51	0.63
2010	138162	214532	333116	33456	39668	47033	10429	18701	0.42	0.51	0.63
2011	60654	86560	123532	77185	98217	124979	13957	15807	0.43	0.52	0.64
2012	41822	60869	88590	57593	71729	89335	19196	8285	0.43	0.53	0.65
2013	421428	604932	868340	37571	46457	57445	13538	3962	0.40	0.49	0.61
2014	154582	225966	330313	24229	29415	35711	9846	5619	0.38	0.47	0.57
2015	346622	496568	711378	32827	40176	49170	8608	6941	0.36	0.45	0.55
2016	70213	102096	148455	31556	37846	45390	7648	12065	0.37	0.46	0.57
2017	97262	143397	211414	37221	44690	53657	8099	6691	0.38	0.48	0.60
2018	576472	869056	1310138	29269	35005	41866	7046	5798	0.37	0.47	0.59
2019	176134	275943	432310	26143	31040	36854	7656	3603	0.35	0.45	0.57
2020	108999	186296	318408	43126	56954	75217	7859	4260	0.30	0.41	0.57
2021	132001	304566	702725	40077	54513	74148	9260	2385	0.31	0.44	0.64
2022	59509	275943*	2316405	35556	50999	72567					

* Median resampled (1993–2021), as estimated by stochastic projection.

** Discard estimates are available from 2005; prior to 2005, discard estimates are based on limited sampling.

Sources and references

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

Recommended citation: ICES. 2022. Haddock (*Melanogrammus aeglefinus*) in Divisions 7.b-k (southern Celtic Seas and English Channel). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, had.27.7b-k. <https://doi.org/10.17895/ices.advice.19447961>.