

## Haddock (*Melanogrammus aeglefinus*) in Division 7.a (Irish Sea)

### ICES advice on fishing opportunities

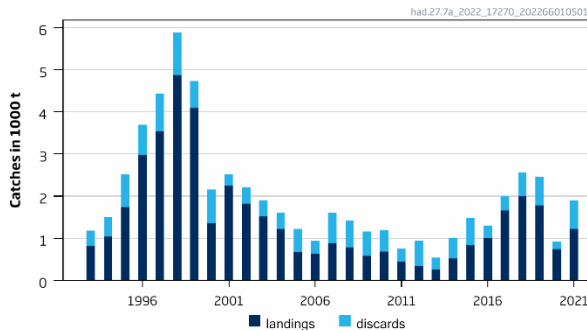
ICES advises that when the MSY approach is applied, catches in 2023 should be no more than 2648 tonnes.

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

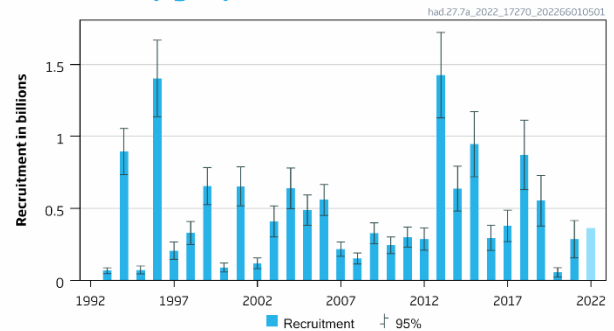
### Stock development over time

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

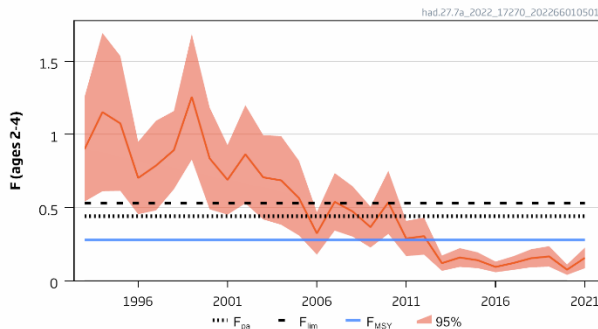
#### Catches



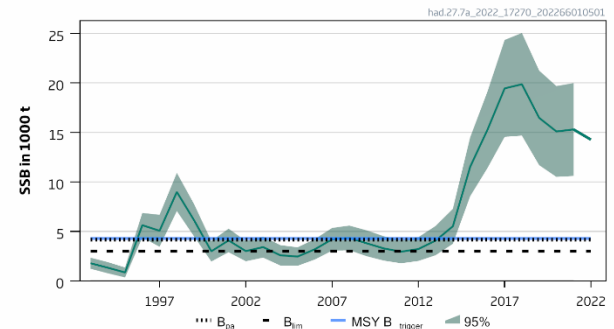
#### Recruitment (age 0)



#### F



#### SSB



**Figure 1** Haddock in Division 7.a. Summary of stock assessment. The assumed 2022 recruitment value is shaded in a light colour. The SSB in 2022 is forecasted.

### Catch scenarios

**Table 1** Haddock in Division 7.a. Assumptions made for the interim year and in the forecast.

Variable	Value	Notes
$F_{ages\ 2-4}$ (2022)	0.159	$F_{sq} = F_{average(2018-2021)}$ *
SSB (2023)	11 817	Short-term forecast; fishing at $F_{sq}$ , in tonnes
$R_{age\ 0}$ (2022-2023)	364 084	Geometric Mean (1993–2019), in thousands
Catch (2022)	1 846	Fishing at $F_{sq}$ ; in tonnes
Projected landings (2022)	1 545	Short-term forecast assuming average landing pattern (2019–2021); in tonnes
Projected discards (2022)	301	Short-term forecast assuming average discard pattern (2019–2021); in tonnes

\* F in 2020 was assumed to be unrepresentatively low for the fishery due to the COVID-19 disruption and hence  $F_{sq}$  was assumed as  $F_{average}$  (2018–2021) excluding 2020.

**Table 2** Haddock in Division 7.a. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2023)	Projected landings (2023)	Projected discards (2023)	F <sub>total</sub> (2023)	F <sub>projected landings</sub> (2023)	F <sub>projected discards</sub> (2023)	SSB (2024)	% SSB change*	% advice change**
ICES advice basis									
MSY approach: F <sub>MSY</sub>	2648	2107	541	0.28	0.171	0.109	9321	-21	-12.8
Other scenarios									
EU MAP***: F <sub>MSY</sub>	2648	2107	541	0.28	0.171	0.109	9321	-21	-12.8
EU MAP*** F <sub>MSY</sub> lower	1956	1560	396	0.2	0.122	0.078	10044	-15	-36
EU MAP*** F <sub>MSY</sub> upper	3216	2554	661	0.35	0.21	0.137	8732	-26	5.9
F = 0	0	0	0	0	0	0	12115	2.5	-100
F = F <sub>pa</sub>	3676	2915	761	0.41	0.25	0.160	8258	-30	21
F = F <sub>lim</sub>	4323	3421	903	0.5	0.3	0.195	7597	-36	42
SSB <sub>2024</sub> = B <sub>lim</sub>	9125	7029	2095	1.526	0.93	0.6	2994	-75	200
SSB <sub>2024</sub> = B <sub>pa</sub>	7834	6092	1742	1.158	0.71	0.45	4160	-65	158
SSB <sub>2024</sub> = SSB <sub>2023</sub>	280	224	56	0.027	0.0162	0.0104	11817	0	-91
SSB <sub>2024</sub> = MSY B <sub>trigger</sub>	7704	5997	1708	1.13	0.69	0.44	4281	-64	154
F = F <sub>2022</sub>	1587	1267	320	0.159	0.097	0.062	10432	-11.7	-48

\* SSB 2024 relative to SSB 2023.

\*\* Advice value for 2023 relative to the F<sub>MSY</sub> advice value for 2022 (3038 tonnes).

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

The advice for 2023 is reduced from 2022 because of poor recruitment in 2020 leading to a reduction in the forecast stock size and a downward revision of the spawning stock size.

## Basis of the advice

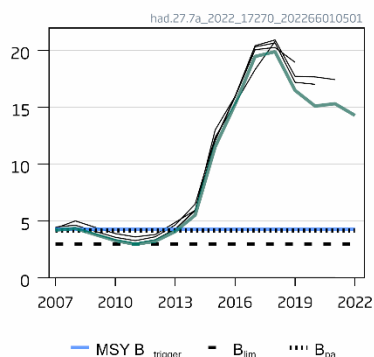
**Table 3** Haddock in Division 7.a. The basis of the advice.

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 <sub>MSY</sub> ranges are provided.

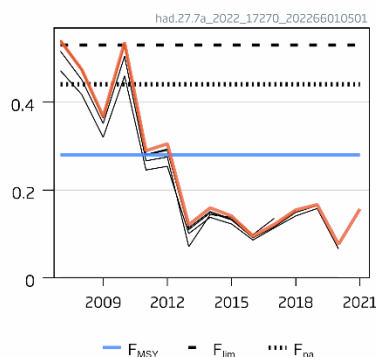
## Quality of the assessment

Catch sampling in 2021 has increased compared to 2020 but has not returned to pre-covid levels, however it is considered sufficient to describe the current stock.

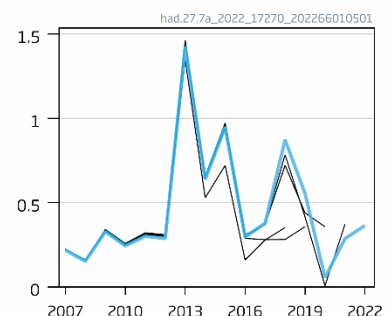
### SSB (1000 t)



### F (ages 2-4)



### Rec (age 0; Billions)



**Figure 2** Haddock in Division 7.a. Historical assessment results (final-year SSB estimate and recruitment assumption included).

## Issues relevant for the advice

The assessment and the advice are for Division 7.a, excluding the rectangles 33E2 and 33E3 in the Irish Sea. Landings are adjusted to exclude those reported from rectangles 33E2 and 33E3 in the Irish Sea, as they are not considered to be part of this stock (Table 8). The annual reallocation has increased since 2006, peaking in 2017. In 2021 the reallocation accounted for 68% of ICES landings in Division 7.a and contributed 9% of the estimated landings in divisions 7. b–k . This should be considered when setting TACs for the two management areas for haddock in divisions 7.a and 7.b–k. Changes in the TAC for the haddock stock in Division 7.a may have implications for the fishing pressure on haddock in divisions 7.b–k.

## Mixed Fisheries considerations

Haddock in division 7.a is caught as part of a mixed fishery with cod and whiting.

## Reference points

**Table 4** Haddock in Division 7.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	4 281	The 5th percentile of $B_{MSY}$ ; Division 7.a haddock has been fished at or below $F_{MSY}$ for more than five years; in tonne	ICES (2018)
	$F_{MSY}$	0.28	Median point estimates of EqSim with a model averaged stock–recruitment relationship	ICES (2018)
Precautionary approach	$B_{lim}$	2 994	Tonnes; lowest observed SSB with > 75th percentile recruitment; in tonnes	ICES (2018)
	$B_{pa}$	4 160	$B_{lim}$ combined with the assessment error; $B_{lim} \times \exp(1.645 \times \sigma)$ ; $\sigma = 0.20$ ; in tonnes	ICES (2018)
	$F_{lim}$	0.50	F with 50% probability of SSB < $B_{lim}$	ICES (2018)
	$F_{pa}$	0.41	$F_{P05}$ ; the F that leads to SSB > $B_{lim}$ with 95% probability	ICES (2018, 2021a)
Management plan	MAP MSY $B_{trigger}$	4 281	Tonnes; MSY $B_{trigger}$	ICES (2018), EU (2019)
	MAP $B_{lim}$	2 994	$B_{lim}$ ; in tonnes	ICES (2018), EU (2019)
	MAP $F_{MSY}$	0.28	$F_{MSY}$	ICES (2018), EU (2019)
	MAP range $F_{lower}$	0.20	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2018), EU (2019)
	MAP range $F_{upper}$	0.35	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2018), EU (2019)

## Basis of the assessment

**Table 5** Haddock in Division 7.a. Basis of the assessment and advice.

ICES stock data category	1 ( <a href="#">ICES, 2022</a> )
Assessment type	ASAP (Age-Structured Assessment Programme; NOAA toolbox) that uses catches in the model and in the forecast (ICES, 2021a)
Input data	Four survey indices (NIGFS-WIBTS-Q1 [G7144], NIGFS-WIBTS-Q4 [G7655], NIMIK [I9826], UKFSPW [B7897]); annual maturity and growth data from the NIGFS-WIBTS-Q1 (G7144) survey and from commercial landings in quarter 1. Commercial catch-at-age.
Discards and bycatch	Included in the assessment for the full time-series
Indicators	None
Other information	This stock was benchmarked in 2017 (ICES, 2017); revision in reference points in 2018 (ICES, 2018)
Working group	Working Group for the Celtic Seas Ecoregion

## History of the advice, catch, and management

**Table 6** Haddock in Division 7.a. 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 catches
1987	Not dealt with			6000	1287	1287		
1988	Not dealt with			6000	747	747		
1989	Not dealt with			6000	560	560		
1990	Not dealt with			6000	582	582		
1991	Not dealt with			6000	616	616		
1992	Not dealt with			6000	703	656		
1993	Not dealt with			6000	730	813		
1994	Not dealt with			6000	681	1042		
1995	Not dealt with			6000	841	1736	780	2516
1996	No advice			10000	1453	2981	709	3690
1997	Means of setting catch limits required			14000	1925	3547	895	4442
1998	Catch limit for Division 7.a		3000	20000	3015	4874	1015	5889
1999	No increase in F; catch limit for Division 7.a		7000	4990	2370	4095	634	4729
2000	Reduce F below $F_{pa}$		< 2800	3400	2447	1357	802	2159
2001	Reduce F below $F_{pa}$		< 1710	2700	2229	2246	269	2515
2002	Reduce F below $F_{pa}$		< 1200	1300	1115	1817	387	2204
2003	No cod catches		-	585	674	659**	-	-
2004	$F < F_{pa}$		< 1500	1500	761	1217	392	1609
2005	$F < F_{pa}$		< 1370	1500	547	666	551	1217
2006	Substantial reduction in fishing mortality	-		1275	655	633	306	939
2007	Substantial reduction in fishing mortality	-		1179	1078	886	722	1608
2008	No increase in effort	-		1238	879	786	643	1429
2009	No increase in effort	-		1424	846	581	579	1160
2010	No increase in effort	-		1424	939	679	508	1187
2011	See scenarios	-		1317	813	446	307	753
2012	Reduce catch and improved selectivity	-		1215	813	343	599	942
2013	Decrease catch by 18%	-	< 710	1189	656	254	283	537
2014	Increase catch by 17%	1120	< 572	1181	974	518	488	1006
2015	Increase catch by 20%	< 893	< 425	1181	1154	833	652	1485
2016	Precautionary approach (increase catch by 20%)	≤ 1072	≤ 481	1654	1477	1008	298	1306
2017	MSY approach	≤ 3061	≤ 2348	2615 <sup>#</sup>	2379	1662	333	1995
2018	MSY approach	≤ 3444	≤ 2796	3207	2523	1993	568	2561
2019	MSY approach	≤ 3739	≤ 3334	3739	2553	1778	672	2450
2020	Management plan	3156 (range 2333–3830)		3156	1535 <sup>^</sup>	742	234	976
2021	Management plan	3371 (range 2491–4092)		3371	2048 <sup>^</sup>	1219	672	1891
2022	MSY approach	≤ 3038		3038				
2023	MSY approach	≤ 2648						

\* Precautionary TAC for subareas 7–10 and CECF Division 34.1.1 up to 1998. Since 1999, a special condition or separate TAC has been set for Division 7.a.

\*\* Underestimate because of inadequate sampling.

<sup>#</sup> Revised TAC in March 2017.

<sup>^</sup> Preliminary.

## History of the catch and landings

**Table 7** Haddock in Division 7.a. Catch distribution by fleet in 2021 as estimated by ICES.

Table 1: Haddock in Division 1A: Catch distribution by fleet in 2021 as estimated by VES						
Catch	Landings					
1891 tonnes	Otter trawls		Scottish seines	Mid-water trawl	Beam trawl	Other gear types
	<i>Nephrops</i> directed fishery	Demersal fish directed fishery	3.6%	22%	< 1%	< 1%
	8.0%	66%				
	1219 tonnes					
	Discards					
	Otter trawls		Scottish seines	Mid-water trawl	Beam trawl	Other gear types
	<i>Nephrops</i> directed fishery	Demersal fish directed fishery	< 1%	< 1%	3.9%	1%
	85%	8.8%				
	672 tonnes					

**Table 8** Haddock in Division 7.a. History of official landings and ICES estimates of landings (tonnes).

Year	Belgium	France	Ireland	Netherlands	UK (England & Wales)*	UK (Isle of Man)	UK (N. Ireland)*	UK (Scotland)*	United Kingdom**	Total	ICES landings <sup>^</sup>	ICES discards	Reallocation <sup>^^</sup>
1984	3	38	199	-	29	2	38	78		387	387		
1985	4	31	341	-	28	5	215	104		728	728		
1986	5	39	275	-	22	4	358	23		726	726		
1987	10	50	797	-	41	3	230	156		1287	1287		
1988	12	47	363	-	74	3	196	52		747	747		
1989	4	n/a	215	-	252	3		86		560	560		
1990	4	n/a	80	-	177	5		316		582	582		
1991	1	n/a	254	-	204	14		143		616	616		
1992	8	73	251	-	244	13		114		703	656		
1993	18	41	252	-	260	19		140		730	813		
1994	22	22	246	-	301	24		66		681	1042		
1995	32	58	320	-	294	27		110		841	1736	780	16
1996	34	105	798	1	463	38		14		1453	2981	709	33
1997	55	74	1005	14	717	9		51		1925	3547	895	36
1998	104	86	1699	10	1023	13		80		3015	4874	1015	28
1999	53	n/a	759	5	1479	7		67		2370	4095	634	34
2000	22	49	1238	2	1061	19		56		2447	1357	802	11
2001	68	184	652	-	1238	1		86		2229	2246	269	74
2002	44	72	401	-	551	-		47		1115	1817	387	82
2003 <sup>^^^</sup>	20	146	229	-	248	-		31		674	n/a	-	64
2004	15	20	296	-	421	-		9		761	1217	392	53
2005	22	36	139	-	344	-		6		547	666	551	35
2006	23	20	184	-	419	-		9		655	633	306	26
2007	30	11	477	-	559	-		1		1078	886	722	222
2008	15	6	319	-	521	1		17		879	786	643	194
2009	7	3	388	-	446	1		1		846	581	579	285
2010	9	2	333	-	593	-		2		939	679	508	267
2011	16	8	434	-	355	-		-		813	446	307	374
2012	13	3	561	-		-			236	813	343	599	473
2013	6	1	492	-		< 1			155	656	254	283	410
2014	7	0	541	-		< 1			426	974	518	488	470
2015	7	7	507	-		< 1			634	1154	833	652	322
2016	5	1	646	-					825	1463	1008	298	455
2017	5	5	1114	-					1240	2363	1662	333	715
2018	4	0	949	-					1580	2532	1993	568	532
2019	9	0	1347	-					1197	2553	2537	672	764
2020 <sup>***</sup>	3	0	759	-					539	1301	742	234	559
2021 <sup>***</sup>	3	0	1162	-					884	2048	1219	674	827

\* From 1989 to 2011, Northern Ireland is included with England and Wales.

\*\* Since 2012, Northern Ireland, Scotland, England, and Wales have been combined to UK.

\*\*\* Preliminary official landings.

<sup>^</sup> Landings in the southern part of Division 7.a (rectangles 33E2 and 33E3) are excluded.

<sup>^^</sup> Landings taken or reported in rectangles 33E2 and 33E3(belonging to the 7.b–k stock)

<sup>^^^</sup> Underestimate or low confidence due to inadequate sampling.

## Summary of the assessment

**Table 9** Haddock in Division 7.a. Assessment summary. All weights are in tonnes, recruitment (age 0) in thousands. Low and high refer to 95% confidence intervals.

Year	Recruitment			SSB			Landings	Discards *	F 2–4		
	Low	Value	High	Low	Value	High			Low	Value	High
1993	46607	66913	87219	1222	1782	2341	813	365	0.54	0.9	1.26
1994	735823	895924	1056025	766	1329	1891	1042	468	0.61	1.15	1.69
1995	45113	72493	99872	349	851	1353	1736	780	0.61	1.08	1.54
1996	1137229	1403632	1670035	4384	5624	6864	2981	709	0.46	0.7	0.95
1997	146594	206402	266209	3449	5064	6679	3547	895	0.48	0.79	1.09
1998	250080	329828	409576	7059	8987	10915	4874	1015	0.63	0.89	1.16
1999	526038	655112	784186	4492	6124	7756	4095	634	0.83	1.26	1.69
2000	58144	89531	120919	1957	2990	4022	1357	802	0.49	0.84	1.18
2001	517912	653512	789113	2897	4087	5276	2246	269	0.45	0.69	0.93
2002	81567	118762	155957	1984	3008	4031	1817	387	0.53	0.86	1.2
2003	301882	409766	517650	2353	3414	4475	1517	390	0.42	0.71	0.99
2004	497901	639366	780831	1554	2582	3610	1217	392	0.38	0.69	0.99
2005	381616	487460	593304	1527	2457	3387	666	551	0.31	0.57	0.82
2006	450949	558777	666604	2162	3193	4225	633	306	0.179	0.32	0.47
2007	166827	217242	267657	3053	4200	5348	886	722	0.34	0.54	0.74
2008	112833	151657	190481	3098	4341	5584	786	643	0.3	0.47	0.65
2009	255179	327164	399149	2494	3801	5107	581	579	0.23	0.37	0.51
2010	185913	243502	301091	2048	3276	4504	679	508	0.32	0.54	0.75
2011	230292	299962	369632	1778	2948	4119	446	307	0.169	0.29	0.41
2012	209462	286859	364255	2016	3216	4416	343	599	0.179	0.31	0.43
2013	1129076	1426173	1723270	2593	4070	5548	254	282	0.068	0.121	0.173
2014	481853	637664	793474	3747	5517	7286	518	488	0.095	0.159	0.22
2015	719551	946813	1174075	8547	11519	14491	833	652	0.087	0.141	0.195
2016	208578	295735	382892	11393	15252	19111	1008	298	0.059	0.095	0.132
2017	269515	378760	488004	14557	19453	24349	1662	333	0.075	0.122	0.169
2018	631559	872521	1113484	14684	19871	25058	1993	568	0.093	0.155	0.22
2019	378313	554048	729784	11698	16477	21255	1778	672	0.097	0.167	0.24
2020	22732	55311	87890	10509	15099	19689	742	177	0.041	0.076	0.112
2021	157020	286347	415674	10609	15301	19993	1219	672	0.086	0.157	0.23
2022		364 084**			14274					0.159	

\* Discard estimates available from 2007; prior to 2007, discard estimates are based on limited sampling.

\*\* Geometric mean (1993–2019).

## 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. 2018. EU request to ICES to provide plausible and updated FMSY ranges for the stocks of species inhabiting western EU waters. In Report of ICES Advisory Committee, 2018. ICES Advice 2018, sr.2018.04. 11 pp. <https://doi.org/10.17895/ices.pub.4149>.

ICES. 2022a. Advice on fishing opportunities. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, Section 1.1.1. <https://doi.org/10.17895/ices.advice.19928060>.

ICES. 2022b. Working Group for the Celtic Seas Ecoregion (WGCSE). Draft report. ICES Scientific Reports. 4:45. <http://doi.org/10.17895/ices.pub.19863796>. Publication of the full report is expected end of 2022.

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

*Recommended citation:* ICES. 2022. Haddock (*Melanogrammus aeglefinus*) in Division 7.a (Irish Sea). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, had.27.7a. <https://doi.org/10.17895/ices.advice.19447958>.