

Greenland halibut (*Reinhardtius hippoglossoides*) in subareas 5, 6, 12, and 14 (Iceland and Faroes grounds, West of Scotland, North of Azores, East of Greenland)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2025 should be no more than 17 890 tonnes.

Non-fisheries conservation considerations

ICES has not identified any conservation aspects.

Stock development over time

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

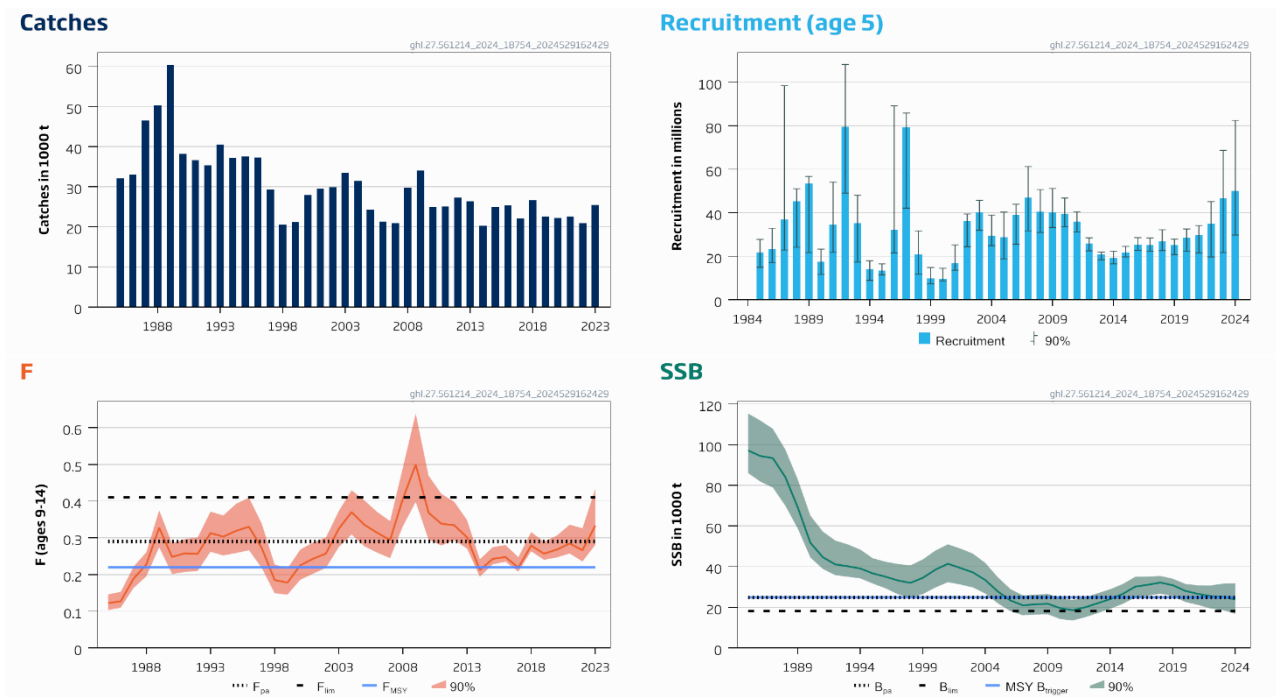


Figure 1 Greenland halibut in subareas 5, 6, 12, and 14. Summary of the stock assessment. SSB refers to the mature female part of the stock only. Recruitment in 2024 is estimated by the model.

Catch scenarios

Table 1 Greenland halibut in subareas 5, 6, 12, and 14. Values in the forecast and for the interim year.

Variable	Value	Notes
$F_{ages\ 9-14}$ (2024)	0.28	F that corresponds to assumed catch in 2024
SSB (2024)	23 871	Short-term projection; tonnes
SSB (2025)	23 971	Short-term projection; tonnes
R_{age5} (2024)	50 180	Estimated in the assessment; thousands
R_{age5} (2025)	49 516	Estimated in the assessment; thousands
Total catch (2024)	21 590	Advised catch for 2024 (as advised in 2023)

Table 2 Greenland halibut in subareas 5, 6, 12, and 14. Annual catch scenarios (all weights are in tonnes).

Basis	Total catch (2025)	F (9–14) (2025)	SSB (2026)	% SSB change*	% TAC change^	% advice change^^
ICES advice basis						
MSY approach: F_{MSY} * SSB ₂₀₂₄ /MSY B _{trigger}	17 890	0.21	26 287	15	-17	-9
Other scenarios						
$F_{2025} = 0$	0	0	29 826	31	-100	-100
$F_{2025} = F_{2023}$	23 164	0.29	25 142	10.3	7.4	18

* SSB in 2026 relative to SSB in 2025.

^ Advised catches for 2025 relative to combined Greenland Exclusive Economic Zone (EEZ) and Iceland EEZ TAC in 2024 (21 562 tonnes).

^^ Advised catches for 2025 relative to the advice value for 2024 (19 703 tonnes) (as reissued in 2024).

The advised catch for 2025 has decreased because of a downscaling in stock size. The target F for 2025 has also reduced because spawning-stock biomass (SSB) in 2024 is below MSY B_{trigger}.

Basis of the advice

Table 3 Greenland halibut in subareas 5, 6, 12, and 14. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is not aware of any agreed precautionary management plan for Greenland halibut in this area

Quality of the assessment

In 2024 an error was discovered affecting the estimates of spawning stock biomass, resulting in a downward revision of SSB. It was therefore necessary to recalculate reference points. The revised Blim and Bpa were estimated higher than previously, while Fmsy was estimated to be lower. The historical assessment result plots (figure 2) show the revised estimates for 2023.

Connectivity to the adjacent Greenland halibut stocks (Northeast Arctic stocks in ICES subareas 1 and 2 and NAFO subareas 0 and 1) is known but still unquantified (Albert and Vollen, 2015; Westgaard *et al.*, 2017; Vihtakari *et al.*, 2022, Gislason *et al.*, 2023; Ubeda *et al.*, 2023). Therefore, the current assessment may represent trends from more than one population. This issue adds to the uncertainty in the assessment.

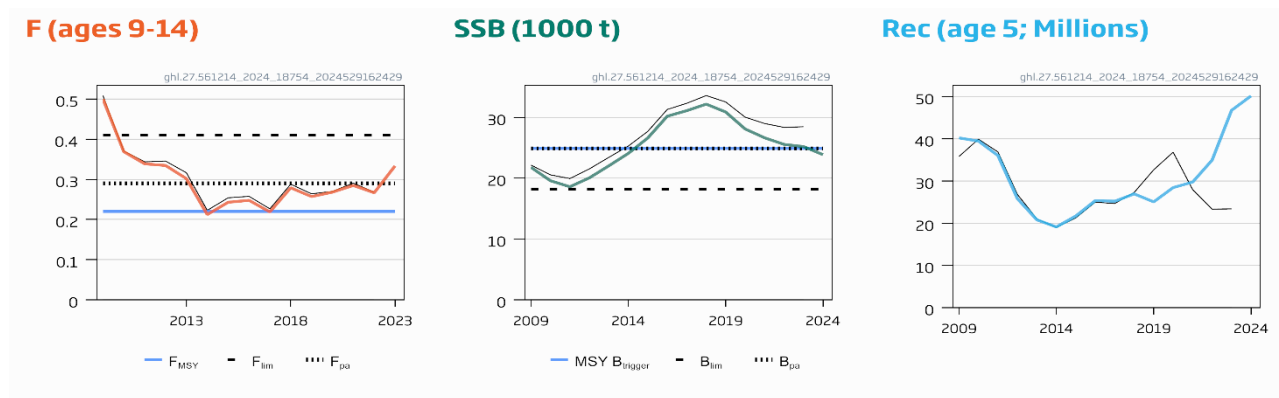


Figure 2 Historical assessment results. Final-year recruitment and biomass estimates are included. The reference points and assessment results were revised in 2024, and only assessment results from the final year should be compared to the reference points indicated.

Issues relevant for the advice

Greenland halibut is a relatively slow-growing and late-maturing species. Low recruitment in the period 2012 to 2021 along with sustained catch levels close to F_{pa} has caused the SSB to slowly decrease to below MSY B_{trigger} in 2023. However,

increased recruitment since 2022 based on survey observations may increase the fishable biomass from around 2026 onwards.

ICES notes that there is no agreement between coastal states on catch allocation; while most of the catch is taken in Division 5.a and Subarea 14, a proportion of the catch comes from fisheries outside the areas managed with TACs.

Reference points

Table 4 Greenland halibut in subareas 5, 6, 12, and 14. Reference points, values, and their technical basis. Biomass values are in tonnes.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	24 895	B_{pa}	ICES (2024)
	F_{MSY}	0.22	Fishing mortality that leads to MSY; estimated using stochastic simulations	ICES (2024)
Precautionary approach	B_{lim}	18 213	B_{loss} (SSB in 2010)	ICES (2024)
	B_{pa}	24 895	$B_{lim} \times e^{1.645\sigma}$, $\sigma = 0.19$.	ICES (2024)
	F_{lim}	0.41	Fishing mortality which, in stochastic simulations, results in median SSB at B_{lim}	ICES (2024)
	F_{pa}	0.29	F_{P05} , maximum F at which the probability of SSB falling below B_{lim} is < 5%	ICES (2024)

Basis of the assessment

Table 5 Greenland halibut in subareas 5, 6, 12, and 14. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2023a).
Assessment type	Analytical assessment (Gadget) that uses catches in the model and in the forecast.
Input data	Commercial catches (international landings); length composition by gear; one combined survey biomass index (GRL-deep[G5943], 1998–2016, and the Icelandic bottom-trawl survey – autumn (IS-SMH [G4493]) since 1996); age and length distributions from the Icelandic bottom-trawl survey [G4493].
Discards	Discarding is considered negligible.
Indicators	None.
Other information	A benchmark was conducted in 2023 (ICES, 2023b). Reference points were updated in 2024 (ICES, 2024).
Working group	Northwestern Working Group (NWWG).

History of the advice, catch, and management

Table 6 Greenland halibut in subareas 5, 6, 12, and 14. ICES advice, TACs* and catch. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice	TAC for Iceland EEZ**	TAC for Greenland EEZ	ICES catch subareas 5, 6, 12, and 14
1987	No increase in F	28 000	30 000		46 514
1988	No increase in F	28 000	30 000		50 356
1989	TAC	33 000	30 000		60 484
1990	No advice	-	45 000		38 164
1991	TAC	40 000	30 000		36 597
1992	TAC	30 000	25 000		35 304
1993	No increase in effort	28 000	30 000		40 601
1994	No increase in effort	34 000	30 000		37 196
1995	TAC	32 000	30 000		37 589
1996	TAC	21 000	20 000		37 334
1997	60% reduction in F from 1995	13 000	15 000		29 395
1998	70% reduction in F from 1996	11 000	10 000	8 100	2 0464
1999	65% reduction in F from 1997	11 000	10 000	8 000	21 186
2000	60% reduction in F from 1998	11 000	10 000	8 000	27 971
2001	Catch less than 1998–1999 catch	< 20 000	20 000	14 500	29 528
2002	F reduced below $0.67 \times F_{MSY}$	< 21 000	20 000	14 500	29 850
2003	F reduced below $0.67 \times F_{MSY}$	< 23 000	23 000	14 500	33 509

Year	ICES advice	Catch corresponding to advice	TAC for Iceland EEZ**	TAC for Greenland EEZ	ICES catch subareas 5, 6, 12, and 14
2004	F reduced below $0.67 \times F_{MSY}$	< 20 000	23 000	14 100	31 439
2005	Effort reduced to 1/3 of the 2003 level	< 15 000	15 000	12 000	24 308
2006	Effort reduced to 1/3 of the 2003 level	< 15 000	15 000	10 000	21 363
2007	Adaptive management plan, start at 15 000 tonnes	< 15 000	15 000	11 700	20 970
2008	Adaptive management plan, start at 15 000 tonnes	< 15 000	15 000	11 000	29 715
2009	Adaptive management plan, reduce to 5 000 tonnes	< 5 000	15 000	10 000	34 017
2010	Adaptive management plan, reduce to 5 000 tonnes	< 5 000	12 000	12 000	24 996
2011	Adaptive management plan, reduce F substantially below F_{MSY}	< 5 000	13 000	12 000	25 067
2012	No directed fishery, multiannual management plan to be developed and implemented	-	13 000	13 000	27 327
2013	F reduced to F_{MSY}	< 20 000	15 000	10 000	26 419
2014	F reduced to F_{MSY}	< 20 000	12 500	8 300	20 259
2015	F reduced to F_{MSY}	< 25 000	14 100	9 500	24 925
2016	Fishing at F_{MSY}	< 22 000	12 400	8 300	25 319
2017	Fishing at F_{MSY}	< 24 000	13 500	9 000	22 092
2018	Fishing at F_{MSY}	< 24 000	13 535	9 024	26 650
2019	MSY approach	< 24 150	13 621	9 080	22 606
2020	MSY approach	$\leq 21 360$	12 047	8 031	22 195
2021	MSY approach	$\leq 23 530$	13 271	8 847	23 402
2022	MSY approach	$\leq 26 650$	15 031	10 020	21 947
2023	MSY approach	$\leq 26 710$	15 064	10 043	25 425
2024	MSY approach	$\leq 19 703^{\wedge}$	13 463	8 099	
2025	MSY approach	$\leq 17 890$			

* Other TACs are set which may cover catches from this stock.

** For the fishing year starting 01 September of the preceding year.

\wedge Revised in 2024

History of the catch and landings

Table 7 Greenland halibut in subareas 5, 6, 12, and 14. Catch distribution by fleet in 2023 as estimated by ICES. All weights are in tonnes.

Catch (2023)	Landings		Discards
	Bottom trawl 72%	Gillnet/longlines 28%	
25 425	25 425		Considered negligible

There are no landings reported from the NEAFC regulatory areas.

Table 8 Greenland halibut in subareas 5, 6, 12, and 14. History of commercial catch; official values for each country participating in the fishery with ICES estimates of total catch. All weights are in tonnes. + indicate catches < 0.5 tonnes.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989
Denmark							6	+	
Faroe Islands	767	1 532	1 146	2 502	1 052	853	1 096	1 378	2 319
France	8	27	236	489	845	52	19	25	
Germany	3 007	2 581	1 142	936	863	858	565	637	493
Greenland		1	5	15	81	177	154	37	11
Iceland	15 457	28 300	28 360	30 080	29 231	31 044	44 780	49 040	58 330
Norway			2	2	3	1	2	1	3
Total	19 239	32 441	30 891	34 024	32 075	32 985	46 622	51 118	61 156
ICES estimate	19 239	32 441	30 891	34 024	32 079	33 011	46 514	50 356	60 484

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998
Denmark							1	+	+
Faroe Islands	1 803	1 566	2 128	4 405	6 241	3 763	6 148		3 817
France	21	6	3	2	37	140	29	11	8
Germany	336	303	382	415	648	811	3 368	3 342	3 056
Greenland	40	66	437	288	867	533	1 162	1 129	747
Iceland	36 557	34 883	31 955	33 987	27 778	27 383	22 055	18 569	10 728
Norway	50	34	221	846	1 173	1 810	2 164	1 939	1 367
Russia			5			10	424	37	52
Spain									89
UK (Engl. and	27	38	109	811	513	1 436	386	218	190
UK (Scotland)		+	19	26	84	232	25	26	43
Total	38 834	36 896	35 259	40 780	37 305	36 043	35 762	30 242	20 360
ICES estimate	38 164	36 597	35 304	40 601	37 196	37 589	37 334	29 395	20 464
Country	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estonia				8			5	3	
Faroe Islands	3 884		121	334	458	338	1 150	855	1 141
France		2	32	290	177	157		62	17
Germany	3 082	3 265	2 800	2 050	2 948	5 169	5 150	4 299	4 930
Greenland	200	1 740	1 553	1 887	1 459		2 116		
Iceland	11 180	14 537	16 590	19 224	20 366	15 478	13 023	11 798	9 567
Ireland			56						
Lithuania					2	1		2	3
Norway	1 187	1 750	2 243	1 998	1 074	1 233	1 124	1 097	78
Poland			2	16	93	207			
Portugal			6	130				1094	
Russia	138	183	187	44		262		552	501
Spain		779	1 698	1 395	3 075	4 721	506	33	
UK (Engl. and	261	370	227	71	40	49	10	1	
UK (Scotland)	69	121	130	181	367	367	391	1	
UK		166	252	255	841	1304	220	93	17
Total	20 001	22 913	25 897	27 609	30 900	29 286	23 695	19 890	16 410
ICES estimate	21 186	27 971	29 528	29 850	33 509	31 439	24 308	21 363	20 970
Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estonia							429		
Faroe Islands	26	270	1 408	1 705	2 811	2 788	3 393	3 214	4 656
France	114			150	67	133		117	88
Germany	4 846	423	5 287	5 782	4 620	3 814	3 701	3 808	4 420
Greenland		2819		3 415	5 239	3 251	1 897	3 642	1 511
Iceland	11 671	15 765	13 293	13 192	13 749	14 859	9 861	12 400	12 652
Lithuania	566				99				
Norway	639	124	233	171	856	614	764	1 126	1 007
Poland	1 354	988	960		786				
Russia	799	762	1 070	1 095	1 168	1 369	587	600	600
Spain								110	2 105
UK	422	581	577	323	12	95		127	348
Total	20 411	22 247	22 901	25 693	29 407	26 923	20 743	25 145	27 388
ICES estimate	29 715	34 017	24 996	25 067	27 327	26 419	20 259	24 925	25 319
Country	2017	2018	2019	2020	2021	2022	2023*		
Faroe Islands	3 999	2 949	1 973	1 888	2 070	1 607	2 506		
France	51	71	78	97	82	88	30		
Germany	2 994	4 463	4 483	4 769	4 354	4 441	4 097		
Greenland	2 692	2 970	2 999	1 992	2 834	2 893	3 226		
Iceland	11 926	15 214	12 390	12 535	12 837	11 141	14 185		
Norway	1 002	937	995	813	993	1 052	1 161		
Russia	599	400	398	399	390				
Spain	114	125	82	100					
UK	90	13	29	76	243	276	219		
Total	23 466	27 142	23 428	22 669	23 802	21 498	25 424		
ICES estimate	22 092	26 650	22 606	22 195	23 402	21 947	25 425		

* Provisional data.

Summary of the assessment

Table 9 Greenland halibut in subareas 5, 6, 12, and 14. Assessment summary. Recruitment is in thousands, weights are in tonnes. “High” and “Low” values correspond to 95% confidence intervals.

Year	Recruitment			Stock size			Catches	Fishing pressure		
	Low	Age 5	High	Low	SSB	High		Low	F (9-14)	High
1985	14954	21708	27821	86113	97201	115457	32078	0.103	0.122	0.146
1986	17129	23250	32865	81807	94444	111912	33010	0.110	0.127	0.153
1987	22887	36883	98451	78885	93407	107868	46514	0.163	0.189	0.22
1988	24179	45240	51068	69926	84044	97639	50355	0.195	0.23	0.26
1989	21743	53368	56732	58626	69052	82883	60483	0.27	0.33	0.38
1990	11722	17546	23336	44474	51761	65180	38164	0.20	0.25	0.29
1991	21848	34558	54098	38854	44642	57290	36596	0.21	0.26	0.30
1992	49066	79509	108218	35789	41115	52872	35303	0.21	0.26	0.30
1993	17353	35288	48077	35042	40234	50973	40601	0.26	0.31	0.37
1994	8943	14262	17952	34218	39100	48439	37195	0.25	0.30	0.36
1995	11505	13484	16522	31687	36695	44165	37589	0.26	0.32	0.39
1996	21559	32183	89200	29377	35105	42499	37333	0.27	0.33	0.41
1997	42188	79230	85882	26451	33228	41349	29395	0.22	0.27	0.34
1998	11742	20798	31708	24755	32040	40653	20464	0.149	0.185	0.23
1999	7371	9765	14887	26495	34536	43618	21186	0.145	0.178	0.22
2000	8682	9579	14489	29732	38523	47962	27971	0.186	0.23	0.27
2001	13610	16686	25313	32362	41449	51028	29528	0.20	0.24	0.29
2002	24457	36069	39486	31218	39383	48985	29850	0.22	0.26	0.30
2003	31971	40192	45788	29786	37210	46467	33509	0.27	0.32	0.37
2004	24927	29467	38972	26762	33437	41883	31439	0.31	0.37	0.43
2005	18811	28766	40377	21941	27800	34848	24308	0.28	0.34	0.40
2006	25594	39109	43953	18144	23420	29063	21362	0.26	0.31	0.37
2007	31662	46985	61259	16100	20999	25897	20969	0.24	0.29	0.35
2008	30956	40380	50705	16478	21469	26209	29715	0.33	0.41	0.49
2009	33275	40231	51194	16557	21794	26641	34017	0.40	0.50	0.64
2010	33632	39471	46768	14213	19587	24654	24996	0.30	0.37	0.47
2011	31225	36051	40469	13531	18602	23638	25067	0.28	0.34	0.42
2012	22557	25829	28499	15156	20066	24942	27327	0.29	0.33	0.40
2013	18415	20796	21963	17155	22046	26969	26419	0.27	0.30	0.35
2014	16526	19126	22378	19283	24089	28983	20259	0.194	0.21	0.24
2015	19733	21716	24552	21717	26623	31511	24925	0.23	0.24	0.27
2016	22773	25372	28592	24878	30201	35069	25319	0.24	0.25	0.28
2017	22345	25219	28460	25768	31114	35183	22092	0.21	0.22	0.25
2018	22658	26952	32206	26692	32187	35496	26650	0.26	0.28	0.32
2019	20816	25065	27893	25591	30894	34118	22606	0.24	0.26	0.29
2020	22315	28452	32607	22633	28102	31573	22195	0.25	0.27	0.31
2021	21578	29750	34141	21212	26648	30852	22635	0.26	0.28	0.34
2022	19722	34959	45157	19471	25569	30778	20899	0.24	0.27	0.33
2023	21730	46769	68760	18607	25204	31704	25425	0.28	0.33	0.43
2024	29801	50180	82498	16823	23871	31797				

Sources and references

Albert, O. T., and Vollen, T. 2015. A major nursery area around the Svalbard archipelago provides recruits for the stocks in both Greenland halibut management areas in the Northeast Atlantic. *ICES Journal of Marine Science*, 72: 872–879. <https://doi.org/10.1093/icesjms/fsu191>

ICES. 2023a. Advice on fishing opportunities. In Report of the ICES Advisory Committee, 2023. ICES Advice 2023, section 1.1.1. <https://doi.org/10.17895/ices.advice.22240624>

ICES. 2023b. Benchmark workshop on Greenland halibut and redfish stocks (WKBNORTH). *ICES Scientific Reports*. 5:33. <https://doi.org/10.17895/ices.pub.22304638>

ICES. 2024. Northwestern Working Group (NWWG). ICES Scientific Reports. 6:39.
<https://doi.org/10.17895/ices.pub.25605738>

Gislason, D., Estevez-Barcia, D., Sveinsson, S., Hansen, A., Roy, D., Treble, M., Boje, J., *et al.* 2023. Population structure discovered in juveniles of Greenland halibut (*Reinhardtius hippoglossoides* Walbaum, 1792). ICES Journal of Marine Science, 80(4), 889–896. <https://doi.org/10.1093/icesjms/fsad011>

Úbeda, J., Nogueira, A., Tolimieri, N., Vihtakari, M., Elvarsson, B., Treble, M., and Boje, J. 2023. Using multivariate autoregressive state-space models to examine stock structure of Greenland halibut in the North Atlantic. Fisheries Management and Ecology, 30(5), 521–535. <https://doi.org/10.1111/fme.12639>

Vihtakari, M., Elvarsson, B., Treble, M., Nogueira, A., Hedges, K., Hussey, N. E., Wheeland, L., *et al.* 2022. Migration patterns of Greenland halibut in the North Atlantic revealed by a compiled mark-recapture dataset. ICES Journal of Marine Science, 79: 1902–1917. <https://doi.org/10.1093/icesjms/fsac127>

Westgaard, J. I., Saha, A., Kent, M., Hansen, H. H., Knutsen, H., Hauser, L., Cadrin, S. X., *et al.* 2017. Genetic population structure in Greenland halibut (*Reinhardtius hippoglossoides*) and its relevance to fishery management. Canadian Journal of Fisheries and Aquatic Sciences, 74: 475–485. <https://doi.org/10.1139/cjfas-2015-0430>

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

Recommended citation: ICES. 2024. Greenland halibut (*Reinhardtius hippoglossoides*) in subareas 5, 6, 12, and 14 (Iceland and Faroes grounds, West of Scotland, North of Azores, East of Greenland). In Report of the ICES Advisory Committee, 2024. ICES Advice 2024, ghl.27.561214, <https://doi.org/10.17895/ices.advice.25019246>