

Golden redfish (*Sebastes norvegicus*) 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 46 911 tonnes.

Management of golden redfish (*Sebastes norvegicus*) and beaked redfish (*Sebastes mentella*) catches in east Greenland under a combined species TAC prevents effective control of the single-species exploitation rates and is causing overexploitation of *S. mentella* for which there is zero-catch advice. ICES advises that management should be implemented at the species level.

Non-fisheries conservation considerations

ICES has not identified any conservation aspects other than those relating to the commercial fisheries.

Stock development over time

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

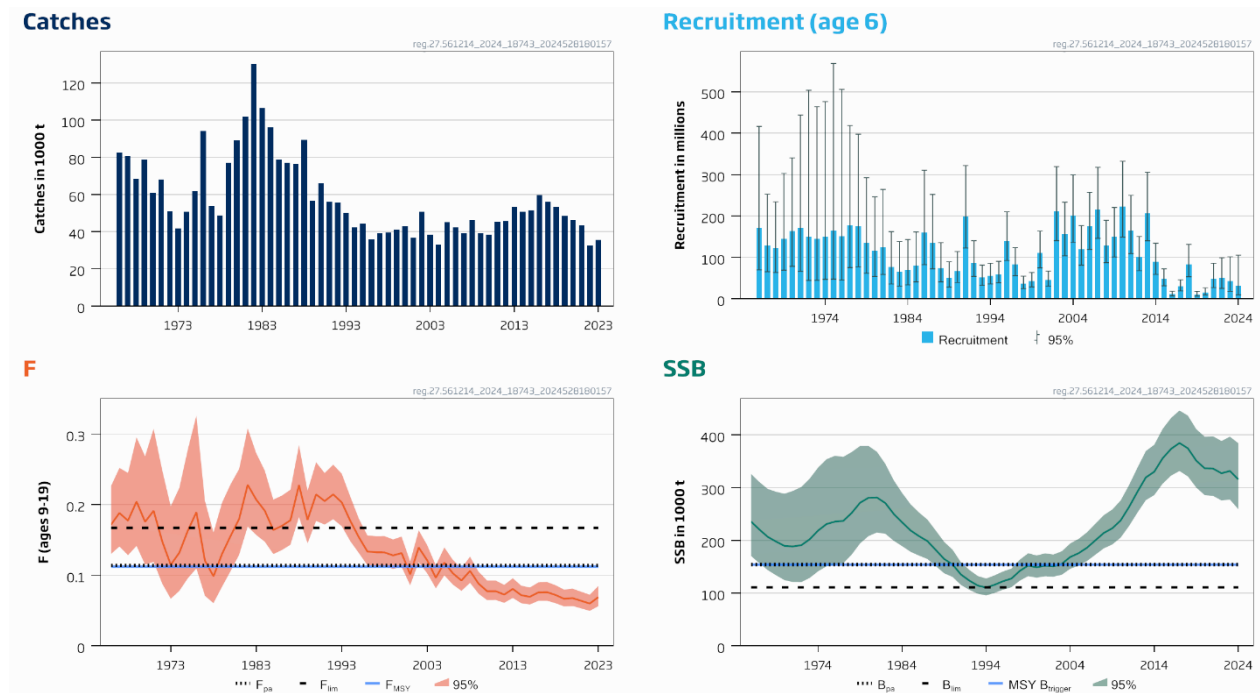


Figure 1 Golden redfish in subareas 5, 6, 12, and 14. Summary of the stock assessment. Recruitment in 2024 is estimated by the model. Catches from ICES Subarea 6 are not included in the assessment.

Catch scenarios

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

Variable	Value	Notes
$F_{ages\ 9-19}$ (2024)	0.098	Based on assumed catch in 2024
SSB (2025)	281 192	Short-term forecast; tonnes
$R_{age\ 6}$ (2024)	31 698	From the assessment; thousands
$R_{age\ 6}$ (2025)	38 758	Median, resampled from the years 2020–2024; thousands
$R_{age\ 6}$ (2026)	38 758	Median, resampled from the years 2020–2024; thousands
Total catch (2024)	41 286	Catch corresponding to advice; tonnes

Table 2 Golden redfish in subareas 5, 6, 12, and 14. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2025)	F ₉₋₁₉ (2025)	SSB (2026)	% SSB change*	% advice change**
ICES advice basis					
MSY approach, F = F _{MSY}	46 911	0.112	258 906	-8	14
Other scenarios					
F ₂₀₂₅ = 0	0	0	290 762	3	-100
F ₂₀₂₅ = F ₂₀₂₃	29 774	0.069	276 983	-1.5	-28

* SSB 2026 relative to SSB 2025.

** Advice value for 2025 relative to the advice value for 2024 (41 286 tonnes).

The advised catch has increased because the stock size has been revised upwards.

Basis of the advice

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

Advice basis	MSY approach
Management plan	ICES is aware of a management plan agreed between Greenland and Iceland for golden redfish

Quality of the assessment

The basis for the advice was revised (ICES, 2023a). The new assessment framework allows for changes in selectivity and growth over time corresponding to observations, leading to the rescaling of stock biomass and fishing mortality.

The assessment in 2024 is broadly consistent with the previous assessment, with an upward revision of SSB and recruitment and a downward revision in fishing mortality in the most recent years.

Because of the aggregating behaviour of the species, survey indices are often largely dominated by a few large hauls. This causes high uncertainties in the survey indices and large interannual fluctuation in estimates of the biomass index.

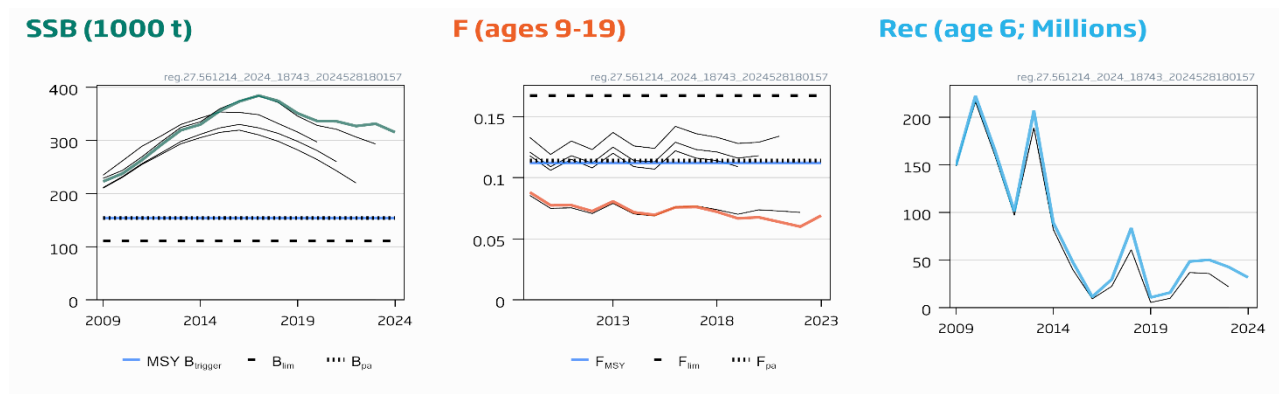


Figure 2 Golden redfish in subareas 5, 6, 12, and 14. Historical assessment results. Final-year recruitment and biomass estimates are included. The reference points were revised in 2023 following a benchmark and only the last two assessment results should be compared to the reference points indicated. Prior to the benchmark, recruitment was estimated at age 5 and is not shown.

Issues relevant for the advice

Since 2009, surveys of golden redfish have consistently shown very low abundance of small fish (≤ 30 cm). While current estimates of SSB were revised upwards with the change in assessment model, they have been on a decreasing trend since 2017. Recruitment since 2014 has been at a low level compared to the stock history. This raises concerns about the productivity of the stock. Without substantial recruitment, stock levels are likely to continue to decline for several years.

The fishery catching beaked redfish and golden redfish in east Greenland is managed using a joint-species TAC. Management measures should be implemented at both species and stock level.

No formal agreement on the management of fisheries on golden redfish exists among the three coastal states of Greenland, Iceland, and the Faroe Islands. An agreement exists between Iceland and Greenland since July 2023 on the management of the golden redfish fishery based on ICES MSY approach, which was applied in 2023.

Catches from Subarea 6 are not included in the stock assessment because they are only reported as *Sebastes* sp.

Reference points

Table 4 Golden redfish in subareas 5, 6, 12, and 14. Reference points, values, and their technical basis. All weights are in tonnes.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	154 094	B_{pa}	ICES (2023a)
	F_{MSY}	0.112	Fishing mortality that leads to MSY; estimated using stochastic simulations	ICES (2023a)
Precautionary approach	B_{lim}	110 893	B_{loss} . Lowest SSB (1994)	ICES (2023a)
	B_{pa}	154 094	$B_{lim} \times \exp(0.2 \times 1.645)$	ICES (2023a)
	F_{lim}	0.167	Fishing mortality which, in stochastic simulations, results in median SSB at B_{lim}	ICES (2023a)
	F_{pa}	0.114	F_{POS} , maximum F at which the probability of SSB falling below B_{lim} is < 5%	ICES (2023a)

Basis of the assessment

Table 5 Golden redfish in subareas 5, 6, 12, and 14. Basis of assessment and advice.

ICES stock data category	1 (ICES, 2023b).
Assessment type	Age-based analytical assessment (SAM model) that uses catches in the model and in the forecast (ICES, 2024).
Input data	Catch-at-age and age-disaggregated survey indices. Landings data and length distributions of catches from Iceland, Greenland, and the Faroes; survey data from the Icelandic Spring Groundfish Survey (IS-SMB [G3239]), Icelandic Autumn Groundfish Survey (IS-SMH [G4493]), German Groundfish Survey in Greenland (GGS [G3244]), Faroes Spring Groundfish Survey (FO-GFS-Q1 [G1264]) and Faroes Summer Groundfish Survey (FO-GFS-Q3 [G3284]); age data from Icelandic catches and the Icelandic Autumn Groundfish Survey (IS-SMH [G4493]).
Discards	Considered negligible.
Indicators	None.
Other information	Benchmarked in 2023 (ICES, 2023a).
Working group	Northwestern Working Group (NWWG).

History of the advice, catch, and management

Table 6 Golden redfish in subareas 5, 6, 12, and 14. ICES advice, TACs, and ICES catch. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice	Iceland TAC*, ##	Greenland TAC‡	ICES catch**
1987	No increase in F	83 000	95 000		77 127
1988	No increase in F	84 000	85 000		89 989
1989	TAC*	117 000*	77 000		57 050
1990	TAC*	116 000*	80 000		66 632
1991	Precautionary TAC	77 000 (117 000*)	55 000#		56 364
1992	Precautionary TAC	76 000 (116 000*)	90 000		55 710
1993	Precautionary TAC*	120 000*	104 000		50 350
1994	Precautionary TAC, if required*	100 000*	90 000		42 515
1995	TAC*	90 000*	77 000		44 765

Year	ICES advice	Catch corresponding to advice	Iceland TAC*, ##	Greenland TAC [†]	ICES catch**
1996	TAC for Division 5.a (28000 tonnes); precautionary TAC for Division 5.b and Subarea 15 (4000 tonnes)	32 000	65 000		36 597
1997	Effort 75% of 1995 value	32 000	65 000		39 761
1998	Effort reduced in steps of 25% from the 1995 level	37 200	65 000		39 825
1999	Effort not increased compared to 1997	35 000	65 000		42 040
2000	Catch not increased compared to 1998	35 000	60 000		43 550
2001	Effort not increased compared to 1999	33 000 [^]	57 000		37 326
2002	25% reduction in effort	29 000 ^{^^}	65 000		51 092
2003	25% reduction in effort (2001)	31 000 ^{^^}	60 000		39 220
2004	25% reduction in effort (2002)	37 400 ^{^^}	57 000		33 451
2005	Maintain fishable biomass above U_{pa}	37 000 ^{^^}	57 000		45 329
2006	Maintain fishable biomass above U_{pa}	37 000 ^{^^}	57 000		42 211
2007	Maintain fishable biomass above U_{pa}	37 000 ^{^^}	57 000	5 000	39 134
2008	Maintain fishable biomass above U_{pa}	37 000 ^{^^}	57 000	1 000	46 251
2009	Maintain fishable biomass above U_{pa}	< 30 000	50 000		39 177
2010	Maintain fishable biomass above U_{pa}	< 30 000	50 000	6 000	38 648
2011	Same advice as last year	< 30 000	37 500	8 500	45 354
2012	Maintain catches	< 40 000	40 000	8 500	45 635
2013	Maintain catches	< 40 000	45 000	8 500	53 263
2014	20% increase in catches (relative to 2010–2012)	< 51 980	52 000	8 500	50 736
2015	Management plan	< 47 300	45 600	8 500	51 645
2016	Management plan	< 51 000	48 500	8 500	59 707
2017	Management plan	≤ 52 800	47 205	7 520	56 141
2018	Management plan	≤ 50 800	45 450	6 222	53 227
2019	Management plan	≤ 43 600	39 240	5 274	48 530
2020	Management plan	≤ 43 568	38 896	5 271	46 197
2021	Management plan	≤ 38 343	34 379	4 748	43 426
2022	Management plan	≤ 31 855	28 554	3 186	32 873
2023	Management plan	≤ 25 545	22 615	5 109	35 988
2024	F_{MSY}	≤ 41 286	36 462	4 509	
2025	F_{MSY}	≤ 46 911			

* Deep-sea *S. mentella* and *S. norvegicus* combined until 2010.

** Includes *Sebastes spp* landings in Subarea 6.

[^] In Division 5.a only.

^{^^} Both divisions 5.a and 5.b and Subarea 14.

[#] Fishing year ending 31 August.

^{##} From 1992 onwards: fishing year 1 September–31 August.

[†]Demersal redfish (*Sebastes norvegicus* and *S. mentella*).

History of the catch and landings

Table 7 Golden redfish 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 95%	Other gear 5%	
35 988	35 988		Considered negligible

Table 8 Golden redfish in subareas 5, 6, 12, and 14. History of commercial catch; ICES estimated values are presented by area in the fishery. All weights are in tonnes.

Year	Area				Total
	Division 5.a	Division 5.b	Subarea 6**	Subarea 14	
1966	59 245	54		23 290	82 589
1967	47 413	64		33 198	80 675
1968	45 089	99		23 079	68 267
1969	48 391	33		30 367	78 792
1970	42 662	33		18 162	60 857
1971	47 498	24		20 436	67 958
1972	36 857	53		13 970	50 880
1973	33 605	206		7 899	41 710
1974	36 219	473		13 978	50 670
1975	40 029	963		20 915	61 907
1976	40 519	109		53 545	94 172
1977	38 507	767		14 433	53 707
1978	31 300	2 039	313	15 477	49 129
1979	56 616	4 805	6	15 787	77 214
1980	62 052	4 920	2	22 203	89 177
1981	75 828	2 538	3	23 608	101 977
1982	97 899	1 810	28	30 692	130 429
1983	87 412	3 394	60	15 636	106 502
1984	84 766	6 228	86	5 040	96 120
1985	67 312	9 194	245	2 117	78 868
1986	67 772	6 300	288	2 988	77 348
1987	69 212	6 143	576	1 196	77 127
1988	80 472	5 020	533	3 964	89 989
1989	51 852	4 140	373	685	57 050
1990	63 156	2 407	382	687	66 632
1991	49 677	2 140	292	4 255	56 364
1992	51 464	3 460	40	746	55 710
1993	45 890	2 621	101	1 738	50 350
1994	38 669	2 274	129	1 443	42 515
1995	41 516	2 581	606	62	44 765
1996	33 558	2 316	664	59	36 597
1997	36 342	2 839	542	37	39 760
1998	36 771	2 565	379	109	39 824
1999	39 824	1 436	773	7	42 040
2000	41 187	1 498	776	89	43 550
2001	35 067	1 631	535	93	37 326
2002	48 570	1 941	392	189	51 092
2003	36 577	1 459	968	215	39 219
2004	31 686	1 139	519	107	33 451
2005	42 593	2 484	137	115	45 329
2006	41 521	656	0	34	42 211
2007	38 364	689	0	83	39 136
2008	45 538	569	64	80	46 251
2009	38 442	462	50	224	39 178
2010	36 155	620	220	1 653	38 648
2011	43 773	493	83	1 005	45 354
2012	43 089	491	80	1 973	45 633
2013	51 330	372	92	1 485	53 279
2014	47 775	202	60	2 706	50 743
2015	48 769	270	44	2 562	51 645
2016	54 036	179	50	5 442	59 707
2017	50 119	1 418	93	4 511	56 141
2018	48 014	1 129	80	4 004	53 227
2019	44 746	1 119	101	2 665	48 631

Year	Area				Total
	Division 5.a	Division 5.b	Subarea 6**	Subarea 14	
2020	40 688	1 304	100	4 105	46 197
2021	39 616	178	100	3 532	43 426
2022	30 037	128	498	2 210	32 873
2023*	32 192	182	541	3 073	35 988

* Preliminary.

** *Sebastes* spp.

Table 9 Golden redfish in subareas 5, 6, 12, and 14. Catches inside and outside the NEAFC regulatory areas (RAs) as estimated by ICES. Weights are in tonnes.

Year	Inside the NEAFC RAs	Outside the NEAFC RAs	Catches
2021	0	43 426	43 426
2022	0	32 873	32 873
2023	0	35 988	35 988

Summary of the assessment

Table 10 Golden redfish in subareas 5, 6, 12, and 14. Assessment summary. Catches from ICES Subarea 6 are not included in the assessment. Weights are in tonnes. Recruitment in thousands. 'High' and 'Low' correspond to 95% confidence intervals.

Year	Recruitment (thousands)			SSB (tonnes)			Total catch (tonnes)	Fishing Mortality		
	Low	Age 6	High	Low	SSB	High		Low	Ages 9–19	High
1966	70088	170890	416669	170640	236036	326494	82589	0.130	0.171	0.23
1967	65522	128723	252886	156682	220779	311097	80675	0.141	0.188	0.25
1968	63722	122197	234331	143644	206800	297724	68267	0.128	0.177	0.25
1969	69245	144824	302894	133769	197743	292312	78792	0.141	0.20	0.30
1970	78452	163418	340403	124530	189549	288517	60857	0.115	0.176	0.27
1971	66324	171588	443921	121054	188624	293909	67958	0.119	0.191	0.31
1972	44582	149864	503770	120820	190829	301404	50881	0.088	0.148	0.25
1973	44902	144381	464250	128768	202150	317353	41710	0.067	0.115	0.198
1974	47116	149802	476285	141305	218625	338252	50634	0.078	0.132	0.22
1975	47583	164489	568618	150696	230978	354029	61907	0.096	0.163	0.28
1976	45300	151378	505861	153920	235571	360536	94171	0.110	0.189	0.33
1977	75507	177784	418599	156663	236995	358517	53708	0.071	0.121	0.21
1978	77098	175101	397681	172934	252165	367698	48816	0.060	0.099	0.161
1979	61881	134558	292593	194336	271487	379268	77208	0.084	0.130	0.20
1980	54059	115396	246327	208039	280876	379214	89174	0.106	0.156	0.23
1981	58907	124826	264508	214932	281325	368227	101975	0.129	0.180	0.25
1982	35816	76249	162330	212396	270810	345287	130401	0.169	0.23	0.31
1983	30754	65265	138501	199175	250145	314160	106443	0.157	0.21	0.27
1984	33736	69502	143187	189029	234206	290180	96033	0.147	0.191	0.25
1985	40864	81206	161373	178327	218916	268744	78622	0.130	0.164	0.21
1986	82665	160213	310506	171106	208101	253095	77062	0.136	0.170	0.21
1987	72409	135089	252026	164685	198718	239784	76552	0.143	0.178	0.22
1988	40998	74607	135769	151183	181922	218912	89456	0.182	0.23	0.28
1989	28249	50300	89565	137558	164795	197426	56678	0.145	0.179	0.22
1990	39302	67026	114306	130609	154385	182488	66246	0.177	0.21	0.26
1991	122705	198760	321957	115364	135281	158637	56072	0.172	0.21	0.24
1992	54292	87304	140389	106128	123684	144145	55671	0.179	0.21	0.26
1993	32694	51681	81694	98749	114410	132555	50249	0.169	0.20	0.24
1994	35990	55638	86010	95507	110480	127802	42386	0.148	0.177	0.21
1995	38777	59342	90811	100339	115872	133810	44160	0.131	0.154	0.180
1996	92718	139637	210300	106409	122566	141177	35933	0.114	0.134	0.157
1997	55747	83023	123644	110990	127573	146633	39218	0.113	0.133	0.155
1998	24539	36689	54854	123536	142131	163526	39445	0.113	0.132	0.155

Year	Recruitment (thousands)			SSB (tonnes)			Total catch (tonnes)	Fishing Mortality		
	Low	Age 6	High	Low	SSB	High		Low	Ages 9–19	High
1999	28758	42818	63754	132154	152391	175728	41267	0.109	0.128	0.151
2000	74675	110593	163789	129193	148862	171524	42773	0.112	0.131	0.155
2001	30210	45034	67133	131958	152139	175407	36791	0.086	0.101	0.120
2002	140524	211865	319425	131153	150777	173336	50700	0.118	0.139	0.164
2003	103992	155839	233536	134801	155543	179476	38252	0.103	0.121	0.143
2004	136182	202028	299711	146056	168476	194338	32933	0.081	0.096	0.114
2005	81298	119972	177042	152146	175697	202894	45192	0.100	0.118	0.140
2006	119263	175145	257212	160808	186164	215518	42211	0.087	0.103	0.122
2007	146108	215455	317716	172808	200202	231938	39136	0.078	0.093	0.110
2008	87285	128691	189740	184843	214125	248044	46187	0.089	0.106	0.126
2009	101063	149350	220708	192069	222874	258619	39128	0.074	0.088	0.105
2010	148828	222450	332492	205096	237834	275797	38425	0.065	0.077	0.093
2011	109347	165364	250078	227189	263284	305113	45272	0.065	0.077	0.093
2012	67923	101154	150644	252558	292228	338128	45553	0.061	0.073	0.086
2013	140005	206915	305802	276176	319474	369561	53186	0.068	0.081	0.096
2014	59114	89149	134443	285824	330222	381516	50683	0.060	0.072	0.085
2015	31632	47867	72434	307448	355776	411699	51602	0.059	0.070	0.083
2016	7024	11342	18314	322719	373542	432369	59657	0.064	0.076	0.090
2017	19163	29669	45935	331549	384722	446423	56044	0.064	0.076	0.091
2018	53193	83639	131512	321230	374623	436891	53147	0.060	0.072	0.086
2019	6323	10696	18096	300051	351196	411058	48529	0.056	0.067	0.080
2020	9340	15795	26711	285830	336763	396773	46097	0.056	0.068	0.081
2021	27288	48420	85917	284330	336188	397504	43318	0.053	0.064	0.077
2022	25415	50200	99155	275669	327300	388601	32375	0.050	0.060	0.072
2023	17932	42679	101578	277286	331688	396765	35446	0.056	0.069	0.085
2024	9523	31698	105512	259150	315682	384546				

Sources and references

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Recommended citation: ICES. 2024. Golden redfish (*Sebastes norvegicus*) 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, reg.27.561214, <https://doi.org/10.17895/ices.advice.25019507>