

## 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 Greenland and Iceland management plan for golden redfish is applied, catches in 2021 should be no more than 38 343 tonnes.

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

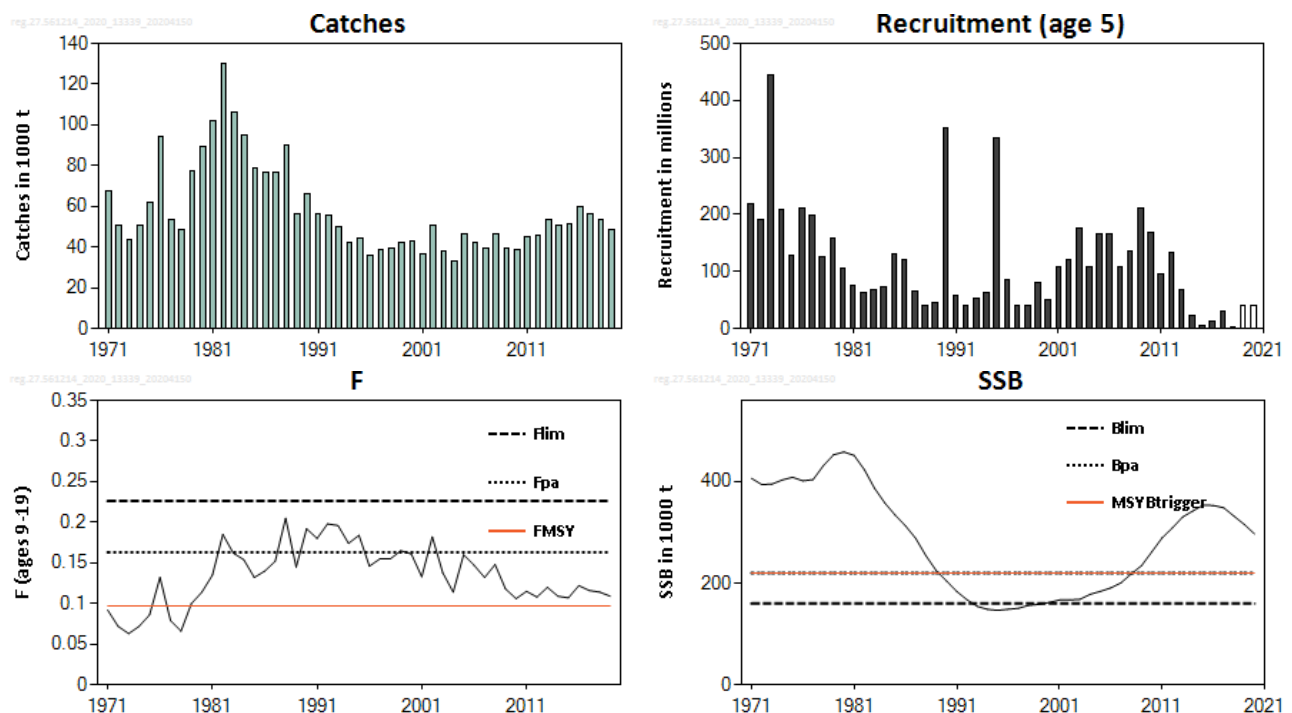


Figure 1 Golden redfish in subareas 5, 6, 12, and 14. Summary of the stock assessment. Assumed recruitments are unshaded.

### Stock and exploitation status

Table 1 Golden redfish in subareas 5, 6, 12, and 14. State of the stock and the fishery relative to reference points.

	Fishing pressure			Stock size						
	2017	2018	2019	2018	2019	2020				
Maximum sustainable yield	$F_{MSY}$	✘	✘	✘	Above	$B_{trigger}$	✔	✔	✔	Above trigger
Precautionary approach	$F_{pa}, F_{lim}$	✔	✔	✔	Harvested sustainably	$B_{pa}, B_{lim}$	✔	✔	✔	Full reproductive capacity
Management plan	$F_{MGT}$	✔	✔	✔	Within expected range	$B_{MGT}$	✔	✔	✔	Within expected range

### Catch scenarios

**Table 2** Golden redfish in subareas 5, 6, 12, and 14. Assumptions made for the interim year and in the forecast. All weights are in tonnes.

Variable	Value	Notes
$F_{\text{ages 9-19}}$ (2020)	0.101	Based on calendar year catches following the management plan.
SSB (2021)	280100	Projected from the assessment.
$R_{\text{age 5}}$ (2020)	41.7 million	Average of the five smallest year classes in 1980–2007.
$R_{\text{age 5}}$ (2021)	41.7 million	Average of the five smallest year classes in 1980–2007.
Total catch (2020)	42026	Calendar year catches following the management plan.

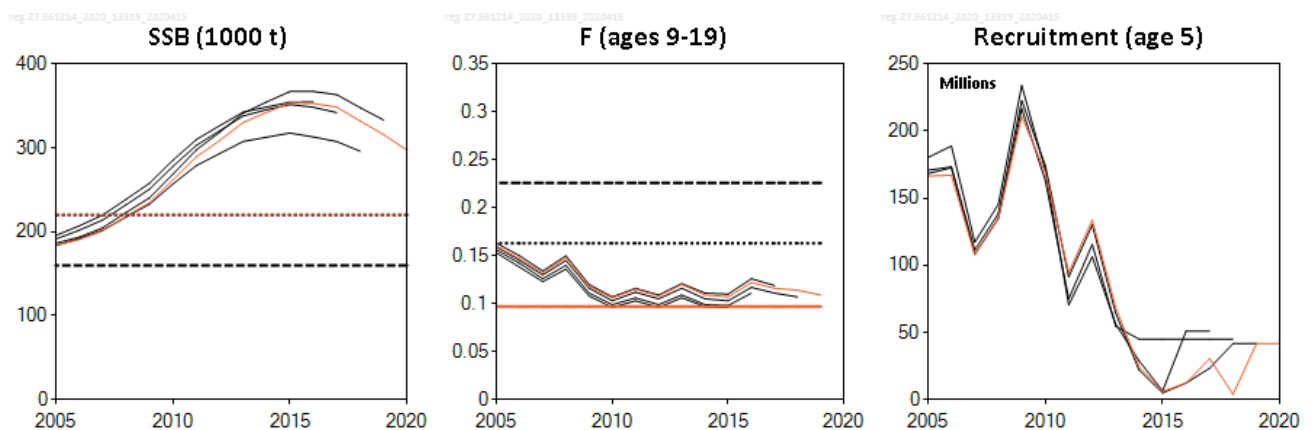
**Table 3** Golden redfish in subareas 5, 6, 12, and 14. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2021)	$F_{9-19}$ (2021)	SSB (2022)	% SSB change *	% advice change **
ICES advice basis					
Management plan	38343	0.099	262557	-6.2	-12
Other scenarios					
$F_{\text{MSY}}$	37795	0.097	263579	-5.9	-13
$F_{\text{sq}} = F_{2019}$	41779	0.109	256139	-8.5	-4.1

\* SSB 2022 relative to SSB 2021.

\*\* Advice value for 2021 relative to the advice value for 2020.

### Quality of the assessment



**Figure 2** Golden redfish in subareas 5, 6, 12, and 14. Historical assessment results (final-year recruitment estimates included).

### History of the advice, catch, and management

**Table 4** 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	83000	95000		77127
1988	No increase in F	84000	85000		89989
1989	TAC*	117000 *	77000		57050
1990	TAC*	116000 *	80000		66632
1991	Precautionary TAC	77000 (117000 *)	55000 #		56364
1992	Precautionary TAC	76000 (116000 *)	90000		55710
1993	Precautionary TAC*	120000 *	104000		50350
1994	Precautionary TAC, if required	100000 *	90000		42515
1995	TAC	90000 *	77000		44765

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)	32000 **	65000		36597
1997	Effort 75% of 1995 value	32000 **	65000		39761
1998	Effort reduced in steps of 25% from the 1995 level	37200 **	65000		39825
1999	Effort not increased compared to 1997	35000 **	65000		42040
2000	Catch not increased compared to 1998	35000 **	60000		43550
2001	Effort not increased compared to 1999	33000 **,^	57000		37326
2002	25% reduction in effort	29000 ^^	65000		51092
2003	25% reduction in effort (2001)	31000 ^^	60000		39220
2004	25% reduction in effort (2002)	37400 ^^	57000		33451
2005	Maintain fishable biomass above $U_{pa}$	37000 ^^	57000		45329
2006	Maintain fishable biomass above $U_{pa}$	37000 ^^	57000		42211
2007	Maintain fishable biomass above $U_{pa}$	37000 ^^	57000	5000 ~	39134
2008	Maintain fishable biomass above $U_{pa}$	37000 ^^	57000	1000 ~	46251
2009	Maintain fishable biomass above $U_{pa}$	< 30000	50000		39177
2010	Maintain fishable biomass above $U_{pa}$	< 30000	50000	6000 ~	38648
2011	Same advice as last year	< 30000	37500	8500 ~	45354
2012	Maintain catches	< 40000	40000	8500 ~	45635
2013	Maintain catches	< 40000	45000	8500 ~	53263
2014	20% increase in catches (relative to 2010–2012)	< 51980	52000	8500 ~	50736
2015	Management plan	< 47300	45600	8500 ~	51645
2016	Management plan	< 51000	48500	8500 ~	59698
2017	Management plan	≤ 52800	47205	7520 ~	56101
2018	Management plan	≤ 50800	45450	6222 ~	53428
2019	Management plan	≤ 43600	39240	5274 ~	48464
2020	Management plan	≤ 43568	38896	5271 ~	
2021	Management plan	≤ 38343			

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

\*\* *S. norvegicus* only.

^ In Division 5.a only.

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

# Year ending 31 August.

## From 1992 onwards: quota year September–August.

~ Demersal redfish (*Sebastes norvegicus* and *S. mentella*).

## Summary of the assessment

**Table 5** Golden redfish in subareas 5, 6, 12, and 14. Assessment summary. Weights are in tonnes. ICES Subarea 6 is not considered part of the stock and catches are not included in the assessment. Recruitment in thousands.

Year	Recruitment Age 5	SSB	Catches	F Ages 9–19
1971	218900	406553	67880	0.092
1972	190300	394172	50890	0.072
1973	445000	395169	43719	0.063
1974	209400	403262	50598	0.072
1975	129400	408546	61920	0.086
1976	212000	401493	94420	0.132
1977	198200	404083	53753	0.079
1978	125700	431468	48736	0.066
1979	158200	452919	77212	0.100
1980	104700	458335	89143	0.114
1981	74600	451678	101966	0.135

Year	Recruitment Age 5	SSB	Catches	F Ages 9–19
1982	63200	423483	130322	0.185
1983	67500	386697	106050	0.162
1984	73700	357778	95288	0.154
1985	131600	334052	78531	0.132
1986	121500	313003	76908	0.140
1987	64900	288257	76559	0.152
1988	41200	253986	89804	0.210
1989	44800	224740	56645	0.145
1990	352700	204411	66314	0.192
1991	58900	183673	56015	0.180
1992	39900	167354	55826	0.198
1993	53500	154416	50179	0.196
1994	63400	148451	42520	0.174
1995	333800	146627	44263	0.184
1996	86800	148694	35595	0.146
1997	40600	150645	38996	0.155
1998	41300	156488	39694	0.155
1999	81600	158441	42463	0.165
2000	51100	162123	42607	0.161
2001	109200	166980	36744	0.133
2002	119600	167168	50730	0.182
2003	175600	168373	38219	0.138
2004	108400	178183	32766	0.114
2005	166500	184074	46619	0.160
2006	167200	190673	42108	0.147
2007	108000	200949	39154	0.132
2008	135300	218427	46195	0.148
2009	211000	234681	39301	0.118
2010	169200	261787	38504	0.106
2011	94600	289267	45146	0.115
2012	133700	308918	45423	0.108
2013	68500	330333	53223	0.120
2014	24100	342322	50697	0.109
2015	6000	353757	51621	0.107
2016	12200	353091	59697	0.122
2017	30500	348639	56334	0.116
2018	3900	332059	53368	0.114
2019	41700*	315915	48484	0.109
2020	41700*	297105		

\* Assumed to be the average of the five smallest year classes in 1980–2007.

## Sources and references

ICES. 2020. North Western Working Group (NWWG). ICES Scientific Reports. 2:51. 431 pp.

<http://doi.org/10.17895/ices.pub.6051>

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