

Greater silver smelt (*Argentina silus*) in divisions 5.b and 6.a (Faroes grounds and west of Scotland)

ICES stock advice

ICES advises that when the precautionary approach is applied, landings should be no more than 12 036 tonnes in each of the years 2018 and 2019. Discarding is known to take place, but ICES cannot quantify the corresponding catches.

Stock development over time

The landings since 2006 have varied between 15 thousand and 22 thousand tonnes. The biomass index from the summer survey on the Faroe Plateau in Division 5.b has increased since 2014.

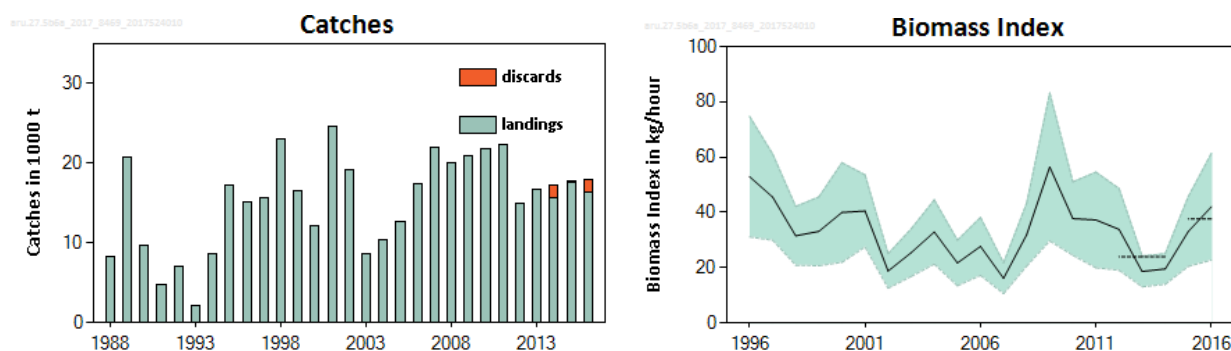


Figure 1 Greater silver smelt in divisions 5.b and 6.a. Total landings (tonnes) (left figure). Biomass index as cpue (kg h^{-1}) from the Faroese summer survey 1996–2016 in Division 5.b (right figure). The dotted horizontal lines indicate the average biomass index of the respective year range used to calculate the advice.

Stock and exploitation status

Table 1 Greater silver smelt in divisions 5.b and 6.a. State of the stock and fishery relative to reference points. The status evaluation is based on a reference point proxy for F_{MSY} , using the length-based indicator method (ICES, 2017).

Evaluation is based on a reference point proxy for F_{MSY} , using the length-based indicator method (JEL, 2017).										
		Fishing pressure				Stock size				
		2014	2015	2016		2014	2015	2016		
Maximum Sustainable Yield	F_{MSY} Proxy	✓	✓	✓	Below	MSY $B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓	Below possible reference points	B_{pa} , B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	—	—	—	Not applicable	-	➡	↗	↗	Increasing

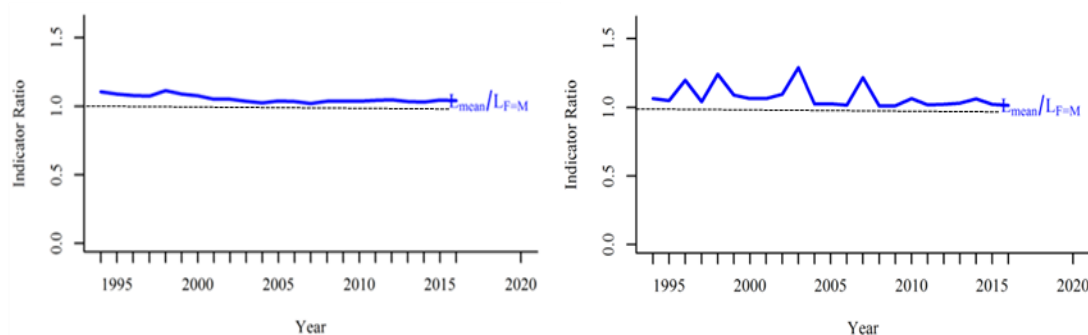


Figure 2 Greater silver smelt in divisions 5.b and 6.a. Index ratio $L_{\text{mean}}/L_{F=M}$ from the length-based indicator method used for the evaluation of the exploitation status for divisions 5.b (left panel) and 6.a (right panel). The exploitation status is below the F_{MSY} proxy when the index ratio value is higher than 1.

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The Faroese summer groundfish survey was used as the index for the stock development. The advice is based on a comparison of the two latest index values (index A) with the three preceding values (index B), multiplied by recent advised landings for years 2016–2017. The index is estimated to have increased by more than 20% and thus the uncertainty cap was applied to calculate the landings advice. The stock size relative to candidate reference points is unknown. The precautionary buffer was not applied to calculate the landings advice, because it was applied in 2015. Discarding is known to take place, but ICES cannot quantify the corresponding catches.

Table 2 Greater silver smelt in divisions 5.b and 6.a. The basis for the catch options.

Index A (2015–2016)	38 kg h ⁻¹	
Index B (2012–2014)	24 kg h ⁻¹	
Index ratio (A/B)	1.56	
Uncertainty cap	Applied	1.2
Advised landings for years 2016–2017	10030 tonnes	
Discard rate	Unknown	
Precautionary buffer	Not applied	-
Landings advice*	12036 tonnes	

* [advice for 2016–2017] × [uncertainty cap]. The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

Basis of the advice

Table 3 Greater silver smelt in divisions 5.b and 6.a. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	ICES is not aware of any agreed precautionary management plan for 2017 in this area.

Quality of the assessment

The Faroese summer survey does not cover the whole distribution area of the fishery of greater silver smelt, only on the Faroe Plateau. Few stations are deeper than 400 m, which may exclude part of the adult population. Deeper stations should be added to the survey.

Discarding is not likely to be significant in the Faroese area where around 75–80% of the landings come from. While discarding could be substantial in other areas (EU waters), the reported discards in 2014 to 2016 were estimated to be between 1 and 10% of the total catches. To date discard data have been highly variable and it is difficult to assess whether

this may be a consequence of incomplete reporting by all countries. It is not possible to determine the discard rate that would be applicable to catches in the next two years.

Issues relevant to the advice

The stock structure of greater silver smelt is unknown. The divisions 5.b and 6.a stock unit was defined in 2015 when ICES revised the advice units for the greater silver smelt. ICES provides separate advice for three other stock units (Subarea 14 and Division 5.a; subareas 1, 2, and 4 and Division 3.a; and subareas 7–10 and 12 and Division 6.b).

Reference points

Table 4 Greater silver smelt in divisions 5.b and 6.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger proxy}}$	Not defined		
	$F_{\text{MSY proxy}}$	35.95 cm (Div. 5.b, 2016) 37.43 cm (Div. 6.a, 2016)	Expected mean length of catch above L_{mean} when $F = M$	ICES (2017)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{mgt}	Not defined		
	F_{mgt}	Not defined		

Basis of the assessment

Table 5 Greater silver smelt in divisions 5.b and 6.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016).
Assessment type	Survey trends-based assessment (ICES, 2017).
Input data	Summer index from the Faroese groundfish survey in Division 5.b.
Discards and bycatch	ICES cannot quantify discards.
Indicators	Length-based indicator.
Other information	This is a new advice unit for greater silver smelt in 2015. This stock has not been benchmarked although an assessment for greater silver smelt was benchmarked in 2010 (ICES, 2010).
Working group	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP)

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 6 Greater silver smelt in divisions 5.b and 6.a. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice ^	Predicted catch corresp. to advice	TAC EC Subareas 5–7	TAC Faroes	ICES landings Divisions 5.b and 6.a
2003	No fisheries unless data collection on (by)catch; no expansion unless proven to be sustainable	-	6247		8597
2004	Biennial	-	6247		10369
2005	No fisheries unless accompanied by programmes to collect data on both target and bycatch fish	-	5310		12647
2006	Biennial	-	5310		17456
2007	The fishery should not be allowed to expand unless it can be shown that it is sustainable	-	5311		21943
2008	Biennial	-	5311		20112
2009	Same advice as 2007	-	5311		20879
2010	Biennial	-	5099	**	21850
2011	The fishery should not be allowed to expand, and a reduction in catches should be considered	-	4691	**	22295
2012	No new advice, same as 2011		4316	**	14969
2013	Reduce catches by 10%	31300	4316	**	16668
2014	No new advice, same as 2013	31300	4316	16000	15663
2015	No new advice, same as 2013	31300	4316	14400	17548
2016^	Precautionary approach including PA buffer	10030	4316	13000	16330*
2017	Biennial	10030	3884	11500	
2018	Precautionary approach	≤ 12036			
2019	Precautionary approach (same value as advised landings for 2018)	≤ 12036			

* Preliminary.

** The Faroese fishery is managed by an agreement between the Faroese GSS fishery fleet and the Faroese authorities. The current agreement is that total annual landings should not exceed 18 thousand tonnes in Faroese waters (Division 5.b) for the period 2010–2013. In 2014, a species-specific management plan in Division 5.b set a Faroese TAC.

^ Until 2014 the advice was combined for subareas 1, 2, 4, 6, 7, 8, 9, 10, 12, and 14, and Divisions 3.a and 5.b.

History of the catch and landings

There are no reported catches in the NEAFC Regulatory Area.

Table 7 Greater silver smelt in divisions 5.b and 6.a. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings	Discards
17993 tonnes	Trawl 100%	1663 tonnes
	16330 tonnes	

Table 8 Greater silver smelt in divisions 5.b and 6.a. History of commercial landings; ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

	Denmark	Faroes	France	Germany	Iceland	Ireland	Netherlands	Norway	UK(EWN)	UK (Scot)	Russia	Spain	Total
1988	0	287	0	0	0	3040	0	4884	0	0	0	0	8211
1989	0	299	0	0	0	1325	3715	11984	0	3369	116	0	20808
1990	0	3574	0	14	0	110	5870	0	0	112	3	0	9683
1991	0	59	7	0	0	0	4709	0	0	11	0	0	4786
1992	0	1439	1	0	0	100	4964	0	0	466	4	0	6974
1993	0	1063	0	0	0	0	663	0	0	406	0	0	2132
1994	0	960	0	43	0	0	6217	0	0	1375	0	0	8595
1995	0	6017	0	284	0	0	3706	0	0	465	6752	0	17224
1996	0	9495	0	1384	0	295	3953	0	0	3	0	0	15130
1997	0	8433	0	1496	0	1089	4684	0	0	0	0	0	15702
1998	0	17570	0	464	0	405	4687	0	0	0	0	0	23126
1999	0	8186	5	24	0	168	8026	0	28	15	0	0	16452
2000	0	3713	83	403	0	3178	3389	0	0	247	1185	0	12198
2001	0	9572	7	189	0	5839	3655	0	0	4871	414	0	24547
2002	0	7058	1	150	0	3035	4025	0	424	4280	264	0	19237
2003	0	6261	0	26	0	1	1983	0	0	81	245	0	8597
2004	0	3441	147	652	0	46	4832	0	0	549	702	0	10369
2005	0	7042	10	125	0	18	5332	0	0	61	59	0	12647
2006	0	12576	0	213	0	0	4628	0	0	3	35	1	17456
2007	0	14339	0	589	0	0	6969	35	0	0	8	2	21943
2008	0	15921	0	10	0	0	4156	6	0	0	19	0	20112
2009	0	18123	0	115	0	0	2488	83	0	6	64	0	20879
2010	0	18627	0	0	0	0	3143	7	0	60	13	0	21850
2011	0	19233	0	0	0	0	3050	0	2	2	8	0	22295
2012	0	12525	0	538	0	0	1785	0	5	5	111	0	14969
2013	388	14306	0	417	0	0	1430	0	0	0	127	0	16668
2014	711	11242	0	1018	0	0	2332	0	0	0	360	0	15663
2015	0	14080	0	1066	132	0	2154	0	0	0	115	0	17548
2016	0	13179	0	267	345	0	2526	0	0	0	13	0	16330

Table 9 Greater silver smelt in divisions 5.b and 6.a. Discards in tonnes; Germany and Scotland official data and France as estimated by ICES.

	Area 5.b		Area 6.a			5.b and 6.a	
Year	Germany	France	Germany	Scotland	France	Total	% of landings
2014	28		92	653	808	1581	10.1
2015				109	161	270	1.5
2016		12		1451	200	1663	10.2

Summary of the assessment

Table 10 Greater silver smelt in divisions 5.b and 6.a. Assessment summary. The stock size indicator is the Faroese summer groundfish biomass survey.

Year	Biomass index (kg h ⁻¹)	High	Low	Landings (tonnes)	Discards (tonnes)
1988				8211	
1989				20808	
1990				9683	
1991				4786	
1992				6974	
1993				2132	
1994				8595	
1995				17224	
1996	52.94	74.75	31.129	15130	
1997	45.553	61.154	29.951	15702	
1998	31.539	42.158	20.921	23126	
1999	33.155	45.588	20.721	16452	
2000	39.972	57.998	21.945	12198	
2001	40.525	53.576	27.474	24547	
2002	18.817	25.062	12.572	19237	
2003	25.46	34.076	16.844	8597	
2004	32.93	44.559	21.301	10369	
2005	21.712	29.967	13.456	12647	
2006	27.716	38.206	17.226	17456	
2007	16.182	21.753	10.611	21943	
2008	31.961	43.344	20.579	20112	
2009	56.437	83.194	29.681	20879	
2010	37.765	51.052	24.479	21850	
2011	37.275	54.578	19.972	22295	
2012	33.879	48.656	19.103	14969	
2013	18.655	24.232	13.078	16668	
2014	19.552	25.097	14.007	15663	1581
2015	33.126	45.76	20.492	17548	270
2016	42.07	61.384	22.756	16330	1663

Sources and references

ICES. 2010. Report of the Benchmark Workshop on Deep-water Species (WKDEEP), 17–24 February 2010, Copenhagen, Denmark. ICES CM 2010/ACOM:38. 247 pp.

ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp.

ICES. 2016. Advice basis. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.

ICES. 2017. Report of the Working Group on the Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP), 24 April–1 May 2017, Copenhagen, Denmark. ICES CM 2017/ACOM:14. 702 pp.