

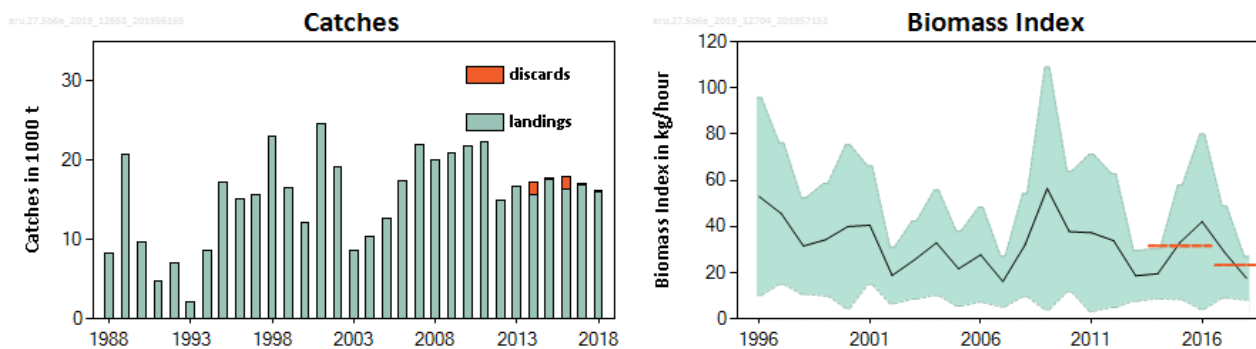
## Greater silver smelt (*Argentina silus*) in divisions 5.b and 6.a (Faroes grounds and west of Scotland)

### ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 7703 tonnes in each of the years 2020 and 2021. ICES cannot quantify the corresponding catches.

### Stock development over time

The landings since 2006 have varied without trend. The biomass index from the summer survey on the Faroe Plateau in Division 5.b has fluctuated without trend since the beginning of the time-series.



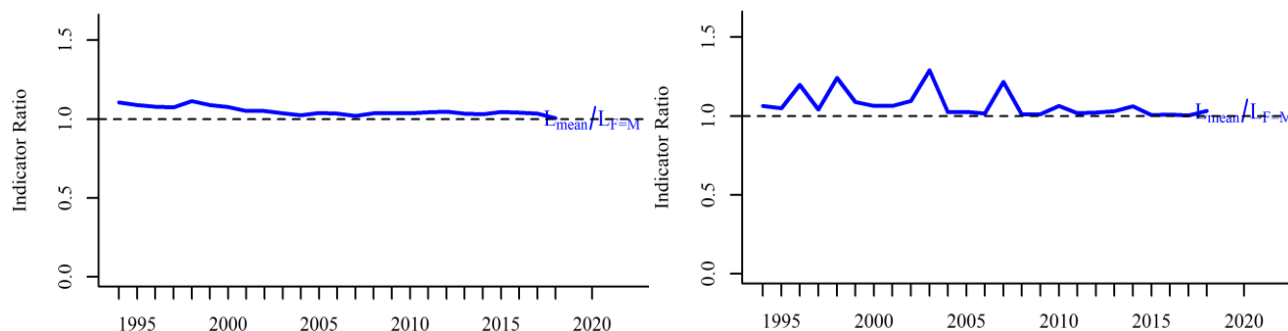
**Figure 1** Greater silver smelt in divisions 5.b and 6.a. Left: Total landings in tonnes. Right: Biomass index as CPUE (kg hr<sup>-1</sup>) from the Faroese summer survey 1996–2018 in Division 5.b. The shaded areas on the biomass index plot represent 95% confidence intervals. The dashed orange lines indicate the average of the biomass index for 2014 to 2016 and for 2017 to 2018.

### Stock and exploitation status

ICES assesses that fishing pressure on the stock is below  $F_{MSY\ proxy}$ ; no reference points for stock size have been defined for this stock.

**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, 2019; see Figure 2).

		Fishing pressure			Stock size				
		2016	2017	2018	2016	2017	2018		
Maximum sustainable yield	$F_{MSY\ proxy}$	✓	✓	✓ Below	$MSY$	?	?	?	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	-	↗	↘	↘	Decreasing



**Figure 2** Greater silver smelt in divisions 5.b and 6.a. Index ratio of the average length relative to the expected length when fishing mortality equals natural mortality ( $L_{\text{mean}}/L_{F=M}$ ) 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  $F_{\text{MSY proxy}}$  when the index ratio value is higher than 1.

### Catch scenarios

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 the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B) multiplied by the recent advised landings. The index is estimated to have decreased by more than 20% and thus the uncertainty cap was applied. The fishing mortality is below the proxy MSY reference point and stock size is unknown. The precautionary buffer was applied in 2015. While there is no sign of overexploitation, there is no evidence that the stock is increasing significantly, so the precautionary buffer was applied again. Discarding is known to take place, but ICES cannot quantify the corresponding catch.

**Table 2** Greater silver smelt in divisions 5.b and 6.a. The basis for the catch scenarios <sup>^</sup>.

Index A (2017–2018)		23
Index B (2014–2016)		32
Index ratio (A/B)		0.74
Uncertainty cap	Applied	0.8
Advised landings for years 2018–2019		12 036 tonnes
Discard rate		Unknown
Precautionary buffer	Applied	0.8
Landings advice *		7703 tonnes
% Advice change **		-36%

<sup>^</sup> The figures in the tables are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

\* [advice for 2018–2019] × [uncertainty cap] × [precautionary buffer].

\*\* Advice value for 2020 and 2021 relative to advice value for 2018 and 2019.

The advised catch has decreased from last year as a result of a decrease in the index ratio, and the application of the precautionary buffer.

### 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 greater silver smelt in this area.

### Quality of the assessment

The Faroese summer survey only covers the Faroe Plateau and therefore does not cover the whole distribution area of the fishery for greater silver smelt, nor the entire depth distribution range for the stock. Few stations are deeper than 400 m, which may exclude part of the adult population. The survey has high uncertainty but is still considered to be representative of stock trends.

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 2018 were estimated to be between 1 and 9% 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.

### Issues relevant for the advice <sup>†</sup>

This stock is classified as Category 4 in the [NEAFC categorization of deep-sea species/stocks](#) which implies that fisheries are primarily restricted to Coastal State exclusive economic zones (EEZs) and therefore management measures are not taken by NEAFC unless complementary to coastal state conservation and management measures.

The stock structure of greater silver smelt is uncertain. 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 $B_{trigger\ proxy}$	Not defined		
	$F_{MSY\ proxy}$	34.43 cm (Div. 5.b, 2018) 34.43 cm (Div. 6.a, 2018)	Expected mean length of catch above $L_{mean}$ when $F = M$	ICES (2019)
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 ( <a href="#">ICES, 2018</a> ).
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 can only quantify discards for the last 5 years.
Indicators	Length-based indicator.
Other information	This stock has not been benchmarked.
Working group	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources ( <a href="#">WGDEEP</a> )

### Information from stakeholders

There is no additional available information.

<sup>†</sup> Version 2: NEAFC categorisation of deep-sea stocks added to section.

## 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 ^	Catch corresponding to advice	EU TAC subareas 5–7	TAC Faroes in Faroese EEZ	ICES landings
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	< 18000	21846
2011	The fishery should not be allowed to expand, and a reduction in catches should be considered	-	4691	< 18000	22295
2012	No new advice, same as 2011		4316	< 18000	14969
2013	Reduce catches by 10%	31300	4316	< 18000	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	16320
2017	Biennial	10030	3884	11500	16806
2018	Precautionary approach	≤ 12036	4661	11700	16033*
2019	Precautionary approach (same value as advised landings for 2018)	≤ 12036	4661	11700	
2020	Precautionary approach	≤ 7703			
2021	Precautionary approach (same value as advised landings for 2020)	≤ 7703			

\* Preliminary.

^ 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 2018 as estimated by ICES.

Catch (2018)	Landings	Discards
16 220 tonnes	100% trawl	187 tonnes
	16 033 tonnes	

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

Year	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	3	0	60	13	0	21846
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	3	0	16320
2017	0	11727	0	600	63	0	4407	2	0	0	6	0	16806
2018	0	12087	8	1001	0	0	2763	5	0	0	168	0	16033

**Table 9** Greater silver smelt in divisions 5.b and 6.a. Discards in tonnes; Germany and Scotland are official data, while data from France and Netherlands are as reported to ICES.

Year	Division 5.b			Division 6.a				Divisions 5.b and 6.a	
	France	Germany	Netherlands	France	Germany	Netherlands	Scotland	Total	% of catch
2014		28		808	92		653	1581	9.2
2015				161			109	270	1.5
2016	12			200			1451	1663	9.2
2017	31		0	217		9	14	270	1.6
2018	2			118			67	187	1.2

## 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			Landings (tonnes)	Discards (tonnes)
	Biomass index (kg h <sup>-1</sup> )	High	Low		
1988				8211	
1989				20808	
1990				9683	
1991				4786	
1992				6974	
1993				2132	
1994				8595	
1995				17224	
1996	52.940	95.688	10.191	15130	
1997	45.549	76.127	14.972	15702	
1998	31.539	52.351	10.727	23126	
1999	34.287	58.586	9.988	16452	
2000	39.972	75.303	4.640	12198	
2001	40.525	66.105	14.945	24547	
2002	18.817	31.058	6.577	19237	
2003	25.460	42.347	8.572	8597	
2004	32.930	55.722	10.138	10369	
2005	21.712	37.892	5.531	12647	
2006	27.716	48.276	7.155	17456	
2007	16.182	27.101	5.263	21943	
2008	31.961	54.271	9.652	20112	
2009	56.437	108.881	3.994	20879	
2010	37.765	63.807	11.723	21846	
2011	37.275	71.190	3.361	22295	
2012	33.879	62.841	4.917	14969	
2013	18.655	29.586	7.724	16668	
2014	19.552	30.421	8.684	15663	1581
2015	33.126	57.888	8.363	17548	270
2016	42.070	79.926	4.215	16320	1663
2017	28.934	48.822	9.046	16806	270
2018	17.605	26.993	8.216	16033	187

## Sources and references

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