

Greater silver smelt (*Argentina silus*) in Subarea 14 and Division 5.a (East Greenland and Iceland grounds)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches should be no more than 9124 tonnes in 2020.

Stock development over time

The biomass indicator shows an increasing trend since 2000. A proxy for fishing mortality (F_{proxy}) has decreased in recent years and has been below the $F_{\text{MSY proxy}}$ since 2014.

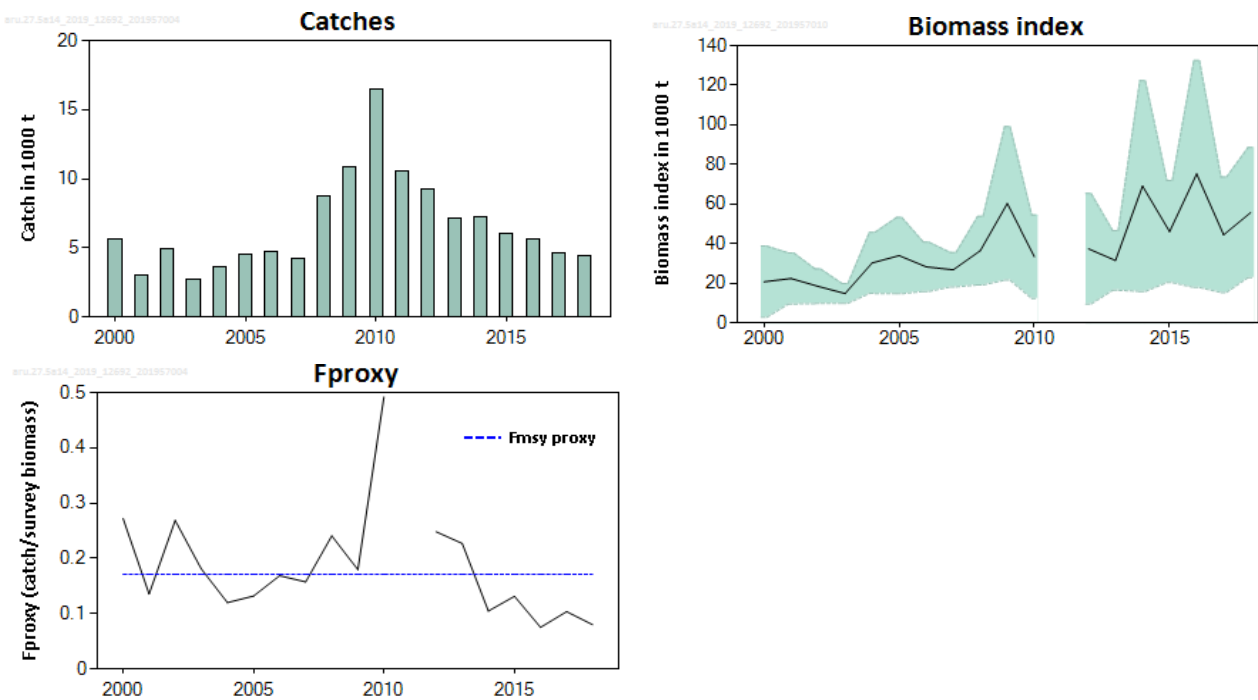


Figure 1 Greater silver smelt in Subarea 14 and Division 5.a. Summary of the stock assessment. Top left: Total catches; Top right: Biomass index from the Icelandic autumn survey (IS–SMH), the shaded areas on the biomass index plot represent 95% confidence intervals; Bottom: The fishing mortality proxy (F_{proxy}) from catch and survey data (total catch / survey biomass). The dotted horizontal line indicates $F_{\text{MSY proxy}}$, the average F_{proxy} for the period 2002–2007.

Stock and exploitation status

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

Table 1 Greater silver smelt in Subarea 14 and Division 5.a. State of the stock and fishery relative to reference points. The status evaluation is based on reference point proxies (ICES, 2016).

		Fishing pressure			Stock size				
		2016	2017	2018	2016	2017	2018		
Maximum sustainable yield	$F_{\text{MSY proxy}}$	✓	✓	✓ Below	B_{trigger}	?	?	?	Undefined
Precautionary approach	$F_{\text{pa}}, F_{\text{lim}}$	✓	✓	✓ Below possible reference points	$B_{\text{pa}}, B_{\text{lim}}$?	?	?	Undefined
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	—	—	— Not applicable	-	↗	↘	↗	Increasing

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The Icelandic autumn trawl survey was used as a biomass indicator. A reference $F_{MSY\ proxy}$ was defined as the average F_{proxy} (catch divided by survey biomass index) for the reference period 2002–2007.

The advice is based on multiplying the reference $F_{MSY\ proxy}$ with the most recent survey biomass index value. The difference between the resulting value and the previous catch advice was greater than 20%; therefore, the uncertainty cap was applied. The reference $F_{MSY\ proxy}$ used to provide advice is considered precautionary, because it is based on exploitation during a period when no detrimental effects were observed on the stock. Therefore, the precautionary buffer was not applied. Discarding is considered negligible.

Table 2 Greater silver smelt in Subarea 14 and Division 5.a. The basis for the catch scenarios [^].

Index (2018)		55 694 t
Reference $F_{MSY\ proxy}$ (2002–2007)		0.171
Advised catch for 2019		7603
(Index × Reference $F_{MSY\ proxy}$)/Advised catch for 2019		1.25
Uncertainty cap	Applied	1.2
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice *		9 124
% Advice change **		20%

[^] 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.

* [Advised catch for 2019] × [Uncertainty cap].

** Advice value for 2020 relative to advice value for 2019.

The advised catch has increased from last year as a result of an increase in the biomass indicator.

Basis of the advice

Table 3 Greater silver smelt in Subarea 14 and Division 5.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 these areas.

Quality of the assessment

The Icelandic autumn survey (IS–SMH) covers the full depth range and geographical distribution of the stock and the fisheries except for Subarea 14 where some catches have been reported in recent years. The uncertainty in the survey index is high because the species is usually caught in the survey in only a few hauls and in relatively large numbers.

A new source of catch data from Division 14.b (Greenlandic waters) has been used to revise recent catch and harvest rates (Table 8).

Issues relevant for the advice [†]

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 Subarea 14 and Division 5.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 (subareas 1, 2, and 4 and Division 3.a; divisions 5.b and 6.a; and subareas 7–10 and 12 and Division 6.b).

[†] Version 2: NEAFC categorisation of deep-sea stocks added to section.

The inclusion of new catch data from Division 14.b in the assessment did not change interpretations of stock status or advice given in previous years.

Reference points

Table 4 Greater silver smelt in Subarea 14 and Division 5.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger proxy}}$	Not defined		
	$F_{\text{MSY proxy}}$	0.171	The harvest rate $F_{\text{MSY proxy}}$ from catch and survey data: (total catch / survey biomass) for the period 2002–2007 when no detrimental effects were observed.	ICES (2016)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{mgt}	Not applicable		
	F_{mgt}	Not applicable		

Basis of the assessment

Table 5 Greater silver smelt in Subarea 14 and Division 5.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2018).
Assessment type	Survey trends-based assessment.
Input data	Landings and survey index (Icelandic autumn survey, IS–SMH).
Discards and bycatch	Discarding is considered negligible.
Indicators	None.
Other information	Latest benchmark 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 additional available information.

History of the advice, catch, and management

Table 6 Greater silver smelt in Subarea 14 and Division 5.a. ICES advice and catches. All weights are in tonnes.

Year	ICES advice*	Catch corresponding to advice	ICES catches
2003	-		2686
2004	-		3637
2005	-		4481
2006	-		4775
2007	The fishery should not be allowed to expand unless it can be shown that it is sustainable		4226
2008	Biennial		8778
2009	Same advice as 2007		10829
2010	Biennial		16428
2011	Reduce exploitation rates to 2001–2007 levels		10515
2012	No new advice, same as 2011		9290
2013	F_{proxy} (2001–2007)	3700	7154
2014	No new advice, same as 2013	3700	7245
2015	F_{proxy} (2002–2007), 20% lowering of target	4033	6068
2016	Precautionary approach: $F_{\text{MSY proxy}}$ (2002–2007), capped index increase	6477	5662

Year	ICES advice*	Catch corresponding to advice	ICES catches
2017	Precautionary approach (same value as advised catches for 2016)	≤ 7758	4612
2018	Precautionary approach: $F_{MSY\ proxy}$ (2002–2007), capped index increase	≤ 9310	4460
2019	Precautionary approach	≤ 7603	
2020	Precautionary approach: $F_{MSY\ proxy}$ (2002–2007), capped index increase	≤ 9124	

*Prior to 2007 advice for this stock was included in the advice on greater silver smelt in other areas. The advice for 2007–2015 was for Division 5.a only.

History of the catch and landings

Table 7 Greater silver smelt in Subarea 14 and Division 5.a. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings	Discards
4460 tonnes	Trawl 100%	Discarding is negligible
	4460 tonnes	

Table 8 Greater silver smelt in Subarea 14 and Division 5.a. History of commercial official total catches and catches inside and outside of the NEAFC Regulatory Area. All weights are in tonnes. The catches are mostly taken by Iceland.

Year	Inside the NEAFC RA	Outside the NEAFC RA		Catches
		Division 5.a	Division 14.b	
1988	0	206	0	206
1989	0	8	0	8
1990	0	112	0	112
1991	0	247	0	247
1992	0	657	0	657
1993	0	1255	0	1255
1994	0	613	0	613
1995	0	492	0	492
1996	0	808	0	808
1997	0	3367	0	3367
1998	0	13387	0	13387
1999	0	6704	0	6704
2000	0	5657	0	5657
2001	0	3043	0	3043
2002	0	4960	0	4960
2003	0	2686	0	2686
2004	0	3637	0	3637
2005	0	4481	0	4481
2006	0	4775	0	4775
2007	0	4226	0	4226
2008	0	8778	0	8778
2009	0	10829	0	10829
2010	0	16428	0	16428
2011	0	10515	0	10515
2012	0	9290	0	9290
2013	0	7154	0	7154
2014	0	7241	4	7245
2015	0	6056	12	6068
2016	0	5646	16	5662
2017	0	3946	666	4612
2018	0	4035	425	4460

Summary of the assessment

Table 9 Greater silver smelt in Subarea 14 and Division 5.a. Assessment summary. The index is from the Icelandic autumn survey (IS–SMH). Indices and catches are in tonnes. High and low refer to 95% confidence bounds.

Year	Biomass index	Biomass index High	Biomass index Low	Catches	F _{proxy}
2000	20764	38794	2735	5657	0.27
2001	22426	35348	9503	3043	0.136
2002	18465	27151	9779	4960	0.27
2003	14826	19766	9886	2686	0.181
2004	30289	45724	14854	3637	0.120
2005	33956	53190	14722	4481	0.132
2006	28317	40749	15885	4775	0.169
2007	26832	35510	18155	4226	0.157
2008	36458	53751	19165	8778	0.24
2009	60280	99033	21527	10829	0.180
2010	33383	54452	12314	16428	0.49
2011*				10515	
2012	37413	65278	9548	9290	0.25
2013	31505	46510	16500	7154	0.23
2014	69073	122278	15867	7245	0.105
2015	46114	71873	20355	6068	0.132
2016	75200	132535	17864	5662	0.075
2017	44463	73570	15356	4612	0.104
2018	55694	88553	22834	4460	0.080

*No survey in 2011.

Sources and references

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Recommended citation: ICES. 2019. Greater silver smelt (*Argentina silus*) in Subarea 14 and Division 5.a (East Greenland and Iceland grounds). *In* Report of the ICES Advisory Committee, 2019. ICES Advice 2019, aru.27.5a14, <https://doi.org/10.17895/ices.advice.4809>.