

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

ICES stock advice

ICES advises that when the precautionary approach is applied, catches should be no more than 9310 tonnes in 2018. All catches are assumed to be landed.

Stock development over time

The biomass indicator shows a an increasing trend since 2000. The F_{proxy} has decreased since 2010 and has been below the $F_{\text{MSY proxy}}$ since 2014.

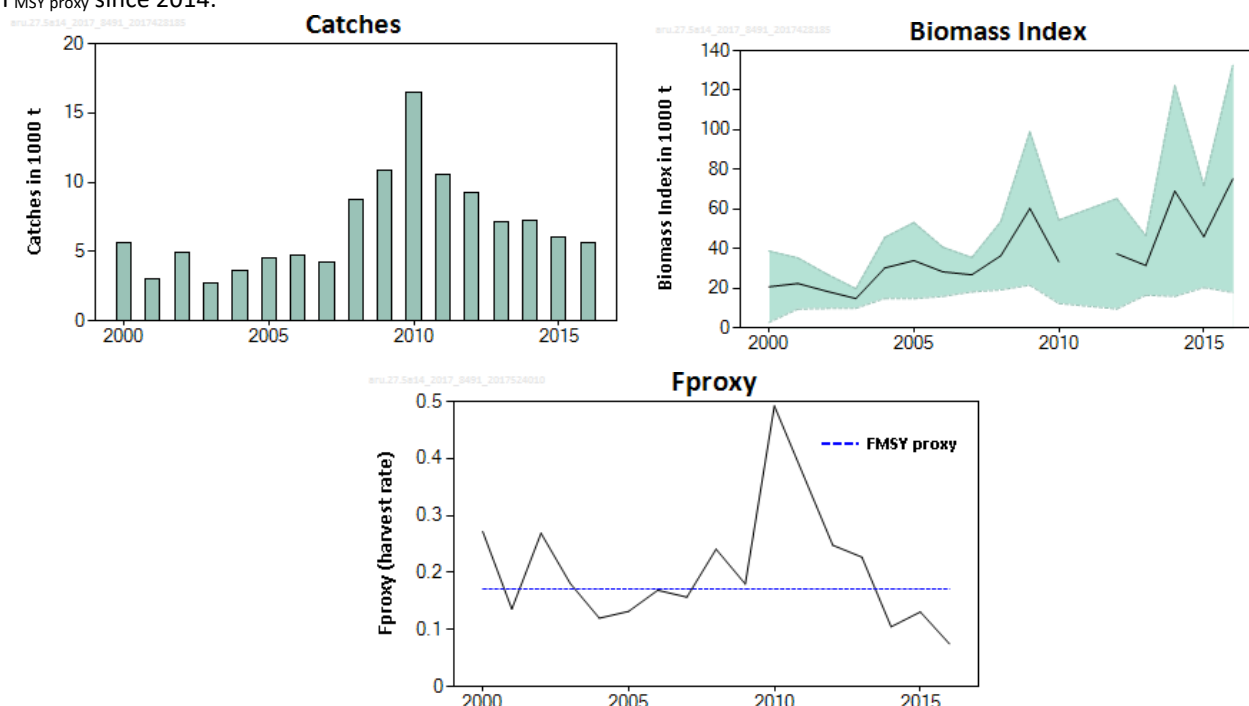


Figure 1 Greater silver smelt in Subarea 14 and Division 5.a. Summary of the stock assessment. Top left: Total catches; Top right: Biomass index from the Icelandic autumn survey (IS-SMH); Bottom: The harvest rate F_{proxy} from catch and survey data: (total catch) / (survey biomass). The dotted horizontal lines indicate the average F_{proxy} for the period 2002–2007 used to calculate the advice.

Stock and exploitation status

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, 2016a).

		Fishing pressure				Stock size			
		2014	2015	2016		2014	2015	2016	
Maximum Sustainable Yield	F_{MSY} proxy	✓	✓	✓	Below	MSY B_{trigger}	?	?	?
Precautionary Approach	$F_{\text{pa}}, F_{\text{lim}}$	✓	✓	✓	Below possible reference points	$B_{\text{pa}}, B_{\text{lim}}$?	?	?
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—
Qualitative evaluation	-	—	—	—	Not applicable	-	↗	↘	↗

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The Icelandic autumn trawl survey was used as biomass indicator. A reference $F_{MSY\ proxy}$ was defined as the average F_{proxy} (catch divided by survey biomass index and equivalent to a harvest rate) 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. This value is constrained by an uncertainty cap of 20% compared to the previous catch advice.

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. In addition, the biomass index has been increasing over the time-series. 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 options.

Index A (2016)	75200 t	
Reference $F_{MSY\ proxy}$ (2002–2007)	0.171	
Advice 2016	7758 t	
(Index A × Reference $F_{MSY\ proxy}$)/Advice 2016	1.66	
Uncertainty cap	Applied	1.2
Discard rate	Negligible	
Precautionary buffer	Not applied	-
Catch advice *	9310 t	

* [Advice 2016] × [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 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 2017 in this area.

Quality of the assessment

The Icelandic autumn survey (IS–SMH) covers the full depth range and geographical distribution of the stock and the fisheries. The uncertainty in the survey index is high because the species is usually caught in the survey in only few hauls in relatively large numbers. The index ratio of the mean length in catches in 2016 relative to the expected length when $F=M$ (35.9 cm) is 1.05 (ICES 2017) which also suggests that exploitation is below the proxy for F_{MSY} .

Issues relevant for the advice

There is no information to present for this stock.

Reference points

The average F_{proxy} for the reference period 2002–2007 used to provide advice is considered to be $F_{MSY\ proxy}$ (ICES, 2016a) for this stock.

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 $B_{trigger\ proxy}$	Not defined		
	$F_{MSY\ proxy}$	0.171	The harvest rate $F_{MSY\ proxy}$ from catch and survey data: (total catch) / (survey biomass) for the period 2002–2007 when no detrimental effects were observed.	ICES (2016a, 2017)
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, 2016b).
Assessment type	Survey trends-based assessment.
Input data	Landings and survey indices (Icelandic autumn survey, IS–SMH).
Discards and bycatch	Discarding is considered negligible.
Indicators	Length-based indicator (ICES, 2017).
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 available information.

History of the advice, catch, and management

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

Year	ICES advice	Predicted catch corresp. to advice	ICES landings
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		7241
2015	F_{proxy} (2002–2007), 20% lowering of target	4033	6056
2016	Precautionary approach: $F_{MSY\ proxy}$ (2002–2007), capped index increase	6477	5646
2017	Precautionary approach (same value as advised catches for 2016)	≤ 7758	
2018	Precautionary approach: $F_{MSY\ proxy}$ (2002–2007), capped index increase	≤ 9310	

*Prior to 2007 advice for this stock was included in the advice on greater silver smelt in other areas.

History of the catch and landings

Table 7 Greater silver smelt in Subarea 14 and Division 5.a. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings	Discards
5646 tonnes	Trawl 100%	negligible
	5646 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.

Year	Inside the NEAFC RA	Outside the NEAFC RA	Catches
1988			206
1989			8
1990			112
1991			247
1992			657
1993			1255
1994			613
1995			492
1996			808
1997			3367
1998			13387
1999			6704
2000			5657
2001			3043
2002			4960
2003			2686
2004			3637
2005			4481
2006			4775
2007			4226
2008			8778
2009			10829
2010			16428
2011			10515
2012			9290
2013	0	7154	7154
2014	0	7241	7241
2015	0	6056	6056
2016	0	5646	5646

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). Weights are in tonnes.

Year	Catch	Index	CV	Upper	Lower	F _{proxy}
2000	5657	20764	0.44	38794	2735	0.27
2001	3043	22426	0.29	35348	9503	0.136
2002	4960	18465	0.24	27151	9779	0.27
2003	2686	14826	0.17	19766	9886	0.181
2004	3637	30289	0.26	45724	14854	0.120
2005	4481	33956	0.29	53190	14722	0.132
2006	4775	28317	0.22	40749	15885	0.169
2007	4226	26832	0.17	35510	18155	0.157
2008	8778	36458	0.24	53751	19165	0.24
2009	10829	60278	0.33	99029	21526	0.180
2010	16428	33383	0.32	54452	12314	0.49
2011*	10515					
2012	9290	37413	0.38	65278	9548	0.25
2013	7154	31504	0.24	46509	16499	0.23
2014	7241	69073	0.39	122278	15867	0.105
2015	6056	46114	0.29	71873	20355	0.131
2016	5646	75199	0.39	132535	17864	0.075

*No survey in 2011.

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.

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