

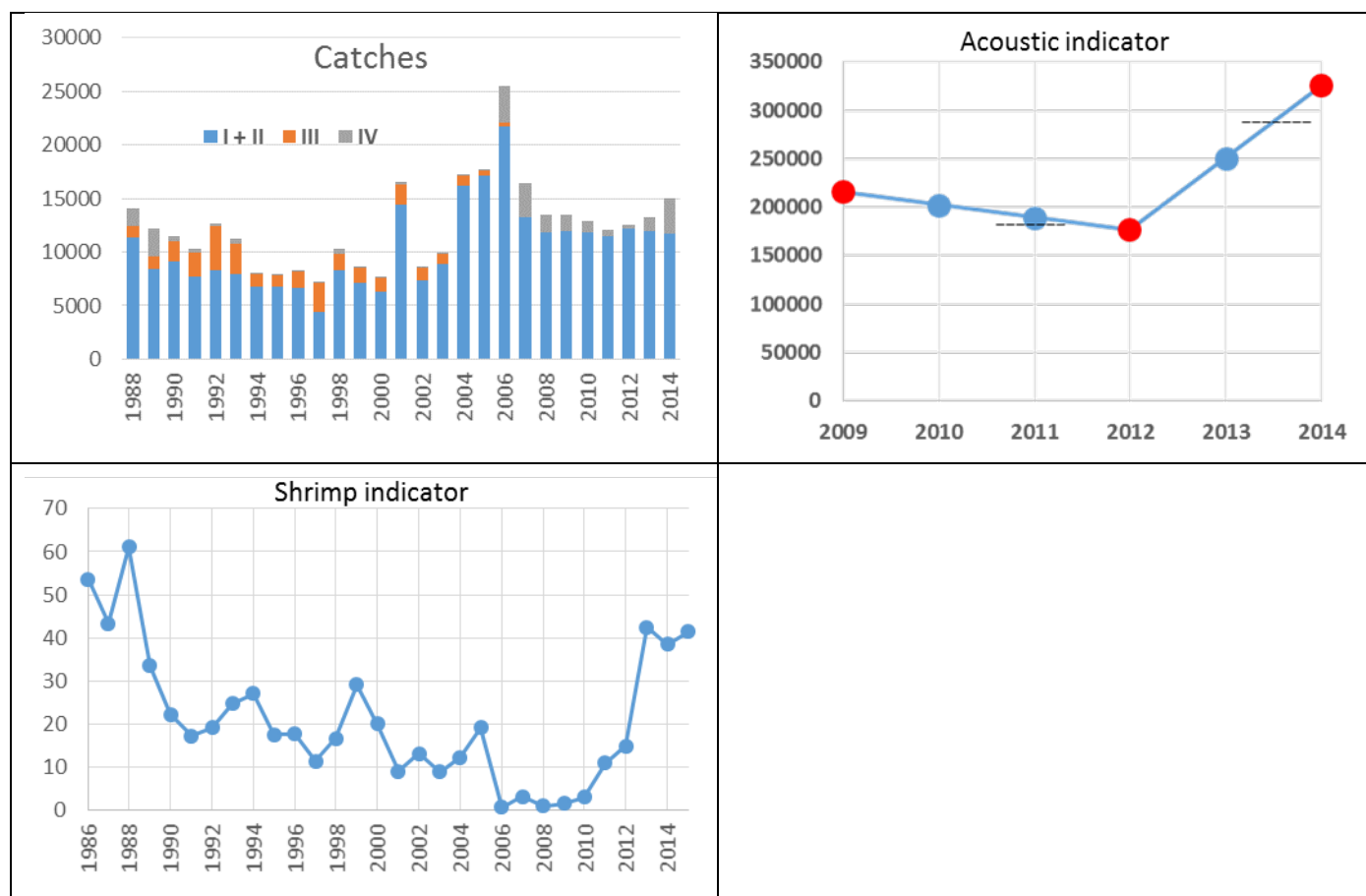
### 9.3.14 Greater silver smelt (*Argentina silus*) in Subareas I, II, IV, and Division IIIa (Northeast Arctic, North Sea, Skagerrak and Kattegat)

#### ICES stock advice

ICES advises that when the precautionary approach is applied, landings should be no more than 13 047 tonnes in each of the years 2016 and 2017. All catches are assumed to be landed.

#### Stock development over time

Most of the catches are from Subareas I and II and have been stable since 2007. There has been a slight increase in catches in Subarea IV in the last two years. Currently no catches are coming from Subarea III. The acoustic index from Subarea II shows an increase between 2012 and 2014. An index increase is also observed in Subarea III, from the shrimp trawl survey.



**Figure 9.3.14.1** Greater silver smelt in Subareas I, II, IV, and Division IIIa. Top left: Total catches in tonnes. Top right: Norwegian acoustic biomass index from Subarea II. The red dots are measurements and blue dots are an interpolation between observations. Dashed lines indicate the average index values of the respective year range used to calculate the advice. Bottom: Norwegian shrimp trawl survey abundance index of greater silver smelt.

## Stock and exploitation status

**Table 9.3.14.1** Greater silver smelt in Subareas I, II, IV, and Division IIIa. State of the stock and fishery, relative to reference points.

		Fishing pressure				Stock size			
		2012	2013	2014		2013	2014	2015	
Maximum Sustainable Yield	$F_{MSY}$	?	?	?	Undefined	MSY	?	?	?
						$B_{trigger}$	?	?	Undefined
Precautionary approach	$F_{pa}$ , $F_{lim}$	?	?	?	Undefined	$B_{pa}$ , $B_{lim}$	?	?	?
									Undefined
Management Plan	$F_{MGT}$	-	-	-	Not applicable	$SSB_{MGT}$	-	-	-
									Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	→	→
									stable

## Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The Norwegian acoustic survey in Subarea II was applied as an 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), combined with average catches in recent years. For years where index values are not available the values are obtained by interpolation (Figure 9.3.14.1). The index is estimated to have increased by more than 20% which means that the uncertainty cap was applied to calculate the catch advice. The stock status relative to candidate reference points is unknown. Therefore, the precautionary buffer was applied to calculate the catch advice. Discarding is considered negligible.

**Table 9.3.14.2** Greater silver smelt in Subareas I, II, IV, and Division IIIa. For stocks in ICES categories 3–6, one catch option is provided. Weights in tonnes.

Index A (2013–2014)		288 173
Index B (2010–2012)		189 705
Index ratio (A/B)		1.52
Uncertainty cap	Applied	1.2
Average catches (2012, 2013, 2014)		13 591
Discard rate		Negligible
Precautionary buffer	Applied	0.8
catch advice*		13 047

\* (average catches × cap × buffer).

## Basis of the advice

**Table 9.3.14.3** Greater silver smelt in Subareas I, II, IV, and Division IIIa. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	There is no species-specific management plan for this stock.

## Quality of the assessment

The acoustic survey time-series in Subarea II is considered the best stock indicator available and although it is short and intermittent it is used as the basis for the advice. The acoustic survey time-series shows an increasing trend. The Norwegian shrimp survey in Division IIIa also shows more than 20% increase in abundance; however, no catches have been taken from Division IIIa since 2007.

### Issues relevant for the advice

ICES has in 2015 revised the advice units for the greater silver smelt. The stock structure of greater silver smelt is unknown, but the species is not thought to be highly migratory and spawning takes place in most of the distribution area. The fishery of greater silver smelt takes place in specific areas that are fairly well defined. As a precautionary measure, to reduce the risk of local depletion, ICES provides advice for four advisory units of greater silver smelt.

### Reference points

No reference points are defined for this advisory unit.

### Basis of the assessment

**Table 9.3.14.4** Greater silver smelt in Subareas I, II, IV, and Division IIIa. The basis of the assessment.

ICES stock data category	3.2 (ICES, 2015a).
Assessment type	Survey trends-based assessment (ICES, 2015b).
Input data	Acoustic index from Subarea II.
Discards and bycatch	Discarding is considered to be negligible.
Indicators	None.
Other information	Norwegian shrimp trawl survey in Division IIIa.
Working group	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources ( <a href="#">WGDEEP</a> ).

### Information from stakeholders

There is no available information.

### History of advice, catch, and management

**Table 9.3.14.5** Greater silver smelt in Subareas I, II, IV, and Division IIIa. History of ICES advice, the agreed TAC, and ICES estimates of landings. Weights in thousand tonnes.

Year	ICES advice*	Predicted atchcorresp. to advice	Official landings	TAC EC		TAC Norway
				Subareas I and II	Subareas III and IV	Subarea II
2003	No fisheries unless data collection on (by)catch; no expansion unless proven to be sustainable	-	9.949	-	1.566	
2004	Biennial	-	17.183	-	1.566	
2005	No fisheries unless accompanied by programmes to collect data on both target and bycatch fish	-	17.595	0.116	5.31	
2006	Biennial	-	25.496	0.116	5.31	
2007	The fishery should not be allowed to expand unless it can be shown that it is sustainable	-	16.375	0.116	5.311	12
2008	Biennial	-	13.424	0.116	5.311	12
2009	Same advice as 2007	-	13.495	0.116	5.311	12
2010	Biennial	-	12.898	0.111	5.099	12
2011	The fishery should not be allowed to expand, and a reduction in catches should be considered	-	12.064	0.103	4.691	12
2012	No new advice, same as 2011		12.485	0.095	4.316	12
2013	Reduce catches by 10%		13.23	0.09	4.316	12
2014	No new advice, same as 2013		15.1	0.09	4.316	12
2015	No new advice, same as 2013					12
2016*	Precautionary approach with application of PA buffer	13				
2017	Biennial	13				

\* Until 2014 the advice was combined for Subareas I, II, IV, VI, VII, VIII, IX, X, XII, and XIV, and Divisions IIIa and Vb.

## History of catch and landings

**Table 9.3.14.6** Greater silver smelt in Subareas I, II, IV, and Division IIIa. Catch distribution in 2014 as estimated by ICES.

Total catch	Commercial landings	Commercial discards
15.1 kt	100% trawl	0 kt
	15.1 kt	

**Table 9.3.14.7** Greater silver smelt in Subareas I, II, IV, and Division IIIa. Official catches. Weights in tonnes.

Year	I + II	IIIa	IV	Total catch
1988	11 351	1 089	1 656	14 096
1989	8 390	1 174	2 612	12 176
1990	9 120	1 882	439	11 441
1991	7 741	2 221	333	10 295
1992	8 234	4 198	236	12 668
1993	7 913	2 830	445	11 188
1994	6 807	1 108	38	7 953
1995	6 775	1 061	21	7 857
1996	6 604	1 548	111	8 263
1997	4 463	2 700	2	7 165
1998	8 261	1 589	427	10 277
1999	7 163	1 422	11	8 596
2000	6 293	1 316	45	7 654
2001	14 369	1 918	262	16 549
2002	7 407	1 098	167	8 672
2003	8 917	960	72	9 949
2004	16 162	911	110	17 183
2005	17 093	470	32	17 595
2006	21 685	324	3 487	25 496
2007	13 273	0	3 101	16 374
2008	11 876	0	1 548	13 424
2009	11 929	0	1 566	13 495
2010	11 854	0	1 044	12 898
2011	11 476	0	588	12 064
2012	12 134	0	351	12 485
2013	11 979	0	1 251	13 230
2014*	11 747	0	3 310	15 057

\* Preliminary.

## Summary of the assessment

**Table 9.3.14.8** Greater silver smelt in Subareas I, II, IV, and Division IIIa. Assessment summary from the Norwegian shrimp trawl survey in Division IIIa and the acoustic survey in Subarea II.

Year	Index Division IIIa	Index Subarea II
1986	53.6	
1987	43.3	
1988	61.0	
1989	33.5	
1990	22.1	
1991	17.2	
1992	19.0	
1993	24.7	
1994	27.1	
1995	17.5	
1996	17.5	
1997	11.3	
1998	16.6	
1999	29.1	
2000	20.0	
2001	8.9	
2002	13.1	
2003	8.8	
2004	12.1	
2005	19.1	
2006	0.5	
2007	3.1	
2008	0.9	
2009	1.5	215 247
2010	2.9	202 476*
2011	10.9	189 705*
2012	14.8	176 934
2013	42.5	251 094*
2014	38.5	325 253
2015	41.5	-

\*Numbers in italics are interpolated values.

## Sources and references

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

ICES. 2015a. Advice basis. *In* Report of the ICES Advisory Committee, 2015. ICES Advice 2015, Book 1. In preparation.

ICES. 2015b. Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), 20–27 March 2015, ICES Headquarters, Copenhagen. ICES CM 2015/ACOM:17.