

16.5.4 Rounding rules to be applied in ICES advice

Summary

This section describes the rounding approaches used in the ICES advice sheets. Rounding is used to ease comparison of values; rounded figures therefore do not represent the level of precision of the various estimates provided. The precision may be determined by consulting the coefficients of variations where available, or to the upper and lower confidence intervals when provided. The rounding rules were agreed by ICES Advisory Committee (ACOM) in November 2016.

In general, the following rules apply: all biomass (catch, landings, wanted and unwanted catch, stock biomass, SSB...) should be presented in tonnes, and stock numbers (or catch numbers, when applicable) should be presented in thousands of fish (except for salmon in Subdivision 32 where numbers are given in individuals). The objective is to ensure that the rounding rules are consistent from one section to another within the advice sheet. Full and actual values are inserted into the draft advice by the expert group, and the rounding of these values is done by the advice drafting group (ADG). Values from management plans/strategies are *not* rounded or changed in any way.

An exception to the rounding rules can be made in the historical table presenting previous advice and catch (in the section "History of advice, catch, and management"). In this table catch values for many stocks were formerly provided in thousand tonnes. For comparison these historical catch values should be shown in tonnes. If the actual, unrounded values for the early period are not readily available, the values provided should be multiplied by one thousand.

The rules are detailed below. An ICES advice sheet from 2016 exemplifies application of the rounding rules to the tables, shown in yellow columns. At the end the rounding rules have been applied to an example of a "Basis for the catch options" table from a stock where recruitment is measured in numbers.

Rounding rules

1. The full and actual value of all numbers should be used in calculations with the precision available in the software used.
2. Where numbers are presented in ICES advice sheets they should be used in rounded form according to the following rules:
 - Biomass and catch: Should be provided in tonnes and rounded to the nearest tonne.
 - Number of individuals: Should be provided in thousands rounded to the nearest thousand, except for salmon in Subdivision 32 where numbers are given in individuals.
 - Other numbers:
 - i) Round to two significant figures when the first non-zero digit is 2 or larger.
 - ii) Round to three significant figures when the first non-zero digit is 1.

Note: icesAdvice, an R package

The ICES Secretariat maintains an R package on CRAN called icesAdvice. This package contains a function called icesRound() that can be used to apply this rounding method.

Table 16.5.4.1 Rounding rules applied to F values, harvest/discard rates, SSB/biomass values, and to % TAC and SSB changes.

Rounding F values		Rounding harvest and discard rates		Rounding SSB/biomass values		Rounding % SSB and TAC change	
Actual value	Rounded value	Actual value	Rounded value	Actual value (tonnes)	Rounded value	Actual value	Rounded value
0.35776	0.36	9.546	9.5%	48 650	No rounding	-1.482%	-1.48%
0.34665	0.35	10.546	10.5%	48 445	No rounding	-9.09%	-9.1%
0.202	0.20	23.445%	23%	10 555	No rounding	+0.51%	+0.51%
0.12665	0.127			10 520	No rounding	+130.11%	+130%
0.001567	0.00157					+584%	+580%
0.002567	0.0026						
0.013415	0.0134						
0.02315	0.023						
1.168	1.17						
2.15678	2.2						

3. Reference points should be presented with the precision of the actual value used. If an SSB reference point, used to determine whether a stock is above or below the reference point, has been rounded to thousand tonnes, this reference point value should then be multiplied by one thousand to show it in tonnes. For example, a B_{lim} reference point was calculated as 50 085 t and the reference point was subsequently rounded at 50 thousand t, the value which is used to determine stock status. In this case, the reference point should be shown as 50 000 t in the advice sheet. Conversely, if the reference point was set at the actual value (50 085 t) then that value should be the one shown for the reference point in the advice sheet.

Example of an advice sheet with applied rounding rules

In the following example advice sheet, the rounding rules have been applied to all tables for exemplification. For this exercise, original, unrounded values have been traced and inserted in an *Actual value*-column. A *Rounded value*-column is presented and highlighted in yellow for emphasis. In the actual advice sheet, only the rounded value will be presented. The text in *blue italics* seen in tables and table headers is purely explanatory and should not be added to the actual advice sheet. It has not been possible to find the original, un-rounded values in all cases, which is why not all tables have both an *Actual value*- and a *Rounded value*-column.

Anchovy (*Engraulis encrasicolus*) in Subarea 8 (Bay of Biscay)

ICES stock advice

ICES advises that when the management strategy is applied, catches in 2017 should be no more than 33 000 tonnes.

Stock development over time

The spawning-stock biomass (SSB) has been above B_{lim} since 2010. Recruitment and SSB have been well above the historical average in recent years. The incoming recruitment in 2017 is above average. Harvest rates since the reopening of the fishery in 2010 have been below average.



Figure 1 Anchovy in Subarea 8. Trends in catch (preliminary value not shaded), recruitment (age 1 biomass, January 1st), harvest rates (catch/SSB), and spawning-stock biomass (mid-May). 90% confidence limits are indicated for recruitment, harvest rate, and SSB.

Stock and exploitation status

Table 1 Anchovy in Subarea 8. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size					
		2014	2015	2016				2014	2015	2016	
Maximum sustainable yield	F _{MSY}	?	?	?	Undefined	MSY	?	?	?	Undefined	
Precautionary approach	F _{pa} , F _{lim}	?	?	?	Undefined	B _{lim} *	✓	✓	✓	Full reproductive capacity	
Management plan	F _{MGT}	?	?	?	Undefined	SSB _{MGT}	✓	✓	✓	Above upper trigger	

* The SSB is estimated to be significantly above B_{lim} .

Catch options

Table 2 Anchovy in Subarea 8. The basis for the catch options. *Biomass values should be rounded to the nearest tonne. Harvest rate should be rounded according to the rules in Table 15.5.3.1.*

Variable	<i>Actual value</i>	<i>Rounded value</i>	Source	Notes
Catch (2016)	18050.21092 tonnes	18050 tonnes	ICES (2016a)	Preliminary value, used as input in the stock assessment.
Discards (2016)	negligible	-	ICES (2016a)	Discarding is considered to be negligible.
SSB (2016)	109147.060315568 tonnes	109147 tonnes	ICES (2016a)	SSB estimate from the stock assessment (mid-May).
HR (2016)	0.165382374	0.165	ICES (2016a)	Harvest rate estimate from the stock assessment.
R _{age1} (2017)	70422.9515648891 tonnes	70423 tonnes	ICES (2016a)	Recruitment estimate from the stock assessment (January 1 st).

Table 3 Anchovy in Subarea 8. The catch options. *Biomass values should be rounded to the nearest tonne. Harvest rate and % TAC change should be rounded according to the rules in Table 15.5.3.1. The "Probability SSB (2017) < B_{lim}" column is not subjected to the rounding rules.*

Rationale	Basis	Catch (2017)	Probability SSB (2017) < B _{lim} *	Median SSB (2017) *	HR (2017) ** <i>Actual value</i>	HR (2017) ** <i>Rounded value</i>	% TAC change *** <i>Actual value</i>	% TAC change *** <i>Rounded value</i>
Management strategy (MS)	Harvest control rule in the MS [^]	33000	< 0.001	100569	0.328	0.33	0	0
Other options	HR(2017) = 0	0	< 0.001	114363	0	0	-100	-100
		10000	< 0.001	110241	0.091	0.091	-69.69697	-70
	HR(2017) = HR(2016)	17701	< 0.001	107032	0.165	0.165	-46.36061	-46
		20000	< 0.001	106070	0.189	0.189	-39.39394	-39
		30000	< 0.001	101857	0.295	0.30	-9.09091	-9.1
		40000	< 0.001	97573	0.410	0.41	+21.21212	+21
		50000	< 0.001	93294	0.536	0.54	+51.51515	+52

Weights are in tonnes.

* The SSB corresponds to mid-May, with 60% of the catch assumed to be taken in the first semester.

** Harvest rate (HR) is calculated as Catch/(Median SSB).

*** Catch (2017) relative to the 2016 TAC (33 000 t).

[^] Because SSB (2017) is above 89 000 t, the management strategy option is based on the upper bound for the TAC (33 000 t).

Basis of the advice

Table 4 Anchovy in Subarea 8. The basis of the advice.

Advice basis	Management strategy
Management plan	<p>A set of harvest control rules for a management calendar from January to December was evaluated by STECF (2013, 2014). The European Commission requested ICES to provide its advice in 2015 according to one of the rules, and according to a different one in 2016. ICES has reviewed the harvest control rule selected in 2016 and concluded that it is precautionary (Annex 9 in ICES, 2016a). The harvest control rule upon which the current advice is based sets the TAC from January to December as:</p> $TAC_{Jan_y-Dec_y} = \begin{cases} 0 & \text{if } \widehat{SSB}_y \leq 24000 \\ -2600 + 0.4 \cdot \widehat{SSB}_y & \text{if } 24000 < \widehat{SSB}_y \leq 89000 \\ 33000 & \text{if } \widehat{SSB}_y > 89000 \end{cases}$ <p>where \widehat{SSB}_y is the expected spawning-stock biomass in year y.</p>

Quality of the assessment

The current assessment results align well with the observed trends in the surveys (SSB and the proportion of 1-group in the biomass from the spring surveys, and the index of incoming (age 1) recruitment from the autumn acoustic surveys on age 0). The two spring biomass surveys, BIOMAN and PELGAS, usually follow similar trends, with a few exceptions (e.g. in 2012). In 2016 both spring surveys show a similar proportion of age 1 and a decrease in biomass with respect to the previous year, but the decrease is larger for PELGAS than for BIOMAN.

The catch data for 2016 are preliminary. Therefore, the harvest rate estimate for 2016 is also preliminary.

Growth and natural mortality of anchovy are assumed constant over the time-series. Additionally, the spring surveys are assumed to have the same catchability for all ages. After a period with negative residuals for the age 1 proportion (in biomass) in the catch of the first semester, the residual was positive in 2016. This needs to be further investigated.

Some French catches taken in Subarea 7 near the border with Subarea 8 (ICES rectangles 25E4 and 25E5) are considered to belong to the same stock and same fishery and have therefore been included in the assessment. Checks in previous years indicated that results of the assessment are not sensitive to the inclusion of these catches (typically less than 1%, but in 2015 and 2016 around 5% of the total catch).

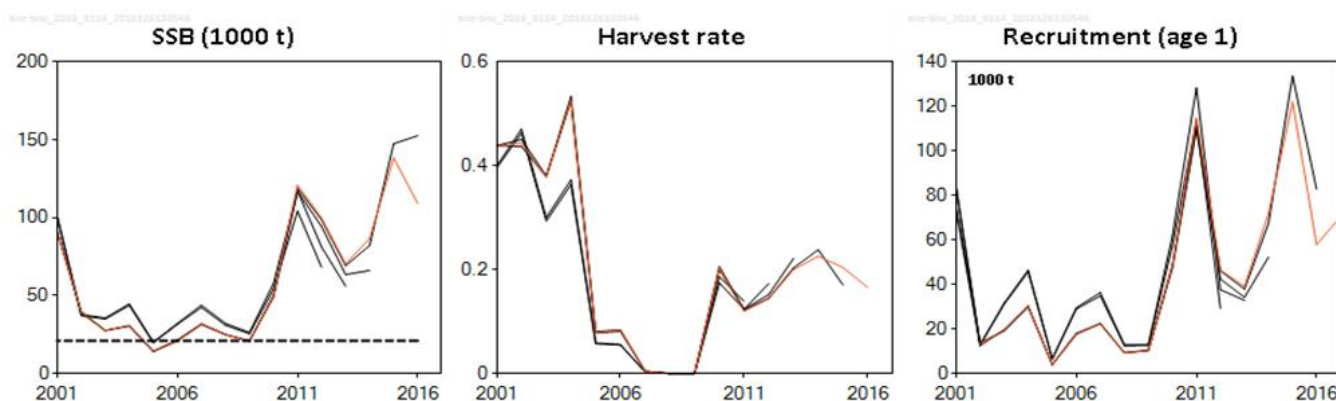


Figure 2 Anchovy in Subarea 8. Historical assessment results.

Issues relevant for the advice

At the request of the European Commission the ICES advice this year is based on a different harvest control rule from the one used last year.

Reference points

Table 5 Anchovy in Subarea 8. Reference points, values, and their technical basis. *Reference points should be presented with the precision of the actual value used (see also 3. in the section on “Rounding rules” above.)*

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY	Not defined		
	$B_{\text{escapement}}$	Not defined		
Precautionary approach	F_{MSY}	Not defined		
	B_{lim}	21000 t	B_{lim} : B_{loss} (median of SSB estimates in the years 1987 and 2009, the minimum estimated biomass that produced substantial recruitment; Annex 8 in ICES, 2013)	ICES (2013)
	B_{pa}	Not defined		
	F_{lim}	Not defined		
Management plan	F_{pa}	Not defined		
	SSB_{MGT}	24000 t (lower trigger) 89000 t (upper trigger)	TAC set to zero if SSB is below the lower trigger, and to 33 000 t if SSB is above the upper trigger. The harvest control rule results in 5% probability of $SSB < B_{\text{lim}}$ in the long term.	STECF (2014)
	F_{MGT}	Not defined		

Basis of the assessment

Table 6 Anchovy in Subarea 8. The basis of the assessment.

ICES stock data category	1 (ICES, 2016b).
Assessment type	Two-stage Bayesian biomass dynamic model (CBBM) assessment that uses catches in the model and in the forecast (ICES, 2016a).
Input data	Commercial catches (international landings, ages and length frequencies from catch sampling), three surveys (BIOMAN, PELGAS, JUVENA); annual maturity data from DEPM survey (BIOMAN) and natural mortalities from past models fitted to spring surveys.
Discards and bycatch	Discarding and bycatch are considered negligible.
Indicators	None.
Other information	The assessment was benchmarked in 2013 (WKPELA ; ICES, 2013).
Working group	Working Group on Southern Horse Mackerel, Anchovy and Sardine (WGHANSA).

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 7 Anchovy in Subarea 8. History of ICES advice, the agreed TAC, and ICES estimates of landings. Weights in tonnes. *If the actual, unrounded values for the early period are not readily available, the values provided should be multiplied by one thousand.*

Year	ICES advice	Predicted catch corresp. to advice		Agreed TAC		Official catch		ICES catch	
1987	Not assessed	-	-	32	32000	14	14000	15	15000
1988	Not assessed	-	-	32	32000	14	14000	16	16000
1989	Increase SSB; TAC	10.0*	10000*	32	32000	6	6000	11	11000
1990	Precautionary TAC	12.3	12300	30	30000	22	22000	34	34000
1991	Precautionary TAC	14.0	14000	30	30000	12	12000	20	20000
1992	No advice	-	-	30	30000	25	25000	38	38000
1993	Reduced F on juveniles; closed area	-	-	30	30000	29	29000	40	40000
1994	Reduced F on juveniles; closed area	-	-	30	30000	28	28000	35	35000
1995	Reduced F on juveniles; closed area	-	-	33	33000	29	29000	30	30000
1996	Reduced F on juveniles; closed area	-	-	33	33000	25	25000	34	34000
1997	Reduced F on juveniles; closed area	-	-	33	33000	18	18000	22	22000
1998	Reduced F on juveniles; closed area	-	-	33	33000	27	27000	32	32000
1999	Reduced F on juveniles; closed area	-	-	33	33000	16	16000	27	27000
2000	Closure of the fishery	0	0	33	33000	35	35000	37	37000
2001	Preliminary TAC at recent exploitation	18	18000	33	33000	37	37000	40	40000
2002	Preliminary TAC at recent exploitation	33	33000	33	33000	19	19000	18	18000
2003	Preliminary TAC at recent exploitation	12.5	12500	33	33000	10	10000	11	11000
2004	Preliminary TAC at recent exploitation	11	11000	33	33000	16	16000	16	16000
2005	Rebuilding SSB	5	5000	30	30000	1	1000	1	1000
2006	Closure of the fishery	0	0	5	5000	2	2000	2	2000
2007	Closure of the fishery	0	0	0	0	0.1	100	0.1**	100**
2008	Closure of the fishery	0	0	0	0	0	0	0	0
2009	Closure of the fishery	0	0	0	0	0.1	100	0	0
2010	Closure of the fishery	0	0	7	700	11	11000	6.1***	6100***
2010/ 2011 [^]	See scenarios	-	-	15.6	15600	-	-	15.1	15100
2011/ 2012 [^]	Risk of SSB falling below $B_{lim} < 5\%$	< 47	< 47000	29.7	29700	-	-	12.2	12200
2012/ 2013 [^]	Risk of SSB falling below $B_{lim} < 5\%$	< 28	< 28000	20.7	20700	-	-	16.7	16700
2013/ 2014 [^]	Risk of SSB falling below $B_{lim} < 5\%$	< 18	< 18000	17.1	17100	-	-	17.5	17500
2014/ 2015 [^]	Risk of SSB falling below $B_{lim} < 5\%$	< 23	< 23000	20.1	20100	-	-	5.8 ^{^^}	5800 ^{^^}
2015	Management plan	< 25	< 25000	25	25000	-	-	28.3	28300
2016	Management plan	≤ 25	≤ 25000	33 ^{^^^}	33000 ^{^^^}	-	-	18.050 ^{^^^}	18050 ^{^^}
2017	Management strategy	≤ 33	≤ 33000						

* Mean catch in 1987–1989.

** Experimental fisheries.

*** Catch from January 2010 to June 2010.

[^] From 2011 to 2014 the advice, TAC, and landings are valid from 1 July to 30 June.

^{^^} Catch restricted to the second semester 2014 due to a change in the management calendar.

^{^^^} Provisional catch in 2016.

^{^^^} The initial TAC was set to 25 000 t; in June 2016 it was raised to 33 000 t.

History of catch and landings

Table 8 Anchovy in Subarea 8. Catch distribution by fleet in 2015 as estimated by ICES. *Biomass values should be rounded to the nearest tonne. Percentages should be rounded according to the rules in Table 15.5.3.1.*

Total catch <i>Actual value</i>	Total catch <i>Rounded value</i>	Landings		Discards
		93% purse-seine	7.3% pelagic trawlers	
28258.213 t	28258 t	28258 t		Discarding is considered negligible

Table 9 Anchovy in Subarea 8. History of commercial catch; both the official and ICES estimated values are presented. Weights are in tonnes. *Values should be rounded to the nearest tonne.*

Year	Official catch	ICES catch <i>Actual value</i>	ICES catch <i>Rounded value</i>
1960	80947	NA*	58085
1961	89969	NA*	75494
1962	65295	NA*	59123
1963	51956	NA*	48652
1964	80381	NA*	76973
1965	85296	NA*	83615
1966	48909	NA*	48358
1967	41460	NA*	41175
1968	38429	NA*	39619
1969	33098	NA*	36083
1970	23637	NA*	23485
1971	29086	NA*	28612
1972	32927	NA*	33067
1973	28196	NA*	28009
1974	31312	NA*	31117
1975	26426	NA*	26302
1976	36166	NA*	37261
1977	48319	NA*	48191
1978	45367	NA*	45219
1979	22673	NA*	26349
1980	22256	NA*	22102
1981	10876	NA*	10815
1982	4712	NA*	4991
1983	15699	NA*	14153
1984	28423	NA*	35179
1985	10816	NA*	11486
1986	7698	NA*	7923
1987	14188	15308	15308
1988	14045	15581.21	15581
1989	5898	10614.1	10614
1990	22053	34272.224	34272
1991	11581	19634.246	19634
1992	25370	37884.5	37885
1993	29266	40392.5	40393
1994	28474	34630.698	34631
1995	28626	30115.3	30115
1996	25452	34372.6185	34373
1997	18179	22337.01	22337
1998	27026	31617.4385	31617
1999	15757	27259.1	27259
2000	34567	36994.2705	36994

Year	Official catch	ICES catch <i>Actual value</i>	ICES catch <i>Rounded value</i>
2001	37086	40149.0989	40149
2002	19118	17507	17507
2003	9964	10595.0302	10595
2004	15528	16360.716	16361
2005	1086	1127.5	1128
2006	1807	1753.44158	1753
2007**	141	0	0
2008	0	0	0
2009	190	0	0
2010	10664	10317.2032	10317
2011	14369	14530.399	14530
2012	16636	14401.8901	14402
2013	14366	14192.4381	14192
2014	20611	20125.855	20126
2015	27507	28258.213	28258
2016	NA	18050.2109*	18050*

* Preliminary estimate.

** Experimental fisheries.

NA: Not available.

NA ICES catch values from 1960–1986 were not available in their un-rounded format for use in this example sheet.*

Summary of the assessment

Table 10 Anchovy in Subarea 8. Assessment summary with weights in tonnes. High and low refer to 90% confidence limits. *Some columns have been omitted from this table for simplicity. Biomass values should be rounded to the nearest tonne. Harvest rates should be rounded according to the rules in Table 15.5.3.1.*

Year	Recruitment (age 1), January 1st <i>Actual value</i>	Recruitment (age 1), January 1st <i>Rounded value</i>	Stock size: SSB, mid-May	High	Low	Total catch <i>Actual value</i>	Total catch <i>Rounded value</i>	Harvest rate Ages 1+ <i>Actual value</i>	Harvest rate Ages 1+ <i>Rounded value</i>	High <i>Actual value</i>	High <i>Rounded value</i>	Low <i>Actual value</i>	Low <i>Rounded value</i>
	tonnes		tonnes			tonnes							
1987	16513.47606004	16513	21833	29008	16605	15308	15308	0.6588681	0.66	0.8663268	0.87	0.4958998	0.50
1988	32034.95068177	32035	30209	38389	24418	15581.21	15581	0.4768744	0.48	0.5899671	0.59	0.3752663	0.38
1989	9513.64671850	9514	16505	23588	11575	10614.1	10614	0.4991874	0.50	0.7117802	0.71	0.3492936	0.35
1990	69121.42525039	69121	55206	66289	46912	34272.224	34272	0.6110428	0.61	0.7190773	0.72	0.5088784	0.51
1991	23414.92709264	23415	31009	41562	23248	19634.246	19634	0.5840798	0.58	0.7790943	0.78	0.4357854	0.44
1992	91261.16965366	91261	75821	99657	56737	37884.5	37885	0.4907629	0.49	0.6558316	0.66	0.3733818	0.37
1993	64856.26858586	64856	75401	91610	62363	40392.5	40393	0.5213855	0.52	0.6303914	0.63	0.4291358	0.43
1994	42395.90905347	42396	49673	62099	40060	34630.698	34631	0.6768707	0.68	0.8392894	0.84	0.5414258	0.54
1995	47361.52488324	47362	43161	59842	30340	30115.3	30115	0.6744065	0.67	0.9593813	0.96	0.4864111	0.49
1996	51289.11643889	51289	49132	61668	40179	34372.619	34373	0.6693798	0.67	0.8185289	0.82	0.5333035	0.53
1997	40946.26252457	40946	46937	62077	36225	22337.01	22337	0.4357316	0.44	0.5645787	0.56	0.3294639	0.33
1998	95156.39692623	95156	95325	124764	72784	31617.439	31617	0.3293898	0.33	0.4313992	0.43	0.2516672	0.25
1999	44486.76049454	44487	70169	91815	53142	27259.1	27259	0.3705049	0.37	0.4892201	0.49	0.2831555	0.28
2000	91701.11675760	91701	94242	114026	77023	36994.271	36994	0.3914383	0.39	0.4789503	0.48	0.3235214	0.32
2001	74867.38260218	74867	91751	107747	79101	40149.099	40149	0.4374657	0.44	0.5074242	0.51	0.3725203	0.37
2002	13294.77364472	13295	39432	48973	32192	17507	17507	0.4436552	0.44	0.5434289	0.54	0.3572146	0.36
2003	19709.47198261	19709	27730	34598	22565	10595.03	10595	0.3778982	0.38	0.464398	0.46	0.3028749	0.30
2004	30398.60122089	30399	30833	39504	24483	16360.716	16361	0.5249942	0.52	0.6611457	0.66	0.4097611	0.41
2005	4001.43650100	4001	14291	19804	10213	1127.5	1128	0.0788595	0.079	0.1103476	0.110	0.0569072	0.057
2006	17642.53235187	17643	20979	28421	15573	1753.4416	1753	0.0836062	0.084	0.1126313	0.113	0.0617142	0.062
2007	22604.20222081	22604	31580	41771	23746	0	0	0.0044648	0.0045	0.0059379	0.0059	0.0033755	0.0034
2008	9313.67597899	9314	24854	32293	19031	0	0	0	0	0	0	0	0
2009	10262.27916050	10262	20627	26768	15915	0	0	0	0	0	0	0	0
2010	48556.17591457	48556	49669	64539	38248	10317.203	10317	0.2029854	0.20	0.2635946	0.26	0.1562164	0.156
2011	114833.56094895	114834	120979	152527	95690	14530.399	14530	0.1197649	0.120	0.1514166	0.151	0.0949928	0.095
2012	46518.04238174	46518	99829	124240	80168	14401.89	14402	0.1437758	0.144	0.1790361	0.179	0.1155261	0.116
2013	39149.28187793	39149	70381	89484	55018	14192.438	14192	0.1999395	0.20	0.2557694	0.26	0.1572564	0.157
2014	71962.66737687	71963	86571	113578	66035	20125.855	20126	0.2258502	0.23	0.2960842	0.30	0.1721461	0.172
2015	121962.03025539	121962	138408	184499	103663	28258.213	28258	0.2041357	0.20	0.2725564	0.27	0.1531392	0.153
2016	57942.87126374	57943	109147	153329	76454	18050.211*	18050*	0.1653824	0.165	0.2361029	0.24	0.1177269	0.118
2017	70422.95156489	70423											
Average	48177.25446352	48177	59105	77349	45439	19946.074	19946	0.3534233	0.35	0.453123	0.45	0.274932	0.27

* Preliminary.

Sources and references

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Example of a stock with recruitment in numbers

The following example shows how rounding rules are applied to stocks where recruitment is measured in numbers.

Table 2 Cod in subareas 1 and 2 (Northeast Arctic). The basis for the catch options. *Biomass values should be rounded to the nearest tonne. F values should be rounded according to the rules in Table 15.5.3.1.*

Variable	Values as presented in original advice	Actual value	Rounded value	Source	Notes
F _{ages 5–10} (2016)	0.39	0.38547	0.39	ICES (2016a)	F <i>status quo</i> (2015)
SSB (2017)	1147 kt	1 147 490 t	1147490 t	ICES (2016a)	
R _{age3} (2016)	766 millions	766 000 000	766000*	ICES (2016a)	Recruitment model estimate (thousands)
R _{age3} (2017)	897 millions	897 000 000	897000*	ICES (2016a)	Recruitment model estimate (thousands)
R _{age3} (2018)	930 millions	930 000 000	930000*	ICES (2016a)	Recruitment model estimate (thousands)
Total catch (2016)	767 kt	766 816 t	766816 t	ICES (2016a)	Catch corresponding to F <i>status quo</i>

* Recruitment in thousands.