

Anchovy (*Engraulis encrasicolus*) in Division 9.a (Atlantic Iberian waters)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches from the **western component** should be no more than 4347 tonnes and catches from the **southern component** should be no more than 11 322 tonnes. The advice is for the period 1 July 2020 to 30 June 2021.

Note: This advice sheet is abbreviated due to the Covid-19 disruption. The previous advice issued in 2019 is attached as Annex 1.

Stock development over time

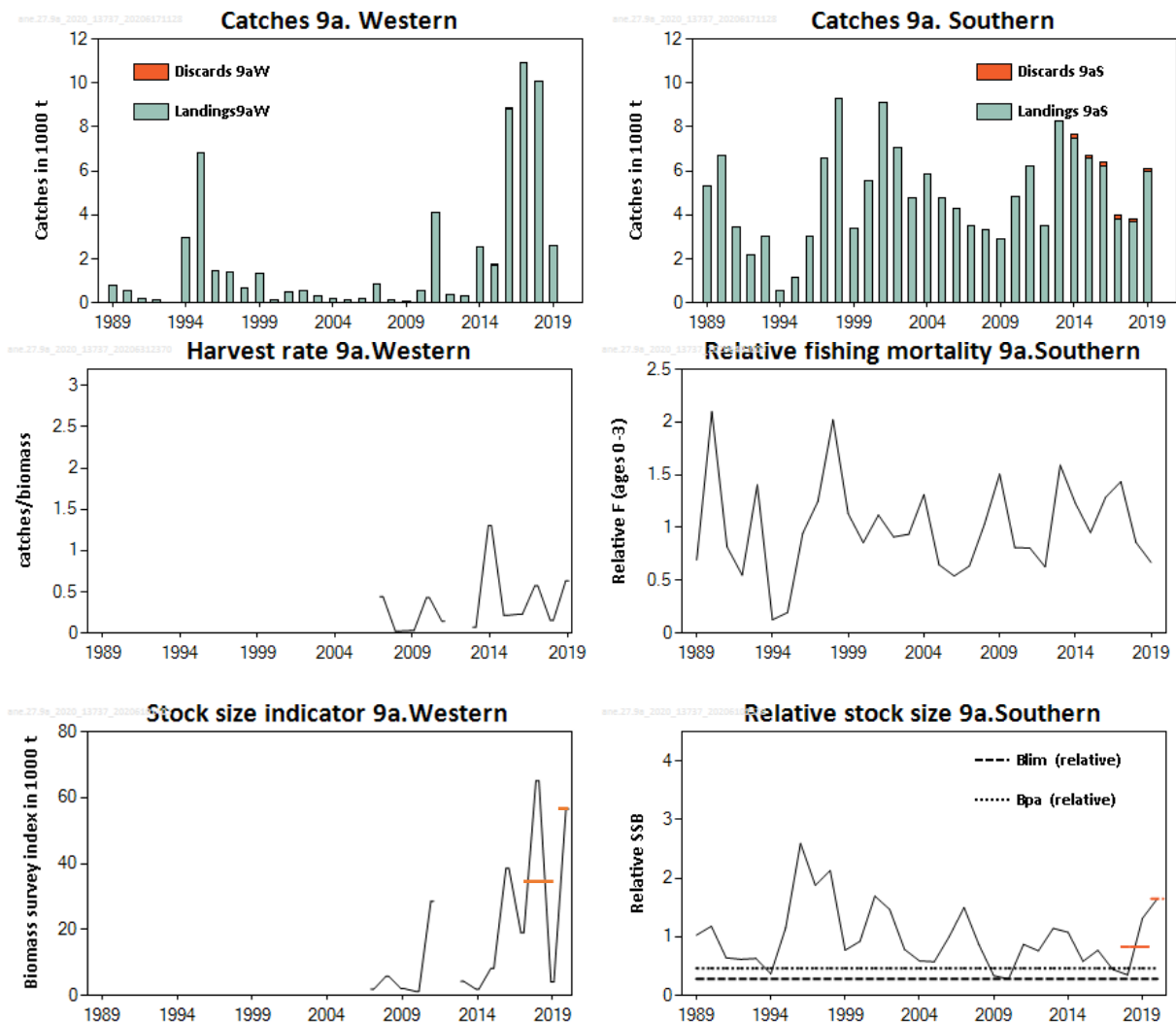


Figure 1 Anchovy in Division 9.a. Summary of the stock assessments (left column: **western component**; right column: **southern component**). Catches (in thousand tonnes). Discard estimates are included from 2014. The stock-size indicator (in thousand tonnes) and harvest rates, the ratio of catches/stock-size indicator, are presented for the **western component**. For the **southern component**, spawning–stock biomass (SSB) and fishing mortality (F) are expressed as relative to the average of the time-series (years correspond to the beginning of the management period, i.e. 1989 corresponds to the beginning of the period 1 July 1989 to 30 June 1990). The red lines in the stock-size indicator and SSB plots indicate the average values of the respective years.

Stock and exploitation status

Table 1.a Anchovy in Division 9.a. State of the **western component** and the fishery relative to reference points. Fishing pressure for a year corresponds to F in the management period, i.e. 2017 corresponds to the period 1 July 2017 to 30 June 2018.

		Fishing pressure			Stock size					
		2017	2018	2019	2018	2019	2020			
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	$MSY B_{trigger}$?	?	?	Unknown
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Unknown	B_{pa}, B_{lim}	?	?	?	Unknown
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	↗	↘	↗	Increasing	-	↗	↘	↗	Increasing

Table 1.b Anchovy in Division 9.a. State of the **southern component** and the fishery relative to reference points. Fishing pressure for a year corresponds to F in the management period, i.e. 2017 corresponds to the period 1 July 2017 to 30 June 2018.

		Fishing pressure			Stock size					
		2017	2018	2019	2018	2019	2020			
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSY B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	0	✓	✓	Full reproductive capacity
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	↘	↘	↘	Decreasing	-	—	—	—	Not applicable

Catch scenarios

Since 2018, ICES has provided catch scenarios separately for the two identified stock components of anchovy in Division 9.a: the **western component** (distributed in areas 9.a North, Central–North, and Central–South; see Annex 1), and the **southern component** (distributed in area 9.a South; see Annex 1). The current advice refers to the period 1 July 2020 to 30 June 2021.

Western component

The advice rule for short-lived species with an uncertainty cap of 80% is considered precautionary and as such, the PA buffer was not considered.

Table 2.a Anchovy in Division 9.a. **Western component**. The basis for the catch scenarios.*

Index A (2020)		56526 tonnes
Index B (2018–2019)		34613 tonnes
Index ratio (A/B)		1.63
Uncertainty cap (80%)	Not applied	-
Advised catch for 1 July 2019 to 30 June 2020		2662 tonnes
Discard rate (from 1 July 2019 to 31 December 2019)		0
Catch advice 1 July 2020 to 30 June 2021**		4347 tonnes
% advice change^		63

* The figures in the table are rounded. Calculations were carried out with unrounded inputs and computed values may not match precisely when calculated using the rounded figures in the table.

** [Advised catch] × [index ratio].

^ Advised catches for 1 July 2020 to 30 June 2021 relative to the advised catches for 1 July 2019 to 30 June 2020.

The increase of the advised catches results from a 63% increase of the survey biomass in 2020 compared to the mean of the two previous years.

Southern component

The advice rule for short-lived species with an uncertainty cap of 80% is considered precautionary and as such, the PA buffer was not considered.

Table 2.b Anchovy in Division 9.a. **Southern component**. The basis for the catch scenarios.*

Index A (2020)		1.65
Index B (2018–2019)		0.83
Index ratio (A/B)		1.98
Uncertainty cap (80%)	Applied	1.8
Advised catch for 1 July 2019 to 30 June 2020		6290 tonnes
Discard rate (from 1 July 2019 to 31 December 2019)		0.03
Catch advice 1 July 2020 to 30 June 2021**		11322 tonnes
% advice change^		80

* The figures in the table are rounded. Calculations were carried out with unrounded inputs and computed values may not match precisely when calculated using the rounded figures in the table.

** [Advised catch] × [uncertainty cap].

^ Advised catches for 1 July 2020 to 30 June 2021 relative to the advised catches for 1 July 2019 to 30 June 2020.

The increase of the advised catches results from the SSB in 2020 being 98% higher compared to the mean of the two previous years.

Quality of the assessment

The index of stock development for the western component is based on the combined PELACUS and PELAGO acoustic biomass estimate. For 2020, the PELACUS survey could not be conducted due to the disruptions caused by COVID-19. The PELAGO survey, representing on average 88% of the stock component biomass, was available; this information was thus adjusted to the total area and utilized in the assessment.

Issues relevant for the advice

Advised catches were calculated according to recently adopted rules for category 3 short-lived stocks (ICES, 2019), recommending that the one-over-two rule is constrained by an uncertainty cap of $\pm 80\%$ of the former catch advice. This rule is considered to be consistent with a precautionary approach for short-lived species; however, it is still considered preliminary and will be developed further.

Reference points

No reference points are defined for the **western component** of the stock.

The reference points for the **southern component** are relative to the average of the time-series.

Table 3 Anchovy in Division 9a. **Southern component**. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
Precautionary approach	B_{lim}	0.29	B_{loss} in 2010 relative to the average of the SSB time-series	(ICES, 2020)
	B_{pa}	0.47	$B_{pa} = B_{lim} \times 1.64$	(ICES, 2020)
	F_{lim}	Not defined		
	F_{pa}	Not defined		

History of the advice, catch, and management

Table 4 Anchovy in Division 9.a. ICES advice, the agreed TAC, and official landings. All weights are in tonnes.

Year	ICES advice	Catch/landings corresponding to advice	Agreed TAC*	Official landings	ICES catches**
1987	Not assessed	-	4600	5516	n/a
1988	Not assessed	-	6000	4173	4721
1989	Not assessed	-	6000	5259	5944
1990	Not assessed	-	9000	2889	6487
1991	Not assessed	-	9000	3753	5922
1992	Not assessed	-	12000	2351	3166
1993	If required, precautionary TAC	-	12000	1130	1984
1994	If required, precautionary TAC	-	12000	1619	3388
1995	If required, precautionary TAC	-	12000	10106	12956
1996	If required, precautionary TAC	-	12000	6256	4595
1997	If required, TAC at pre-95 catch level	-	12000	4614	5295
1998	No advice		12000	8717	10962
1999	If required, TAC at pre-95 catch level	4600	13000	7486	7409
2000	Fishery less than pre-95 level and develop and implement management plan	4600	10000	2717	2502
2001	Average catch excl. 95 and 98	4900	10000	5907	9098
2002	Average catch excl. 95 and 98	4900	8000	5636	8806
2003	Average catch excl. 95, 98, and 01	4700	8000	6146	5269
2004	Average catch excl. 95, 98, 01, and 02	4700	8000	6644	5844
2005	Average catch excl. 95, 98, 01, and 02	4700	8000	4596	4515
2006	Average catch excl. 95, 98, 01, and 02	4700	8000	4131	4491
2007	Average catch 1988–2005 excl. 95, 98, 01, 02	4800	8000	6282	6454
2008	Average catch 1988–2006 excl. 95, 98, 01, 02	4800	8000	3244	3508
2009	Same advice as last year	4800	8000	2349	3013
2010	Same advice as last year	4800	8000	3291	3210
2011	See scenarios	-	7600	10134	10076
2012	Reduce catches	-	8600	5589	5589
2013	Historical fishery appears sustainable	-	8800	5632	5632
2014	Historical fishery appears sustainable	-	8800	7739	10332
2015	No catch advice	-	9700	9420	9597
2016	In-year-advice	≤ 15000	15000	13583	13740
2017	No catch advice	-	12500	13277	14705
2018	No catch advice	-	12500	13640	13732
2018–2019***	Precautionary approach	Western component ≤ 13308; Southern component ≤ 3760	17068	13755	13907
2019–2020***	Precautionary approach	Western component ≤ 2662; Southern component ≤ 6290	10240	7726	8610
2020–2021***	Precautionary approach	Western component ≤ 4347; Southern component ≤ 11322			

* TAC for subareas 9 and 10, and CECAF 34.1.1.

** Catches are estimated for Division 9.a and include very minor discard numbers since 2014.

*** Catch advice provided for the **western** and **southern** components from 1 July in the year *y* to 30 June in the year *y+1*.

Summary of the assessment

Table 5.a Anchovy in Division 9.a. **Western component.** Summary of the stock assessment. Weights are in tonnes. Years correspond to the management period, i.e. the period from 1 July to 30 June in the following year.

Year	Survey index 9.a W	PELACUS survey index 9.a W	PELAGO survey index 9.a W	Harvest rate 9.a W	Landings 9.a W	Discards 9.a W
1989/1990					803	
1990/1991					531	
1991/1992					208	
1992/1993					143	
1993/1994					14	
1994/1995					2956	
1995/1996					6803	
1996/1997					1456	
1997/1998					1420	
1998/1999					696	
1999/2000			596		1331	
2000/2001					111	
2001/2002			368		474	
2002/2003			1542		523	
2003/2004			112		333	
2004/2005					173	
2005/2006			1062		113	
2006/2007			0		198	
2007/2008	1945	0	1945	0.44	862	
2008/2009	5811	306	5505	0.024	142	
2009/2010	2115	26	2089	0.031	66	
2010/2011	1230	42	1188	0.43	529	
2011/2012	2855	1508	27050	0.143	4097	
2012/2013		45			356	
2013/2014	4284	0	4284	0.073	311	
2014/2015	1947	0	1947	1.30	2538	0
2015/2016	8237	0	8237	0.22	1774	0.152
2016/2015	38507	205	38302	0.23	8874	6.5
2017/2018	19047	3566	15481	0.57	10934	0
2018/2019	65097	10660	54437	0.155	10093	0
2019/2020	4129	192	3937	0.63	2618	0
2020/2021	56526	6235*	50291			

* Value extrapolated from the regression between PELAGO and PELACUS biomass for the period 2007–2019.

Table 5.b Anchovy in Division 9.a. **Southern component.** Summary of the stock assessment. Weights are in tonnes. Years correspond to the management period, i.e. the period from 1 July to 30 June in the following year.

Year	Relative stock size 9.a S	Relative fishing mortality 9.a S (ages 0–3)	Landings 9.a S	Discards 9.a S
1989/1990	1.03	0.69	5319	
1990/1991	1.18	2.1	6690	
1991/1992	0.64	0.82	3469	
1992/1993	0.62	0.55	2191	
1993/1994	0.63	1.40	3017	
1994/1995	0.37	0.127	556	
1995/1996	1.15	0.195	1154	
1996/1997	2.6	0.95	3001	
1997/1998	1.88	1.25	6552	
1998/1999	2.1	2.0	9259	
1999/2000	0.77	1.13	3387	
2000/2001	0.92	0.86	5546	
2001/2002	1.69	1.12	9094	
2002/2003	1.47	0.91	7081	
2003/2004	0.79	0.94	4742	
2004/2005	0.59	1.31	5871	
2005/2006	0.58	0.65	4744	
2006/2007	1.00	0.54	4267	
2007/2008	1.50	0.64	3517	
2008/2009	0.87	1.03	3300	
2009/2010	0.34	1.51	2917	
2010/2011	0.28	0.81	4821	
2011/2012	0.87	0.81	6215	
2012/2013	0.76	0.63	3518	
2013/2014	1.15	1.59	8267	
2014/2015	1.08	1.23	7467	167
2015/2016	0.58	0.95	6581	93
2016/2015	0.77	1.29	6205	182
2017/2018	0.45	1.44	3788	186
2018/2019	0.35	0.86	3664	151
2019/2020	1.31	0.67	5991*	87**
2020/2021	1.65			

* Preliminary; 38% of the official landings in January–May (mean 2009–2019) were added to account for catches in June 2020 not yet reported.

** Corresponds to the second half of 2019.

Sources and references

ICES. 2019. Ninth Workshop on the Development of Quantitative Assessment Methodologies based on LIFE-history traits, exploitation characteristics, and other relevant parameters for data-limited stocks (WKLIFE IX). ICES Scientific Reports, 1:77. 131 pp. <http://doi.org/10.17895/ices.pub.5550>.

ICES. 2020. Working Group on Southern Horse Mackerel, Anchovy and Sardine (WGHANSA). Draft report. ICES Scientific Reports. 2:41. 513 pp. <http://doi.org/10.17895/ices.pub.5977>. Publication of the full report is expected end of 2020.

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