

Boarfish (*Capros aper*) in subareas 6–8 (Celtic Seas, English Channel, and Bay of Biscay)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches should be no more than 21 830 tonnes in each of the years 2018 and 2019.

Stock development over time

The relative stock biomass was stable until 2009, then increased in 2010–2012 before declining rapidly in 2013 and 2014. Since 2014, relative biomasses have been stable but lower than previously.

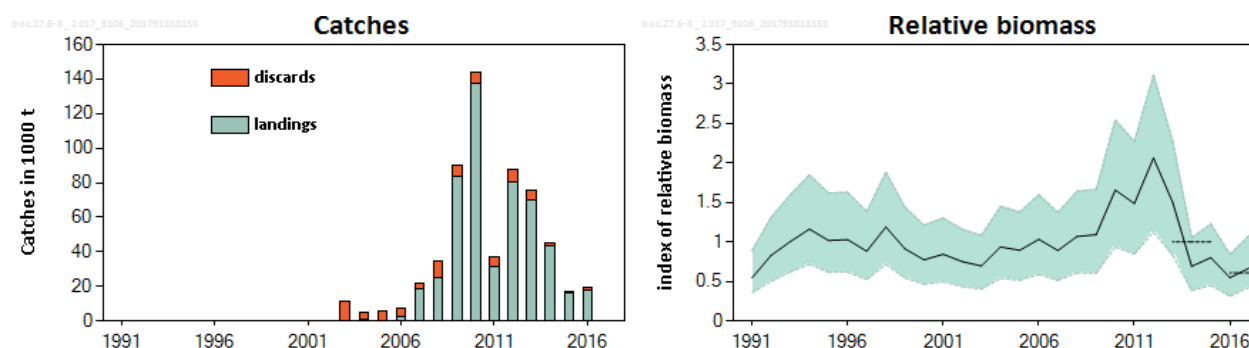


Figure 1 Boarfish in subareas 6–8. Summary of the assessment. Confidence intervals (95%) are included in the biomass plot and the dashed lines indicate the average values for 2013–2015 and 2016–2017.

Stock and exploitation status

Table 1 Boarfish in subareas 6–8. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size			
		2014	2015	2016		2015	2016	2017	
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSY B_{trigger}$?	?	?
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—
Qualitative evaluation	—	?	?	?	Unknown	—	↗	↘	↗
									Stable

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The Schaefer surplus production model provides an index of total stock biomass (TSB), which is used as the index of stock development. The advice is based on a comparison of the two latest index values, index A (2016–2017), with the three preceding values, index B (2013–2015), multiplied by the recent advised catch.

The index is estimated to have decreased by more than 20% in the period 2013–2017 and thus the uncertainty cap was applied in the calculation of the catch advice. As the precautionary buffer has been applied in 2016 it is not applied this year.

Discarding is known to take place and the discard ratio has been estimated, based on 2016 estimates.

Table 2 Boarfish in subareas 6–8. For stocks in ICES data categories 3–6, only one catch option is provided.*

Index A (2016, 2017)		0.61
Index B (2013, 2014, 2015)		0.99
Index ratio (A/B)		0.62
Uncertainty cap	Applied	0.8
Advised catch for 2017		27 288 t
Discard ratio (2016)		6.6%
Precautionary buffer	Not applied	-
Catch advice**		21 830 t
Wanted catch corresponding to the catch advice***		20 380 t

* 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 2017) × cap.

*** (catch advice) × (1 – discard ratio).

Basis of the advice

Table 3 Boarfish in subareas 6–8. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	A management strategy has been proposed by the Pelagic AC (ICES, 2015). ICES provides advice for this stock following the standard procedures which conforms to the proposed strategy from the Pelagic AC.

Quality of the assessment

The assessment model combines the information from the available surveys (six bottom trawl surveys, one acoustic) and has been used to provide category 3 advice for boarfish since 2014. The overall biomass index is influenced by the acoustic survey and there is high uncertainty in the estimates. The acoustic survey, though not including the stock at the transect edges for some years, is considered reliable. In 2017, the survey was re-designed to improve the coverage of the stock. In line with this, the current assessment shows a higher estimate of stock biomass in 2016 than was estimated in last year's assessment.

Understanding of the stock dynamics is limited. The substantial changes (decreases) in the overall biomass index in recent years cannot be explained through the observed catches and assumed low natural mortality; the reason for this decrease is not understood.

Bottom-trawl survey indices are considered indicative of trends in their respective areas.

The commercial catch data are considered to be complete, including discards from other fisheries from 2003 onwards. Discarding from bycatch fisheries prior to 2003 is likely to have been small in comparison with subsequent catches.

Issues relevant for the advice

There is no information to present for this stock.

Reference points

There are no reference points defined for this stock. Attempts were made this year to calculate MSY proxy reference points for this stock, based on length methods and a biomass dynamics model. However, the results were not considered reliable.

Basis of the assessment

Table 5 Boarfish in subareas 6–8. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016).
Assessment type	Relative abundance based on a Bayesian Schaefer surplus production model (ICES, 2017).
Input data	Commercial catches (international landings and discards). Combined acoustic surveys – MSHAS & BFAS, Q2 (2011–2015) and WESPAS, Q2 (2016); and six bottom-trawl survey indices – EVHOE, Q4; IGFS, Q4; WCSGFS, Q1 and Q4 (up to 2009); SPPGFS, Q3; SPNGFS, Q3/Q4; and ECSGFS, Q4.
Discards and bycatch	Discards from non-directed fisheries since 2003 have been included in the assessment.
Indicators	Distribution, abundance from PELACUS Q1/Q2 surveys, abundance from PELGAS survey, IBTS survey time-series, and commercial catch curve estimates of mortality.
Other information	None.
Working group	Working Group on Widely Distributed Stocks (WGWIDE)

Information from stakeholders

A small number of Irish vessels prosecuted this fishery in 2016 and the first quarter of 2017. The Danish vessels did not participate. The low participation is mainly due to the fact that the vessels have other pelagic opportunities available which are far more profitable and much easier to prosecute, and to the low prices. Ireland changed its allocation method in the autumn of 2016; this has proven successful in terms of uptake for the interested vessels, with an expected catch of over 90% of the 2017 Irish quota.

The demersal trawlers have encountered small boarfish in their catches, particularly in southwestern Ireland over the last twelve months. Pelagic Refrigerated Sea Water (RSW) trawlers have encountered boarfish much farther north (Division 6.a) than previously.

History of the advice, catch and management

Table 6 Boarfish in subareas 6–8. ICES advice and catch. All weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	TAC*	Maximum bycatch allowance**	ICES catch
2001	None	-	None	None	120
2002	None	-	None	None	91
2003	None	-	None	None	11387
2004	None	-	None	None	5151
2005	None	-	None	None	5959
2006	None	-	None	None	7137
2007	None	-	None	None	21576
2008	None	-	None	None	34751
2009	None	-	None	None	90370
2010	None	-	None	None	144047
2011	None	-	33000	9800	37096
2012	No increase in catches	82000	82000	9900	87355
2013	MSY approach	82000	82000	9500	75409
2014	MSY approach	133957	133957	7100	45231

Year	ICES advice	Predicted catch corresp. to advice	TAC*	Maximum bycatch allowance**	ICES catch
2015	DLS approach	53296	53292	4800	17766
2016	Precautionary approach	≤ 42637	42637	6000	19315
2017	Precautionary approach –36% relative to previous advice)	≤ 27288	27288	5104	
2018	Precautionary approach	≤ 21830			
2019	Precautionary approach (same advice as for 2018)	≤ 21830			

* EU and international waters of subareas 6, 7, and 8.

** The maximum permitted bycatch (5%) of boarfish allowed; to be subtracted from the EU quotas for western and for North Sea horse mackerel. The 5% applies to boarfish, whiting, and/or mackerel (EU, 2016).

History of the catch and landings

Table 7 Boarfish in subareas 6–8. Catch distribution by fleet in 2016 as estimated by ICES.

Total catch	Landings	Discards
19 315 t	100% pelagic fishery	~100% demersal gears
	18 031 t	1 284 t

Table 8 Boarfish in subareas 6–8. History of commercial catch and landings; ICES estimated values are presented by country. All weights are in tonnes.

Year	Ireland	Denmark	Scotland	Netherlands	England & Wales	Germany	Total landings	Estimated discards	Total catch
2001	120	0	0	0	0	0	120	NA	120
2002	91	0	0	0	0	0	91	NA	91
2003	458	0	0	0	0	0	458	10929	11387
2004	675	0	0	0	0	0	675	4476	5151
2005	165	0	0	0	0	0	165	5795	5959
2006	2772	0	0	0	0	0	2772	4365	7137
2007	17615	0	772	0	0	0	18387	3189	21576
2008	21585	3098	0.45	0	0	0	24683	10068	34751
2009	68629	15059	0	0	0	0	83688	6682	90370
2010	88457	39805	9241	0	0	0	137503	6544	144047
2011	20685	7797	2813	0	0	0	31295	5802	37096
2012	55949	19888	4884	0	0	0	80720	6634	87355
2013	52250	13182	4380	0	0	0	69812	5598	75409
2014	34622	8758	38	0	0	0	43418	1813	45231
2015	16325	29	0	375	104	4	16837	929	17766
2016*	17496	337	0	171	21	7	18031	1284	19315

* Provisional.

Summary of the assessment

Table 9 Boarfish in subareas 6–8. Assessment summary. High and low refers to 95% confidence intervals. Weights are in tonnes for landings and discards.

Year	Relative biomass index	High	Low	Landings	Discards	Logbook discards	Catches reported as BMS
1991	0.55	0.89	0.36				
1992	0.83	1.31	0.50				
1993	1.01	1.60	0.62				
1994	1.16	1.85	0.72				
1995	1.02	1.62	0.62				
1996	1.03	1.63	0.62				
1997	0.88	1.38	0.53				
1998	1.19	1.88	0.72				
1999	0.91	1.44	0.55				
2000	0.77	1.21	0.47				
2001	0.85	1.30	0.49	120			
2002	0.75	1.16	0.43	91			
2003	0.70	1.08	0.40	458	10929		
2004	0.94	1.45	0.54	675	4476		
2005	0.90	1.38	0.52	165	5795		
2006	1.03	1.60	0.59	2772	4365		
2007	0.89	1.37	0.51	18387	3189		
2008	1.07	1.64	0.61	24683	10068		
2009	1.09	1.67	0.61	83688	6682		
2010	1.66	2.54	0.94	137503	6544		
2011	1.49	2.27	0.85	31295	5802		
2012	2.06	3.11	1.13	80720	6634		
2013	1.50	2.28	0.83	69812	5598		
2014	0.69	1.06	0.39	43418	1813		
2015	0.80	1.23	0.45	16837	929		
2016	0.55	0.84	0.31	18031	1241	1.46	40.9
2017	0.67	1.08	0.42				
Average	1.00	1.55	0.58	33011	5290	1.46	40.9

Sources and references

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