

5.3.57 Sea bass (*Dicentrarchus labrax*) in divisions 4.b–c, 7.a, and 7.d–h (central and southern North Sea, Irish Sea, English Channel, Bristol Channel, and Celtic Sea)

ICES stock advice

ICES advises that when the precautionary approach is applied, there should be zero catch (commercial and recreational) in 2017.

Stock development over time

SSB peaked in 2010 and has been declining since. Spawning-stock biomass (SSB) is now below B_{lim} . The fishing mortality (F) shows an increasing trend but has declined slightly in recent years. Recruitment has been very poor since 2008; however, the 2013 estimate shows above-average recruitment.

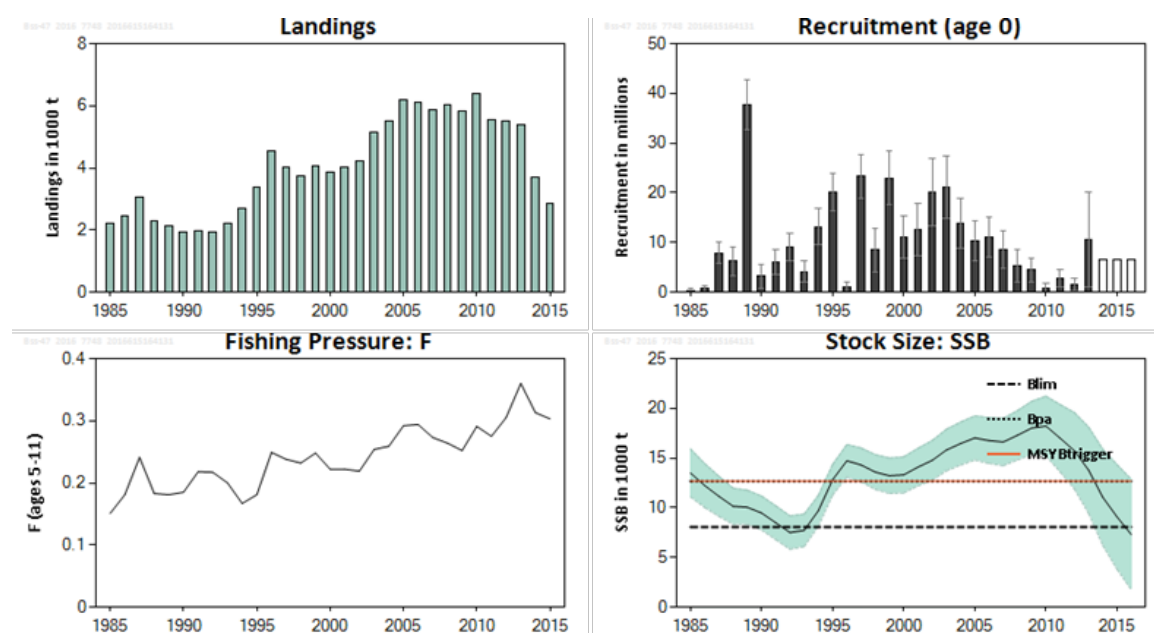


Figure 5.3.57.1 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Summary of stock assessment (weights in thousand tonnes). Total landings, including commercial landings and recreational estimates. Fishing mortality is shown for the combined commercial and recreational fisheries. Predicted recruitment values are not shaded.

Stock and exploitation status

Table 5.3.57.1 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. State of the stock and fishery relative to reference points (RP).

		Fishing pressure				Stock size			
		2013	2014	2015		2014	2015	2016	
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSY B_{trigger}$	✗	✗	✗ Below trigger
Precautionary approach	F_{pa}	?	?	?	Undefined	B_{pa}, B_{lim}	○	○	✗ Reduced reproductive
Management plan	F_{MGT}	-	-	-	Not applicable	SSB_{MGT}	-	-	- Not applicable
Qualitative evaluation		✗	✗	✗	Above any candidate RP		-	-	- Not applicable

Catch options

Table 5.3.57.2 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. The basis for the catch options.

Variable	Value	Notes	Source
F ages 5–11 (2016)	0.30	F_{2015} . Commercial fishery $F = 0.22$; recreational fishery $F = 0.08$.	ICES (2016a)
SSB (2017)	6 219 t	Short-term forecast	ICES (2016a)
$R_{age 0}$ (2014, 2015, and 2016)	6 469 thousands	Geometric mean 1985–2013	ICES (2016a)
Total catch (2016)	Unknown		
Total landings (2016)	2 305 t	Commercial + recreational	ICES (2016a)
Discards (2016)	Unknown		

Table 5.3.57.3 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. The catch options. Weights are in tonnes. The option of TAC changes are not presented, since there is no TAC for sea bass.

Rationale	Total landings (2017)	Commercial landings (2017)	Recreational landings (2017)	Basis	Total F (2017)	Commercial F (2017)	Recreational F (2017)	SSB (2018)	%SSB change*
Precautionary approach	0	0	0	$F = 0$	0	0	0	7583	21.9
MSY approach [#]				F_{MSY}					
Other options [^]	2036	1475	560	F_{2016}	0.30	0.22	0.08	5845	–6.0
				$SSB_{2018} = B_{lim}$					
				$SSB_{2018} = B_{pa}$ $= MSY B_{trigger}$					
	1672	1212	460	$0.8 \times F_{2016}$	0.24	0.18	0.07	6152	–1.1
	1483	1074	408	$0.7 \times F_{2016}$	0.21	0.15	0.06	6312	1.5
	1288	933	355	$0.6 \times F_{2016}$	0.18	0.13	0.05	6478	4.2
	882	639	243	$0.4 \times F_{2016}$	0.12	0.09	0.03	6824	9.7
	453	328	125	$0.2 \times F_{2016}$	0.06	0.04	0.02	7192	15.6

*SSB in 2018 relative to SSB in 2017.

[#] The MSY approach option was left blank because F_{MSY} has not been appropriately defined.

[^]The B_{lim} , B_{pa} , and $MSY B_{trigger}$ options were left blank because B_{lim} cannot be achieved in 2018 even with zero catch advice.

Basis of the advice

Table 5.3.57.4 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	There is no management plan for sea bass in this area.

Quality of the assessment

There are uncertainties in the assessment because of inaccuracies in the catch data, particularly recreational catches. The point estimate of 1500 tonnes for the recreational catch is based on different surveys over a few years, and the assumption of using a constant F to reconstruct the time-series of catches adds uncertainty to the assessment. Fishery sampling rates over time have been variable for all countries.

The estimates of F and SSB have been rescaled as a result of the addition of age and length composition data introduced during the recent inter-benchmark (ICES, 2016b). The overall trends remain similar.

The two survey data series for the eastern English Channel, which is only a small part of the total stock area, provide good estimation of recruitment. However, a change in vessel and survey design in the Channel Ground Fish Survey led to the 2015 value not being included in this assessment. The very weak recruitment from 2008 to 2012 estimated in the assessment is confirmed by the surveys and by reduced catches of young fish by the UK and French fisheries. All the input data to the

assessment and additional information (catch per unit effort in the French fishery) are indicative of a declining trend of biomass.

Stock identity remains poorly understood and tagging studies are ongoing. Survival rates of sea bass discarded from commercial vessels or released by anglers are poorly known.

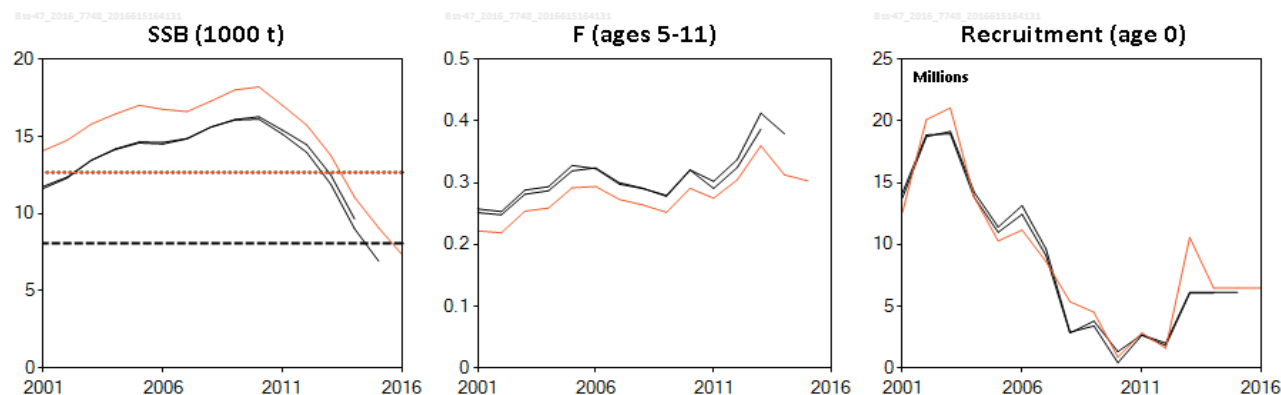


Figure 5.3.57.2 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Historical assessment results (includes assumed long-term average recruitment for 2013 onwards in both assessments). The basis of the assessment changed in 2015 when the stock was benchmarked (ICES, 2015b).

Issues relevant for the advice

The emergency measures in 2015 reduced pelagic trawl catches of seabass and also bycatch of seabass in other fisheries. The fishing mortality in 2016 is assumed to be the same as in 2015 in the catch forecast and the results show that even with zero catch in 2017 the stock will stay below B_{lim} in 2018. However, additional management measures have been introduced for 2016 which may result in fishing mortality below the assumed. A sensitivity analysis carried out by ICES indicates that with 30% reduction in F in 2016, which is considered plausible given the additional management measures for 2016, and zero catch in 2017 the stock would increase to just above B_{lim} in 2018. Given that the stock would be estimated to remain near B_{lim} and taking into account the uncertainties in the assessment and forecast, ICES considers that its advice for zero catch in 2017, aiming to bring the stock above B_{lim} in the short term, remains valid even if such a decrease in F in 2016 occurs.

Only B_{lim} and B_{pa} reference points were re-estimated this year.

A new benchmark is to be conducted for seabass in 2017.

Reference points

Table 5.3.57.5 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	12673 t	B_{pa}	ICES (2016a)
	F_{MSY}	Not defined.		
Precautionary approach	B_{lim}	8075 t	B_{loss} from the IBPBass 2016 assessment*.	ICES (2016b)
	B_{pa}	12673 t	$B_{lim} \times \exp(1.645 \times \sigma)$; $\sigma = 0.274$	ICES (2016a)
	F_{lim}	Not defined.		
	F_{pa}	Not defined.		
Management plan	SSB_{MGT}	Not applicable.		
	F_{MGT}	Not applicable.		

* Version 2; Text edited to clarify the origin of the value.

Basis of the assessment

Table 5.3.57.6 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. The basis of the assessment.

ICES stock data category	1 (ICES, 2016c)
Assessment type	Age- and length-based analytical assessment (Stock Synthesis 3; NOAA Toolbox) that uses landings in the model and in the forecast.
Input data	Commercial landings (international landings, ages and length frequencies from catch sampling); one recruit survey (UK Solent autumn survey); one bottom trawl survey (Channel Groundfish Survey); growth and maturity data from sampling of commercial catches and surveys; natural mortality (inferred from life history parameters and maximum observed ages); recreational fishing mortality estimated for 2012 inferred from recreational fishery surveys (since 2009).
Discards and bycatch	Discarding is known to take place but cannot be fully quantified (in the order of 5% in weight).
Indicators	Catch per unit effort in the French fishery
Other information	This stock was benchmarked in 2012, 2014 and 2016 (ICES, 2012, 2014, 2016b). A new benchmark is planned for 2017.
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

Information from stakeholders

The North Western Waters Advisory Council (NWWAC) framework for advice for seabass management in Northwestern waters was communicated to the European Commission on 16th of May 2016 (NWWAC, 2016).

History of the advice, catch, and management

Table 5.3.57.7 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. History of ICES advice, the agreed TAC, and the official and ICES estimates of commercial landings. Weights are in thousand tonnes.

Year	ICES advice	Predicted catch corresp. to advice*	Agreed TAC	Official commercial landings	ICES commercial landings
2000	-	-	none	2.1	2.4
2001	-	-	none	2.2	2.5
2002	No increase in effort or F	-	none	2.4	2.6
2003	No increase in effort or F	-	none	2.9	3.4
2004	No increase in effort or F	-	none	3.0	3.7
2005	-	-	none	3.2	4.4
2006	-	-	none	3.4	4.5
2007	-	-	none	3.5	4.2
2008	-	-	none	3.0	4.2
2009	-	-	none	4.3	4.0
2010	-	-	none	4.9	4.8
2011	-	-	none	3.9	3.9
2012	No increase in catch	-	none	3.9	4.1
2013	20% reduction in catches (last 3 years' average)	< 6.0**	none	4.1	4.1
2014	36% reduction in commercial landings (20% reduction, followed by 20% precautionary reduction)	< 2.707**	none	2.8	2.7
2015	MSY approach	< 1.155***	none	2.1	2.0
2016	MSY approach	≤ 0.541***	none		
2017	Precautionary approach	0			

* Advice prior to 2014 was given for sea bass in the Northeast Atlantic.

** Commercial landings.

*** Total landings (commercial and recreational landings).

History of catch and landings

Table 5.3.57.8 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch (2015)	Commercial landings UK and France					Commercial landings other countries	Commercial discards	Recreational catch (partially reported)
Unknown	pelagic pair trawlers	bottom trawlers	fixed/drift nets	lines	other gears	all gears	Unknown (in the order of 5% in weight)	Known to be substantial but cannot be fully quantified (surveys indicate total annual removals by France, UK (England), Netherlands, and Belgium to the order of 1500 tonnes in 2012)
	5%	36%	22%	20%	4%	13%		
	2040 tonnes							

Table 5.3.57.9 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. History of commercial landings; both the official and ICES estimated values are presented for each country participating in the fishery (in tonnes). Source: Official landings statistics 1950–2014 and provisional data for 2015, ICES, Copenhagen.

Year	Belgium	Denmark	Germany	France*	UK	Netherlands	Channel Is.	Total	Total ICES
1985	0	0	0	620	105	0	18	743	994
1986	0	0	0	841	124	0	15	980	1319
1987	0	0	0	1226	123	0	14	1363	1980
1988	0	18	0	714	173	8	12	925	1239
1989	0	2	0	675	192	2	48	919	1161
1990	0	0	0	609	189	0	25	824	1063
1991	0	0	0	726	239	0	16	982	1227
1992	0	0	0	721	148	0	36	906	1186
1993	0	1	0	718	230	0	45	994	1255
1994	0	1	0	593	535	0	49	1178	1371
1995	0	1	0	801	708	0	69	1579	1835
1996	0	1	0	1703	563	8	56	2331	3022
1997	0	1	0	1429	561	1	74	2066	2620
1998	0	2	0	1363	488	48	79	1980	2390
1999	0	1	0	NA	685	32	108	826	2670
2000	0	5	0	1522	407	60	130	2124	2407
2001	0	2	0	1619	458	77	80	2236	2500
2002	0	1	0	1580	627	96	73	2377	2622
2003	154	1	0	1903	586	163	84	2891	3458
2004	159	1	0	1883	617	191	159	3010	3731
2005	206	1	0	1937	512	327	220	3203	4430
2006	211	2	0	2033	574	308	162	3290	4377
2007	178	1	0	1975	713	376	142	3385	4064
2008	188	0	0	1420	791	380	123	2902	4107
2009	173	0	0	2732	697	395	91	4088	3889
2010	215	4	0	3294	736	399	120	4768	4563
2011	152	2	0	2566	793	395	90	3998	3858
2012	154	3	0	2399	892	376	55	3879	3987
2013	145	5	2	2786	803	370	37	4148	4136
2014	146	1	0	1309	1038	253	37	2784	2682
2015**	40	0	0	1110	683	207	26	2066	2040

* Landings since 2000 are ICES estimates.

** Preliminary.

Table 5.3.57.10 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. History of recreational catch and landings estimates provided to ICES by area for each country which has conducted surveys of the fishery. RSE = relative standard error.

Country	Year	Area	Weight / Number	Kept	RSE	Released	RSE	Total	RSE	Release rate
France	2009–2011 ^{*,**}	Northeast Atlantic	Weight	2343 t	-	830 t		3173 t	26%	26%
		ICES Subareas 4 & 7	Weight	940 t		332 t		1272 t	>26%	26%
	2011–2012	Northeast Atlantic	Weight	3146 t	-	776 t		3922t	-	20%
Netherlands	March 2010–Feb 2011	North Sea	Number	234000	38%	131000	27%	366000	30%	64%
		North Sea	Weight***	138 t	37%					
	March 2012–Feb 2013	North Sea	Number	335000	26%	332000	21%	667000	17%	50%
		North Sea	Weight***	229 t	26%					
UK (England)	2012 [^]	ICES Subareas 4 & 7	Weight	230–440 t		150–250 t		380–690 t	26–38%	36–39%
Belgium	2013	North Sea	Weight	60 t	-	-	-	-	-	-

* ~ 80% by weight in 2009/2011 was recreational sea angling.

** RSE was 26% for subareas 7 and 8 combined; Subarea 7 represented 40% of the total.

*** 93% by weight in 2010/2011 is recreational sea angling; 2012/2013 estimates are sea angling only.

[^] Survey covered only recreational sea angling.

Summary of the assessment

Table 5.3.57.11 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Assessment summary.

Year	Recruitment Age 0 thousands	High	Low	SSB tonnes	High	Low	Landings tonnes	Mean F Ages 5–11
1985	355	688	22	13506	15916	11095	2216	0.151
1986	686	1304	68	12242	14455	10029	2441	0.181
1987	7868	10019	5717	11155	13170	9140	3041	0.241
1988	6188	8980	3395	10154	11975	8332	2286	0.183
1989	37654	42653	32655	10054	11767	8340	2149	0.181
1990	3213	5675	750	9481	11179	7783	1930	0.185
1991	6106	8685	3527	8497	10200	6794	1987	0.218
1992	9044	11823	6265	7507	9186	5827	1935	0.217
1993	4163	6297	2030	7738	9372	6104	2196	0.2
1994	13202	16811	9593	9710	11260	8160	2689	0.167
1995	20048	23846	16249	12825	14363	11286	3359	0.181
1996	1024	1984	65	14725	16362	13087	4527	0.249
1997	23272	27659	18885	14309	16016	12601	4027	0.238
1998	8440	12906	3975	13592	15343	11842	3728	0.232
1999	22970	28426	17514	13219	15001	11437	4042	0.248
2000	11067	15228	6906	13313	15122	11503	3861	0.222
2001	12605	17961	7250	14090	15985	12195	4005	0.222
2002	20114	26871	13357	14768	16768	12767	4232	0.219
2003	21068	27267	14869	15807	17900	13714	5162	0.254

2004	13829	18886	8772	16458	18622	14294	5516	0.259
2005	10283	14278	6288	17024	19247	14802	6208	0.292
2006	11175	15204	7147	16759	19062	14455	6120	0.294
2007	8606	12416	4796	16619	19001	14236	5869	0.273
2008	5362	8575	2150	17294	19779	14810	6009	0.264
2009	4508	6922	2094	18021	20710	15331	5810	0.252
2010	865	1739	0	18215	21217	15213	6386	0.291
2011	2845	4533	1158	17001	20386	13616	5536	0.275
2012	1595	2812	378	15738	19578	11899	5487	0.305
2013	10576	20107	1046	13781	18125	9438	5383	0.36
2014	6469*			11057	15896	6219	3680	0.313
2015	6469*			9084	14348	3820	2839	0.303
2016	6469*			7320	12874	1765		
Average	9942	13812	6790	13158	15631	10685	4021	0.241

* Long-term geometric mean.

** Annual recreational landings consistent with recreational F(5–11) of 0.08, estimated by assessment model.

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