ICES Advice on fishing opportunities, catch, and effort
Bay of Biscay and the Iberian Coast Ecoregion
bss.27.8ab

Sea bass (*Dicentrarchus labrax*) in divisions 8.a–b (northern and central Bay of Biscay)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, total catch (commercial and recreational removals) in 2019 should be no more than 2495 tonnes.

Stock development over time

The spawning-stock biomass (SSB) has declined since 2010 and is now near MSY $B_{trigger}$. The fishing mortality (F) has fluctuated around F_{MSY} since 2000 and is now just above F_{MSY}. The recruitment (R) is variable over time. The lowest values in the time-series have occurred since 2009.
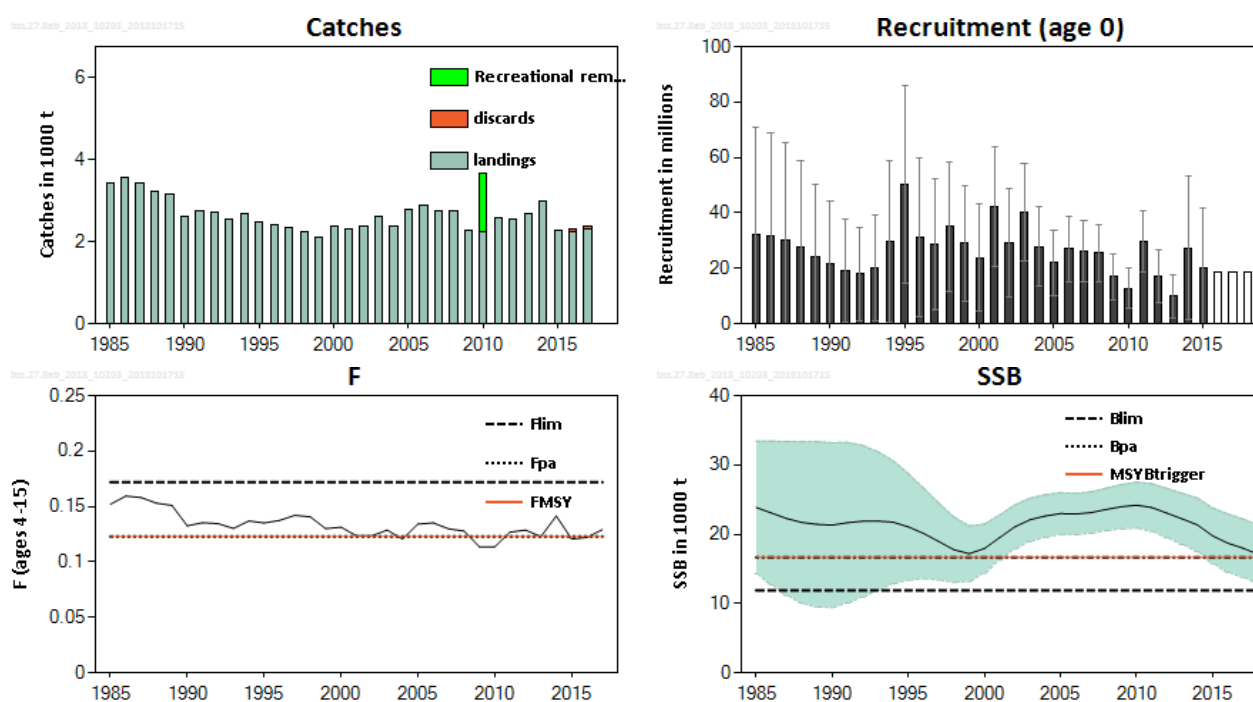

Figure 1   Sea bass in divisions 8.a–b. Summary of the stock assessment (weights in thousand tonnes). Commercial landings (with discards only included in 2016 and 2017), and recreational removals (only presented for 2010, where the data are available), including 5% mortality of released fish. Fishing mortality is shown for the combined commercial and recreational fisheries. Assumed recruitment values are not shaded. Recruitment and SSB are shown with 95% confidence intervals.

Stock and exploitation status

ICES assesses that fishing pressure on the stock is above F_{MSY}; and spawning stock size is just above MSY $B_{trigger}$.

Table 1   Sea bass in divisions 8.a–b. State of the stock and fishery relative to reference points.

		Fishing pressure					Stock size		
		2015	2016	2017			2016	2017	2018
Maximum sustainable yield	F_{MSY}	✅	✅	❌ Above		MSY $B_{trigger}$	✅	✅	✅ Above trigger
Precautionary approach	F_{pa}, F_{lim}	✅	✅	🟠 Increased risk		B_{pa}, B_{lim}	✅	✅	✅ Full reproductive capacity
Management plan	F_{MGT}	—	—	— Not applicable		B_{MGT}	—	—	— Not applicable

Catch scenarios

Table 2   Sea bass in divisions 8.a–b. The basis for the catch scenarios. All weights are in tonnes.

Variable	Value	Notes
$F_{ages\ 4–15}$ (2018)	0.124	F_{sq}; $F_{average(2015–2017)}$ scaled to 2017; commercial fishery F = 0.096; recreational fishery F = 0.028 (reduced to account for 2018 management measures; $F_{recreational(2018)}$ = $F_{recreational(2017)}$ × 0.945)
SSB (2019)	15573	From the short-term forecast
R_{age0} (2016, 2017, 2018)	18584	Geometric mean (2008–2014)
Total catch (2018)	2718	Fishing at F_{sq} with $F_{recreational(2018)}$ reduced
Wanted commercial catch (2018)	2092	Short-term forecast
Unwanted commercial catch (2018)	negligible	Not included in assessment and forecast
Recreational removals (2018)	626	Short-term forecast with management measures taken into account and full compliance with the minimum size assumed

Table 3   Sea bass in divisions 8.a–b. Annual catch scenarios[†]. All weights are in tonnes.

Basis	Total catch^ (2019)	Commercial landings (2019)	Recreational removals (2019)	Total F (2019)	F* commercial landings (2019)	F* recreational removals (2019)	SSB (2020)	% SSB change ^^	% Advice change ^^^
ICES advice basis									
MSY approach: F = F_{MSY} × SSB 2019/MSY $B_{trigger}$	2495	1924	571	0.114	0.089	0.026	15293	−1.80	−19.0
Other options									
F = (SSB$_{2019}$/MSY $B_{trigger}$) × $F_{MSY\ lower}$	2380	1836	544	0.109	0.084	0.025	15379	−1.25	−22.7
F = (SSB$_{2019}$/MSY $B_{trigger}$) × $F_{MSY\ upper}$	3030	2336	693	0.141	0.109	0.032	14888	−4.40	-1.64
F = F_{MSY}	2663	2054	609	0.123	0.095	0.028	15165	−2.6	−13.5
F = 0	0	0	0	0.0	0.0	0.0	17196	10.4	−100
F = F_{pa}	2663	2054	609	0.123	0.095	0.028	15165	−2.6	−13.5
F = F_{lim}	3643	2810	834	0.172	0.133	0.039	14424	−7.4	18.3
SSB$_{2020}$ = B_{lim}	7004	5398	1606	0.36	0.28	0.081	11920	−24	127
SSB$_{2020}$ = B_{pa}	662	511	151	0.029	0.023	0.0070	16688	7.2	−79
SSB$_{2020}$ = MSY $B_{trigger}$	662	511	151	0.029	0.023	0.0070	16688	7.2	−79
F = F_{2017} = F_{sq}	2684	2070	614	0.124	0.096	0.028	15149	−2.7	−12.8
$F_{MSY\ lower}$	2541	1960	581	0.117	0.090	0.026	15257	−2.03	−17.5
$F_{MSY\ upper}$	3231	2492	739	0.151	0.117	0.034	14735	−5.38	4.9

^ Includes commercial landings and recreational removals.
^^ SSB 2020 relative to SSB 2019.
^^^ Commercial landings component of the advice value for 2019 relative to the advice value (commercial landings) for 2018.
* The split of total F into commercial landings and recreational removals in the short-term forecast is based on the proportion observed in 2017.

The commercial landings component of the advice value for 2019 shows a reduction of 21% compared to 2018, mostly owing to a reduction in stock size. This is the first year that the advice is based on a category 1 assessment (ICES, 2018a). Recreational removals cannot be compared because they were not included in the category 3 assessment used in the 2018 advice.

Basis of the advice

Table 4   Sea bass in divisions 8.a–b. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is not aware of any agreed precautionary management plan for sea bass in this area.

[†] Version 2: Catch scenario options with $F_{MSY\ lower}$ and $F_{MSY\ upper}$ updated.

Quality of the assessment

This is the first time that ICES has provided advice for this stock based on a category 1 assessment. It is a length-structured analytical assessment that includes recreational removals (ICES, 2018a). Previously, the advice was based on a category 3 assessment using a landings per unit of effort (LPUE) index.

Recent data on catch were used to reconstruct the missing commercial data and they are now considered to be representative of the time-series. For recreational removals, a single estimate is available based on a French survey in 2010. This was used to reconstruct the time-series, assuming a constant F for recreational removals throughout the time-series until 2015 (Figure 2). Starting in 2016, an F multiplier was applied to the constant F assumption to account for the assumed full compliance with the technical management measure (minimum landing size). Improved information on recreational removals would improve the quality of the assessment and advice.

Owing to a lack of French market sampling of length data in Q1 and Q2 of 2017 (biological and on-board sampling was unaffected), some sampling strata length data were supplemented using data from previous years. This is considered to have limited impact, but that would need to be verified through comparative analysis (ICES, 2018b).

There are no scientific surveys available to provide recruitment information from the Bay of Biscay. Therefore, recruitment estimates from the model are uncertain, and indices are needed to address this data gap. A pilot survey, conducted by France in the Bay of Biscay in 2016 and 2017, is also expected for 2018. ICES recommends that this survey be continued to develop a time-series.

Stock identity remains poorly understood and tagging and genetics studies are ongoing.
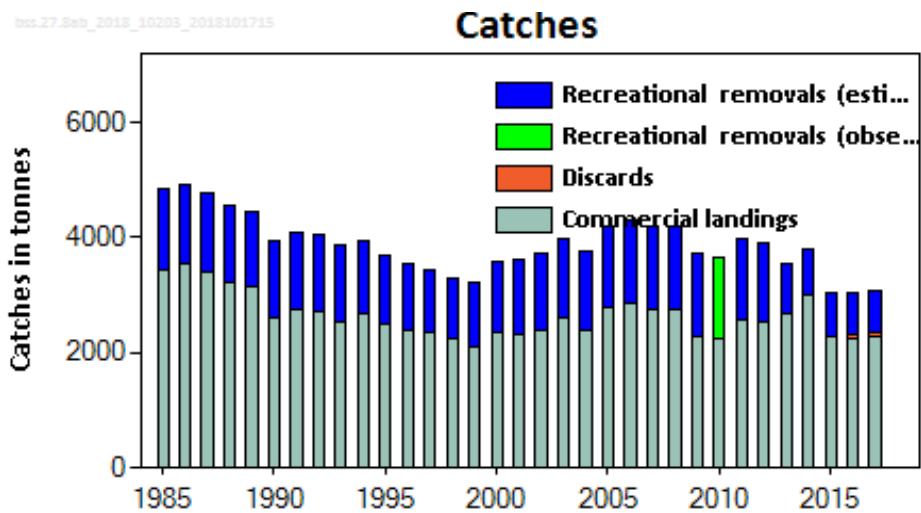
Figure 2   Sea bass in divisions 8.a–b. Make-up of the catch over time. Commercial landings; discards in 2016 and 2017; observed recreational removals (only presented for 2010, where the data are available), including 5% mortality of released fish; and ICES estimated recreational removals (1985–2009, 2011–2017).

Issues relevant for the advice

The stock was benchmarked during WKBASS (ICES, 2018a) and IBPBASS (ICES, 2018c) and is now assessed as a category 1 stock for the first time. Reference points are available and the present advice is given according to the MSY approach.

Reference points

Table 5   Sea bass in divisions 8.a–b. Reference points. All weights are in tonnes.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	16688	B_{pa}	ICES (2018c)
	F_{MSY}	0.123	The F that maximizes median long-term yield in stochastic simulations under constant F exploitation; constrained by the requirement that $F_{MSY} \leq F_{pa}$	ICES (2018c)
Precautionary approach	B_{lim}	11920	B_{pa} / exp(CV × 1.645)	ICES (2018c)
	B_{pa}	16888	Lowest observed SSB	ICES (2018c)
	F_{lim}	0.172	The F that in equilibrium gives a 50% probability of SSB > B_{lim}	ICES (2018c)
	F_{pa}	0.123	$F_{pa} = F_{lim}$ / exp(CV × 1.645)	ICES (2018c)
Management plan	SSB_{mgt}	Not defined		
	F_{mgt}	Not defined		

Basis of the assessment

Table 6   Sea bass in divisions 8.a–b. The basis of the assessment.

ICES stock data category	1 (ICES, 2018d)
Assessment type	Age- and length-based analytical assessment (Stock Synthesis 3, NOAA toolbox) that uses landings and recreational removals (ICES, 2018a, 2018b) in the assessment and forecast.
Input data	Commercial landings (1985–2017), age-at-length and length frequencies from catch sampling; growth and maturity data from sampling of commercial catches and surveys; natural mortality (0.24; inferred from life history parameters and maximum observed ages); recreational removals for 2010 estimated from a recreational fishery survey; recreational removals length composition for 2010 derived from the recreational fishery survey; French commercial LPUE series inferred from logbook data.
Discards and bycatch	Commercial discards estimated at approximately 2.4% of the total catch (commercial catch + recreational removals). Discards are considered negligible and are not included in the stock assessment.
Indicators	None
Other information	Benchmarked in WKBASS 2018 (ICES, 2018a) and IBPBASS (ICES, 2018c).
Working group report	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE)

Information from stakeholders

No additional information is available for this stock.

History of the advice, catch, and management

Table 7   Sea bass in divisions 8.a–b. History of ICES advice, the agreed TAC, and ICES estimates of commercial landings, commercial discards and recreational removals. All weights are in tonnes.

Year	ICES advice*	Catch corresponding to advice*	Agreed TAC	Official commercial landings**	ICES commercial landings	ICES commercial discards	ICES recreational removals^^^
2000	-	-	none	2147	2362		
2001	-	-	none	2091	2309		
2002	No increase in effort or F	-	none	2113	2392		
2003	No increase in effort or F	-	none	2931	2616		
2004	No increase in effort or F	-	none	2657	2380		
2005	-	-	none	3258	2796		
2006	-	-	none	3488	2877		
2007	-	-	none	3060	2769		
2008	-	-	none	1653	2745		
2009	-	-	none	2534	2279		
2010	-	-	none	2489	2231		1430
2011	-	-	none	2607	2576		
2012	No increase in catch	-	none	2330	2554		
2013	20% reduction in catches (last 3-year average)	< 6000*	none	2685	2685		
2014	20% reduction in catches (last 3-year average)	< 1890^	none	2991	2991		
2015	Same advice as last year	< 1890^	none	2264	2264		
2016	Precautionary approach	< 2634^	none	2253	2253	62	
2017	Precautionary approach	< 2634^	none	2295^^	2295^^	74^^	
2018	Precautionary approach	≤ 2440^	none				
2019	MSY approach (commercial+recreational)	≤ 2495	none				

* ICES advice prior to 2014 was for European sea bass in the Northeast Atlantic. Since 2014, the advice is for sea bass in divisions 8.a–b.

** Official landings were extracted from the ICES official statistics webpage for BSS and divisions 8.a and 8.b. The difference between official and ICES landings values are mainly due to the French landing data that come from a separate analysis of logbooks, auctions, and VMS data from 2000 onwards. From 2011 onwards, data from this method are reported as official landings.

^ Catch advice for commercial catch only.

^^ Preliminary.

^^^ Recreational removals were only observed in 2010. Estimates derived from the 2010 data for the time-series are found in Table 10.

History of the catch and landings

Table 8   Sea bass in divisions 8.a–b. Catch distribution by fleet, landings, discards, and recreational removals in 2017 as estimated by ICES. All weights are in tonnes.

Total catch*	Commercial landings							Commercial discards	Recreational removals*
3082	Nets 28%	Lines 32%	Bottom trawl 22%	Pelagic trawl 11%	Others 1%	Danish seine 4%	Purse seine 2%	74	713
	2295								

*Estimated.

Table 9   Sea bass in divisions 8.a–b. History of the official commercial landings presented for each country participating in the fishery. History of the total ICES estimated commercial landings. All weights are in tonnes.

Year	Belgium	France	Netherlands	Spain	UK (England, Wales, N. Ireland, & Scotland)	Total official landings	Total ICES estimated landings
1985	0	2477	0	0	0	2477	3420
1986	0	2606	0	0	0	2606	3549
1987	0	2474	0	0	5	2479	3417
1988	0	2274	0	0	15	2289	3217
1989	0	2201	0	0	0	2201	3144
1990	0	1678	0	0	0	1678	2621
1991	0	1774	0	17	0	1791	2734
1992	0	1752	0	14	0	1766	2709
1993	0	1595	0	14	0	1609	2552
1994	0	1708	0	17	0	1725	2668
1995	0	1549	0	0	0	1549	2492
1996	0	1459	0	0	0	1459	2402
1997	0	1415	0	0	0	1415	2358
1998	0	1261	0	27	0	1288	2231
1999	0	0	0	11	0	11	2091
2000	0	2080	0	67	0	2147	2362
2001	0	2020	3	68	0	2091	2306
2002	0	1937	0	176	0	2113	2392
2003	0	2812	0	119	0	2931	2616
2004	0	2561	0	96	0	2657	2380
2005	0	3184	0	74	0	3258	2796
2006	0	3318	0	168	2	3488	2875
2007	1	2984	0	74	1	3060	2751
2008	0	1508	0	145	0	1653	2745
2009	1	2339	0	194	0	2534	2278
2010	0	2322	0	165	2	2489	2229
2011	1	2295	0	311	0	2607	2575
2012	0	2325	NA	NA	NA	2325	2549
2013	0	2532	0	NA	0	2532	2685
2014	0	2900	0	91	0	2991	2991
2015	0	2193	0	71	0	2264	2264
2016	0	2160	0	93	0	2253	2253
2017*	0	2223	0	72	0	2295	2295

*Preliminary.
NA = not available.

Summary of the assessment

Table 10   Sea bass in divisions 8.a–b. Assessment summary. All weights are in tonnes.

Year	Recruitment Age 0	High	Low	SSB	High	Low	Commercial landings	Recreational removals*	F ages 4–15
	thousands			tonnes			tonnes		per year
1985	32004	70892	0	23860	33420	14300	3420	1431	0.152
1986	31437	69082	0	23075	33441	12708	3549	1384	0.159
1987	30051	65102	0	22275	33384	11166	3417	1350	0.158
1988	27784	59005	0	21702	33344	10059	3217	1331	0.153
1989	24396	50462	0	21423	33332	9514	3144	1323	0.151
1990	21833	44116	0	21321	33205	9436	2621	1331	0.133
1991	19110	37701	520	21671	33245	10097	2734	1342	0.135
1992	17950	34918	982	21878	32809	10948	2709	1338	0.135
1993	20005	39080	930	21910	31909	11910	2552	1317	0.130
1994	29540	58555	524	21738	30618	12859	2668	1277	0.137
1995	50106	85840	14372	21063	28742	13384	2492	1215	0.135

Year	Recruitment Age 0	High	Low	SSB	High	Low	Commercial landings	Recreational removals*	F ages 4–15
	thousands			tonnes			tonnes		per year
1996	31271	59977	2564	20124	26659	13589	2402	1147	0.137
1997	28699	52263	5134	18951	24487	13415	2358	1089	0.142
1998	34961	58430	11493	17768	22470	13067	2231	1079	0.141
1999	29158	49983	8333	17196	21207	13184	2091	1124	0.130
2000	23877	43386	4367	17934	21458	14410	2362	1217	0.131
2001	42063	63712	20414	19512	22781	16242	2306	1295	0.124
2002	29077	48528	9626	21059	24225	17894	2392	1350	0.124
2003	40239	57888	22589	22094	25202	18986	2616	1380	0.129
2004	27773	42073	13474	22633	25697	19570	2380	1395	0.121
2005	21937	33873	10002	22983	26001	19965	2796	1408	0.134
2006	27007	38817	15197	22924	25895	19953	2875	1427	0.135
2007	26295	37415	15175	23125	26096	20153	2751	1448	0.130
2008	25542	35849	15234	23578	26635	20520	2745	1461	0.128
2009	16935	25369	8500	23974	27164	20784	2278	1451	0.114
2010	12836	20298	5374	24193	27508	20877	2229	1430	0.114
2011	29730	40912	18549	23861	27289	20434	2575	1392	0.127
2012	17113	26703	7524	23048	26598	19498	2549	1341	0.129
2013	9920	17562	2277	22214	25908	18520	2685	875	0.123
2014	27316	53181	1451	21353	25212	17493	2991	819	0.141
2015	19896	41727	0	19777	23797	15758	2264	769	0.121
2016	18743**			18723	22931	14515	2252	733	0.122
2017	18743**			17990	22198	13782	2295	713	0.129
2018	18743**			17094	21302	12885			

*Recreational removals are estimates derived from the 2010 observed data.
**Geometric mean 2008–2014.

Sources and references

ICES. 2018a. Report of the Benchmark Workshop on Sea bass (WKBASS), 20–24 February 2017 and 21–23 February 2018, Copenhagen, Denmark. ICES CM 2018/ACOM:44. 259 pp.

ICES. 2018b. Report of the Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE), 3–10 May 2018, ICES HQ, Copenhagen, Denmark. ICES CM 2018/ACOM:12. 569 pp.

ICES. 2018c. Report of the Inter-benchmark Protocol on Sea Bass (*Dicentrarchus labrax*) in divisions 8.ab (Bay of Biscay North and Central) (IBPBass 2018), July–September 2018, by correspondence. ICES CM 2018/ACOM:54. 5 pp.

ICES. 2018d. Advice basis. *In* Report of the ICES Advisory Committee, 2018. ICES Advice 2018, Book 1, Section 1.2. https://doi.org/10.17895/ices.pub.4503.