

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 advice on fishing opportunities

ICES advises that when the MSY approach is applied, total removals[†] in 2022 should be no more than 2216 tonnes.

ICES notes the existence of a precautionary management plan, developed and adopted by some of the relevant management authorities for this stock.

Stock development over time

Fishing pressure on the stock is below F_{MSY} and spawning–stock size is below MSY $B_{trigger}$ and between B_{pa} and B_{lim} .

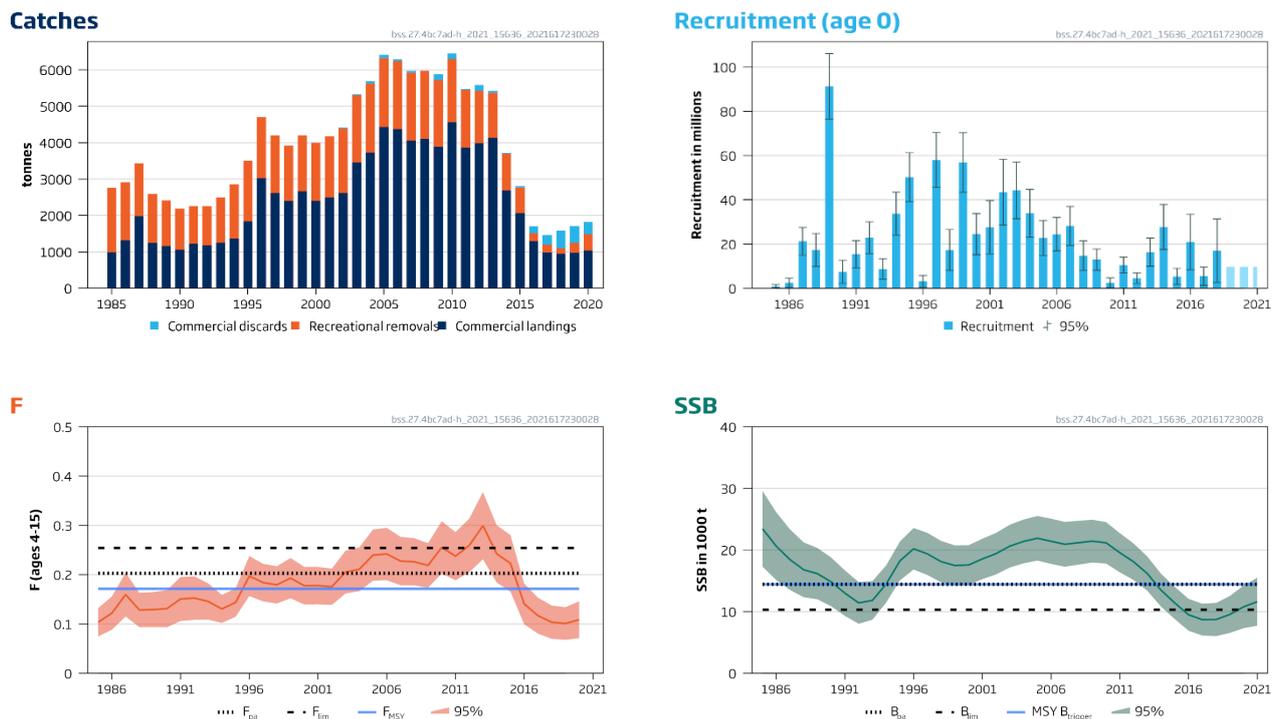


Figure 1 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Summary of the stock assessment. Recreational removals are model estimates based on a survey in 2012 and implemented management measures. Discard estimates are available from 2002. Fishing mortality (F) is shown for the combined commercial and recreational fisheries. The assumed recruitment values for 2019–2021 are shaded in a lighter colour.

[†]Total removals include both commercial and recreational catches, taking mortality of released fish into account (estimated at approximately 5%).

Catch scenarios

Table 1 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Assumptions made for the interim year and 2021 forecast.

Variable	Value	Notes
F _{ages 4–15} (2021)	0.114	Total F, F _{sq} = F _{average} (2018–2020) (0.083) for commercial fishery, plus F _{rec} = 0.031*, assuming full compliance of recreational fisheries in 2021
SSB (2022)	12052	Short-term forecast; in tonnes
Rage 0 (2019–2022)	9696	Geometric mean (2009–2018); in thousands
Total removals (2021)	1770	Short-term forecast fishing at F = 0.114; in tonnes
Total landings (2021)	1051**	Short-term forecast; in tonnes
Discards (2021)	143**	Short-term forecast; in tonnes
Recreational removals (2021)	465	Short-term forecast assuming an F = 0.031; in tonnes

* Recreational F as estimated in 2012 (0.066, reduced [by 53.6%]) to account for management measures since 2012, assuming no change in management measures from 2020.

** The split of total commercial F into commercial landings and commercial discards in the interim year is estimated by the model.

Table 2 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Annual catch scenarios for 2021. All weights are in tonnes.

Basis	Total removals* (2022)	Projected landings (2022)	Projected discards (2022)	Recreational removals (2022)	F _{total} (2022)	F _{projected} landings (2022)	F _{projected} discards (2022)	F recreational removals (2022)	SSB (2023)	% SSB change**	% advice change***
ICES advice basis											
MSY approach: F _{MSY} × SSB ₂₀₂₂ /MSY B _{trigger}	2216	1469	164	583	0.143	0.099	0.0057	0.038	11827	-1.87	10.8
Other scenarios											
EU MAP [^] : F _{MSY} × SSB ₂₀₂₂ /MSY B _{trigger}	2216	1469	164	583	0.143	0.099	0.0057	0.038	11827	-1.87	10.8
EU MAP [^] : F _{MSY upper} × SSB ₂₀₂₂ /MSY B _{trigger}	2216	1469	164	583	0.143	0.099	0.0057	0.038	11827	-1.87	10.8
EU MAP [^] : F _{MSY lower} × SSB ₂₀₂₂ /MSY B _{trigger}	1859	1233	137	489	0.119	0.082	0.0047	0.032	12121	0.57	-7.1
F = F _{MSY}	2620	1736	195	690	0.171	0.119	0.0068	0.046	11496	-4.6	31
F = 0	0	0	0	0	0	0	0	0	13660	13.3	-100
F _{pa}	3059	2025	229	805	0.20	0.141	0.0081	0.054	11137	-7.6	53
F _{lim}	3738	2472	282	984	0.25	0.176	0.0101	0.068	10584	-12.2	87
SSB ₂₀₂₃ = B _{lim}	4072	2691	308	1073	0.28	0.194	0.0112	0.075	10313	-14.4	104
SSB ₂₀₂₃ = B _{pa} ^{^^}											
SSB ₂₀₂₃ = MSY B _{trigger} ^{^^}											
F = F ₂₀₂₁	1790	1188	132	471	0.114	0.079	0.0045	0.030	12177	1.03	-10.5
SSB ₂₀₂₃ = SSB ₂₀₂₂	1941	1288	143	511	0.124	0.086	0.0049	0.033	12052	0.00	-2.9

* Includes commercial catch and recreational removals (taking mortality of released fish into account, estimated at approximately 5%).

** SSB 2023 relative to SSB 2022.

*** Advice value for 2022 relative to the MSY value for 2021 (2000 tonnes).

[^] MAP multiannual plan (EU, 2019).

^{^^} The B_{pa} and MSY B_{trigger} options were left blank because B_{pa} and MSY B_{trigger} cannot be achieved in 2023, even with zero catch in 2022.

The increase in advice for 2022 of 10.8% relative to 2021 is mainly due to an increase in spawning-stock biomass and the slightly higher fishing mortality implied by the advice rule.

Basis of the advice

Table 3 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. The basis of the advice.

Advice basis for 2020	MSY approach
Management plan	ICES is aware of the multiannual management plan (MAP) which has been adopted by the EU for this stock (EU, 2019) and which ICES considers to be precautionary. There is no agreed shared management plan with the UK for this stock, and ICES provides advice according to ICES MSY approach. Catch scenarios consistent with the MAP F _{MSY} ranges are provided.

Quality of the assessment

Poor catch data quality, owing to limited sampling of the discards and recreational removals, leads to uncertainty in the assessment. The discard values are estimated from sampling programmes and more recently from a combination of sampling programmes and logbooks, where sampling is variable across fleets and years. For the forecast, the discard ratio assumed is the estimate provided by the assessment model. This assumed discard rate is lower than the discard rates recently observed.

The estimate of 1440 tonnes of recreational removals (including post-release mortality, estimated 5%) in 2012 is based on multiple surveys covering a range of years. As in previous years, the mortality rate from recreational removals for 1985–2014 (excluding 2012) was assumed to be the same as estimated for 2012. In the assessment, the mortality rate from recreational removals for 2015–2020 was derived by scaling down the F from 2012 to account for the management measures in these years, assuming full compliance.

Fishery sampling rates have been variable over time for all countries. Additional information on recreational removals from all countries is needed in order to improve these estimates and the stock assessment model.

Stock identity is still under investigation.

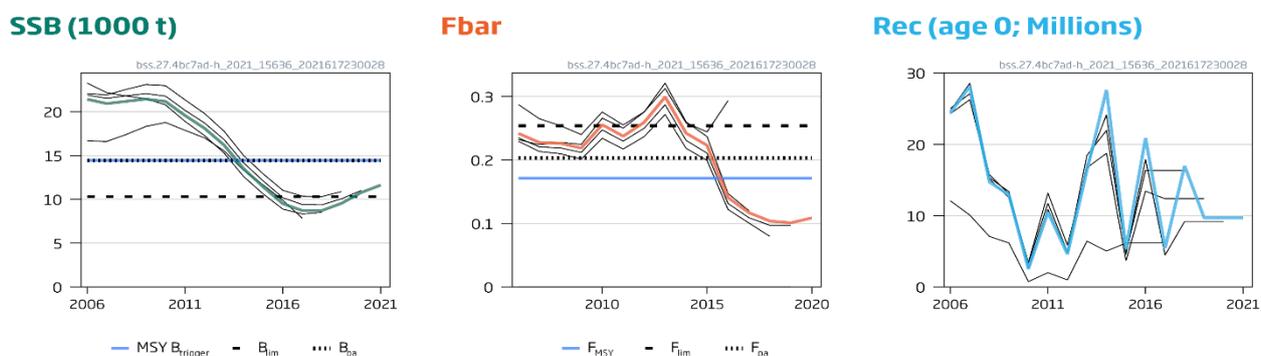


Figure 2 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. This stock was benchmarked in 2017 and 2018; (final-year SSB estimates and final three years of recruitment assumptions are included).

Issues relevant to the advice

In the absence of information on future management measures, the forecast assumes the same relative fishing mortality ratio between commercial catch and recreational removals as those indicated in the interim year of the forecast. Using different ratios for the fleet components can affect the total catch advice.

Management measure in place since 2015 have reduced not only pelagic trawl catches of sea bass but also bycatch of sea bass in other fisheries; however, observed discards have increased.

ICES notes that the scenario with the advised catch for 2022 is expected to result in a slight drop in the SSB in 2023.

Reference points

Table 4 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 $B_{trigger}$	14439	B_{pa} ; in tonnes	ICES (2019)
	F_{MSY}	0.1713	Stochastic simulations (EqSim)	ICES (2019)
Precautionary approach	B_{lim}	10313	B_{loss} (lowest value in the time-series, SSB in 2018 as estimated by the WGCSE 2019 assessment); in tonnes	ICES (2019)
	B_{pa}	14439	$B_{lim} \times 1.4$; in tonnes	ICES (2019)
	F_{lim}	0.254	Stochastic simulations (EqSim)	ICES (2019)
	F_{pa}	0.203	F_{P05} ; the F that leads to $SSB \geq B_{lim}$ with 95% probability	ICES (2019, 2021a)
Management plan*	MAP MSY $B_{trigger}$	14439	MSY $B_{trigger}$; in tonnes	EU (2019)
	MAP B_{lim}	10313	B_{lim} ; in tonnes	EU (2019)
	MAP F_{MSY}	0.1713	F_{MSY}	EU (2019)
	MAP range F_{lower}	0.142	Consistent with ranges provided by ICES (2019), resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2019) and EU (2019)
	MAP range F_{upper}	0.1713	Consistent with ranges provided by ICES (2019), resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2019) and EU (2019)

* EU multiannual plan (MAP) for the Western Waters and adjacent waters (EU, 2019).

Basis of the assessment

Table 5 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2021b)
Assessment type	Age- and length-based analytical assessment (Stock Synthesis 3; NOAA Toolbox)
Input data	Commercial landings (international landings, ages and length frequencies from catch sampling); commercial discards (UK bottom otter trawl and nets and combined French fleet, length frequencies from catch sampling); one recruit survey (UK Solent autumn survey [G9863], 1986 to present, excluding 2010 and 2012); one bottom trawl survey (Channel Groundfish Survey [G3425], 1988–2014); one commercial tuning fleet (2001 to present); growth and maturity data from sampling of commercial catches and surveys; natural mortality (inferred from life-history parameters and maximum observed ages).
Discards and bycatch	Discards included in the model and forecast for some of the fleets
Recreational	Used in the model and in the forecast
Indicators	None
Other information	Benchmarked in 2018 (ICES, 2018)
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

History of the advice, catch, and management

Table 6 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. History of ICES advice, and ICES estimates of landings, discards, and official landings. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice*	Official commercial landings	ICES commercial landings	ICES commercial discards [^]	ICES recreational removals
2003	No increase in effort or F	-	2900	3459		
2001	-	-	2200	2500		
2002	No increase in effort or F	-	2400	2622		
2000	-	-	2100	2407		
2004	No increase in effort or F	-	3000	3731		
2005	-	-	3200	4430		
2006	-	-	3373	4377		
2007	-	-	3520	4064		
2008	-	-	3008	4107		
2009	-	-	4273	3889	151	
2010	-	-	4953	4562	148	
2011	-	-	4184	3858	22	
2012	No increase in catch	-	3983	3987	157	1440
2013	20% reduction in catches (average of the last three years)	< 6000**	4242	4137	53	
2014	36% reduction in commercial landings (20% reduction, followed by 20% precautionary reduction)	< 2707**	2817	2682	25	
2015	MSY approach	< 115***	2081	2066	40	
2016	MSY approach	≤ 541***	1290	1295	199	
2017	Precautionary approach	0	949	984	271	
2018	MSY approach	≤ 880 ^{^^^}	931	948	482	
2019	MSY approach	≤ 1806 ^{^^^}	927 ^{^^}	972	464	
2020	Management plan	1634–1946 ^{^^^}	1150 ^{^^}	1042	325	
2021	Management plan	2000 (range 1680–2000) ^{^^^}				
2022	MSY approach	2216 ^{^^^}				

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

** Commercial landings.

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

[^] Incomplete for some fleets.

^{^^} Preliminary.

^{^^^} Includes commercial catch and recreational removals (taking mortality of released fish into account, estimated at approximately 5%).

History of the catch and landings

Table 7 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Catch distribution by fleet in 2020 as estimated by ICES.

Total catch	Commercial landings						Commercial discards	Recreational removals
	Lines	Bottom trawlers	Other gears	Fixed/drift nets	Danish seine	Pelagic trawlers		
1814 tonnes	45%	16%	10%	23%	5%	< 1%	325 tonnes	447 tonnes
	1042 tonnes							

Table 8 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. History of commercial landings by country and ICES estimates of landings. All weights are in tonnes.

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	3459
2004	159	1	0	1883	617	191	159	3010	3731
2005	206	1	0	1937	512	327	220	3203	4430
2006	211	2	0	2116	736	308	23	3396	4377
2007	178	1	0	2075	873	376	18	3521	4064
2008	187	0	0	1506	934	380	20	3027	4107
2009	174	0	0	2904	801	395	15	4288	3889
2010	216	4	0	3441	879	399	14	4952	4562
2011	152	2	0	2688	928	395	17	4183	3858
2012	154	3	0	2492	946	376	12	3982	3987
2013	146	4	2	2868	841	370	12	4243	4137
2014	148	1	1	1322	1080	253	11	2816	2682
2015	40	0	0	1113	701	218	9	2081	2066
2016	23	0	1	545	551	156	24	1300	1295
2017	22	0	0	423	438	132	12	1027	984
2018	18	0	0	297	432	172	11	931	948
2019*	18	0	0	299	406	202	0	927	972
2020*	24	0	0	387	521	218	0	1150	1042

* Preliminary official landings.

Summary of the assessment

Table 9 Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Assessment summary. Weights are in tonnes and recruitment in thousands. High and low refers to 95% confidence intervals.

Year	Recruitment age 0			SSB			Total $F_{\text{ages 4-15}}$			F_{bar} commercial catch	F_{bar} recreational removals	Commercial landings	Commercial discards*	Recreational removals**
	Low	Value	High	Low	Value	High	Low	Value	High					
1985	74	858	1643	17307	23458	29609	0.075	0.103	0.132	0.037	0.066	994		1771
1986	438	2507	4576	15118	20630	26142	0.088	0.122	0.156	0.056	0.066	1318		1597
1987	14961	21261	27562	13519	18446	23373	0.115	0.160	0.204	0.093	0.066	1979		1457
1988	9894	17341	24788	12335	16791	21247	0.093	0.128	0.163	0.062	0.066	1239		1353
1989	76474	91288	106101	11993	16164	20334	0.094	0.129	0.165	0.063	0.066	1161		1253
1990	2283	7457	12630	10870	14828	18785	0.093	0.131	0.169	0.065	0.066	1064		1129
1991	9269	15422	21575	9305	13002	16699	0.106	0.151	0.195	0.085	0.066	1226		1037
1992	15647	22821	29996	8027	11422	14816	0.108	0.153	0.197	0.086	0.066	1186		1061
1993	4101	8729	13357	8682	11825	14969	0.109	0.146	0.183	0.080	0.066	1256		1235
1994	23998	33723	43448	11473	14494	17514	0.102	0.131	0.159	0.065	0.066	1370		1481
1995	39118	50200	61281	15078	18234	21390	0.115	0.143	0.172	0.078	0.066	1835		1661
1996	455	3153	5851	16835	20206	23578	0.157	0.197	0.24	0.131	0.066	3022		1673
1997	45556	57980	70404	15945	19368	22791	0.146	0.184	0.22	0.118	0.066	2620		1588
1998	8016	17301	26585	14747	18117	21486	0.141	0.179	0.22	0.113	0.066	2390		1534
1999	43408	56876	70344	14215	17487	20759	0.152	0.193	0.23	0.126	0.067	2670		1536
2000	15250	24520	33791	14359	17574	20788	0.140	0.178	0.22	0.111	0.066	2407		1590
2001	15469	27540	39611	15270	18559	21848	0.140	0.178	0.22	0.111	0.066	2500		1675
2002	28607	43463	58319	16044	19420	22796	0.139	0.175	0.21	0.109	0.066	2622	17	1771
2003	31478	44286	57095	17162	20640	24117	0.162	0.21	0.25	0.139	0.066	3459	16	1852
2004	23080	33890	44699	17837	21395	24954	0.166	0.21	0.26	0.144	0.067	3731	59	1896
2005	14860	22741	30623	18282	21910	25537	0.188	0.24	0.29	0.173	0.067	4430	96	1892
2006	16864	24432	31999	17744	21418	25092	0.189	0.24	0.30	0.175	0.067	4377	53	1860
2007	19335	28175	37016	17288	20929	24571	0.178	0.23	0.28	0.161	0.066	4064	50	1855
2008	7991	14730	21468	17625	21185	24746	0.178	0.23	0.27	0.160	0.066	4107	8	1862
2009	8123	12940	17757	17968	21444	24920	0.173	0.22	0.26	0.152	0.066	3889	151.2	1836
2010	331	2514	4697	17803	21172	24541	0.20	0.26	0.31	0.189	0.066	4562	147.9	1739
2011	6868	10481	14095	16381	19566	22752	0.189	0.24	0.29	0.171	0.066	3858	22	1598

Year	Recruitment age 0			SSB			Total $F_{\text{ages 4-15}}$			F_{bar} commercial catch	F_{bar} recreational removals	Commercial landings	Commercial discards*	Recreational removals**
	Low	Value	High	Low	Value	High	Low	Value	High					
2012	2221	4586	6952	15131	18100	21069	0.21	0.26	0.31	0.193	0.066	3987	156.6	1440
2013	9951	16354	22756	13390	16176	18963	0.23	0.30	0.37	0.233	0.066	4137	53.4	1229
2014	17495	27691	37887	10810	13483	16156	0.184	0.24	0.30	0.177	0.065	2682	24.7	1021
2015	1642	5337	9032	8786	11408	14031	0.165	0.22	0.28	0.169	0.054	2066	39.5	703
2016	8355	20925	33494	6908	9496	12084	0.099	0.141	0.182	0.122	0.0186	1295	198.6	215
2017	1270	5458	9647	6120	8709	11298	0.080	0.117	0.153	0.098	0.0185	984	271.102	212
2018	2682	17019	31355	6020	8720	11420	0.070	0.104	0.137	0.091	0.0127	948	482.4	153
2019		9696^		6546	9543	12540	0.068	0.101	0.134	0.080	0.021	972	463.9	277
2020		9696^		7313	10773	14232	0.071	0.109	0.146	0.078	0.031	1042	325	447
2021		9696^		7717	11619	15522								

* Discards from 2000–2008 are incomplete for some fleets.

** All values were derived from the 2012 survey estimate (1440 tonnes).

^ Geometric mean recruitment (2009–2018).

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[Download the stock assessment data and figures.](#)

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