

ICES advice for North Western Waters stocks for 2022

NWWAC meeting, July 5, 2021

WORKING GROUP 2 – CELTIC SEA

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ICES ACOM vice-chair



Science for sustainable seas

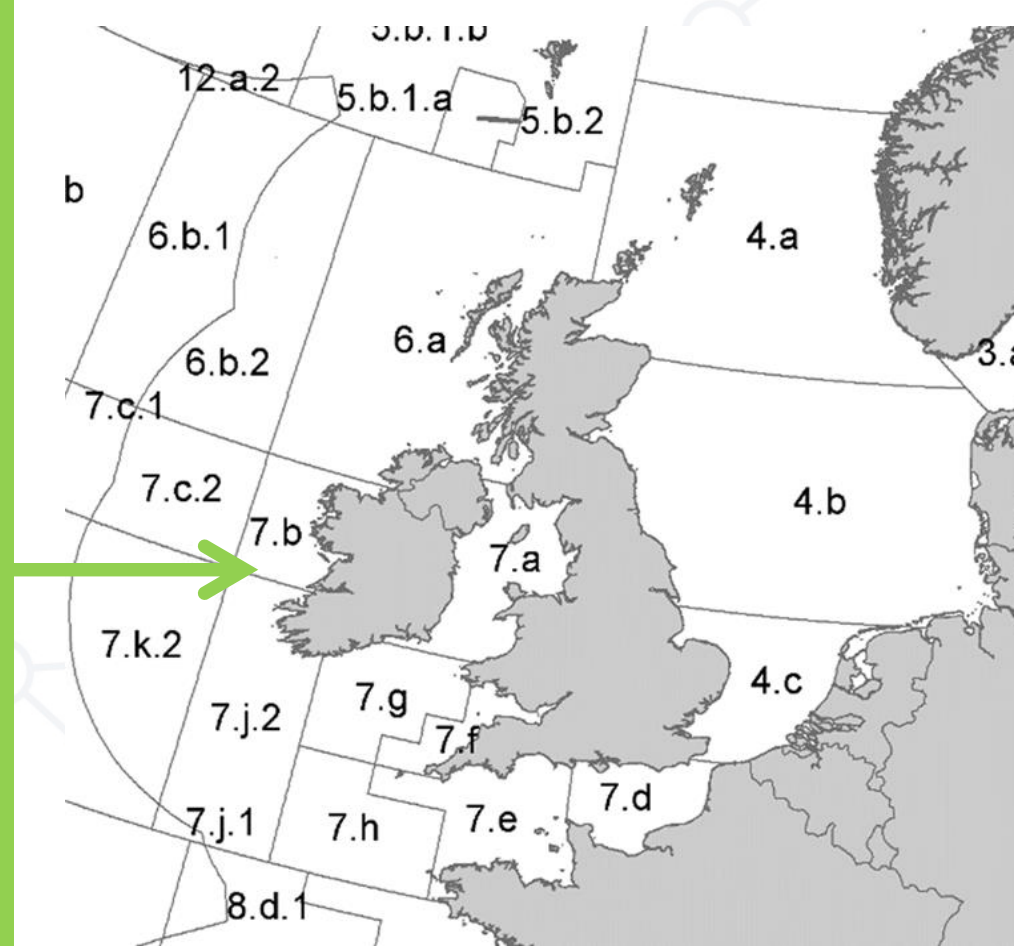
Image Dirk Vonten, Fotolia

Introduction – Celtic Sea

- Includes advice released up to 30 June 2021.
- Full advice sheets for all stocks. COVID-19 impacts inserted in Quality of the assessment.
- Stocks managed by EU and UK: advice provided on the basis of MSY or PA but EU MAP option provided in catch scenario table if available.
- Advice rules applied by ICES in developing advice on fishing opportunities similar to previous years..
- Other advice to be released in the autumn for the following stocks: whiting (7.bc,e-k) Nephrops (FUs 16-17,19-22), red gurnard (3-8)

Celtic Sea & West, Southwest Ireland

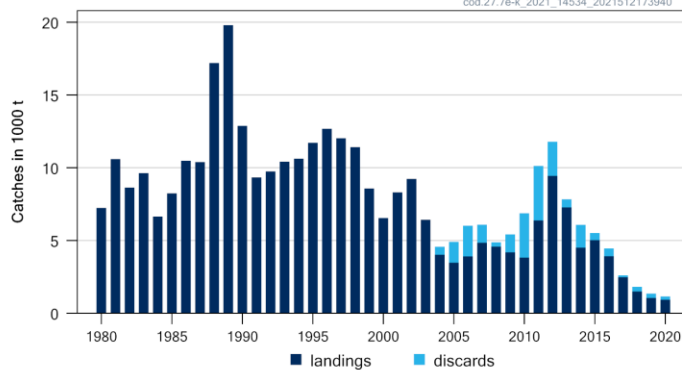
- Cod (7.e-k)
- Haddock (7.b-k)
- B-B Anglerfish (7.b-k, 8.abd)
- White anglerfish (7, 8.a-b,d)
- Hake (4,6,7, 3.a, 8.ab,d)
- Megrim (7.b-k, 8.abd)
- Plaice (7.bc, 7.fg, 7h-k;)
- Pollack (6,7)
- Sea bass (4.bc, 7.a,d-h)
- Sole (7.bc; 7.fg; 7.h-k;)
- Deep stocks:
 - Tusk, Blue ling, Ling
 - Alfonsinos
 - Black scabbardfish
 - Greater silver smelt
 - Roundnose grenadier
- Rays and skates



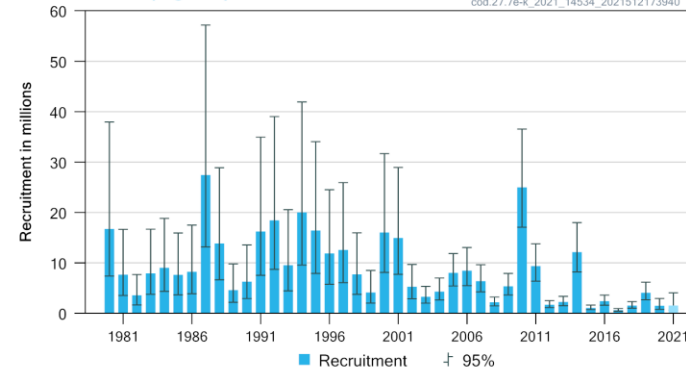
Cod in the western English Channel and southern Celtic Seas (7.e–k)

Advice for 2022: MSY: Catch = 0 t

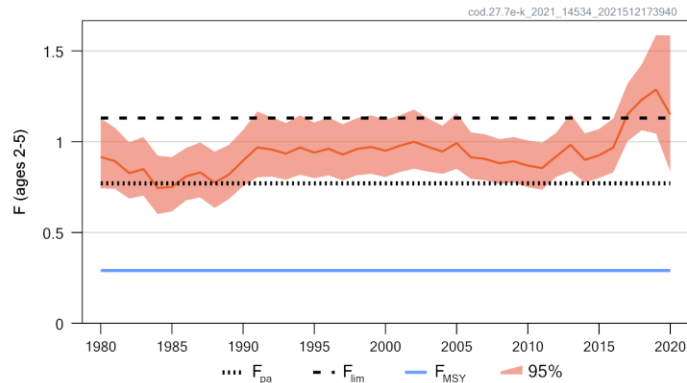
Catches



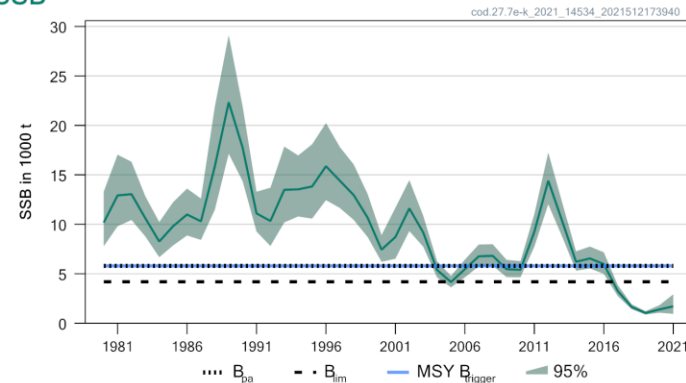
Recruitment (age 1)



F



SSB



- Benchmarked in 2020
- Spawning stock below B_{lim} in 2021 and not expected to reach B_{lim} even with 0 catch.
- Fishing pressure above F_{Lim}
- Recruitment variable, weak recently
- Catch in 2020 = 1 565 t

- Technical service on likely catches to be produced in autumn

Cod in the western English Channel and southern Celtic Seas(7.e–k)

Catch (2020) : 1152 t (20 % discards)

$F(2021) = 1.23$ (Recent average fishing pressure (2018-2020);

$SSB(2022) = 1\,354\text{ t} < B_{lim}(7\,300\text{ t}) \quad F_{MSY} = 0.29$

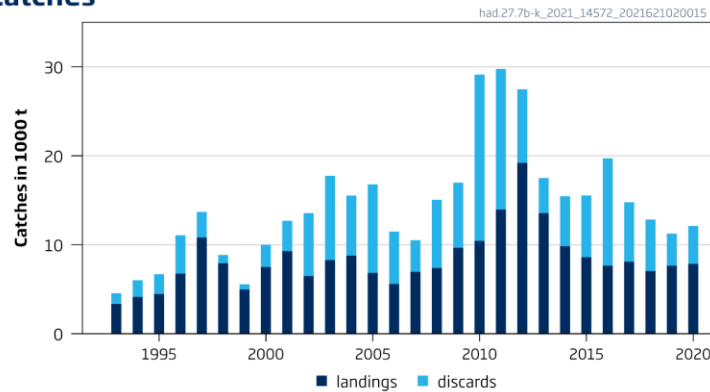
Basis	Total catch (2022)	Projected landings (2022)	Projected discards (2022)	F_{total} (2022)	$F_{projected}$ landings (2022)	$F_{projected}$ discards (2022)	SSB (2023)	% SSB change *
ICES advice basis								
MSY approach: $F = 0$	0	0	0	0	0	0	3449	155
Other scenarios								
$F_{MSY} \times SSB_{2022} / MSY B_{trigger}$	134	113	21	0.068	0.065	0.003	3246	140
$F_{MSY\ lower} \times SSB_{2022} / MSY B_{trigger}$	79	67	12	0.04	0.038	0.002	3329	146
$F_{MSY\ upper} \times SSB_{2022} / MSY B_{trigger}$	186	158	28	0.096	0.091	0.005	3167	134
$F = F_{MSY}$	519	437	82	0.29	0.277	0.013	2667	97
$F = 0$	0	0	0	0	0	0	3449	155
$F = F_{lim}$	1461	1203	258	1.13	1.08	0.05	1306	
$F = F_{pa}$	1137	943	194	0.77	0.736	0.034	1763	30
$SSB_{2023} = B_{lim}^{**}$								
$SSB_{2023} = B_{pa} = MSY B_{trigger}^{**}$								
$F = F_{2021}$	1536	1261	275	1.231	1.176	0.055	1202	-11
$SSB_{2022} = SSB_{2023}$	1426	1174	252	1.085	1.037	0.048	1354	0

- **Caught in mixed fisheries with haddock and whiting.**
- **Mixed fisheries advice to be provided in autumn.**
- **Stock includes the south of Division 7.a (rectangles 33E2-33E3)**

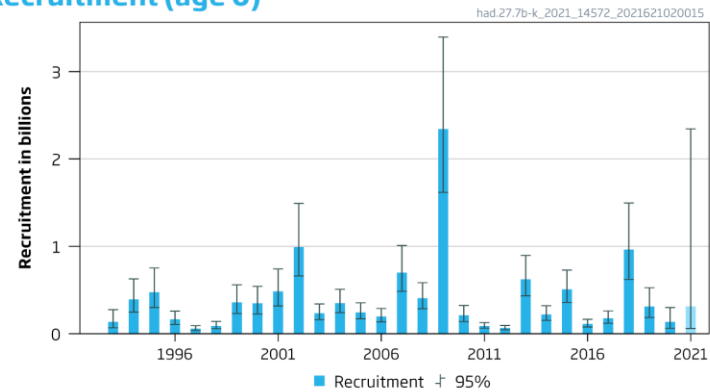
Haddock in the southern Celtic Seas and English Channel (7.b–k)

Advice for 2022: MSY: Catch $\leq 15\,946$ t

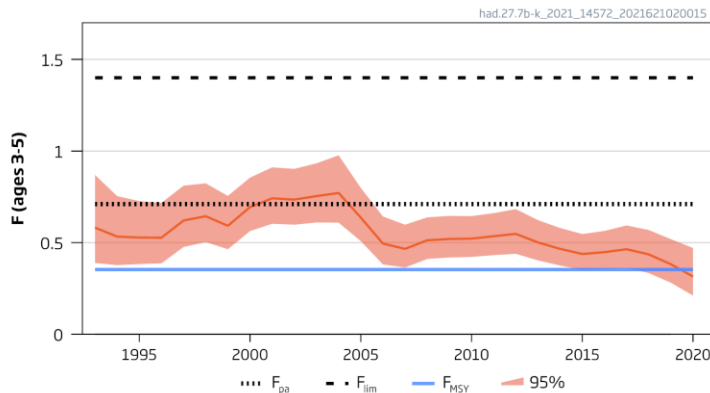
Catches



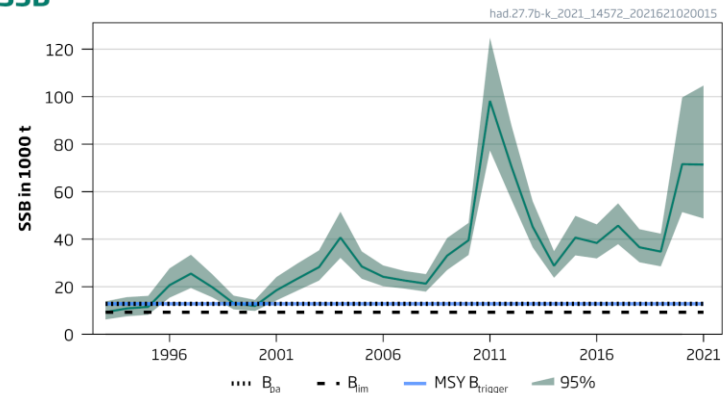
Recruitment (age 0)



F



SSB



- Spawning stock has increased in 2020
- Recruitment in 2018 second highest but followed by smaller year-classes.
- Fishing pressure has been reduced and is just below F_{MSY}
- Discarding high $\sim 30\%$ during 2018-2020.

Haddock in the southern Celtic Seas and English Channel (7.b–k)

Catch (2020) : 12 119 (35% discards)

$F(2021) = 0.315$ (Recent average fishing pressure (2018-2020), scaled to 2020;

$SSB(2022) = 62\,437 > MSY_{B_{trigger}} (12\,822t)$ $F_{MSY} = 0.353$

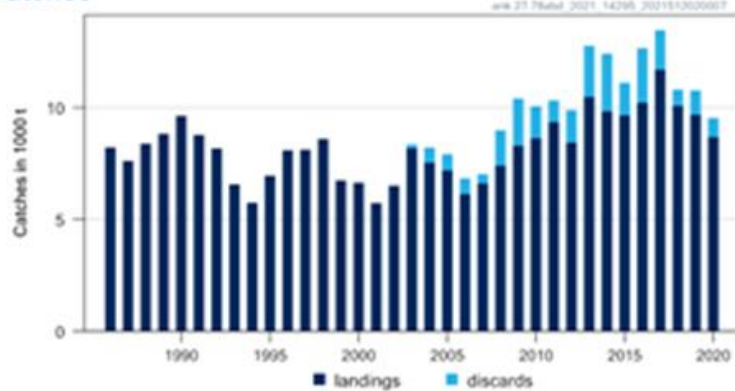
Basis	Total catch (2022)	Projected landings (2022)	Projected discards (2022)	F_{total} (2022)	$F_{projected}$ landings -2022	$F_{projected}$ discards -2022	SSB (2023)	% SSB change *	% advice change
ICES advice basis									
MSY approach: F_{MSY}	15946	11885	4061	0.35	0.28	0.074	56747	-9.1	-13.3
Other scenarios									
EU MAP : F_{MSY}	15946	11885	4061	0.35	0.28	0.074	56747	-9.1	-13.3
$F = MAP F_{MSY lower}$	10570	7919	2651	0.22	0.174	0.047	62704	0.43	-43
$F = MAP F_{MSY upper}$	21988	16253	5735	0.52	0.41	0.11	50276	-19.5	19.6
$F = 0$	0	0	0	0	0	0	74566	19	-100
F_{pa}	27740	20328	7412	0.71	0.56	0.149	44324	-29	51
F_{lim}	42885	30770	12115	1.4	1.11	0.3	28835	-54	133
$SSB_{2023} = B_{lim}$	65099	43929	21170	4.03	3.18	0.85	9227	-85	254
$SSB_{2023} = B_{pa} = MSY B_{trigger}$	60370	41496	18874	3.1	2.45	0.65	12822	-80	228
$F = F_{2021}$	14464	10797	3667	0.32	0.25	0.07	58367	-6.5	-21
$SSB_{2023} = SSB_{2022}$	10818	8105	2713	0.227	0.179	0.048	62437	0	-41

- Stock includes the south of Division 7.a (rectangles 33E2-3)

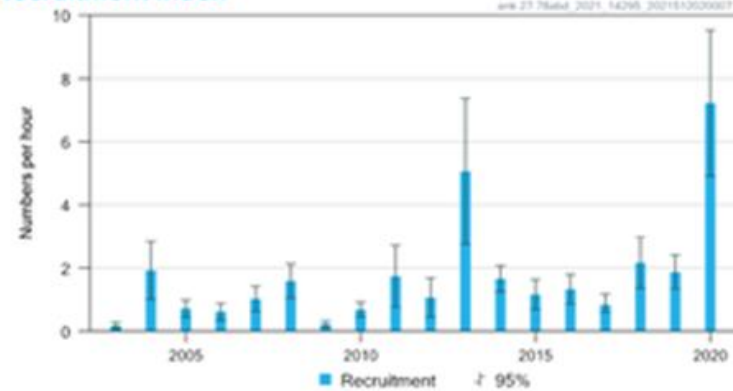
Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d

Advice for 2022 : PA: Catch $\leq 18\,661$ t

Catches



Recruitment index



Relative F



Biomass index



- Fishing mortality declined below F_{MSY} .
- Spawning stock increased since 2015
- Recruitment index above average in the last two years.

Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d

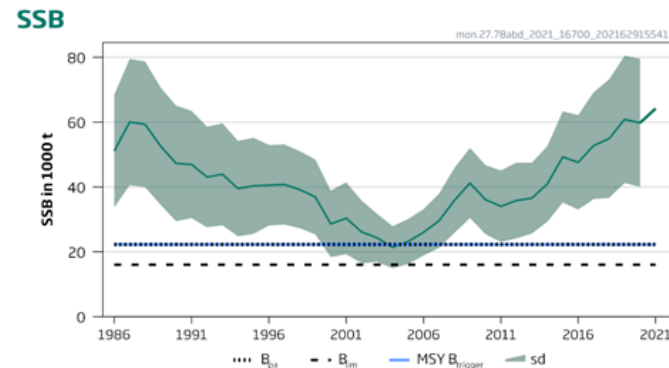
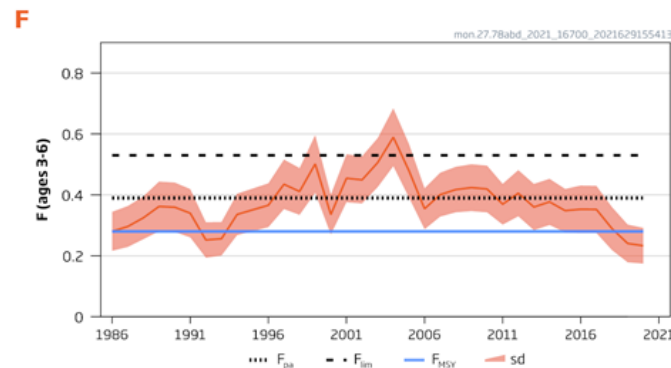
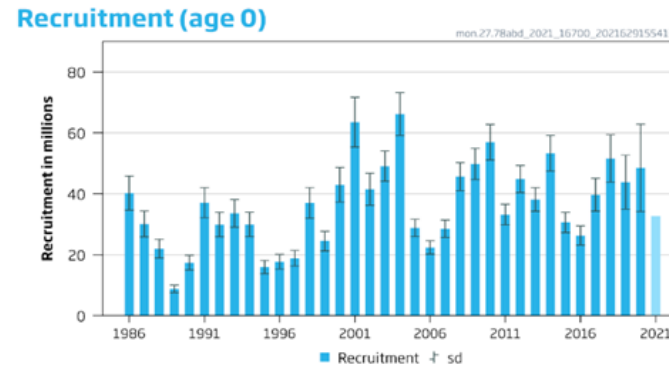
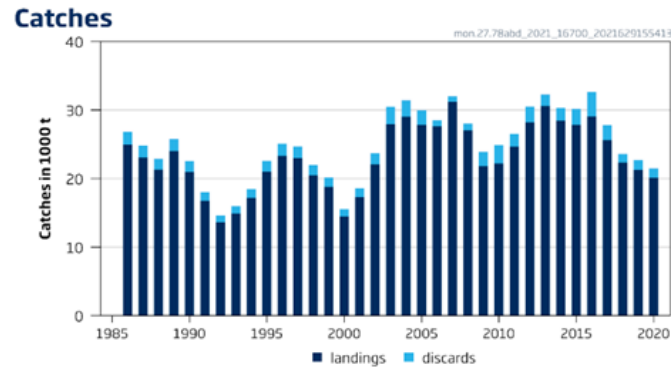
Catch (2020) = 9 531 t (9 % discards)

Note: Under combined TAC with white anglerfish.

Index A (2019–2020)		4.4 kg h ⁻¹
Index B (2016–2018)		3.2 kg h ⁻¹
Index ratio (A/B)		1.36
Uncertainty cap	Applied	1.2
Advised catch for 2021		15 551 tonnes
Discard rate (average of 2018–2020)		9%
Precautionary buffer	Not applied	-
Catch advice **		18 661 tonnes
Projected landings corresponding to advice ***		17 061 tonnes
% advice change ^		20%

White anglerfish in Subarea 7 and div. 8.a-b,d (Celtic Sea, Bay of Biscay)

Advice for 2022 : MSY : Catch $\leq 34\,275$ t



- Spawning stock increasing since 2005 and at highest in time-series. Estimates for 2020 revised lower.
- Fishing pressure below F_{MSY} since 2019.
- Recruitment variable but above average in 2017-2020.
- 2 anglerfish species not totally separated in landings.
- Under combined TAC with Black bellied anglerfish.
- EU MAP provided in catch scenarios.

White anglerfish in Subarea 7 and div. 8.a-b,d (Celtic Sea, Bay of Biscay)

Catch (2020) : 21 491 t (6 % discards)

$F(2021) = 0.25$ (Recent fishing pressure (2018-2020);

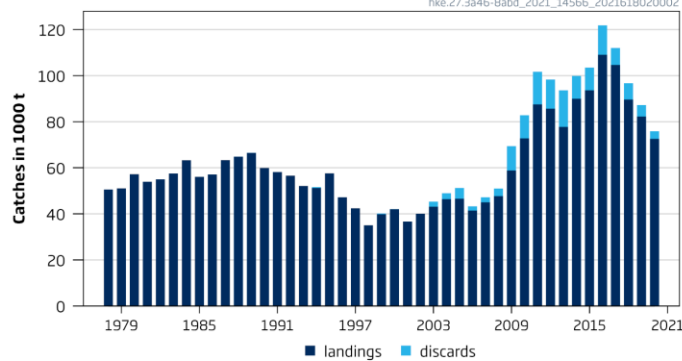
$SSB(2022) = 70\,972\text{ t} > MSY_{B_{trigger}} (22\,278\text{ t}) \quad F_{MSY} = 0.28$

Basis	Total catch (2022)	Projected landings* (2022)	Projected discards** (2022)	F_{total} -2022	$F_{ages\ 3-6}$ Projected landings (2022)	$F_{ages\ 3-6}$ Projected discards (2022)	SSB (2023)	% SSB change ***	% Advice change ^
ICES advice basis									
MSY approach = F_{MSY}	34275	32953	1322	0.28	0.28	0.00028	82203	16	-0.88
Other scenarios									
EU MAP : F_{MSY}	34275	32953	1322	0.28	0.28	0.00028	82203	16	-0.88
$F = MAP\ F_{MSY\ lower}$	23162	22277	885	0.181	0.181	0.00018	89903	27	-0.68^^
$F = MAP\ F_{MSY\ upper}$	45491	43720	1771	0.39	0.39	0.00039	74500	5	-1.10^^
$F = 0$	0	0	0	-	-	-	1E+05	50	-100
F_{pa}	45491	43720	1771	0.39	0.39	0.00039	74500	5	32
F_{lim}	58233	55940	2292	0.53	0.53	0.00053	65842	-7.2	68
$SSB_{2023} = B_{lim}$	136230	130295	5935	2.31	2.31	0.00231	16032	-77.4	294
$SSB_{2023} = B_{pa} = MSY\ B_{trigger}$	125712	120340	5372	1.861	1.86	0.00187	22278	-69	264

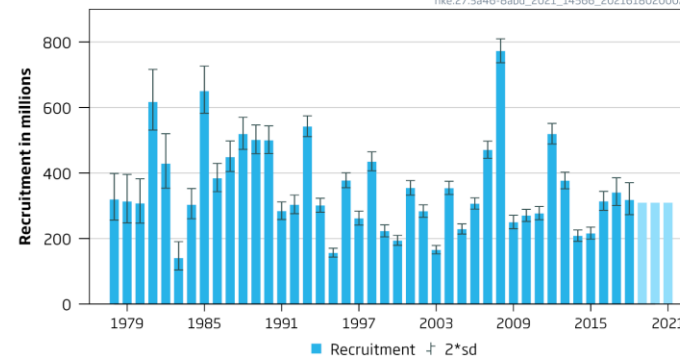
Hake – Northern stock (3.a, 4, 6, 7, 8.abd)

Advice for 2022: MSY: Catch = 75 052 t

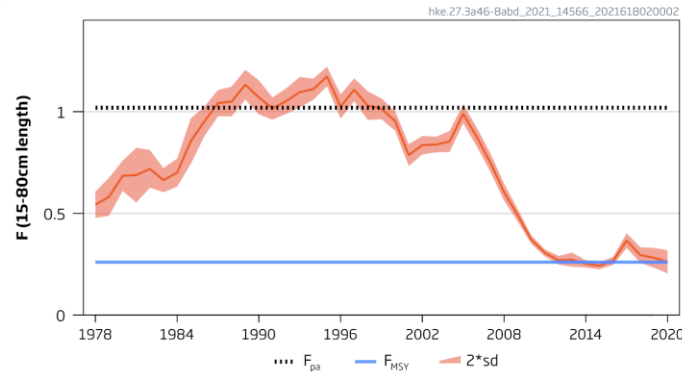
Catches



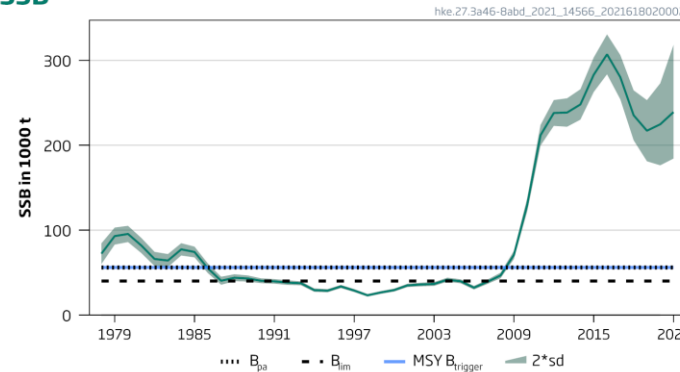
Recruitment (age 0)



F



SSB



- Note:** advice given in 2020 for 2021 revised from 98 657 to 102 888 t

- Spawning stock above $MSY B_{trigger}$ since 2009, near highest values but perception revised downwards.
- Recruitment variable with no trend.
- Fishing pressure declined and around F_{MSY} since 2013.
- Reduction in advice due to lower revised estimates of the stock.
- Advice based on MSY but EU MAP option provided.

Hake – Northern stock (3.a, 4, 6, 7, 8.abd)

Catch (2020) : 75 835t (4.3 % discards)

$F(2021) = 0.28$ Average $F_{2018-2020}$

$SSB(2022) = 218\,924\text{ t} > MSY_{B_{trigger}} (56\,000\text{ t})$

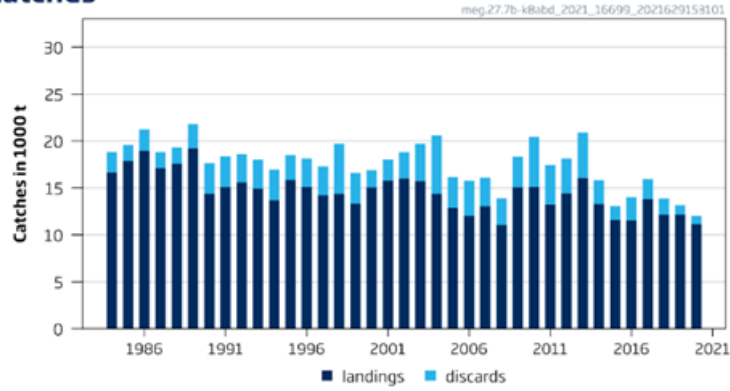
$F_{MSY} = 0.26$

Basis	Total catch (2022)	Projected landings^ (2022)	Projected discards^ (2022)	F_{total} (2022)	$F_{projected}$ landings -2022	$F_{projected}$ discards -2022	SSB -2023	% SSB change *	% advice change **
ICES advice basis									
MSY approach = F_{MSY}	75 052	69 608	5 444	0.26	0.21	0.055	207 398	-5.3	-27
Other scenarios									
EU MAP : F_{MSY}	75 052	69 608	5 444	0.26	0.21	0.055	207 398	-5.3	-27
$F = MAP F_{MSY\ lower}$	54 433	50 552	3 881	0.18	0.142	0.038	227 366	3.9	-47
$F = MAP F_{MSY\ upper}$	106 651	98 688	7 963	0.4	0.32	0.084	176 838	-19.2	3.7
$F = 0$	0	0	0	0	0	0	280 183	28	-100
$F = F_{pa}$	197 425	180 948	16 477	1.02	0.81	0.21	89 303	-59	92
$SSB(2023) = B_{lim}$	248 401	225 384	23 017	1.8	1.42	0.38	40 000	-82	141
$SSB(2023) = B_{pa}$	231 939	211 298	20 641	1.47	1.16	0.31	56 000	-74	125
$SSB(2023) = MSY B_{trigger}$	231 939	211 298	20 641	1.47	1.16	0.31	56 000	-74	125
$SSB(2023) = SSB(2022)$	63 150	58 615	4 535	0.21	0.168	0.045	218 922	0	-39
$F = F_{2021}$	79 754	73 945	5 808	0.28	0.22	0.0587	202 847	-7.3	-22
$F = F_{sq}$	102 889	95 235	7 654	0.38	0.3	0.08	180 474	-17.6	0

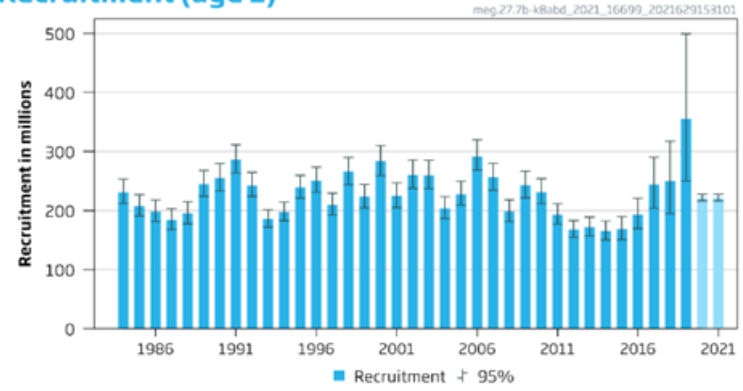
Megrim in the west and southwest of Ireland, Bay of Biscay (7.b–k, 8.a–b, and 8.d)

Advice for 2022: MSY: Catch $\leq 22\,964$ t

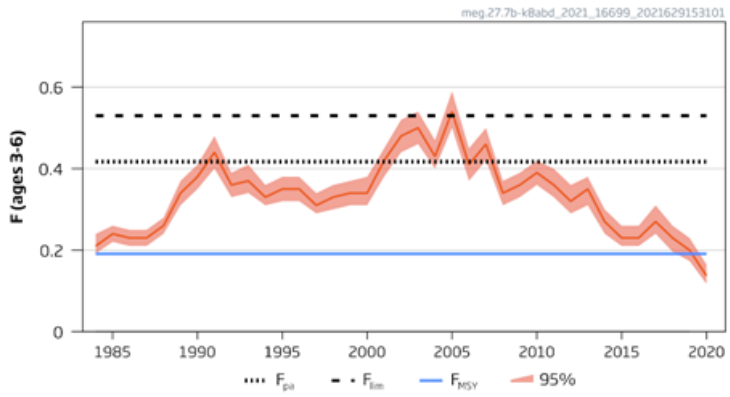
Catches



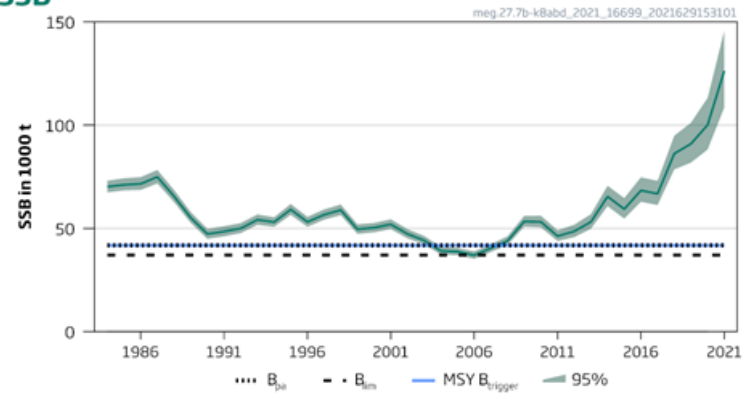
Recruitment (age 1)



F



SSB



- Spawning stock has been above MSY B_{trigger} since 2008.
- The fishing pressure has decreased since 2004 and below F_{MSY} in 2020.
- Recruitment has been relatively stable but higher in 2019.

Megrim in the west and southwest of Ireland, Bay of Biscay (7.b–k, 8.a–b, and 8.d)

Catch (2020) : 12 026 t (7 % discards)

$F(2021) = 0.19$ (F (2018-2020));

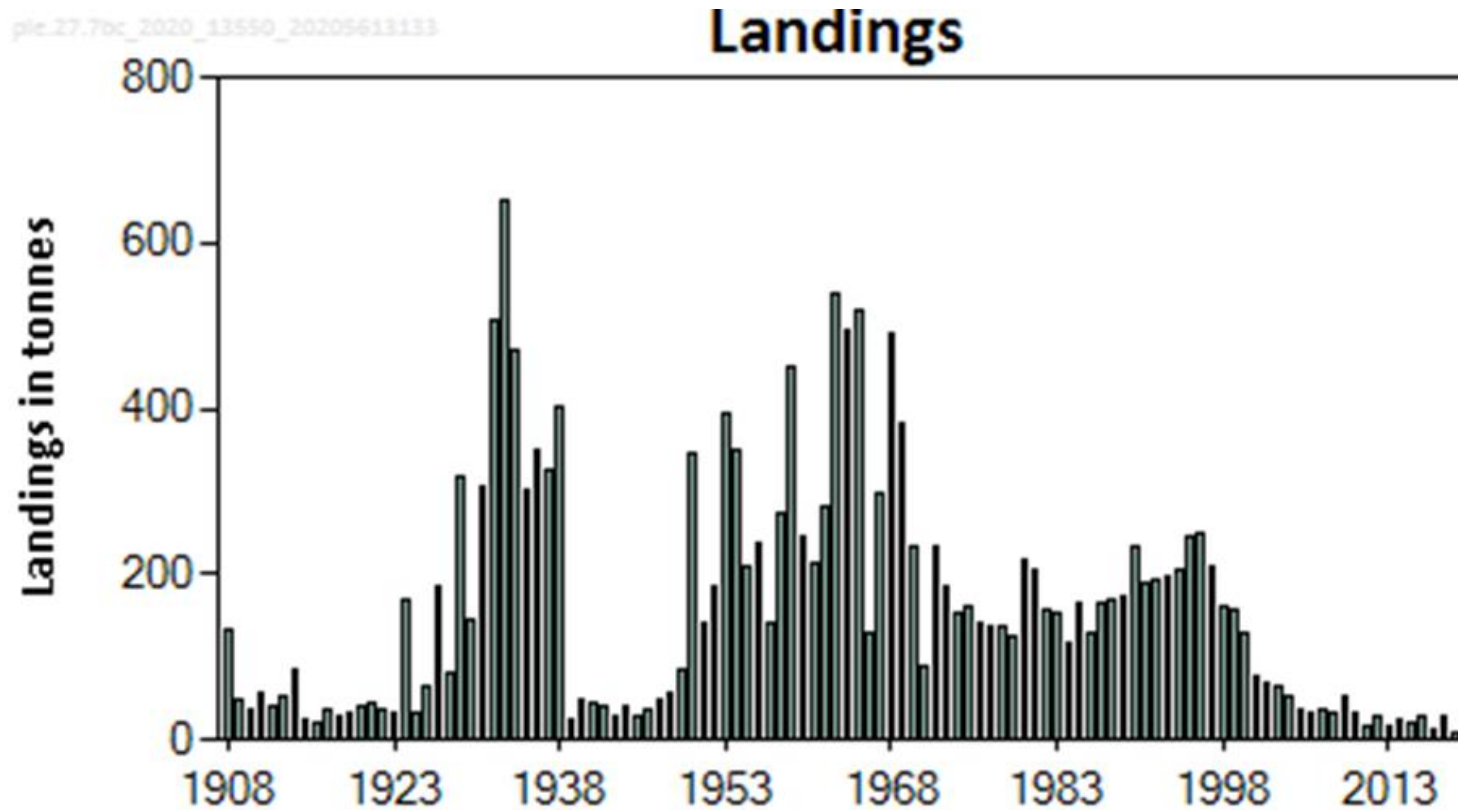
$SSB(2022) = 136\,377\text{ t} > MSY_{B_{trigger}} (41\,800\text{ t}) \quad F_{MSY} = 0.191$

Basis	Total catch (2022)	Projected landings*	Projected discards **	F_{total} (2022)	SSB (2023)	% SSB change	% Advice change ^
ICES advice basis							
MSY approach: F_{MSY}	22 964	20 152	2 812	0.191	138 512	2	20
Other scenarios							
EU MAP = F_{MSY}	22 964	20 152	2 812	0.191	138 512	2	20
$F = MAP \ F_{MSY\ lower}$	15 205	13 357	1 848	0.122	146 818	8	26 ^^
$F = MAP \ F_{MSY\ upper}$	33 269	29 156	4 113	0.29	127 599	-6	20 ^^
$F = 0$	0	0	0	0	162 887	19	-100
F_{pa}	45 238	39 579	5 659	0.42	115 164	-16	136
F_{lim}	54 973	48 018	6 955	0.53	105 181	-23	187
$SSB(2023) = B_{lim}$	123 120	105 281	17 839	2.2	37 100	-73	542
$SSB(2023) = B_{pa}$	118 180	101 350	16 830	1.94	41 800	-69	516
$SSB(2023) = MSY \ B_{trigger}$	118 180	101 350	16 830	1.94	41 800	-69	516
$SSB(2023) = SSB(2022)$	24 968	21 903	3 065	0.21	136 377	0	30
$F = F_{2021}$	22 861	20 062	2 799	0.19	138 621	2	19

- The ICES advice is for *L. whiffiagonis*, whereas the TAC is for *L. whiffiagonis* and *L. boscii* combined and includes 7.a and 8.e..

Plaice of the West of Ireland (7.b and 7.c)

Advice for 2021, 2022, 2023: PA: Catch ≤ 19 t

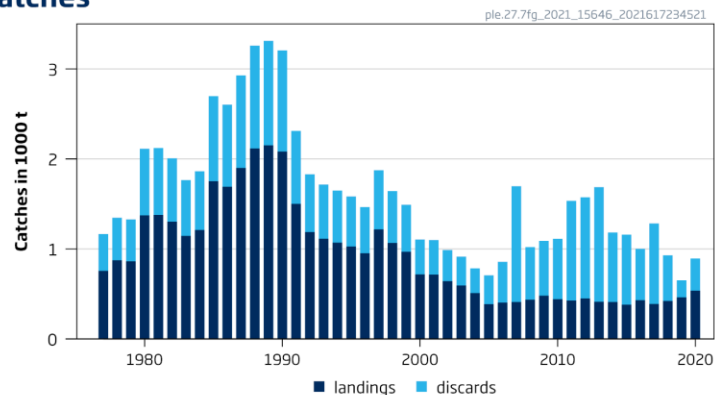


- Advice issued in 2020.
- State of the stock unknown.
- Landings in 2019 = 9 t
- Discards rates uncertain.
- Precautionary reduction in advised catches from 24 t to 19 t.

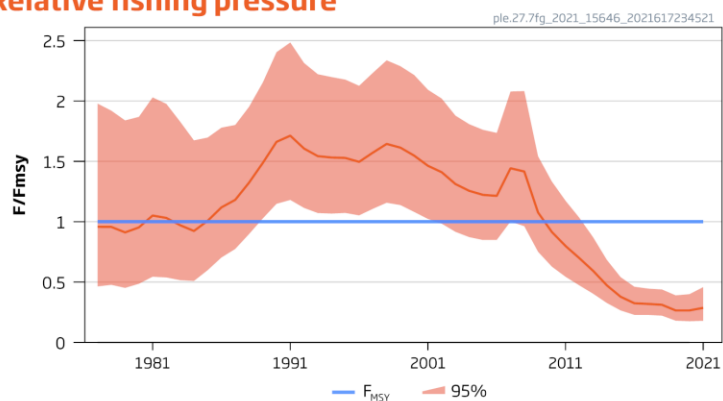
Plaice in the Bristol Channel, Celtic Sea (7.f and 7.g)

Advice for 2022: PA: Catch $\leq 1\,735$ t

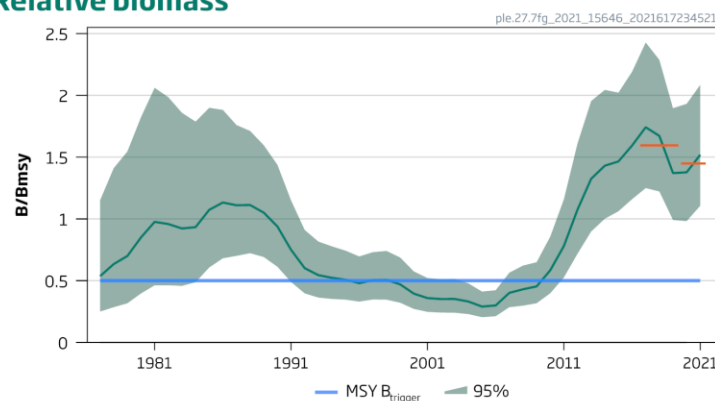
Catches



Relative fishing pressure



Relative biomass



- Fishing pressure has declined and well below F_{MSY} .
- Spawning stock has increased since 2005 and is well above $MSY B_{trigger}$.
- Slight decline in last few years.
- Caught in mixed fishery with sole, high discard rates (52 % during 2016-2020)

Plaice in the Bristol Channel, Celtic Sea (7.f and 7.g)

Catch (2020) = 893 t (40 % discards)

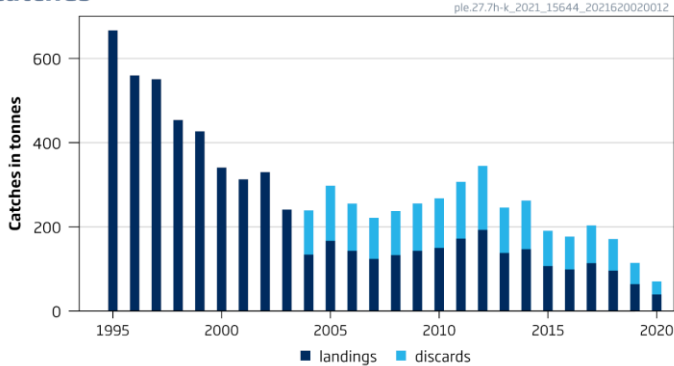
Index A (2020–2021)		1.449
Index B (2017–2019)		1.595
Index ratio (A/B)		0.908
Uncertainty cap	Not applied	-
Recent advised catch (for 2021)		1911 tonnes
Discard rate (2016–2020)		0.524
Precautionary buffer	Not applied	-
Catch advice **		1735 tonnes
Projected landings corresponding to advice ***		826 tonnes
% advice change ^		–9.1

- Decrease in advice due to recent decrease in spawning stock index
- High discards of plaice in mixed sole and plaice fishery: mismatch between selectivity and minimum landing size & relatively low market value of plaice.

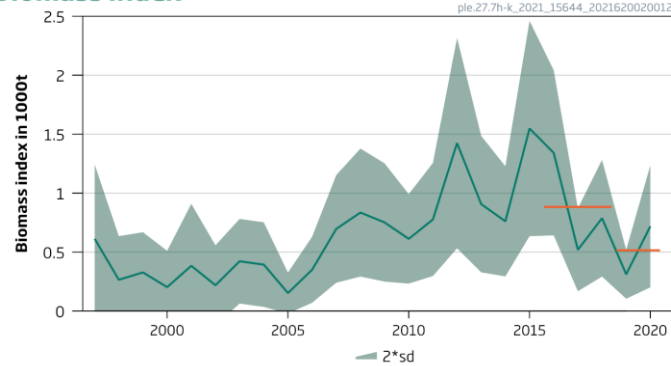
Plaice in the Celtic Sea South, southwest of Ireland (7.h-k)

Advice for 2022 and 2023: PA: Catch = 114 t

Catches



Biomass Index



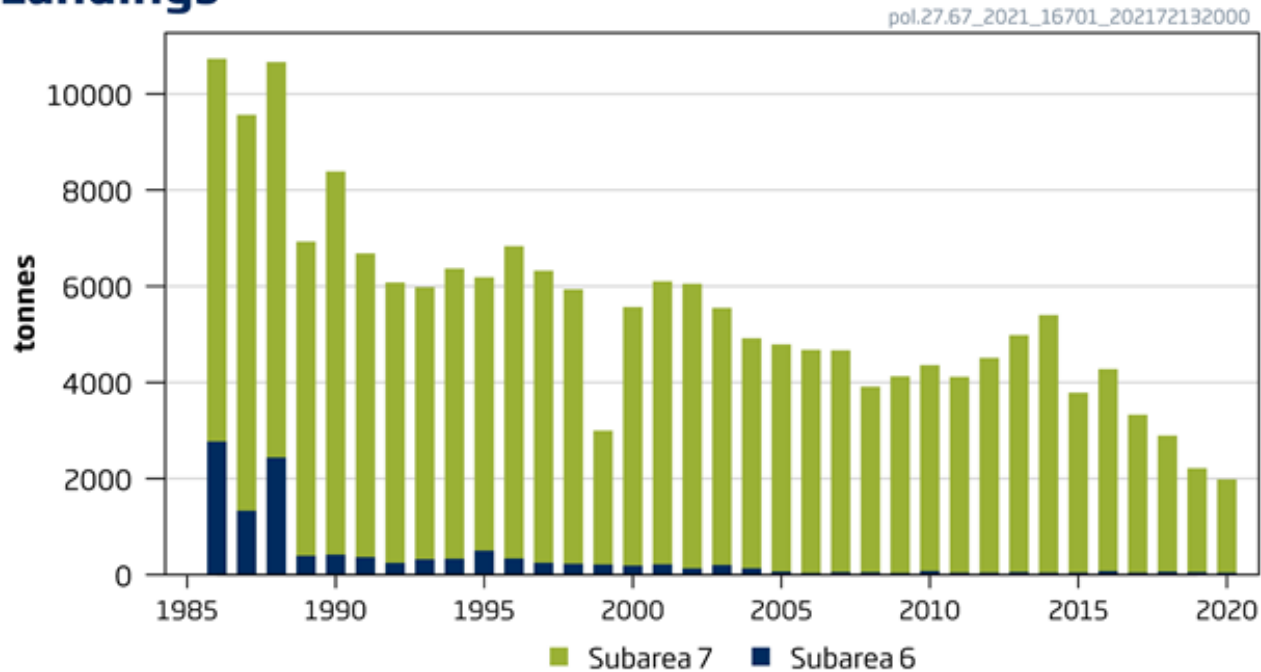
- Stock benchmarked in 2021.
- Biomass index is a combination of 6 surveys conducted in the area.
- New approach to provide advice results in non- zero catch advice.
- Stock abundance has declined in recent years but above lowest levels.

Index A (2019, 2020)	516	
Index B (2016, 2017, 2018)	883	
r: Index ratio (A/B)	0.58	
m: Multiplier to maintain the biomass above B_{lim} to with 95% probability	0.95	
f: Multiplier for relative mean length in catches ($L_{mean}/L_{F=M\ 2020}$)	1.03	
b: Multiplier for index relative to trigger ($I_{2020}/I_{trigger}$; $I_{trigger} = I_{loss} * 1.4 = 1.05$)	1	
Stability clause	Applied	0.7
C_y : Average catches of the last three years (2017, 2018, 2019)^	163 tonnes	
Discard rate	44%	
Catch advice for 2022 ** ($C_y \times$ stability clause)	114 tonnes	
% advice change **	-	

Pollack in the Celtic Seas and the English Channel (6 and 7)

Advice for 2022 : PA: Commercial catch $\leq 3\,360$ t

Landings



- Limited information available on pollack in this area.
- Catches have declined since the late 1980's, lowest in 2019-2020
- Recreational catch unknown, but thought to be significant.
- Fishing pressure considered to be below reference points.

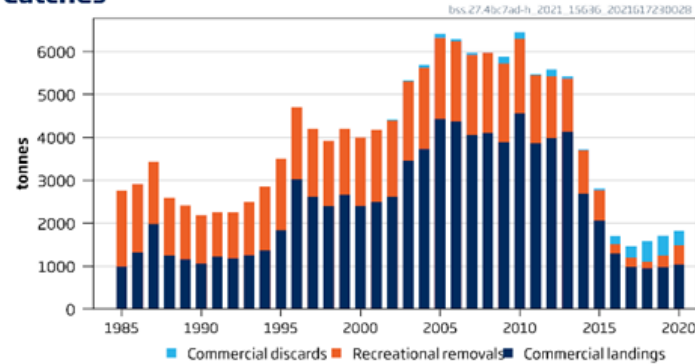
Catch (2020) = 2 258 t (discards negligible but recreational catch unknown)

Advised commercial landings for 2021	3360 tonnes	
Discard rate	< 1%	
Uncertainty cap	Not applied	
Commercial catches advice for 2022	3360 tonnes	
% advice change *	0	

Sea bass in divisions 4.b–c, 7.a, and 7.d–h

Advice for 2022; MSY: Catch $\leq 2\,216$ t

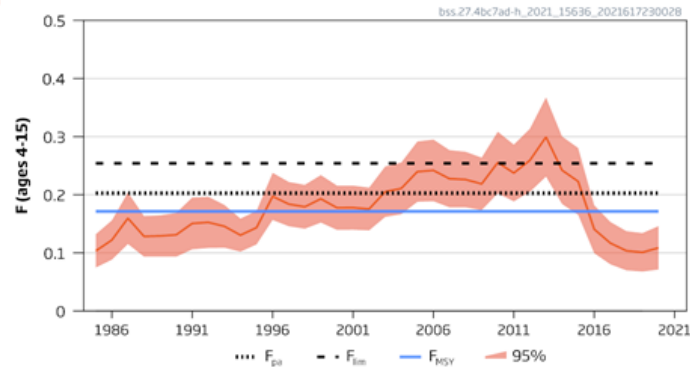
Catches



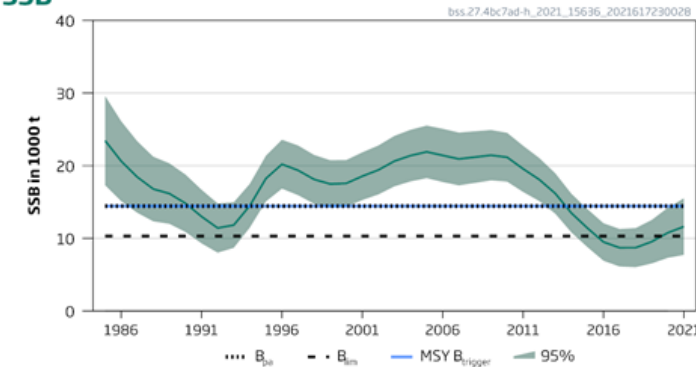
Recruitment (age 0)



F



SSB



- Spawning stock above B_{lim} in 2020 and 2021.
- Fishing pressure is below F_{MSY} .
- Recruitment poor except for 2013-2014 and 2016

Sea bass in divisions 4.b–c, 7.a, and 7.d–h

Catch 2020: 1 814 t (1042 t commercial, 325 t discards and 447 t recreational)

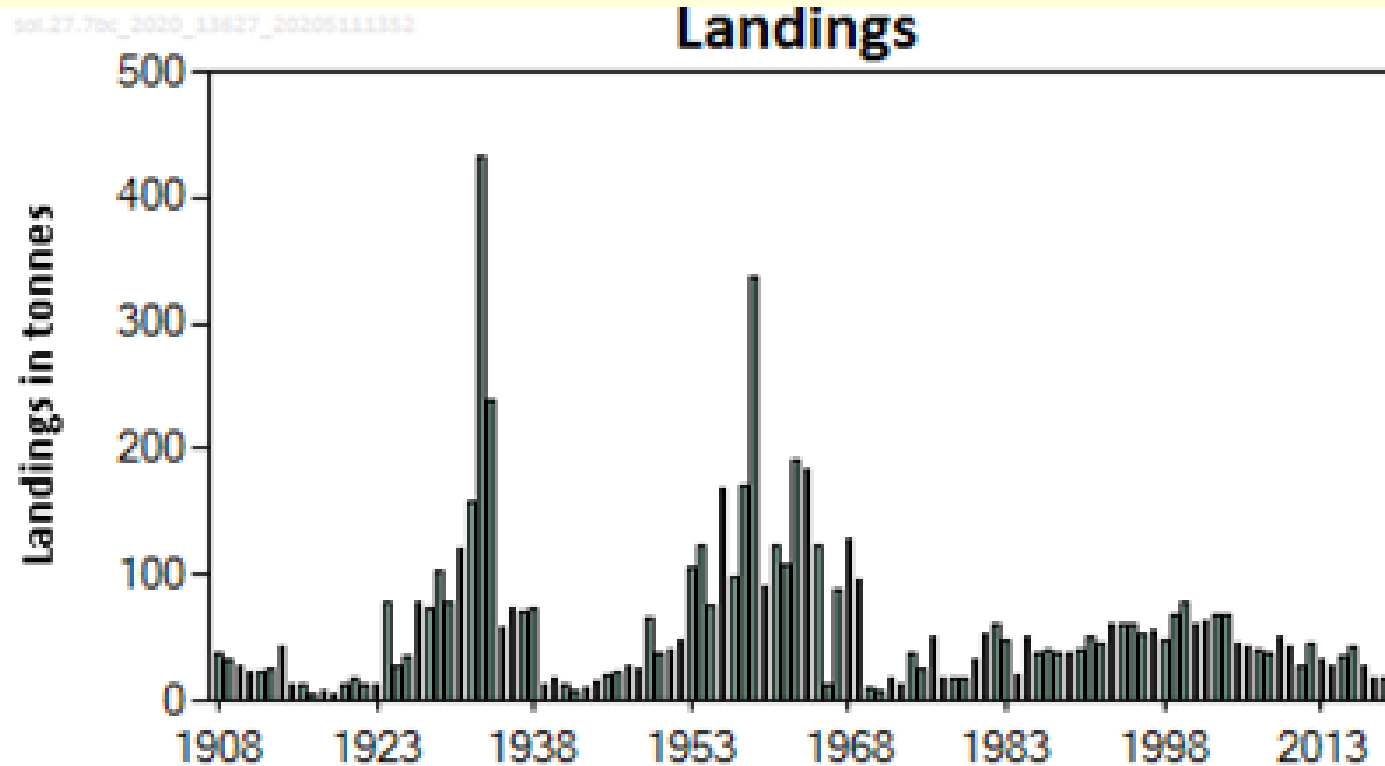
F (2021)= 0.114 (F_{sq} for commercial fishery and full compliance in recreational)

SSB(2022) = 12 052 t > B_{lim} 10 313 t but < MSY B_{trigger} = 14 439 t F_{MSY} = 0.1713

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} × SSB₂₀₂₂ / 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	0.2	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	0.03	12177	1.03	-10.5
SSB ₂₀₂₃ = SSB ₂₀₂₂	1941	1288	143	511	0.124	0.086	0.0049	0.033	12052	0	-2.9

Sole in the West of Ireland (7.bc)

Advice for 2021, 2022 and 2023: PA: Catch ≤ 19 t



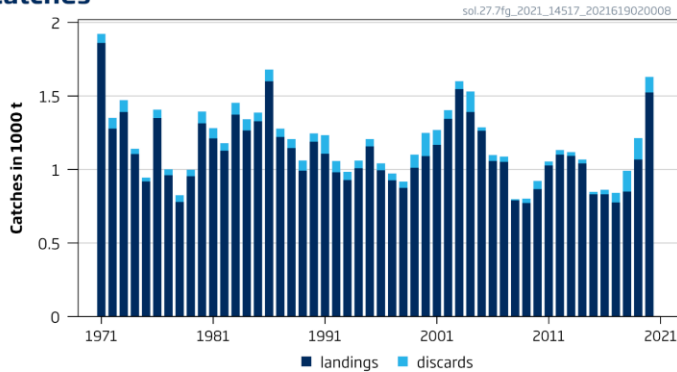
- Advice issued in 2020.
- State of the stock unknown.
- Landings in 2019, 18 t; discards considered negligible.
- Precautionary reduction advised from 24 t to 19 t.

Advised catches for 2020	24 tonnes	
Discard rate	Negligible	
Precautionary buffer	Applied	0.8
Catch advice **	19 tonnes	
% Advice change ***	-21	

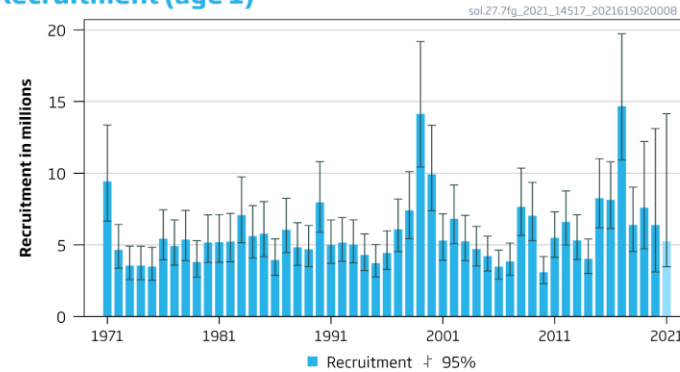
Sole in the Bristol Channel, Celtic Sea (7.f and 7.g)

Advice for 2022: MSY: Catch ≤ 1320 t

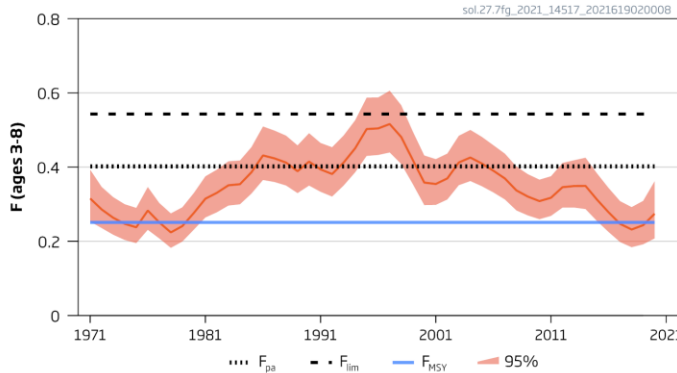
Catches



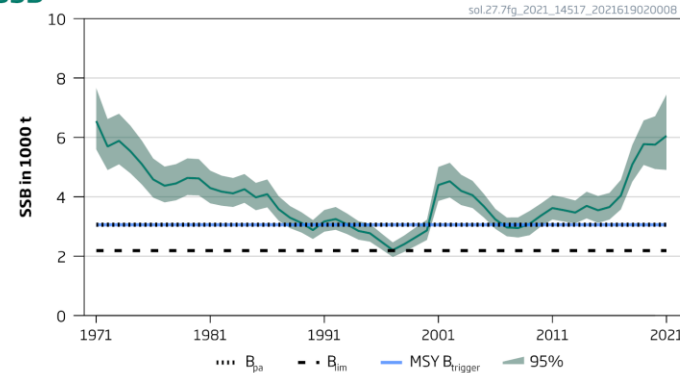
Recruitment (age 1)



F



SSB



- Spawning stock near highest in time-series.
- Fishing pressure has declined and has been below F_{MSY} since 2017.
- Advice lower than that for 2021 because of downward revision of SSB compared to previous assessment.

Sole in the Bristol Channel, Celtic Sea (7.f and 7.g)

Catch (2020) : 1 630 t (7 % discards)

$F(2021) = 0.262$ Catch constraint – 1413 tonnes

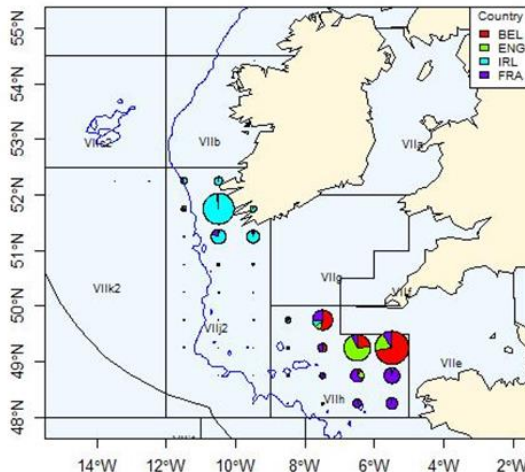
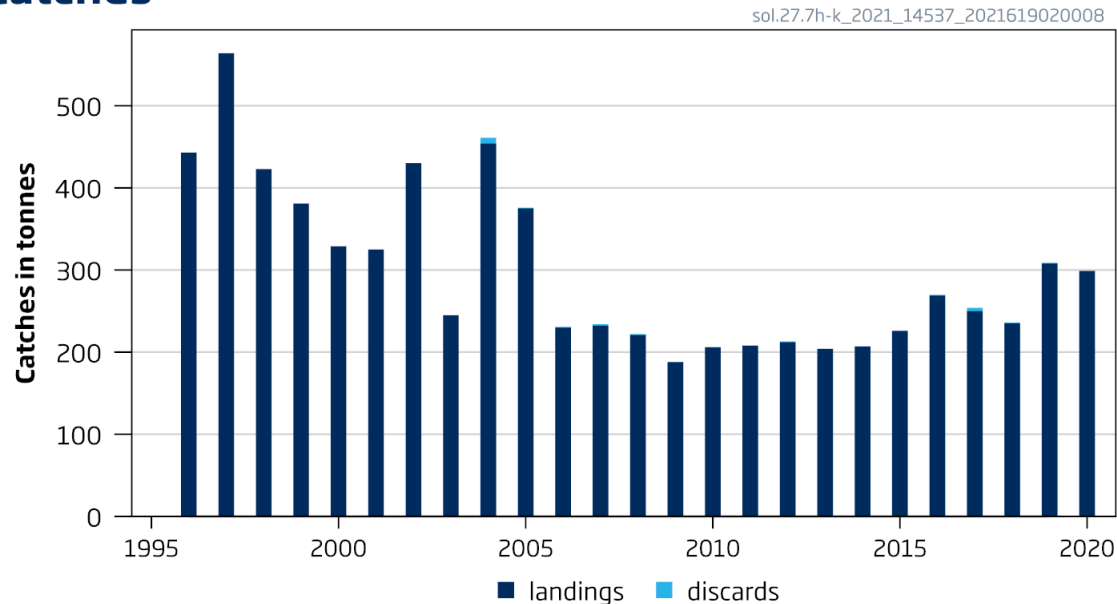
$SSB(2022) = 5\,866\text{ t} > MSY_{Btrigger} (3\,057\text{t}) \quad F_{MSY} = 0.251$

Basis	Total catch (2022)	Projected landings * (2022)	Projected discards ** (2022)	F_{total} (2022)	$F_{projected}$ landings (2022)	$F_{projected}$ discards (2022)	SSB (2023)	% SSB change ***	% TAC change ^	% Advice change
ICES advice basis										
MSY approach= F_{MSY}	1320	1244	76	0.251	0.24	0.014	5647	-3.7	-6.6	-6.6
Other scenarios										
$F=EU\ MAP : F_{MSY}$	1320	1244	76	0.251	0.24	0.014	5647	-3.7	-6.6	-6.6
$F=EU\ MAP\ F_{MSY\ lower}$	753	711	42	0.14	0.128	0.008	6230	6.2	-47	-47
$F=EU\ MAP\ F_{MSY\ upper}$	2190	2060	130	0.46	0.44	0.027	4724	-19.4	55	55
$F = 0$	0	0	0	0	0	0	7027	19.8	-100	-100
F_{pa}	1960	1843	117	0.4	0.38	0.024	4962	-15.4	39	39
F_{lim}	2481	2330	151	0.54	0.51	0.032	4418	-24.7	76	76
$SSB_{2023} = B_{lim}$	4664	4336	328	1.51	1.42	0.089	2184	-63	230	230
$SSB_{2023} = B_{pa} = MSY\ B_{trigger}$	3804	3556	248	1.02	0.96	0.06	3057	-48	169	169
$F = F_{2021}$	1365	1285	80	0.26	0.25	0.015	5585	-4.8	-3.4	-3.4
$SSB_{2023} = SSB_{2022}$	1100	1036	64	0.21	0.193	0.012	5864	0	-22	-22

Sole in the Celtic Sea South, southwest of Ireland (7.h–k)

Advice for 2022: PA: Catch ≤ 213 t

Catches

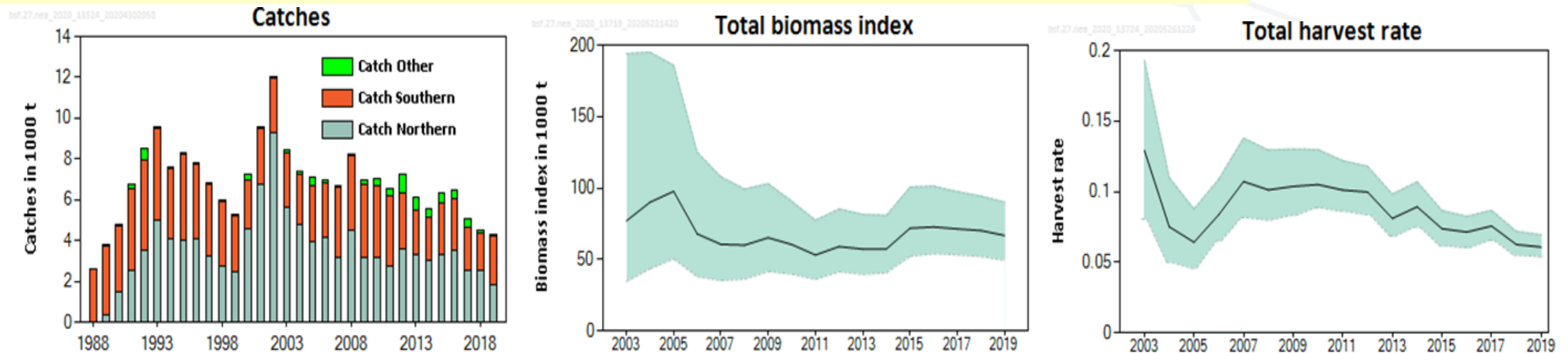


- Little information on stock identity possibility of 2 stocks based on fishery distribution.
- No appropriate method for evaluating stock status and trends – sampling not representative.
- Catch in 2020 = 299 t (few discards).

Advised catch for 2021 issued in 2020	213 tonnes	
Discard rate	< 1%	
Precautionary buffer	Not applied	-
Catch advice	213 tonnes	
% advice change	0%	

Black scabbardfish in the Northeast Atlantic and Arctic Ocean

Advice for 2021 and 2022, PA: Catch $\leq 4\,506$ t

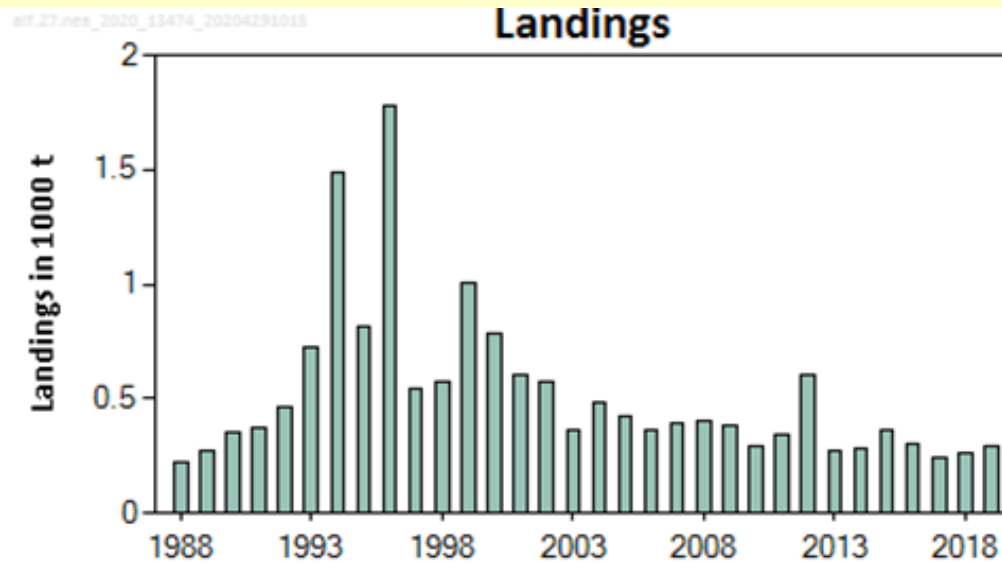


Minimum slope of the two component	-0.048	
Uncertainty cap	Not applied	-
Recent advised catch for 2019–2020 iss	5914 tonnes	
Discard rate	Negligible	
Precautionary buffer	Applied	0.8
Catch advice **	4506 tonnes	
% advice change ***	-24%	

- Catches in 2019 = 4, 317 t (discards negligible)
- Single stock
- Migrates through NE Atlantic
- Total abundance with slight decline over recent years.
- Advice split by areas: $\leq 2\,143$ t in 6, 7, 5.b and 12.b; $\leq 2\,084$ t in 8 and 9.a; ≤ 280 tonnes in 1, 2, 4, 10, 3.a and 5.a.

Alfonsinos in subareas 1–10, 12, and 14 (Northeast Atlantic and adjacent waters)

Advice for 2021 and 2022 , PA: Landings ≤ 224 t

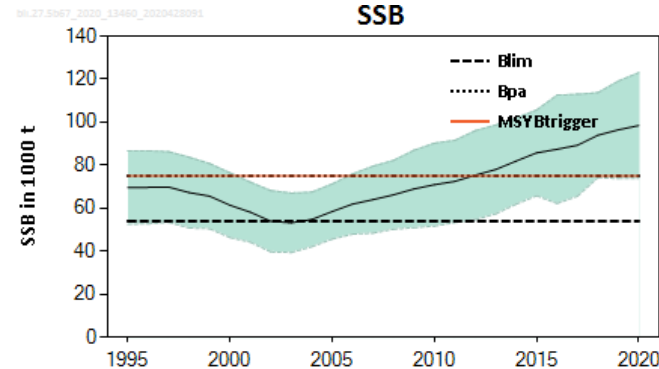
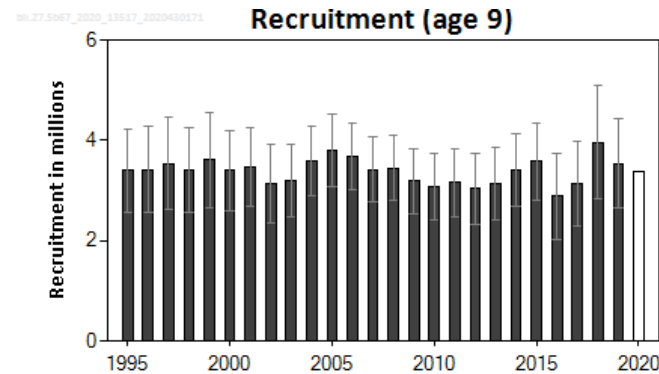
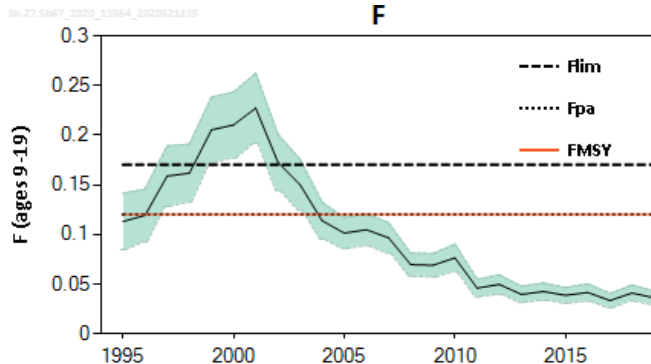
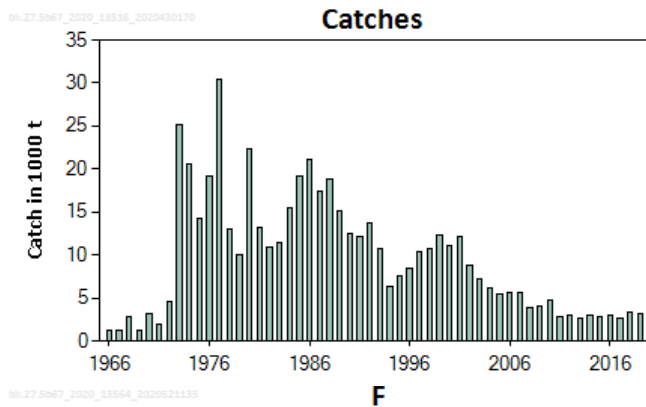


Landings in 2019 = 294 t.

- Two Beryx species : most catch in Azorean EEZ and in Mid-Atlantic Ridge.
- Landings not indicative of stock abundance.
- Aggregative behaviour near seamounts, can only sustain low exploitation rates.
- Exploitation of new seamounts should not be allowed.

Blue ling in 6–7 and 5.b (Celtic Seas, English Channel, and Faroes grounds)

Advice for 2022, MSY: Catch $\leq 10\,859$ t

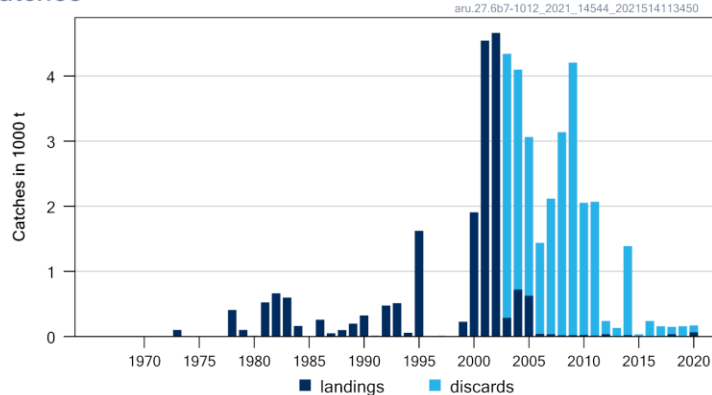


- Stock increased since 2004 and has been above $MSY_{Btrigger}$ since 2010.
- Fishing mortality been lower than F_{MSY} since 2004.
- Recruitment is estimated to be stable.
- Discarding is negligible.
- Advice is slightly lower for 2022 due to the recruitment assumption.

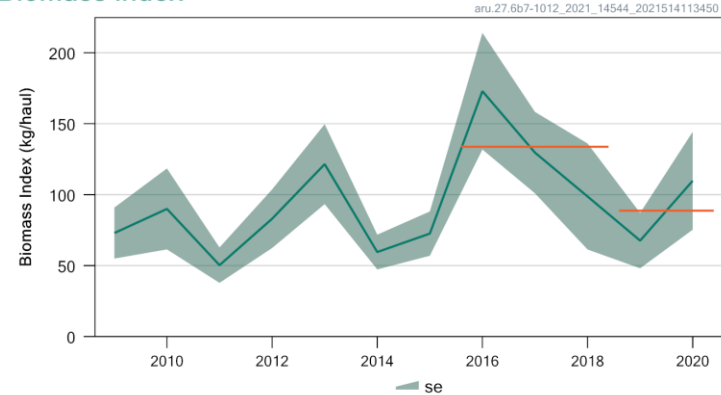
Greater silver smelt in other areas (7–10 and 12, 6.b)

Advice for 2022 and 2023, PA: Catches ≤ 124 t

Catches



Biomass index



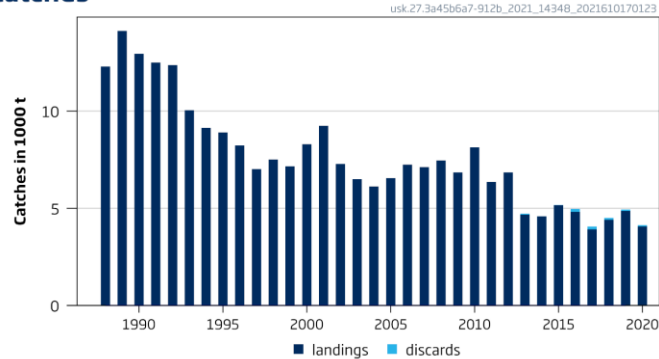
- Catches in 2020 = 183 t (58 % discards)
- Landings have been less than 100 t since 2006.
- Spanish survey on the Porcupine Bank indicates that abundance is about average but lower than in 2016-2017.

Index A (2019–2020)	89 kg haul ⁻¹	
Index B (2016–2018)	134 kg haul ⁻¹	
Index ratio (A/B)	0.66	
Uncertainty cap	Applied	0.8
Advised catches for 2020 and 2021	193 tonnes	
Discard rate (2018–2020)	0.77	
Precautionary buffer	Applied	0.8
Catch advice *	124 tonnes	
Landings corresponding to the catch advice **	28 tonnes	
% Advice change ***	-36%	

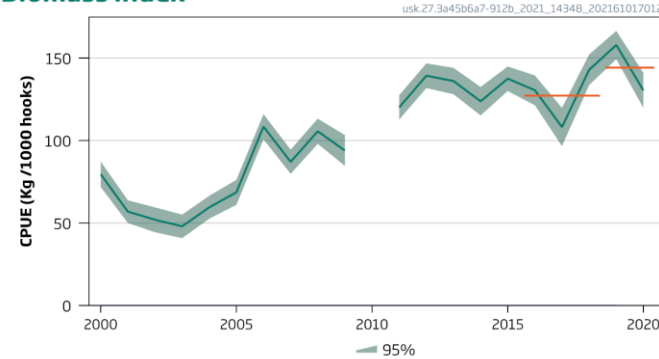
Tusk in the Northeast Atlantic (4, 7–9, 3.a, 5.b, 6.a, and 12.b)

Advice for 2022 and 2023, PA: Catch $\leq 7\,821$ t

Catches



Biomass index



Catch (2020) = 4 134 t (2% discards)

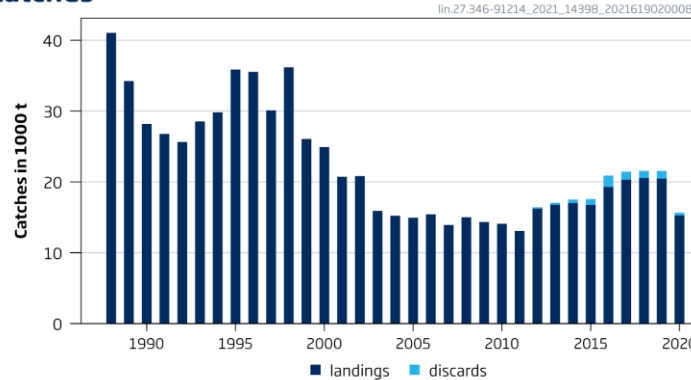
Index A (2019–2020)	144	
Index B (2016–2018)	127	
Index ratio (A/B)	1.13	
Uncertainty cap	Not applied	
Advised catch for 2020–2021 (issued in 2019)	8 627 tonnes	
Discard rate	1.80%	
Precautionary buffer	Applied	0.8
Catch advice *	7 821 tonnes	
Projected landings corresponding to advice**	7 684 tonnes	
% Advice change ***	-9.30%	

- Lower catches since 2013
- Catch per unit effort based on the Norwegian longline fleet remains high.

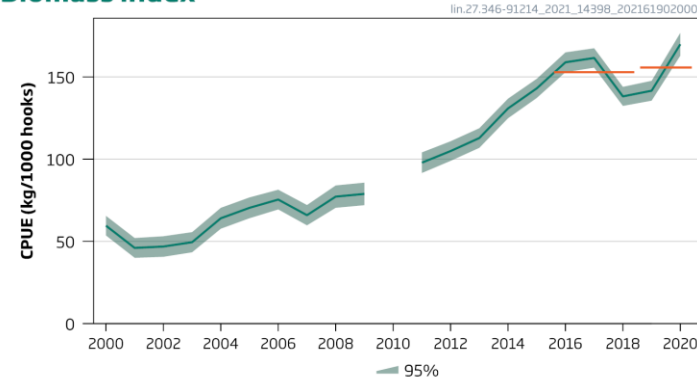
Ling in the Northeast Atlantic and Arctic Oceans (6–9, 12, and 14, 3.a and 4.a)

Advice for 2022 and 2023, PA: Catch $\leq 15\,092$ t

Catches



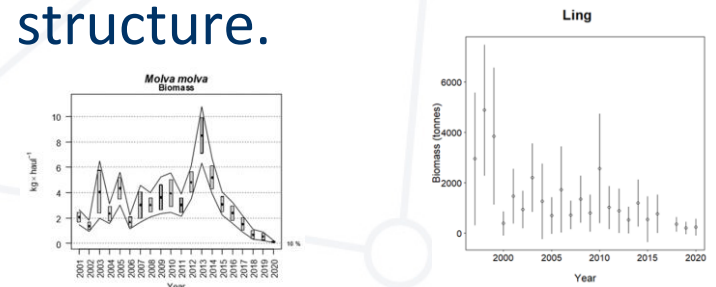
Biomass index



Catch (2020) = 15 664 t (Discards = 407 t)

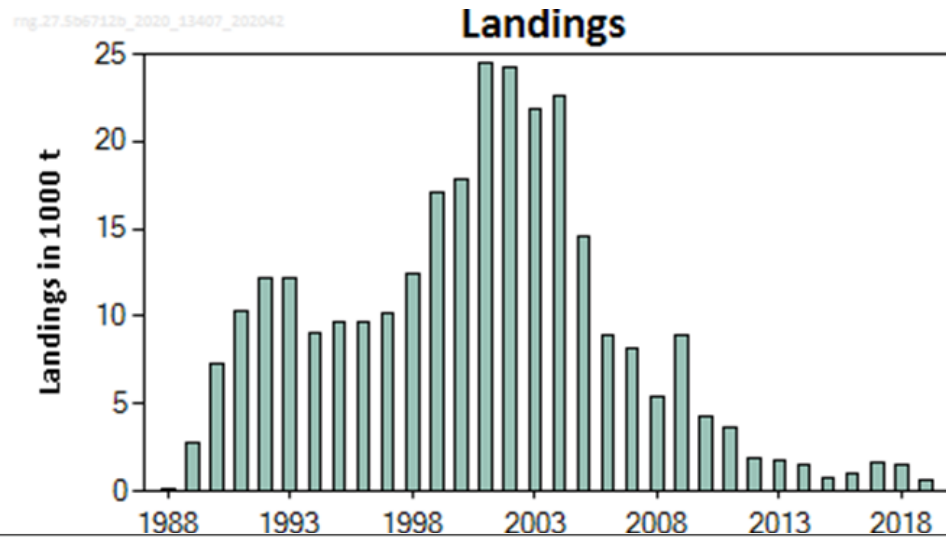
Index A (2019–2020)	156	
Index B (2016–2018)	153	
Index ratio (A/B)	1.02	
Uncertainty cap	Not applied	
Advised catch for 2020 and 2021 (issued in	18 516 tonnes	
Discard rate	0.044	
Precautionary buffer	Applied	0.8
Catch advice*	15 092 tonnes	
Landings corresponding to the catch advice**	14 418 tonnes	
% Advice change ***	–18%	

- Landings have been lightly higher in the last 3 years.
- Discards have declined in 2017-2018
- Catch per unit effort (cpue) based on the Norwegian longline fleet is high.
- Low abundance in Subarea 7 and 8.
- Uncertainty about the stock structure.



Roundnose grenadier in subareas 6 and 7 and division 5.b and 12.b

Advice for 2021 and 2022, PA: Catch $\leq 3\,177$ t



- Landings (2019) = 689 t
- Landings have declined since 2004.
- Fishery has moved to shallower waters in recent years.
- Ban on fishing with bottom trawls in EU waters deeper than 800 m.

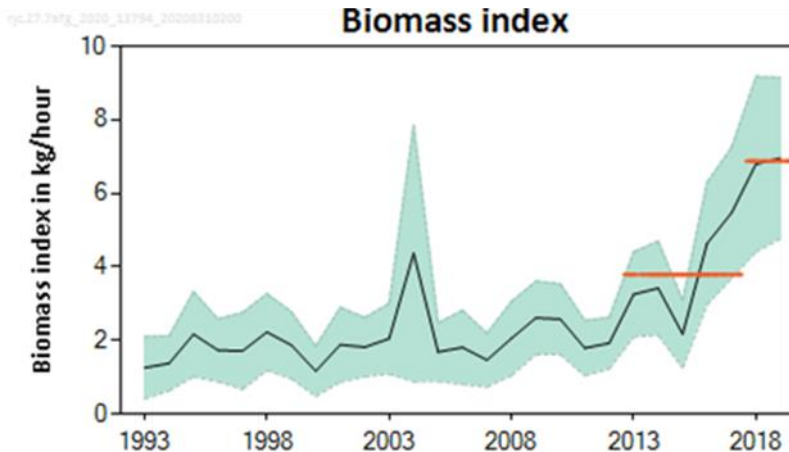
		Fishing pressure				Stock size				
		2017	2018	2019		2017	2018	2019		
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	$MSY\ B_{trigger}$?	?	?	Unknown
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Unknown	B_{pa}, B_{lim}	?	?	?	Unknown
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—	Not applicable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

Advised catches for 2019–2020, issued in 2018	3971 tonnes	
Discard rate (average 2017–2019)	3%	
Precautionary buffer	Applied	0.8
Catch advice**	3177 tonnes	
Landings corresponding to the catch advice***	3082 tonnes	
% advice change^	–20%	

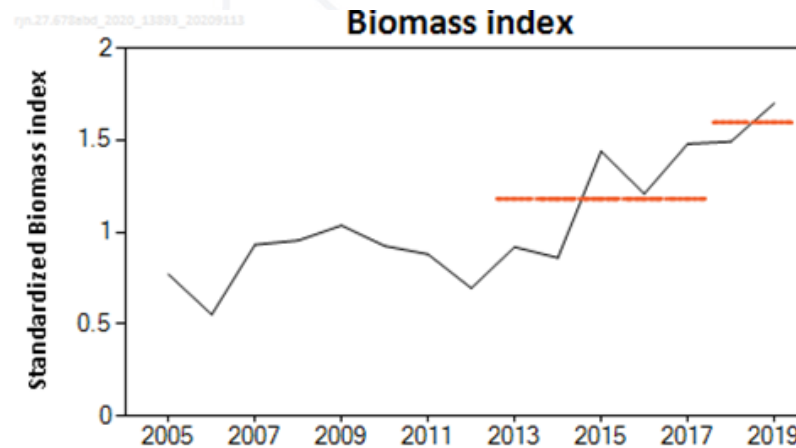
- Advice issued in 2020 for 2021/2022

Stock	Landings (2020)	Advice for 2022 Landings	Rationale
Thornback ray in 7.a and f-g	909	1596	PA - based on survey index (UK(E&W)-BTS-Q3)
Cuckoo ray in 6,7, 8abd	2453	3150	PA - based on survey indices (IGFS and EVHOE)
Small-eyed ray in 7.fg	230	123	PA - based on survey index (UK(E&W)-BTS-Q3)
Spotted ray in 6, 7b, 7j	5	51	PA - based on survey index (IGFS)
Spotted ray in 7.a and 7.e-h	741	1041	PA - based on survey index (UK(E&W)-BTS-Q3)
Blonde ray in 7.a and f-g	716	1703	PA - based on historical landings

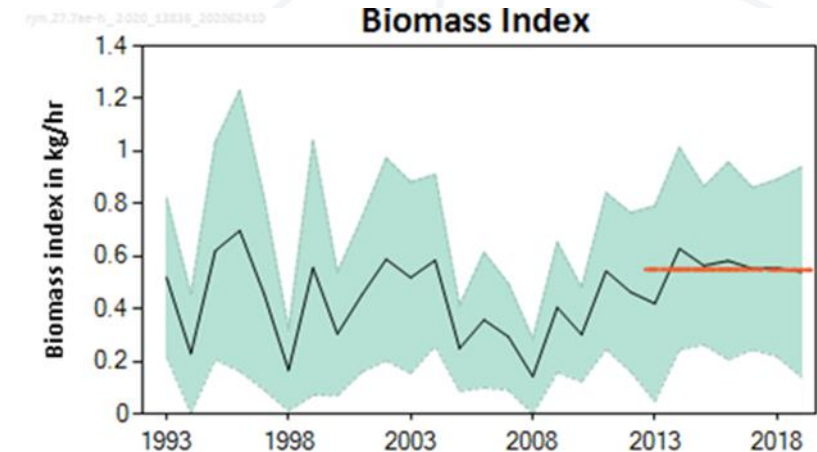
Thornback ray in 7.a, fg



Cuckoo ray in 6, 7, 8 abd



Spotted ray in 7.a, 7 e-h



Celtic Sea & West, Southwest Ireland

SUMMARY

Stock	Exploitation	State of stock	Advice 2022	Advice 2021	Catch 2020	TAC 2021
Cod 7.e-k	X	X	0	0	1153	805
Haddock 7.b-k	✓	✓	15946	18382	12119	15000
B-B Anglerfish 7, 8.a–b, 8.d	✓	?	18661	15551	9531	38123
W.anglerfish 7, 8.a–b, 8.d	✓	✓	34275	34579 (23320-45996)	21491	38123
Hake 4,6,7, 3.a, 8.ab,d	✓	✓	75052	102888	75835	65949
Megrim 7.b-k, 8.ab,d	✓	✓	22964	19982 (13218-28838)	12026	18365
Plaice 7.bc	?	?	19	19	na	74
Plaice 7.fg	✓	✓	1735	1911	893	1911
Plaice 7.hjk	?	?	114	0	75	67
Pollack 6-7	?	?	3360	3360	2258	9610
Sea bass 4.b–c, 7.a, and 7.d–h	✓	O	2216	2000 (1680-2000)	1814	-
Sole 7.bc	?	?	19	19	18	42
Sole 7.fg	X	✓	1320	1413 (811-2364)	1630	1413
Sole 7.h-k	?	?	213	213	299	280
Black scabbardfish	?	?	4506	5914	1450	1929
Alfonsinos	?	?	224	224	171	224
Blue ling in 6–7 and 5.b	✓	✓	10859	11522	3490	11522
Greater silver smelt 7–10, 12, 6.b	?	?	124	193	76	881
Tusk	?	?	7821	8627	4134	4294
Ling	?	?	15092	18516	15664	18356
Roundnose grenadier 6 7 5.b12.b	?	?	3177	3177	na	3862

Colours indicate that the value for the Advice for 2022 is either above (green) or below (red) the Advice for 2021. For TAC 2021 in blue, area or species differ from the advice.



**Thank you
for your
attention!**



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Image Dirk Vonten, Fotolia