

ICES advice for North Western Waters stocks for 2022

NWWAC meeting, July 2, 2021

WORKING GROUP 3 – ENGLISH CHANNEL

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ICES ACOM vice-chair



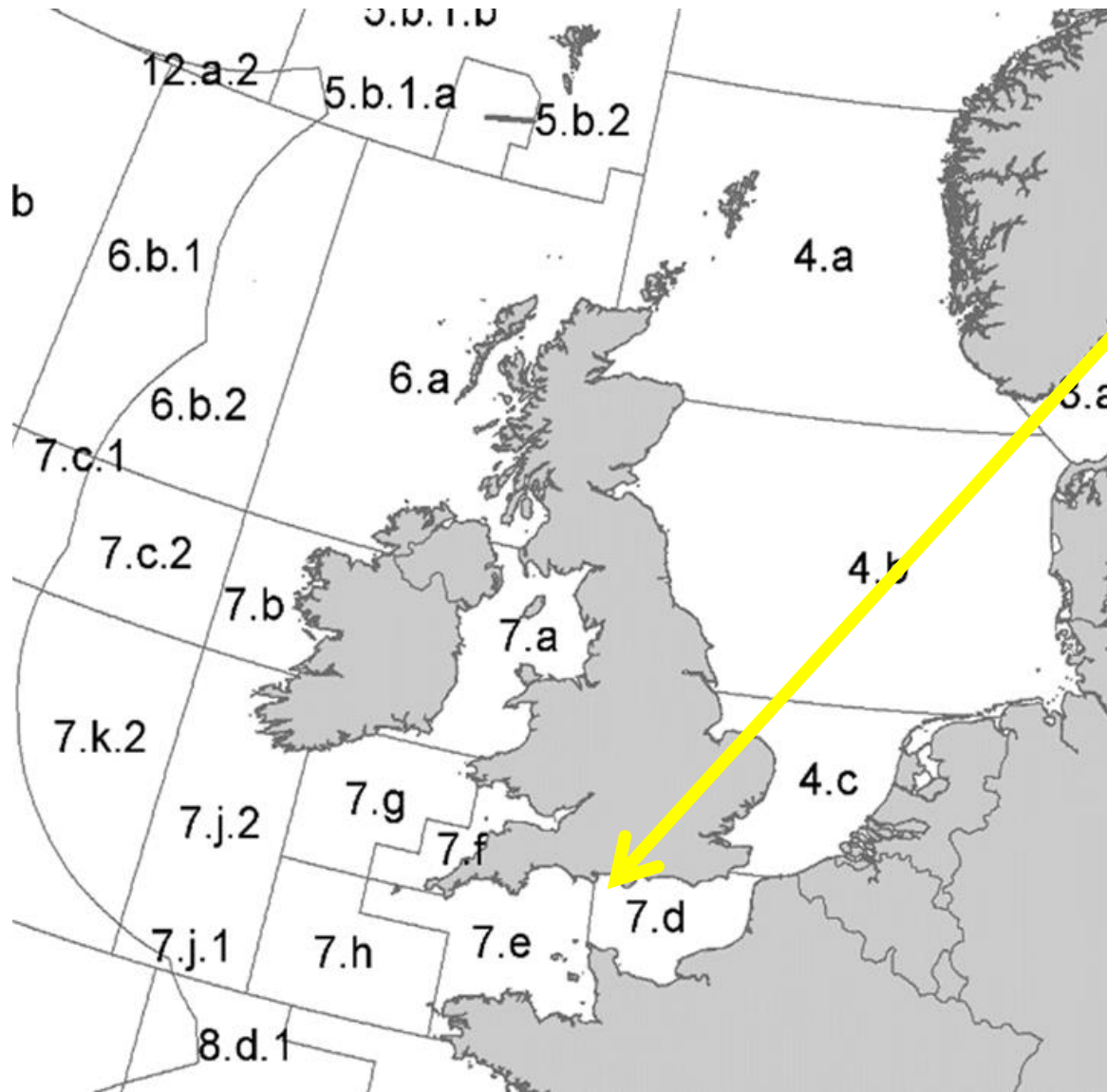
Science for sustainable seas

Image Dirk Vonten, Fotolia

Introduction – English Channel

- 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.
- Advice to be released in the autumn: thornback, blonde and spotted rays in eastern Channel.

English Channel (Divisions 7.d and e)

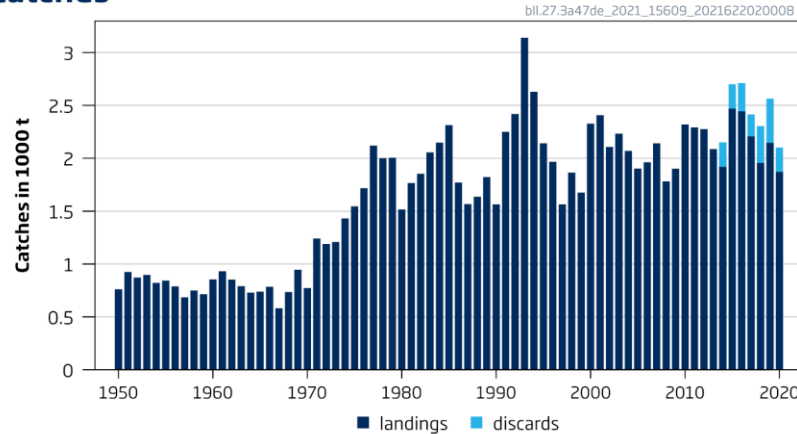


- Brill (3a, 4, 7d)
- Cod (4, 7.d, Skagerrak)
- Lemon sole (3a,4,7d)
- Plaice (7.d)
- Plaice (7.e)
- Sea bass (4.bc, 7.a,d-h)
- Sole 7.d
- Sole (7.e)
- Sprat (7.de)
- Whiting (4,7.d)
- Striped red mullet (4,7.d,3.a)
- Rays and skates

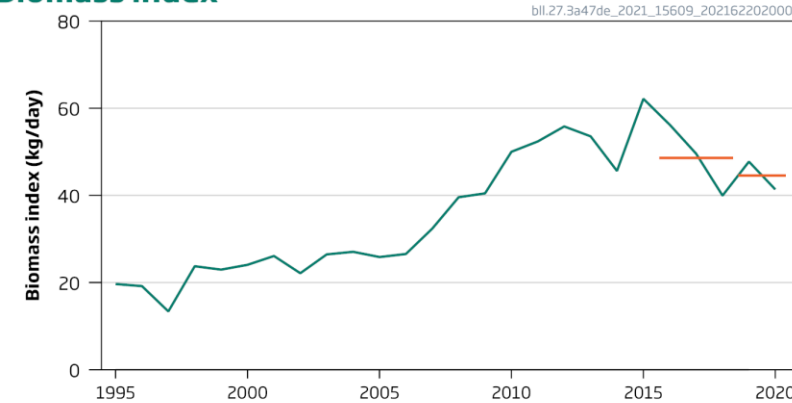
Brill in the North Sea, Skagerrak and Kattegat, English Channel (4, 3.a, 7.de)

Advice for 2022, PA: Catch $\leq 1\,878$ t

Catches



Biomass index



Catch (2020) = 2 101 t (11 % discards) – 550 t in 7.de

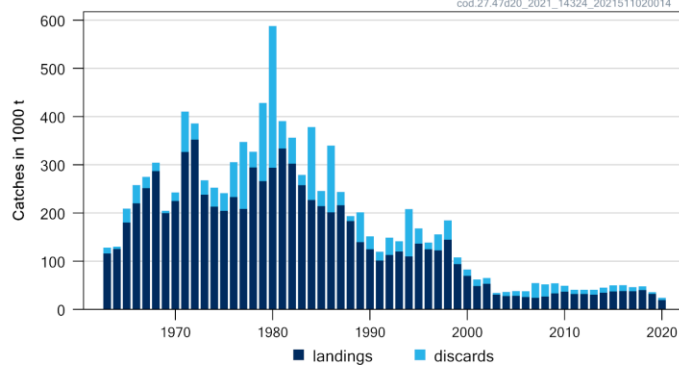
Index A (2019–2020)	45 kg day ⁻¹	
Index B (2016–2018)	49 kg day ⁻¹	
Index ratio (A/B)	0.92	
Uncertainty cap	Not applied	-
Advised catch for 2021	2047 tonnes	
Discard rate (2018–2020)	14.10%	
Precautionary buffer	Not applied	-
Catch advice **	1878 tonnes	
Projected landings corresponding to catch advice ***	1613 tonnes	
% advice change^	-8.30%	

- Catches averaged about 2400 t over last 5 years.
- Biomass index (Dutch beam trawl commercial index) has been gradually decreasing over last recent years but remains high.

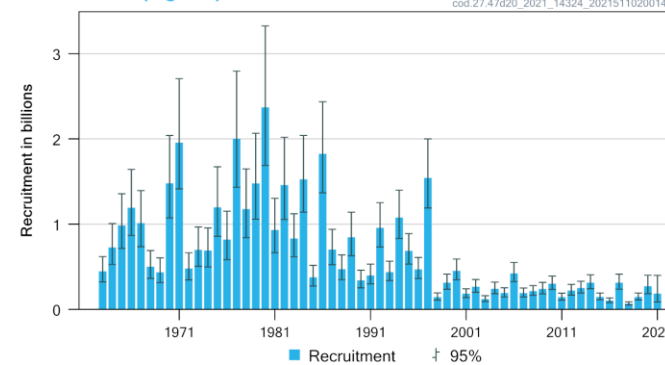
Cod in Subarea 4 and Divisions 7.d and subdivision 20

Advice for 2022, MSY: Catch $\leq 14\,276$ t

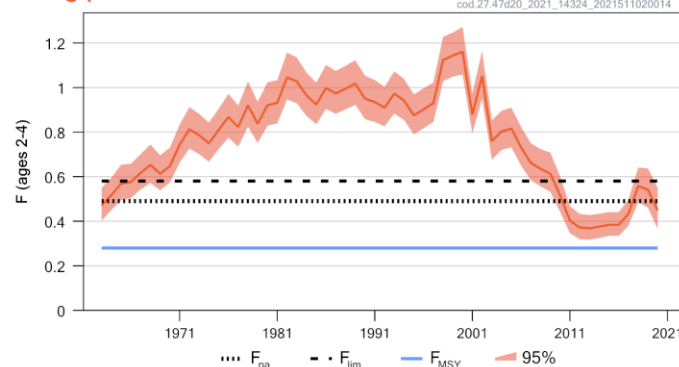
Catches



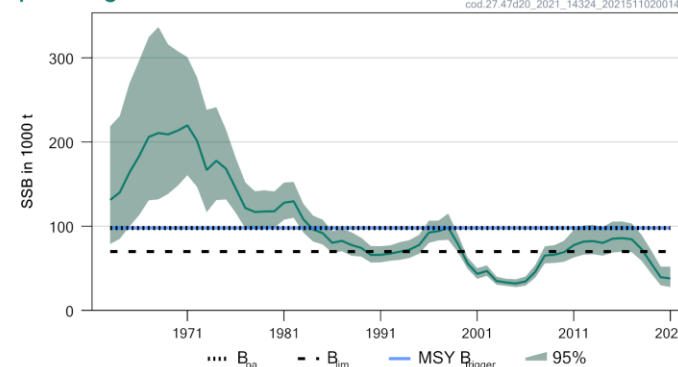
Recruitment (age 1)



Fishing pressure

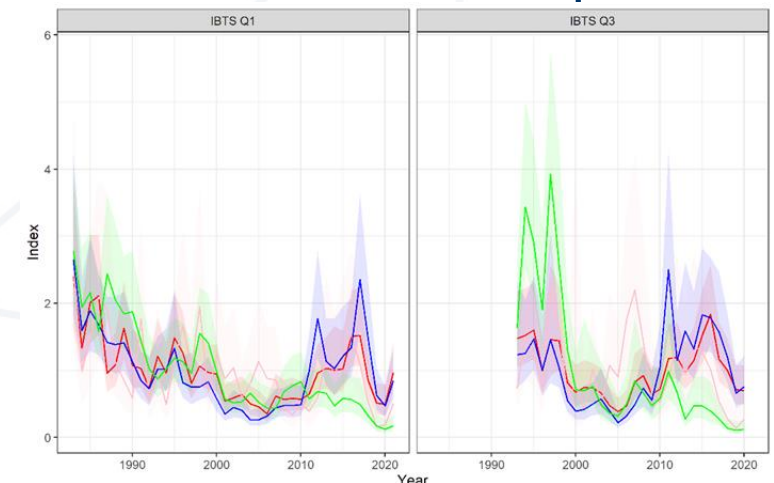


Spawning Stock Biomass



- Benchmark conducted in 2021. Adjustment to account for migration to the West of Scotland area.
- Spawning stock has decreased since 2015 and is now below B_{lim} .
- Fishing pressure above F_{MSY} in 2020
- Recruitment remains poor.

- Surveys indicate that abundance has declined to the lowest in southern areas including 7.d



Cod in Subarea 4 and Divisions 7.d and subdivision 20

Catch (2020) : 24 224 t (19 % discards); **Catch of 32 t in 7.d**

F(2021) = 0.37 (previous lowest F);

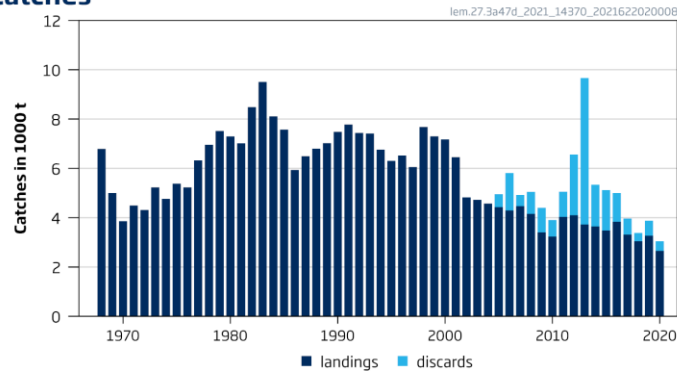
SSB (2022)= 49 433 < B_{lim} (69 841t) F_{MSY}= 0.28

Basis	Total catch (2022)	Projected landings* (2022)	Projected discards** (2022)	F _{total} (ages 2–4) (2022)	F _{projected} landings (ages 2–4)	F _{projected} discards (ages 2–4) (2022)	SSB (2023)	% SSB change	% TAC change^	% advice change	% Probability of falling below B _{lim} in 2023
ICES advice basis											
MSY approach: F_{MSY} × SSB (2022) /MSY B_{trigger}	14276	11779	2497	0.144	0.115	0.029	75484	53	-10.3	-3.2	37
Other scenarios											
F = F _{MSY lower} × SSB (2022) /MSY B _{trigger}	9701	8011	1690	0.095	0.076	0.019	79425	61	-39	-34	28
F = 0	0	0	0	0	0	0	87254	77	-100	-100	13.7
F _{pa}	41914	34250	7664	0.49	0.39	0.097	53444	8.1	163	184	86
F _{lim}	47805	38801	9004	0.58	0.46	0.115	49118	-0.64	200	220	92
SSB (2023) = B _{lim}	21340	17598	3742	0.22	0.178	0.044	69841	41	34	45	50
SSB (2023) = MSY B _{trigger} = B _{pa} [#]											
TAC (2021)	15912	13131	2781	0.161	0.129	0.032	74116	50	0	7.8	40
F = F ₂₀₂₁	33282	27259	6023	0.37	0.3	0.073	60299	22	109	126	75
F = F _{MSY lower}	18130	14971	3159	0.186	0.149	0.037	72341	46	13.9	23	44
F = F _{MSY}	26169	21575	4594	0.28	0.22	0.055	65905	33	64	77	60
F = F _{MSY upper}	39128	31980	7148	0.45	0.36	0.089	55565	12.4	146	165	84

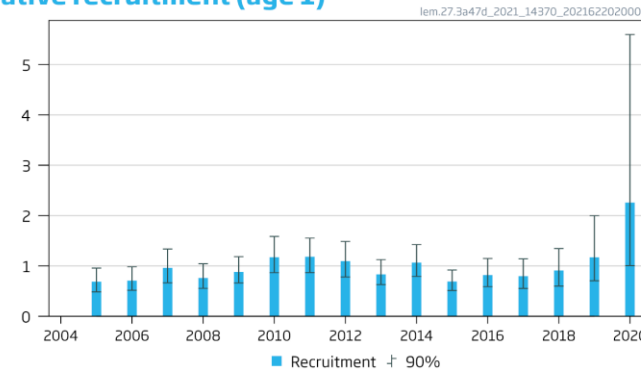
Lemon sole in the North Sea, Skagerrak and Kattegat, E-English Channel (4, 3.a, 7.d)

Advice for 2022, PA: Catch $\leq 3\,081$ t

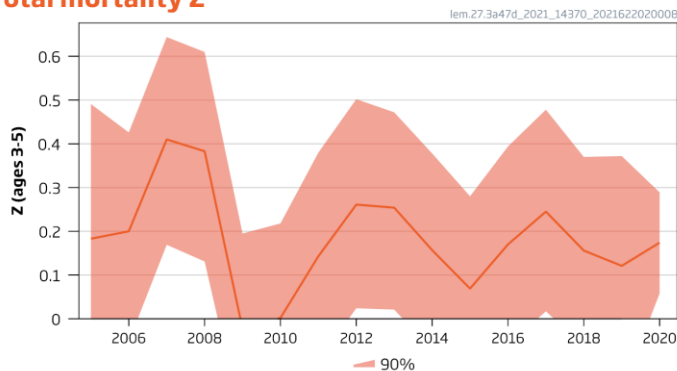
Catches



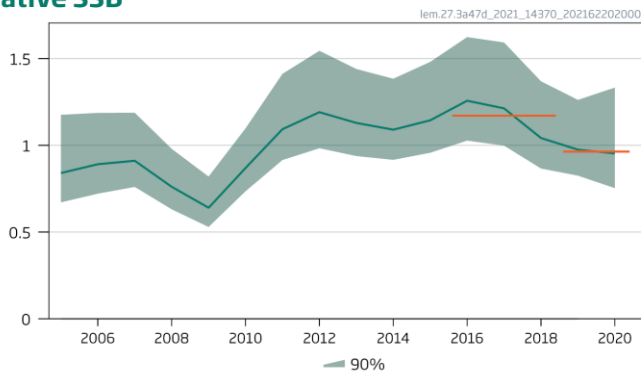
Relative recruitment (age 1)



Total mortality Z



Relative SSB



- Landings lower than those in late 1980's
- Biomass increased in late 2000s but has declined in recent years.
- Fishing mortality has fluctuated without trend.
- Recruitment higher in 2020.

Lemon sole in the North Sea, Skagerrak and Kattegat, E-English Channel (4, 3.a, 7.d)

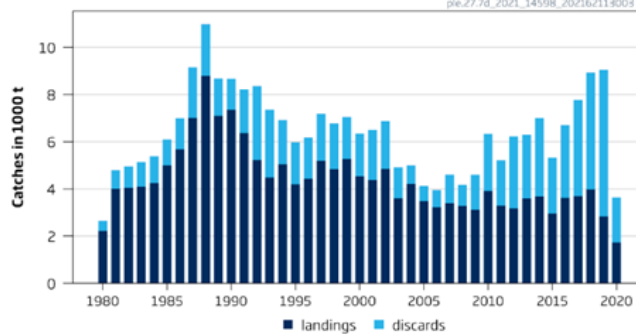
Catch (2020) = 3 044 t (13% discards); **landings of 95 t in 7.d**

Index A (2019–2020)	0.96 (relative SSB index)	
Index B (2016–2018)	1.17 (relative SSB index)	
Index ratio (A/B)	0.82	
Uncertainty cap	Not applied	-
Advised catch for 2021	3742 tonnes	
Discard rate (2018–2020)	12.50%	
Precautionary buffer	Not applied	-
Catch advice**	3081 tonnes	
Landings corresponding to the catch advice***	2695 tonnes	
% advice change	-17.7 %	

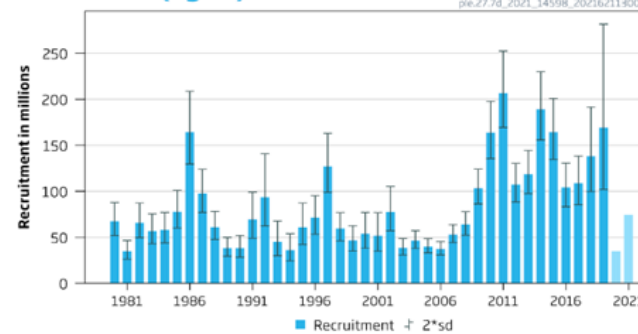
Plaice in the eastern English Channel (7.d)

Advice for 2022, MSY: Catch $\leq 6\,365$ t

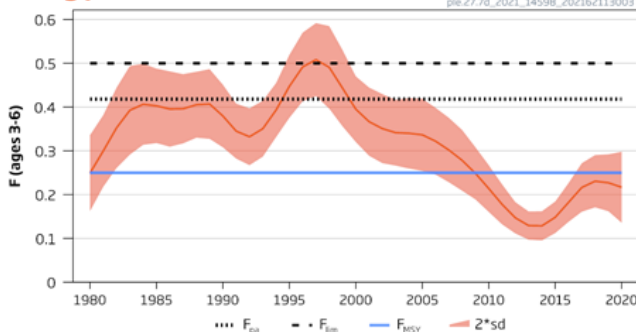
Catches



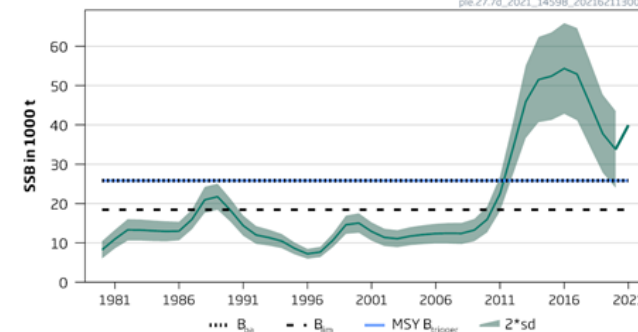
Recruitment (age 1)



Fishing pressure



SSB



- Part of the catches of plaice in Division 7.d are from the Western Channel and North Sea stocks.
-7 566 t when taking other stocks caught in 7.d into account
- Spawning stock has increased during 2008-2015 but has declined since 2017, remains well above MSY $B_{trigger}$.
- Fishing mortality has increased but below F_{MSY} in 2020
- Recruitment high in 2019.
- Caught in mixed fishery with sole – high discards of plaice

*Plaice catches in Div. 7.d in Quarter 1 from various stocks: 35% from 7.d; 15% from 7.e; 50% from N Sea

Plaice in the eastern English Channel (7.d)

Catch (2020) : t – 3 629 t for the plaice 7d stock (52 % discards); 4 343 t in 7d area

$F(2021) = 0.22$ (Average fishing pressure (2018-2020));

$SSB(2022) = 39151 \text{ t} > MSY_{Btrigger} (25\,826 \text{ t}) \quad F_{MSY} = 0.25$

Basis	Division 7.d plaice stock										All plaice in Division 7.d [#]				
	Total catch (2022) [^]	Projected landings* (2022)	Projected discards ** (2022)	F_{total} (ages 3–6 [2022])	$F_{projected}$ landings (ages 3–6 [2022])	$F_{projected}$ discards (ages 3–6 [2022])	SSB (2023)	% SSB change	% change in projected catches	% advice change \$	Total catch (2022)	Projected landings* (2022)	Projected discards (2022)	% change in projected catches ^{^^}	% advice change ^{##}
ICES advice basis															
MSY approach: F_{MSY}	6365	3266	3099	0.25	0.081	0.169	31393	–15.4	75	–24	7566	3883	3683	74	–24
Other scenarios															
$F = F_{MSY \text{ lower}}$	4594	2360	2234	0.18	0.057	0.12	33609	–9.4	27	–45	5461	2805	2656	26	–45
$F = F_{MSY}$	6365	3266	3099	0.25	0.08	0.17	31393	–15.4	75	–24	7566	3883	3683	74	–24
$F = F_{MSY \text{ upper}}$	8435	4323	4111	0.34	0.12	0.23	28837	–22	132	0.38	10027	5139	4887	131	0.39
$F = 0$	0	0	0	0	0	0	39461	6.4	–100	–100	0	0	0	–100	–100
F_{pa}	9955	5097	4858	0.418	0.14	0.28	26983	–27	174	18.5	11834	6060	5774	172	18.8
F_{lim}	11536	5900	5636	0.5	0.16	0.34	25078	–32	218	37	13713	7014	6700	216	38
$SSB(2023) = B_{lim}$	17229	8765	8464	0.85	0.28	0.58	18447	–50	375	105	20481	10420	10062	372	106
$SSB(2023) = B_{pa}$	10913	5584	5329	0.47	0.15	0.32	25826	–30	201	30	12973	6638	6335	199	30
$SSB(2023) = MSY B_{trigger}$	10913	5584	5329	0.47	0.15	0.32	25826	–30	201	30	12973	6638	6335	199	30
$F = F_{2021}$	5594	2872	2722	0.22	0.07	0.15	32354	–12.8	54	–33	6650	3414	3236	54	–33

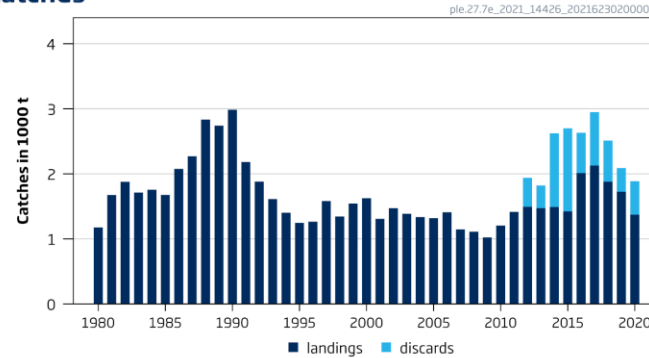
Advice for plaice in Division 7.d is for the stock, it takes into account catches of 7.e and North Sea stocks in 7.d

Plaice in the western English Channel (7.e)

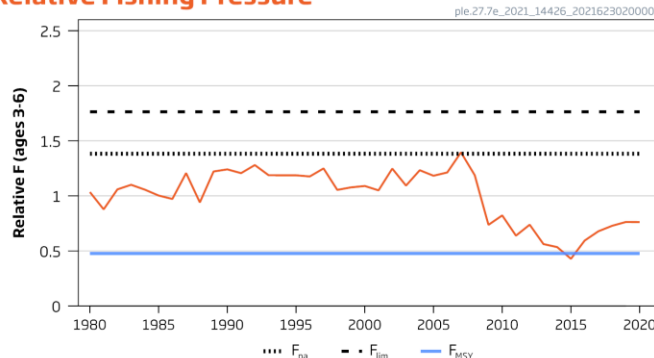
Advice for 2022, PA: Catch $\leq 1\,742$ t (stock)

Catch of plaice in Div. 7.e* $\leq 1\,572$ t

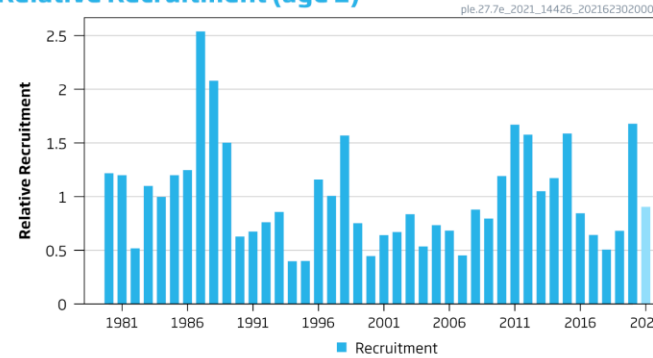
Catches



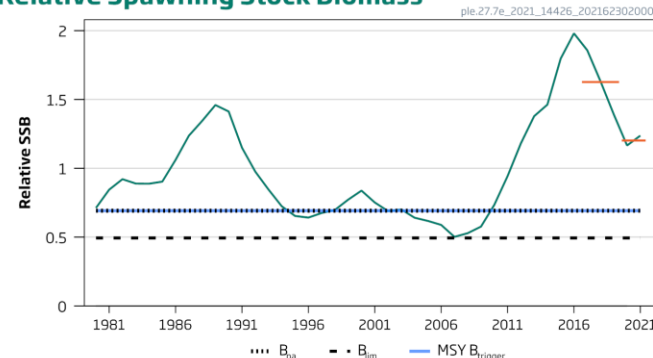
Relative Fishing Pressure



Relative Recruitment (age 2)



Relative Spawning Stock Biomass



- Assessment indicative of trends: discards not in assessment, but taken into account when producing advice.
- Spawning stock has increased since 2008, at high level but decline in last few years.
- F declined substantially after 2007 but increased again since 2015 and is currently above F_{MSY} .
- Recruitment has been fluctuating without trend, higher estimate in 2020.

*Plaice catches in Div. 7.d in Quarter 1 from various stocks: 35% from 7.d; 15% from 7.e; 50% from N Sea

Plaice in the western English Channel (7.e)

Catch (2020) : 1 722 t (26% discards)

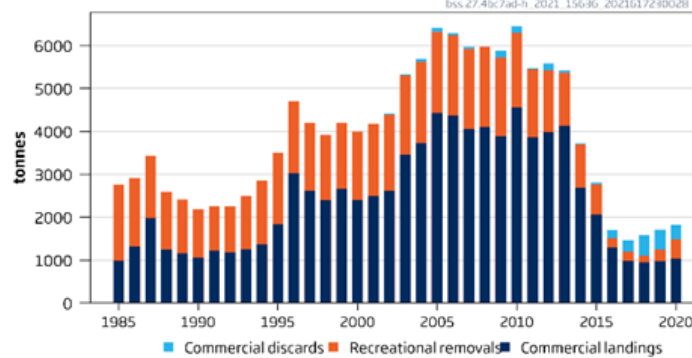
Division 7.e plaice stock		
Index A (2020–2021)		1.2
Index B (2017–2019)		1.63
Index ratio (A/B)		0.74
Uncertainty cap	Applied	0.8
Advised catch for 2021		2177 tonnes
Discard rate (2012–2020)		0.28
Precautionary buffer	Not applied (last applied in 2019)	-
Catch advice **		1742 tonnes
Projected landings corresponding to advice ***		1250 tonnes
% advice change (plaice Division 7.e stock) ^		-20
Plaice in Division 7.e		
Proportion of Division 7.e stock landings caught in Division 7.e (2003–2020)		0.9
Catch of plaice in Division 7.e corresponding to the advice for the stock		1572 tonnes
Projected landings of plaice in Division 7.e corresponding to the advice for the		1128 tonnes

Note: Part of the advised catch is assumed to be taken in 7.d in Quarter 1

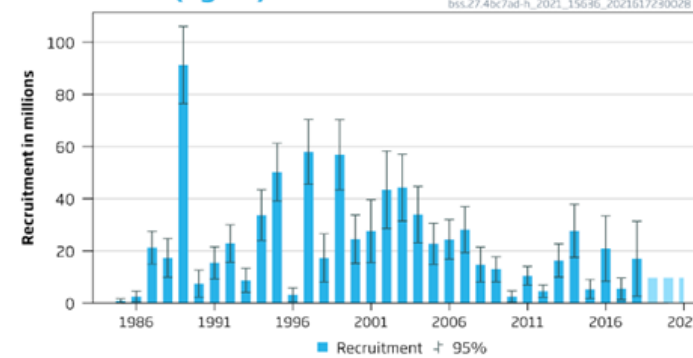
Sea bass in divisions 4.b–c, 7.a, and 7.d–h

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

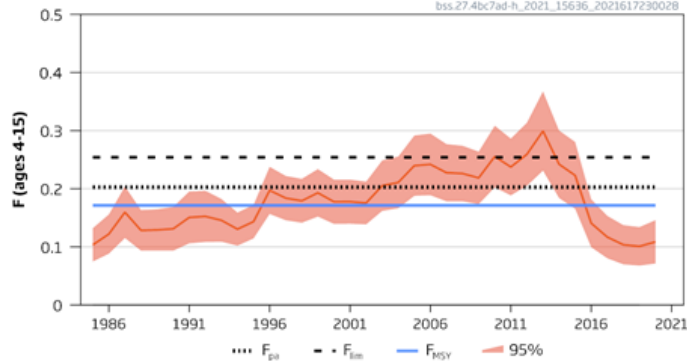
Catches



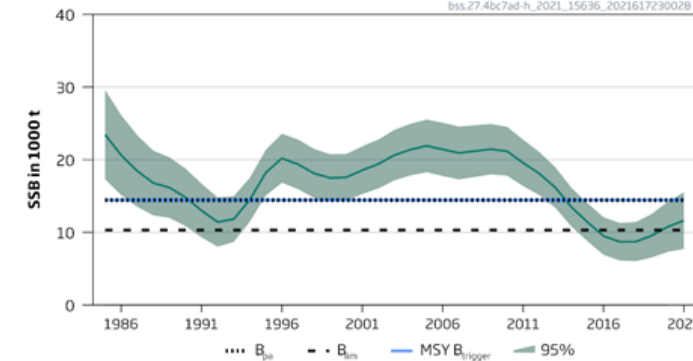
Recruitment (age 0)



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

EU MAP : Catch: 1 859 – 2 216 t (F_{MSY} : 2 216t)

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



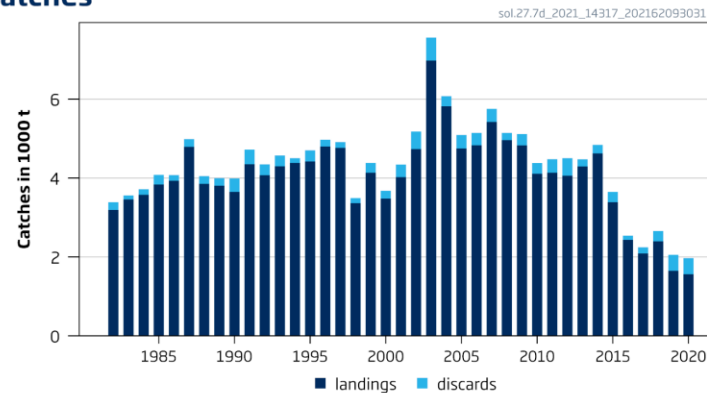
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Basis	Total removals * (2022)	Projected landings (2022)	Projected discards (2022)	Recreational removals (2022)	F _{total} (2022)	F _{projected} landings (2022)	F _{projected} discards (2022)	F recreational removals (2022)	SSB (2023)	% SSB change **	% 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

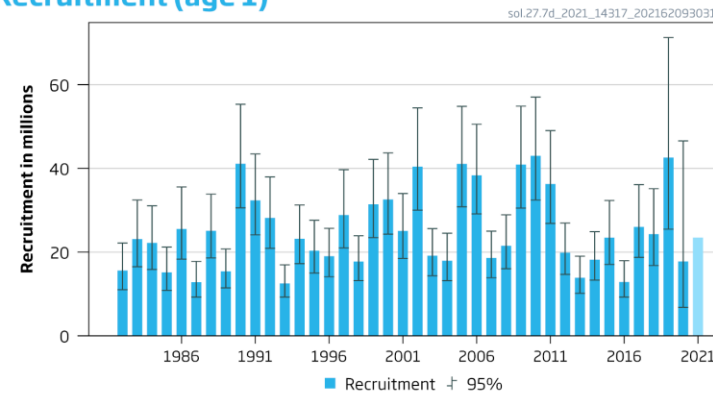
Sole in the eastern English Channel (7.d)

Advice for 2022, MSY: Catch $\leq 2\,380$ t

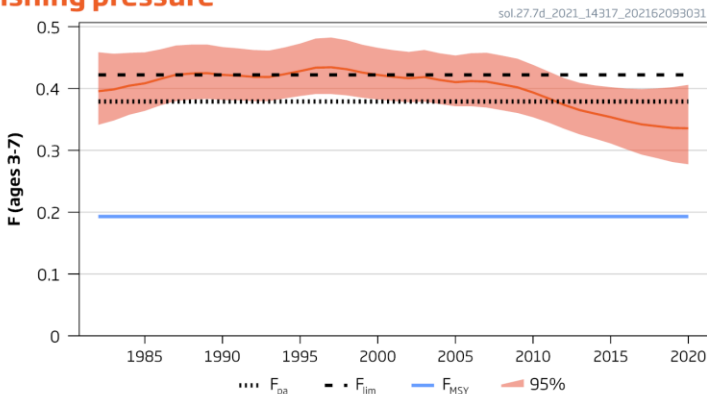
Catches



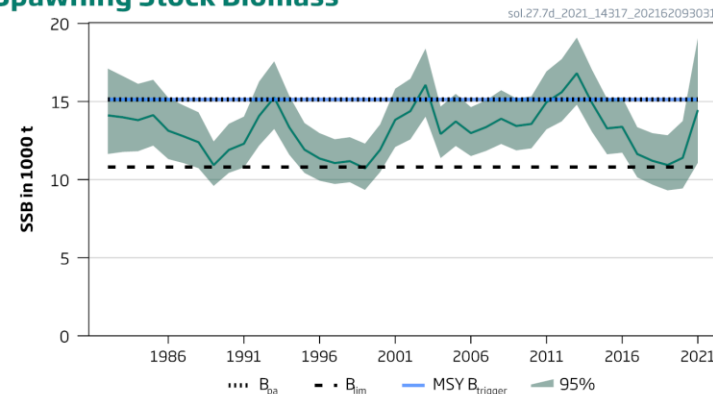
Recruitment (age 1)



Fishing pressure



Spawning Stock Biomass



- Benchmarked in 2021. Upgraded to a category 1 stock.
- New reference points.
- Spawning stock below $MSY B_{trigger}$ since 2014.
- Fishing pressure declining but well above F_{MSY} .
- Recruitment estimate in 2019 is among highest in the time-series.

Sole in the eastern English Channel (7.d)

Catch (2020) : 1 971 t (21 % discards)

F(2021) = 0.28 (Assuming catch of 3248 t in 2021 and average exploitation pattern)

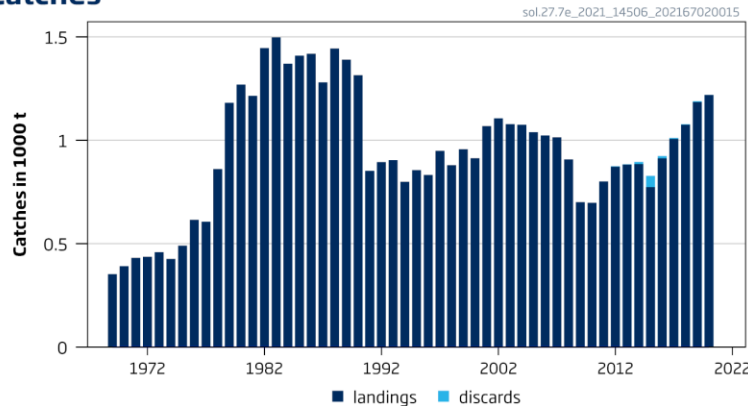
SSB (2022)= 14 945 t < MSY_{Btrigger} (15 135 t) F_{MSY}= 0.193

Basis	Total catch (2022)	Projected landings^ (2022)	Projected discards^^ (2022)	F _{total} (ages 3–7) (2022)	F _{Projected} landings (ages 3–7) (2022)	F _{Projected} discards (ages 3-7) (2022)	SSB -2023	% SSB change *	% TAC change **	% advice change **
ICES advice basis										
MSY approach: F _{MSY} × SSB (2022)/MSY B _{trigger}	2380	2139	241	0.191	0.167	0.024	16450	10.1	-27	-27
Other scenarios										
F = F _{MSY lower} × SSB(2022)/ MSY B _{trigger}	1444	1300	144	0.112	0.098	0.0139	17547	17.4	-56	-56
F = 0	0	0	0	0	0	0	19250	29	-100	-100
F _{pa}	4347	3899	448	0.379	0.33	0.047	14159	-5.3	34	34
F _{lim}	4751	4260	491	0.422	0.37	0.052	13697	-8.4	46	46
SSB (2023) = B _{lim}	7227	6458	769	0.73	0.64	0.091	10811	-28	123	123
SSB (2023) = B _{pa}	3500	3144	356	0.29	0.26	0.037	15135	1.27	7.8	7.8
SSB (2023) = MSY B _{trigger}	3500	3144	356	0.29	0.26	0.037	15135	1.27	7.8	7.8
F = F ₂₀₂₁	3923	3521	402	0.336	0.29	0.042	14638	-2.1	21	21
F = F _{MSY lower}	1462	1315	147	0.113	0.099	0.014	17528	17.3	-55	-55
F = F _{MSY}	2407	2164	243	0.193	0.169	0.024	16418	9.9	-26	-26
F = F _{MSY upper}	3877	3480	397	0.331	0.29	0.041	14693	-1.69	19.4	19.4

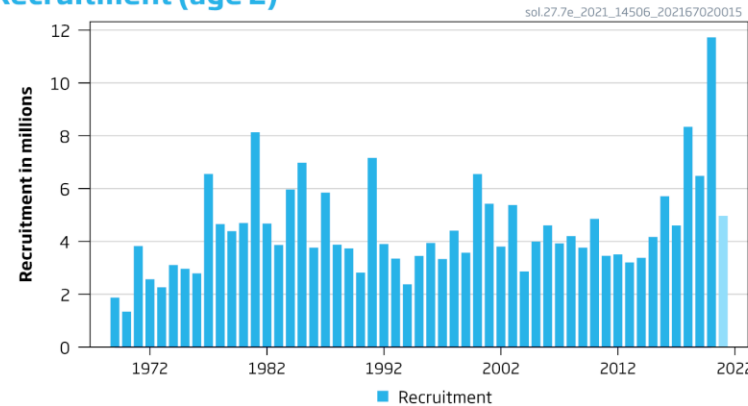
Sole in the western English Channel (7.e)

Advice for 2022, MSY : Catch $\leq 1\,810$ t

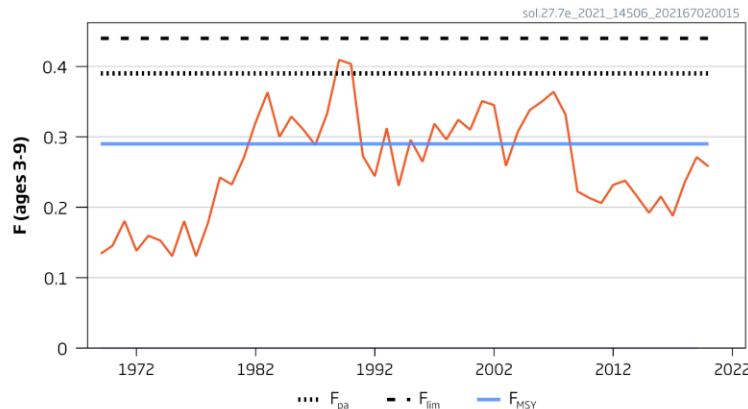
Catches



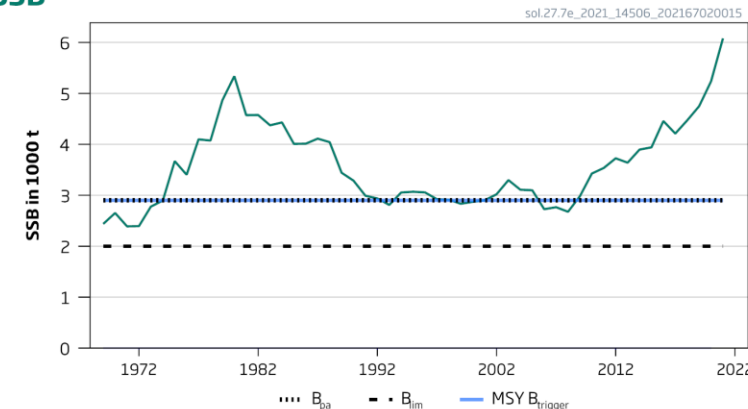
Recruitment (age 2)



F



SSB



- Similar trends as previous assessment but reduction in perception.
- Spawning-stock biomass (SSB) has been above $B_{trigger}$ since 2009.
- Fishing mortality (F) has been below F_{MSY} since 2009.
- Recruitment has been variable but well above average recruitment in 2018-2020.

EU MAP : Catch: 1 068 – 2 069 t (F_{MSY} : 1 810 t)

Sole in the western English Channel (7.e)

Catch (2020) : 1 220 t (<1 % discards)

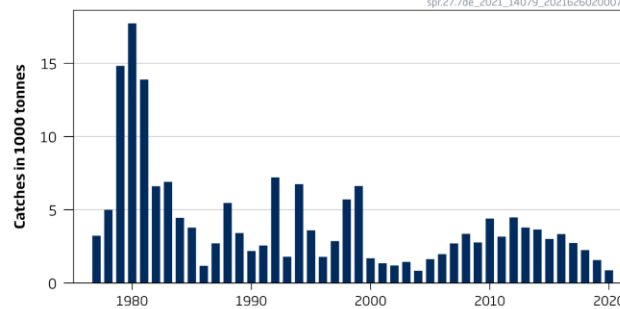
$F(2021) = 0.26$ (Recent average fishing pressure (2018-2020));

$SSB(2022) = 6\,437\text{ t} > MSY_{B_{trigger}} (2\,900\text{ t}) \quad F_{MSY} = 0.29$

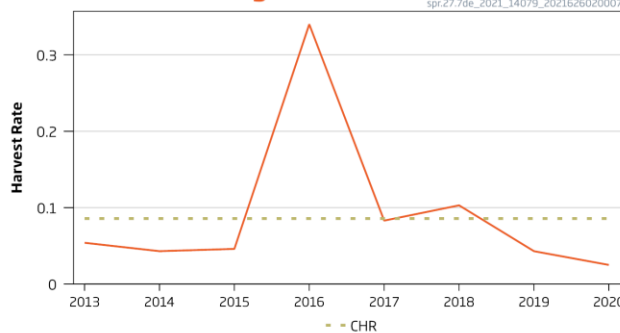
Basis	Total catch* (2022)	Projected landings (2022)	Projected discards (2022)	$F_{\text{projected landings}}$ (2022)	SSB (2023)	% SSB change **	% TAC change* **	% advice change^
ICES advice basis								
MSY approach: F_{MSY}	1810	1806	4	0.29	6034	-6.3	-6	-6
Other scenarios								
EU MAP^^: F_{MSY}	1810	1806	4	0.29	6034	-6.3	-6	-6
$F = MAP^^ F_{MSY \text{ lower}}$	1068	1066	2	0.16	6765	5.1	-45	-45
$F = MAP^^ F_{MSY \text{ upper}}$	2069	2065	4	0.34	5780	-10.2	7.5	7.5
$F = 0$	0	0	0	0	7820	21	-100	-100
F_{pa}	2316	2311	5	0.39	5538	-14	20	20
F_{lim}	2550	2544	5	0.44	5309	-17.5	32	32
$SSB_{2023} = B_{lim}$	5991	5978	13	1.78	2000	-69	210	210
Rollover TAC ^{##}	1925	1921	4	0.31	5921	-8	0	0
$SSB_{2023} = B_{pa} = MSY B_{trigger}$	5036	5025	11	1.22	2900	-55	162	162
$SSB_{2023} = SSB_{2022}$	1400	1397	3	0.22	6437	0	-27	-27
$F = F_{2021}$	1619	1616	3	0.25	6222	-3.3	-15.9	-15.9

Advice for 2022, MSY Catch $\leq 2\,897\text{ t}$

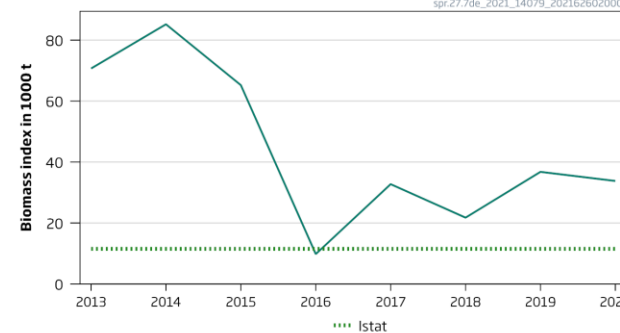
Catches



Harvest rate of landings



Biomass index

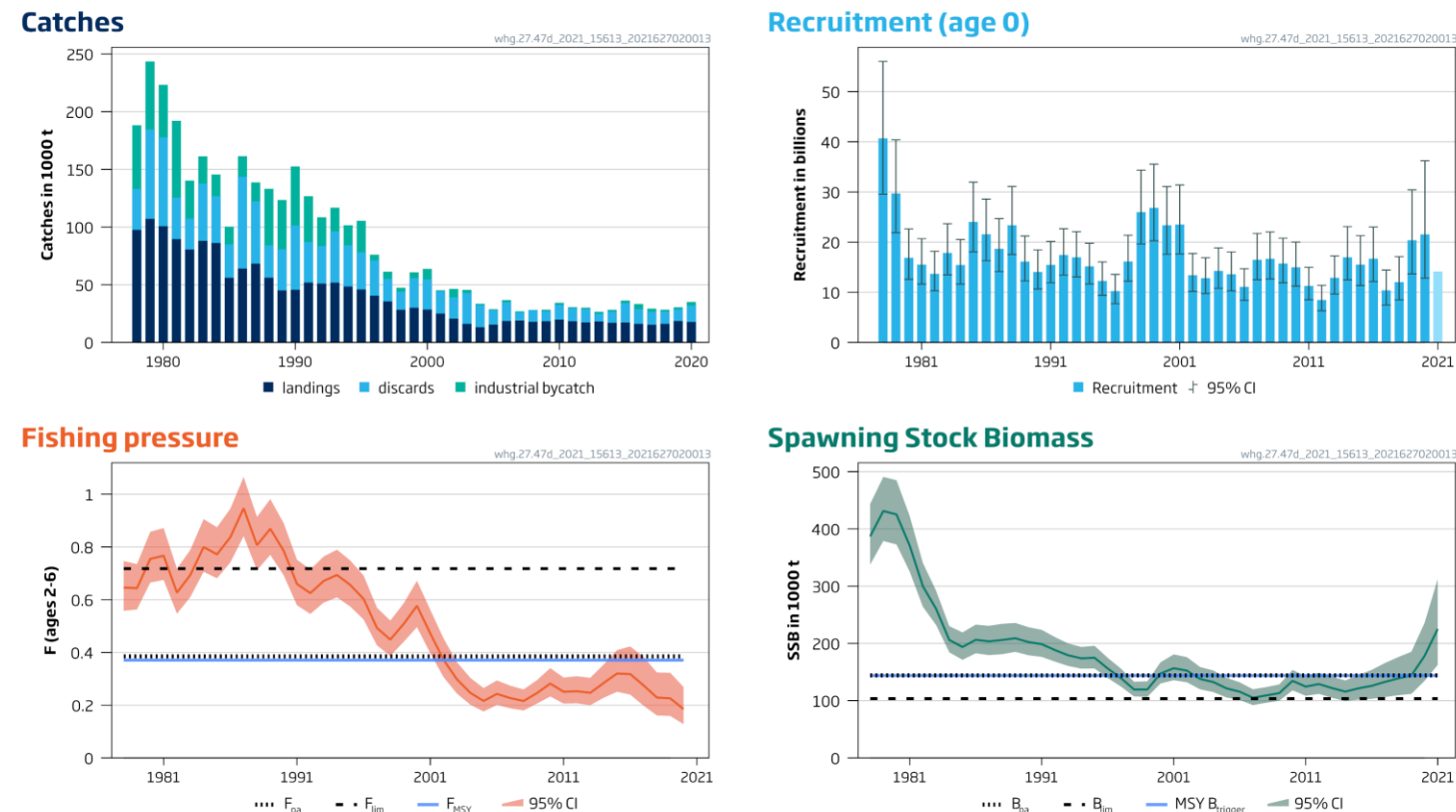


- Catch (2020) = 873 t
- Interbenchmark conducted in 2021.
- Constant harvest rate used to provide advice.
- Biomass relatively stable in recent years.
- Short lived species:
 - PELTIC survey conducted in October.
 - advice for a fishery from 1 July to 30 June more appropriate.

Biomass index 2020	33 798
Constant harvest rate	8.57%
Discard rate	Negligible
Catch advice for 2022 *	2897 tonnes
% advice change **	100%

Whiting in the North Sea and eastern English Channel (4 and 7.d)

Advice for 2022, MSY: Catch $\leq 88\,426$ t



- Interbenchmark in 2021
 - new estimates of natural mortality
 - large revision in F_{MSY} from 0.172 to 0.371
- About 20% of the catches are taken in the Eastern Channel area.
- Spawning stock above $MSY B_{trigger}$.
- Fishing pressure below F_{MSY}
- Recruitment variable, above average in the last two years.

Whiting in the North Sea and eastern English Channel (4 and 7.d)

Catch (2020): 35 123 t (41% discards) ; Catch of 6 052 t in 7.d

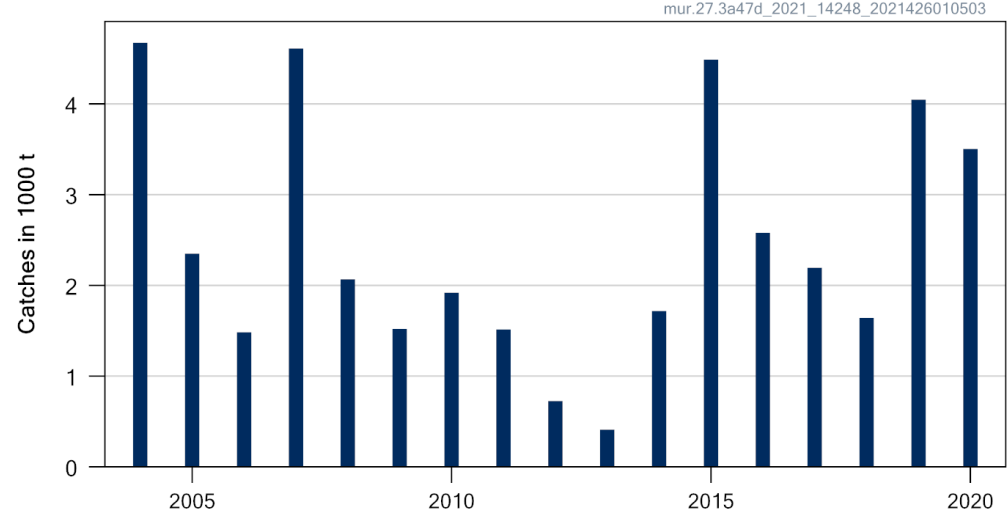
F (2021)=0.185 (Average exploitation pattern(2018-2020), scaled to 2020;

SB(2022) = 262 kt > MSY_{Btrigger} =144 kt F_{MSY}=**0.371**

Basis	Total catch 2022	Total projected landings 2022	Total projected discards 2022**	Total IBC 2022	Human Consumption catch 2022	Total F (ages 2–6) 2022	F (projected landings, ages 2–6) 2022	F (projected discards, ages 2–6) 2022	F (IBC, ages 2–6) 2022 ⁺⁺	SSB 2023	% SSB change [^]	% advice change ^{^^}
ICES advice basis												
MSY approach: F = F_{MSY}	88426	51276	34184	2966	85460	0.371	0.259	0.097	0.015	238600	-9.0%	236%
Other scenarios												
F = F _{MSY upper}	91703	53247	35508	2947	88755	0.385	0.269	0.1	0.015	236247	-9.9%	249%
F = F _{MSY lower}	70169	40293	26808	3068	67101	0.293	0.202	0.075	0.015	251709	-4.0%	167%
F ₂₀₂₂ = 0 (IBC only)	3439	0	0	3439	0	0.015	0	0	0.015	299843	15%	-87%
F ₂₀₂₂ = F ₂₀₂₁	44890	25087	16594	3209	41681	0.185	0.124	0.046	0.015	269861	3.00%	70%
Rollover TAC	29595	15884	10416	3294	26300	0.12	0.076	0.028	0.015	280846	7.20%	12.50%
15% TAC decrease (27.4 only)	25672	13524	8832	3316	22355	0.103	0.064	0.024	0.015	283664	8.20%	-2.4%
15% TAC increase (27.4 only)	33518	18245	12001	3273	30246	0.136	0.088	0.033	0.015	278028	6.10%	27%
0.75 × F ₂₀₂₁ ⁺⁺⁺	35036	19159	12613	3264	31772	0.143	0.093	0.035	0.015	276937	5.70%	33%
1.25 × F ₂₀₂₁ ⁺⁺⁺	54961	31145	20663	3153	51808	0.228	0.155	0.058	0.015	262629	0.20%	109%
F _{pa}	91703	53247	35508	2947	88755	0.385	0.269	0.1	0.015	236247	-9.9%	249%
F _{lim}	169645	100134	66999	2512	167133	0.718	0.512	0.191	0.015	180279	-31%	545%
SSB (2023) = B _{pa} = MSY B _{trigger}	219997	130424	87343	2230	217767	0.933	0.669	0.249	0.015	143905	-45%	736%
SSB (2023) = B _{lim}	276086	164164	110004	1917	274169	1.173	0.84	0.314	0.015	103560	-60%	950%

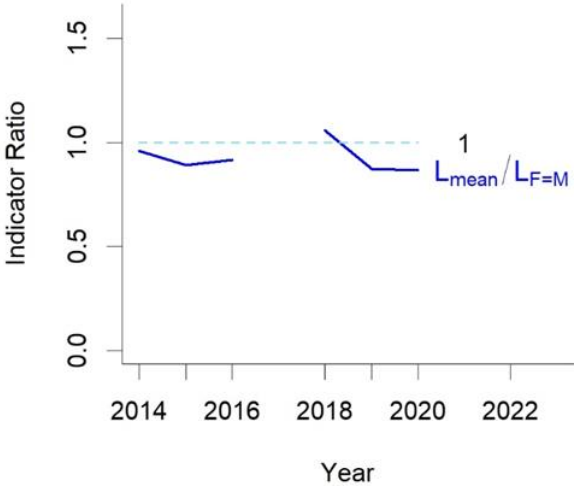
Advice for 2022 and 2023 , PA: Catch $\leq 1\,950$ t

Catches



Average catch (2004–2020)	2438 tonnes	
Discard rate	Negligible	
Precautionary buffer	Applied	0.8
Catch advice*	1950 tonnes	
Landings corresponding to the catch advice	1950 tonnes	

- Channel Ground Fish Survey index incomplete because of COVID- 19.
- Assessment downgraded to landings only. Precautionary buffer applied to average catches
- Catches in 2020 : 3503 t ; 2103 t taken in eastern Channel.
- Fishing pressure is above F_{MSY} based on length indicator

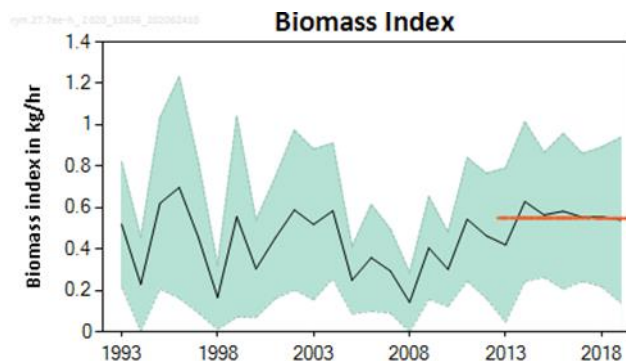


Skates and rays

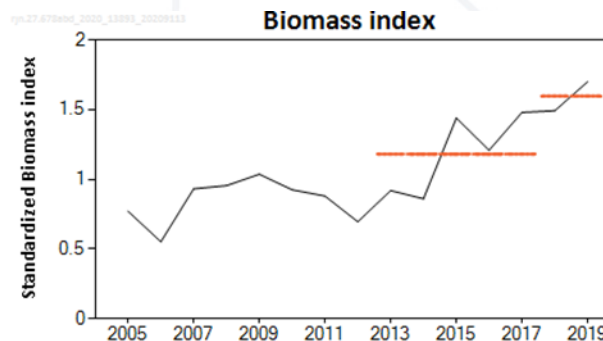
- Advice for the following stocks for 2022 to be issued in autumn
 - Thornback ray in Subarea 4 and in divisions 3.a and 7.d
 - Blonde ray in divisions 4.c and 7.d
 - Spotted ray in Subarea 4 and in divisions 3.a and 7.d
- Advice issued in 2020 for 2021/2022

Stock	Landings (2020)	Advice for 2022 Landings	Rationale
Spotted ray in 7.a and 7.e-h	741	1041	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)
Undulate ray in 7.de	225	183 (2552)	PA - based on survey index (CGFS)
Small-eyed ray in 7de	53	40	PA - based on historical landings
Thornback ray in 7.e	464	170	PA - based on historical landings
Blonde ray in 7e	1014	266	PA - based on historical landings

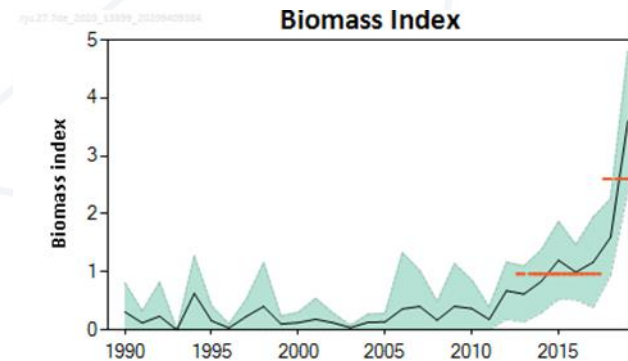
Spotted ray in 7.a , 7e-h



Cuckoo ray in 6, 7, 8 abd



Undulate ray in 7.de



SUMMARY

Stock	Exploitation	State of stock	Advice 2022	Advice 2021	Catch 2020	TAC 2021
Brill 4 ,7.d and 3.a	✓	✓	1878	2047	2101	5848*
Cod 4, 7.d, 20	X	X	14276	14755	24224	15911
Lemon sole 4 ,7.d and 3.a	✓	?	3081	3742	3044	5428*
Plaice 7.d	✓	✓	6565	8402 (6066-11130)	4343	11920*
Plaice 7.e	X	✓	1742	2177	1722	11920*
Sea bass 4.b–c, 7.a, and 7.d–h	✓	O	2216	2000 (1680-2000)	1814	-
Sole 7.d	X	O	2380	3248	1971	3248
Sole 7.e	✓	✓	1810	1925 (1141-2197)	1220	1925
Sprat 7.d-e	?	?	2897	1446	873	1446
Whiting 4, 7.d	✓	✓	88426	26304	35123	31565
Stripped red mullet 3.a,4,7.d	X	?	1950	-	3503	-

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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