

ICES advice for North Western Waters stocks for 2023

NWWAC meeting, July 5, 2022

CELTIC SEA

Joanne Morgan

ICES ACOM vice-chair



Science for sustainable seas

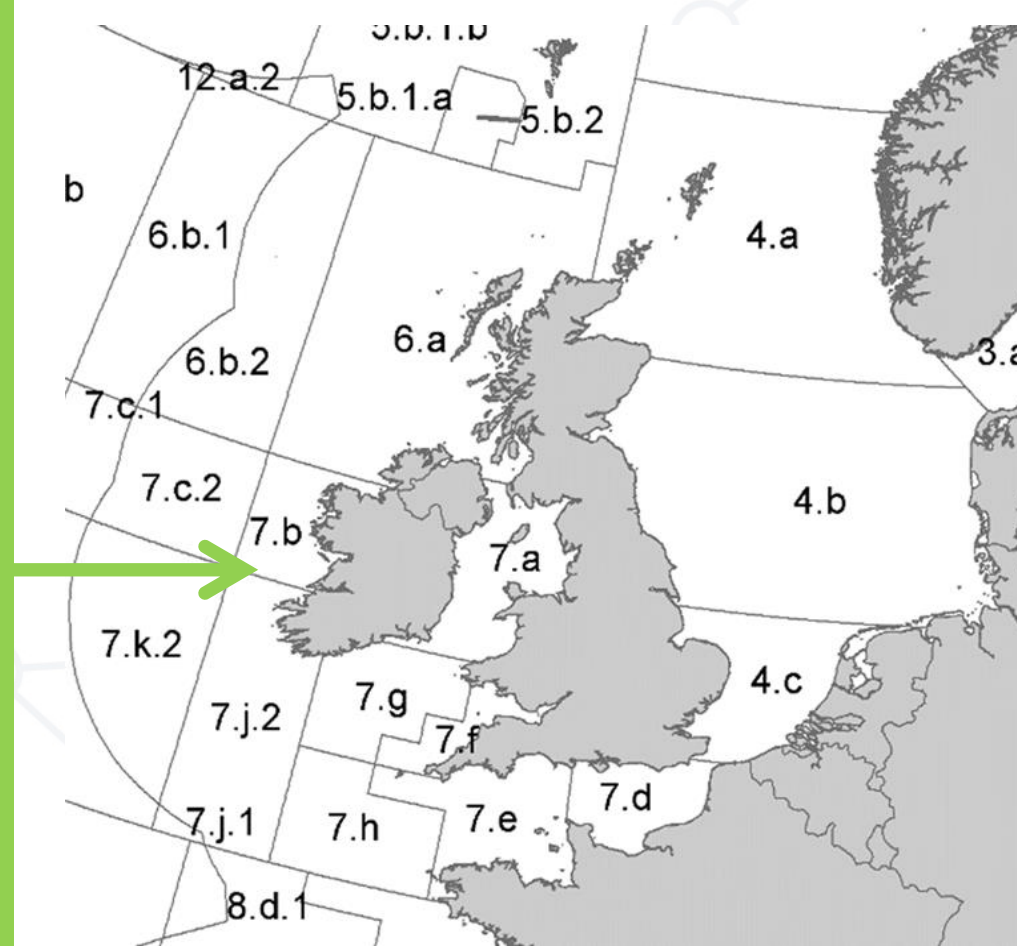
Image Dirk Vonten, Fotolia

Introduction – Celtic Sea

- Includes advice released up to 30 June 2022.
- COVID-19 impacts usually 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.
- Any change in advice rules given in sheets.
- 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

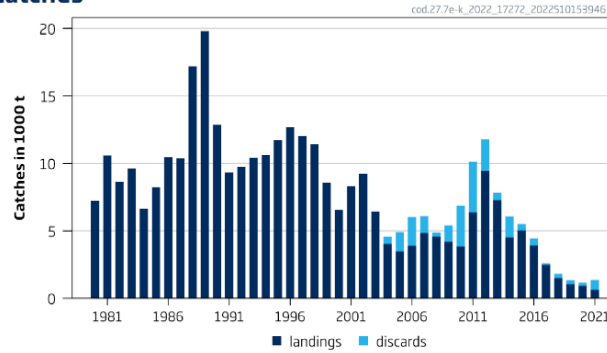
- Cod (7.e-k)
- Haddock (7.b-k)
- B-B Anglerfish (7.b-k, 8.abd)
- White anglerfish (7, 8.a-b,d)
- Hake (4,6,7, 3.a, 8.ab,d)
- Megrin (7.b-k, 8.abd)
- Plaice (7.bc, 7.fg, 7h-k;)
- Pollack (6,7)
- Sea bass (4.bc, 7.a,d-h)
- Sole (7.bc; 7.fg; 7.h-k;)
- Deep stocks:
 - Tusk, Blue ling, Ling
 - Alfonsinos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



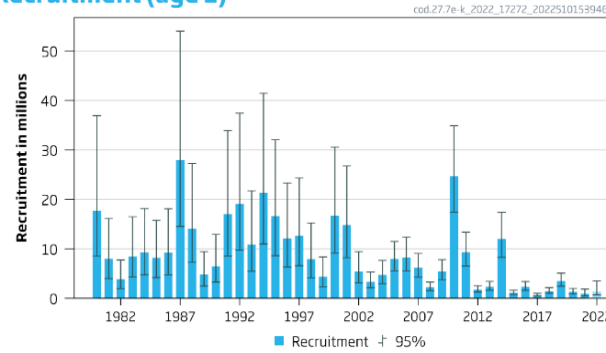
Cod in the western English Channel and southern Celtic Seas (7.e–k)

Advice for 2023: MSY: Catch = 0 t advice: no change

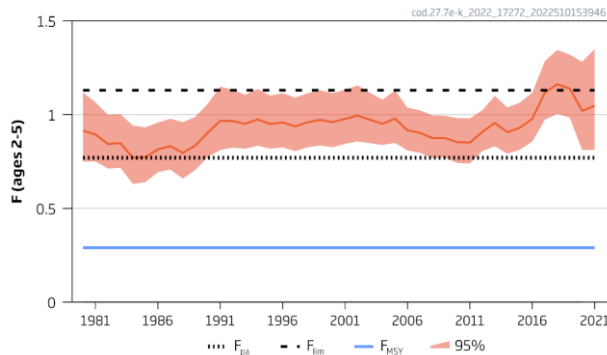
Catches



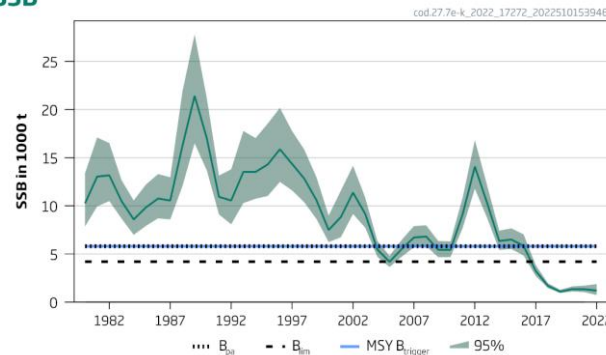
Recruitment (age 1)



F



SSB



- Fishing pressure above F_{MSY}
- Spawning stock below B_{lim}
- Recruitment low
- No catch scenario brings stock above B_{lim}

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

Catch (2021) : 1360 t (54 % discards)

F(2021) =1.069 (Fsq – average 2019-2021)

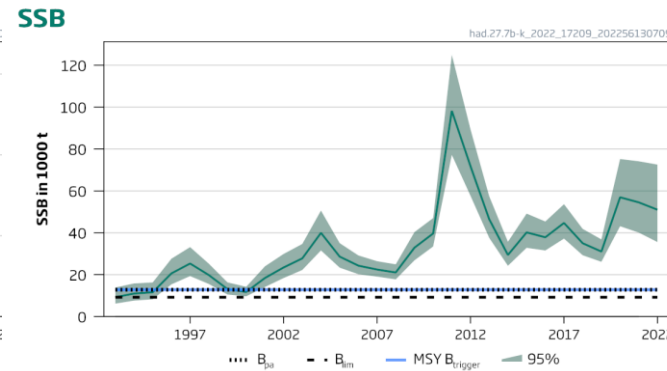
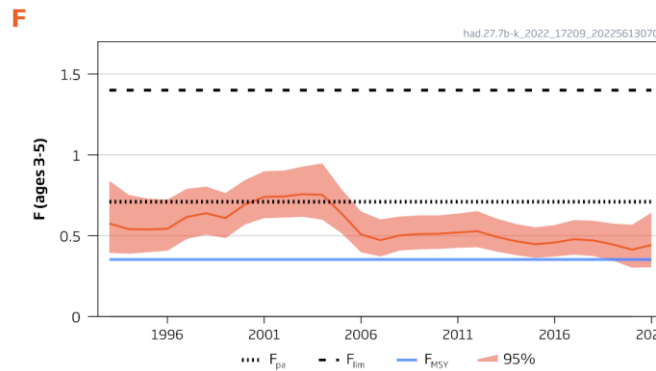
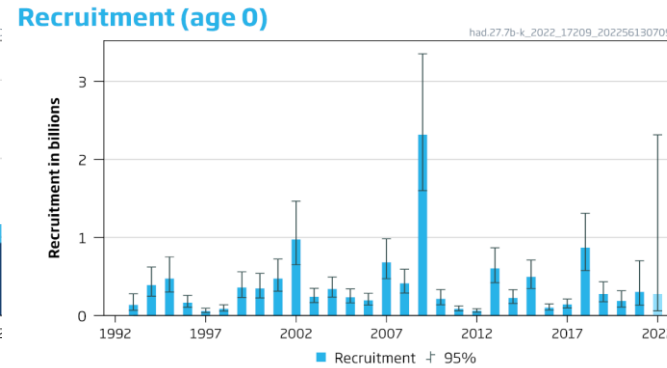
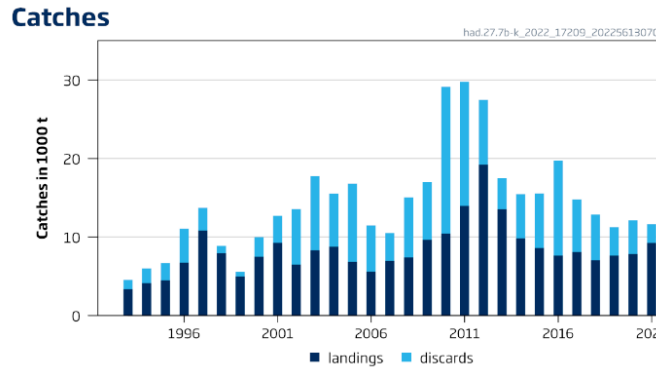
SSB (2023)= 1 305 t < B_{lim} (7 300 t) F_{MSY}= 0.29

Basis	Total catch (2023)	F _{total} (2023)	SSB (2024)	% SSB change*
ICES advice basis				
MSY approach: F = 0	0	0	2754	162
Other scenarios				
F _{MSY} × SSB ₂₀₂₃ /MSY B _{trigger}	80	0.050	2632	150
EU MAP** : F _{MSY lower} × SSB ₂₀₂₃ /MSY B _{trigger}	48	0.029	2682	155
EU MAP** : F _{MSY upper} × SSB ₂₀₂₃ /MSY B _{trigger}	113	0.070	2583	145
F=F _{MSY}	424	0.29	2120	101
F = 0	0	0	2754	162
F=F _{lim}	1194	1.13	1014	-3.7
F = F _{pa}	928	0.77	1385	32
SSB ₂₀₂₄ = B _{lim} ***				
SSB ₂₀₂₄ = B _{pa} = MSY B _{trigger} ***				
F = F ₂₀₂₂	1154	1.069	1069	1.5
SSB ₂₀₂₄ =SSB ₂₀₂₃	1210	1.156	992	-5.7

- **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 2023: MSY: Catch \leq 11 901t advice -25%



- Fishing pressure is above F_{MSY}
- Spawning stock is above MSY Btrigger
- Recruitment low

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



Catch (2021) : 11 645 (20% discards)

F(2022) = 0.443 (average 2019-2021, scaled to 2021)

SSB (2023)= 47 157 > MSY_{Btrigger} (12 822t) F_{MSY} = 0.353

Mixed fisheries advice in the fall

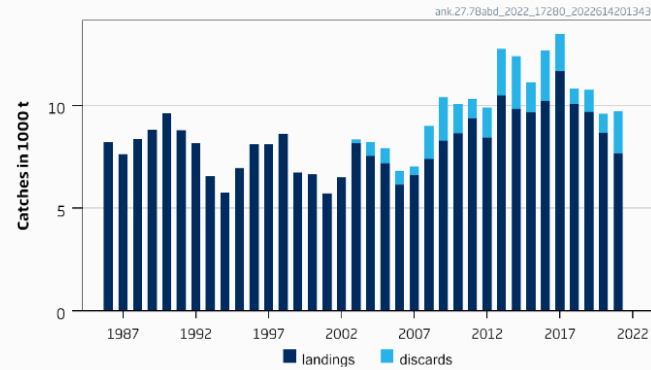
Basis	Total catch (2023)	Projected landings (2023)	Projected discards (2023)	F _{total} (2023)	F _{projected} landings (2023)	F _{projected} discards (2023)	SSB (2024)	% SSB change*	% advice change^
ICES advice basis									
MSY approach: F _{MSY}	11901	9064	2837	0.353	0.31	0.044	48157	2.1	-25
Other scenarios									
EU MAP ^^: F _{MSY}	11901	9064	2837	0.353	0.31	0.044	48157	2.1	-25
EU MAP^^ F _{MSY} lower	7862	6030	1832	0.22	0.194	0.027	52430	11.2	-26
EU MAP^^ F _{MSY} upper	16424	12419	4005	0.52	0.46	0.064	43270	-8.2	-25
F = 0	0	0	0	0	0	0	61031	29.4	-100
F _{pa}	20787	15604	5183	0.71	0.62	0.088	38652	-18.0	30
F _{lim}	32583	23767	8816	1.400	1.23	0.170	26386	-44	104
SSB ₂₀₂₄ = B _{lim}	50807	34676	16131	4.05	3.55	0.50	9227	-80	219
SSB ₂₀₂₄ = B _{pa} = MSY B _{trigger}	46662	32469	14193	3.08	2.70	0.38	12822	-72.8	193
F = F ₂₀₂₂	14401	10923	3478	0.44	0.39	0.06	45431	-3.7	-9.7
SSB ₂₀₂₄ = SSB ₂₀₂₃	12788	9731	3057	0.384	0.337	0.047	47157	0.00	-19.8

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

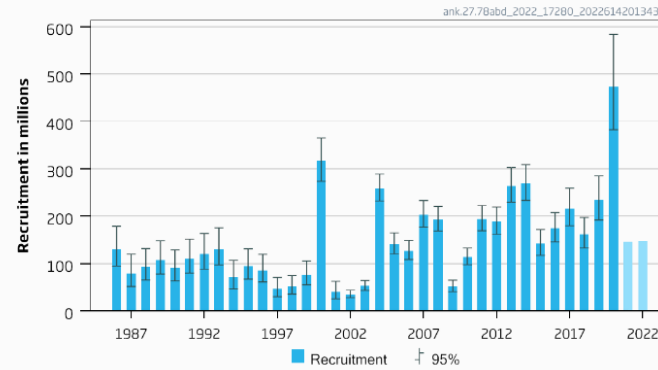
Black-bellied anglerfish in Subarea 7 and divisions 8.a–b, and 8.d

Advice for 2023 : MSY: Catch \leq 23 958 t advice +28%

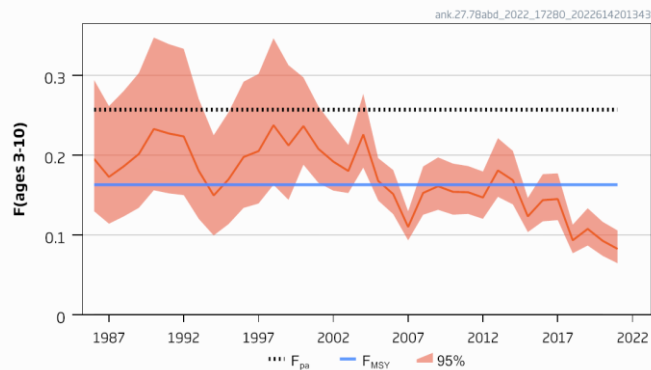
Catches



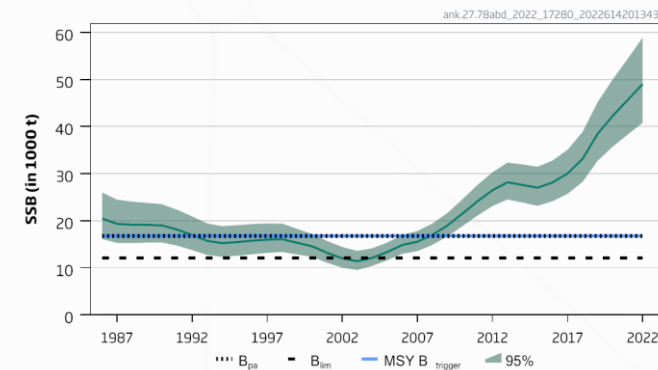
Recruitment (age 0)



F



SSB



- Benchmark 2022
- Now Category 1
- Fishing mortality below F_{MSY} .
- Spawning stock is above MSY Btrigger

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

Catch (2021) = 9 708 t (21 % discards)

F(2022) = 0.094 (Fsq: average 2019-2021)

SSB (2023)= 50 317 > MSY_{Btrigger} (16 776) F_{MSY} = 0.163

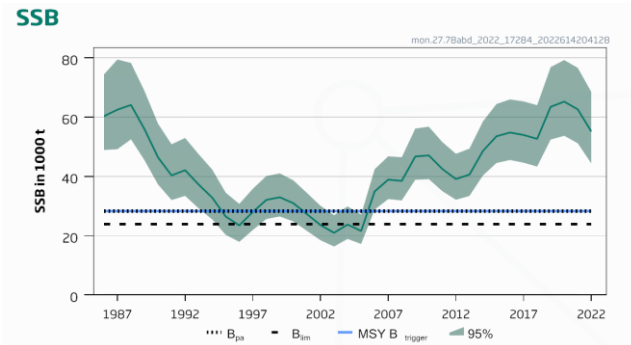
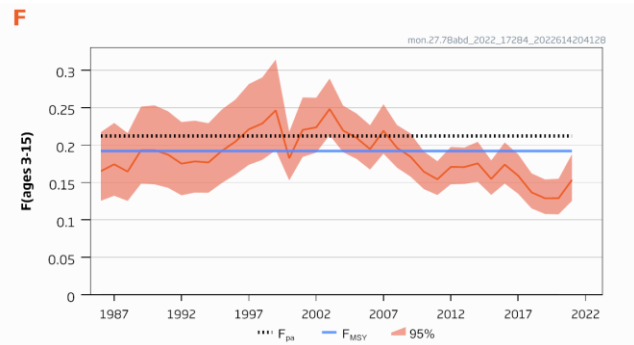
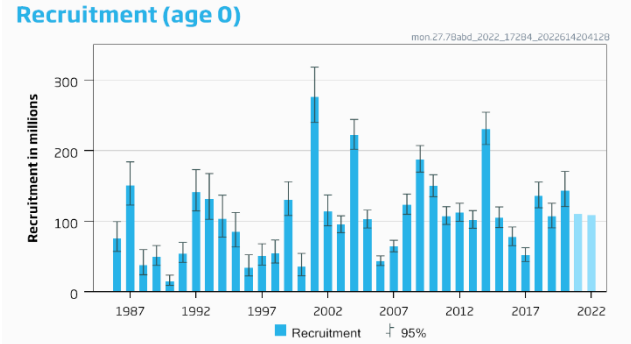
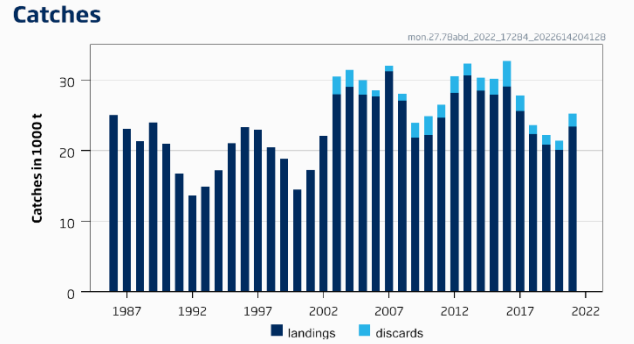
Basis	Total catch (2023)	Projected landings* (2023)	Projected discards ** (2023)	F _{ages 3–10} Total (2023)	F _{ages 3–10} Projected landings (2023)	F _{ages 3–10} Projected discards (2023)	SSB (2024)	% SSB change ***	% advice change ^
ICES advice basis									
MSY approach = F _{MSY}	23958	18867	5091	0.163	0.142	0.021	50837	1.03	28
Other options									
F _{MSY} lower	16849	13272	3577	0.112	0.097	0.0147	53497	6.3	-9.7
F _{MSY} upper	34704	27319	7385	0.24	0.21	0.032	46835	-6.9	86
F = 0	0	0	0	0	0	0	59836	18.9	-100
F _{pa}	36209	28502	7707	0.26	0.22	0.034	46276	-8.0	94
SSB ₂₀₂₄ = B _{lim}	132807	103933	28874	1.60	1.39	0.21	12073	-76	612
SSB ₂₀₂₄ = B _{pa} = MSY B _{trigger}	118624	92952	25672	1.27	1.11	0.166	16776	-67	536
SSB ₂₀₂₄ = SSB ₂₀₂₃	25350	19963	5388	0.173	0.151	0.023	50317	0	36
F = F ₂₀₂₂	14312	11274	3037	0.094	0.082	0.0123	54449	8.2	-23

Length based stock synthesis

Note: Under combined TAC with white anglerfish.

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

Advice for 2023 : MSY : Catch \leq 34 476 t advice +0.59%



- Benchmark 2022
- Substantial change in F and recruits but not perception of stock
- Fishing pressure below F_{MSY}
- Spawning stock above MSY B trigger

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

Catch (2021) : 25 243t (7 % discards)

F(2022) = 0.137 (Average 2019-2021);

SSB (2023)= 55 576t > MSY_{Btrigger} (28 275 t) F_{MSY}= 0.192

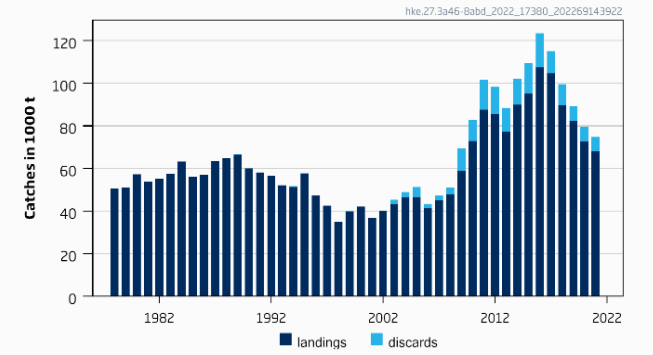
Basis	Total catch (2023)	Projected landings* (2023)	Projected discards** (2023)	F _{Pages 3-15} Total (2023)	F _{Pages 3-15} Projected landings (2023)	F _{Pages 3-15} Projected discards (2023)	SSB (2024)	% SSB change ***	% advice change ^
ICES advice basis									
MSY approach = F _{MSY}	34476	30053	4423	0.192	0.190	0.00171	52524	-5.8	0.59
Other scenarios									
F _{MSY} lower	24269	21159	3110	0.131	0.130	0.00116	55954	0.68	4.78 ^{^^}
F _{MSY} upper	37683	32847	4836	0.21	0.21	0.00188	51446	-7.4	-17.2 ^{^^}
F = 0	0	0	0	0	0	0	64104	15.3	-100
F _{pa}	37683	32847	4836	0.21	0.21	0.00188	51446	-7.4	9.9
SSB ₂₀₂₄ = B _{lim}	120004	104320	15684	0.95	0.95	0.0085	23868	-57	250
SSB ₂₀₂₄ = B _{pa} = MSY B _{trigger}	106744	92856	13888	0.79	0.78	0.0070	28275	-49	210
SSB ₂₀₂₄ = SSB ₂₀₂₃	25395	22140	3254	0.138	0.136	0.00122	55576	0	-26
F = F ₂₀₂₂	25338	22091	3247	0.137	0.136	0.00122	55595	0.030	-26

Note: Under combined TAC with black bellied anglerfish

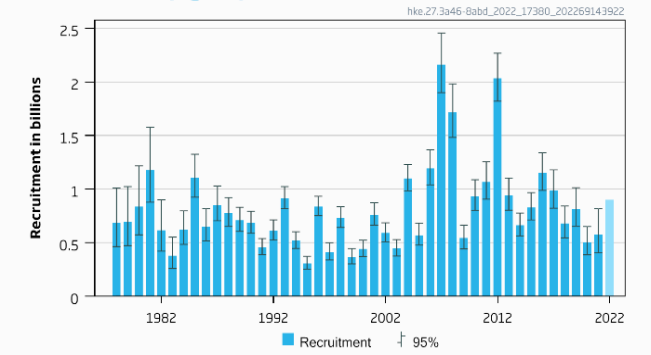
Hake – Northern stock (3.a, 4, 6, 7, 8.abd)

Advice for 2023: MSY: Catch = 83 130 t advice +10.8%

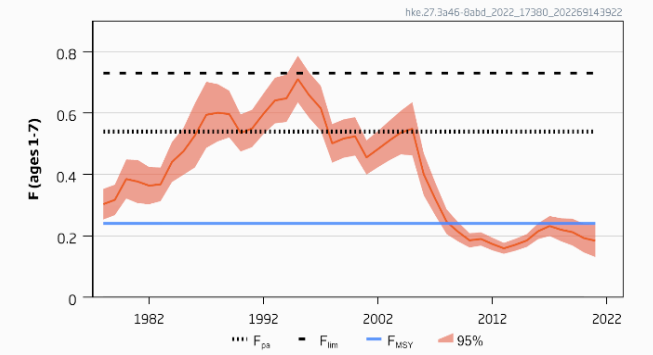
Catches



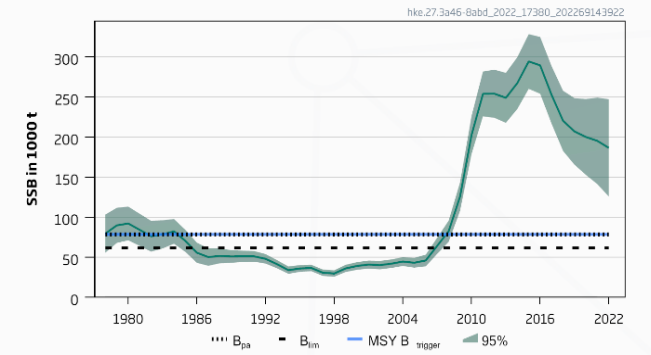
Recruitment (age 0)



F



SSB



- Benchmark 2022
- SSB now females only – total stock size on average 71% higher
- Fishing pressure below F_{MSY}
- Spawning stock above MSY $B_{trigger}$

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

Catch (2021) : 74 799t (9 % discards)

F(2022) = 0.198 Average F₂₀₁₉₋₂₀₂₁

SSB (2023)= 168 765t > MSY_{Btrigger} (78 405t)

F_{MSY} = 0.24

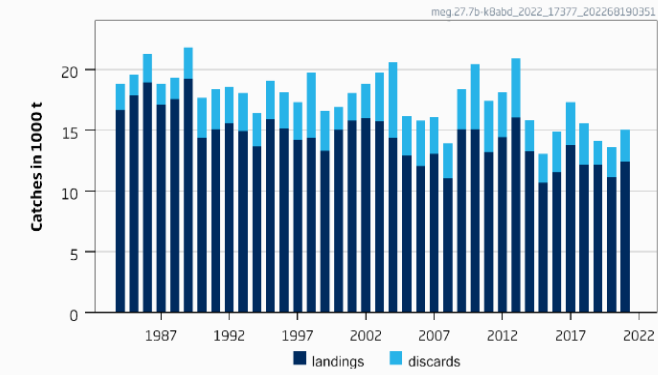
Basis	Total catch (2023)	Projecte d landings (2023)	Projecte d discards (2023)	Fages 1-7 total (2023)	Fages 1-7 projecte d landings (2023)	Fages 1-7 projecte d discards (2023)	SSB (2024)	% SSB change*	% advice change**
ICES advice basis									
MSY approach = F _{MSY}	83130	76360	6770	0.24	0.223	0.020	148841	-11.8	10.8
Other scenarios									
EU MAP***: F _{MSY}	83130	76360	6770	0.24	0.22	0	148841	-11.8	10.8
F = MAP*** F _{MSY} lower	53284	49067	4218	0.147	0.135	0.0120	168127	-0.38	-29
F = MAP*** F _{MSY} upper	117526	107599	9927	0.37	0.34	0.031	126984	-25	57
F = 0	0	0	0	0	0	0	203180	20	-100
F = F _{pa}	155336	141603	13733	0.54	0.49	0.047	103497	-39	107
SSB (2024) = B _{lim}	226111	203813	22298	0.98	0.89	0.097	61563	-64	201
SSB (2024) = B _{pa}	197045	178555	18491	0.77	0.70	0.072	78405	-54	163
SSB (2024) = MSY B _{trigger}	197045	178555	18491	0.71	0.70	0.072	78405	-54	163
SSB (2024) = SSB(2023)	52303	48167	4136	0.14	0.133	0.0110	168765	0.0	-30
F = F ₂₀₂₂	69596	64003	5593	0.198	0.182	0.0160	157552	-6.6	-7.3

Length based and sex disaggregated stock synthesis

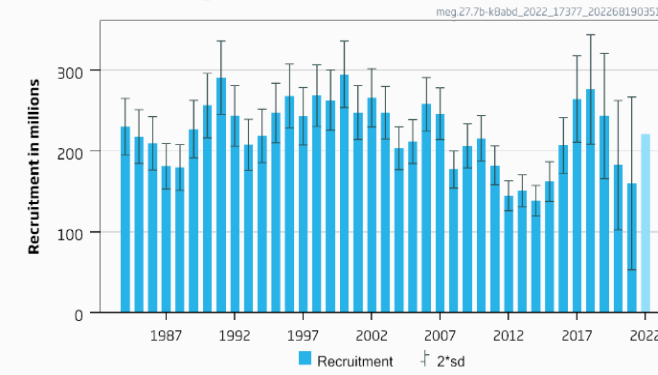
Megrim in the west and southwest of Ireland, Bay of Biscay (7.b–k, 8.a–b, and 8.d)

Advice for 2023: MSY: Catch $\leq 24\,176$ t advice +5.3%

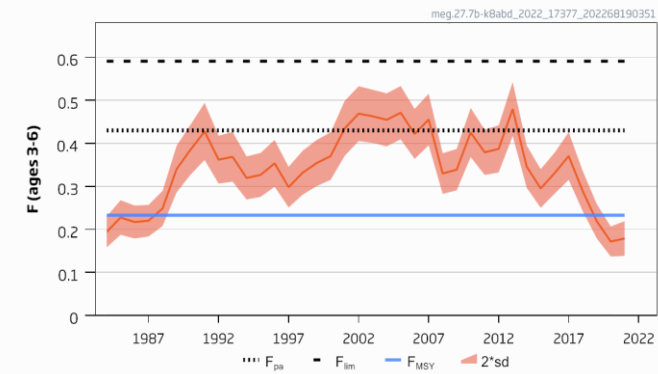
Catches



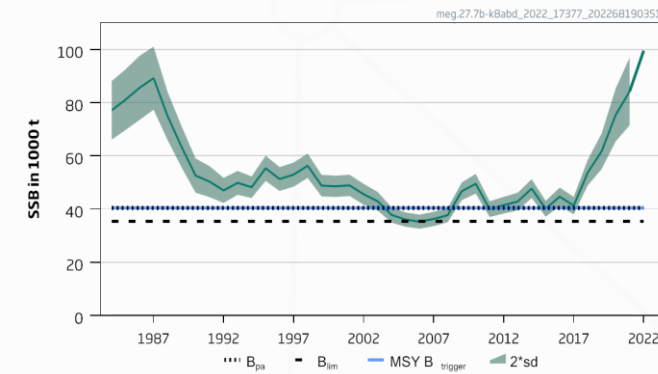
Recruitment (age 1)



F



SSB



- Benchmark 2022
- New reference points
- New model
- Revised discard estimates
- Removal of commercial indices
- Perception of stock status not changed
- Fishing pressure below F_{MSY}
- Spawning stock size above MSY Btrigger

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

Catch (2021) : 15 020t (17 % discards)

F(2022) = 0.19 (average 2019-2021)

SSB (2023)= 98 527t > MSY_{Btrigger} (40 444t) F_{MSY}= 0.233

A4A

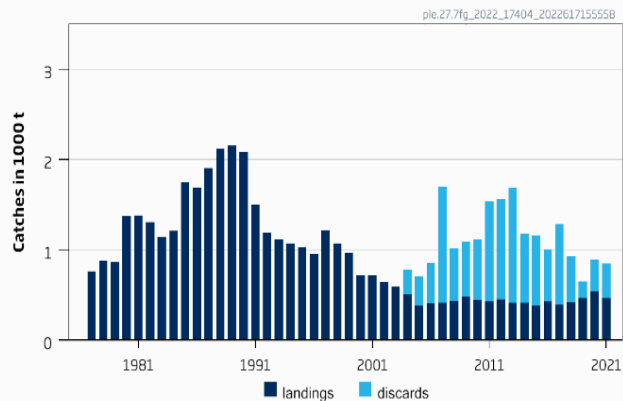
Basis	Total catch (2023)	Projected landings* (2023)	Projected discards** (2023)	F _{ages 3–6} Total (2023)	SSB (2024)	% SSB change***	% advice change^
ICES advice basis							
MSY approach: F _{MSY}	24176	20782	3395	0.23	92640 -	-6.0	5.3
Other scenarios							
EU MAP^^ = F _{MSY}	24176	20782	3395	0.23	92640 -	-6.0	5.3
F = MAP^^ F _{MSY lower}	15475	13315	2160	0.140	101774	3.3	-33
F = MAP^^ F _{MSY upper}	39116	33558	5558	0.41	77093	-22	70
F = 0	0	0	0	0	118131	19.9	-100
F _{pa}	40597	34821	5776	0.43	75563	-23	77
F _{lim}	51395	44007	7388	0.59	64481	-35	124
SSB (2024) = B _{lim}	80715	68641	12074	1.25	35398	-64	252
SSB (2024) = B _{pa}	75471	64282	11189	1.20	40444	-59	229
SSB (2024) = MSY B _{trigger}	75471	64282	11189	1.20	40444	-59	229
SSB (2024) = SSB (2023)	18563	15967	2596	0.171	98527	0	-19.2
F = F ₂₀₂₂	20437	17575	2862	0.190	96559	-2.0	-11.0

- The ICES advice is for *L. whiffiagonis*, whereas the TAC is for *L. whiffiagonis* and *L. boscii* combined

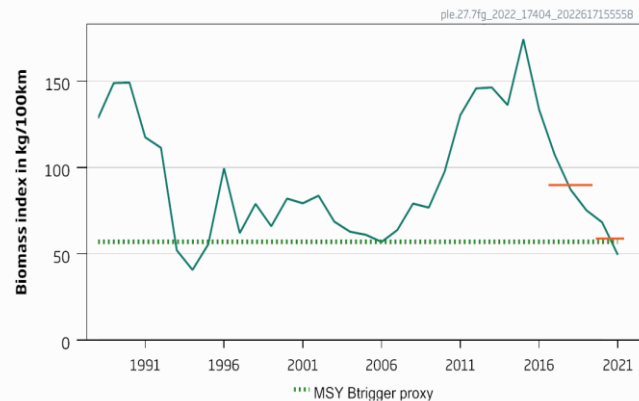
Plaice in the Bristol Channel, Celtic Sea (7.f and 7.g)

Advice for 2023: MSY: Catch \leq 402 t advice -77%

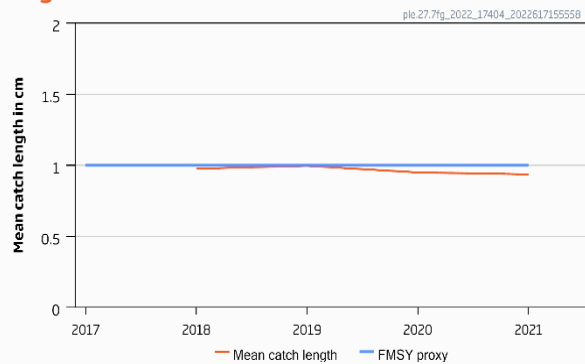
Catches



Biomass index



Length indicator



- Category 3 rfb
- UKBTS survey index
- Fishing pressure above F_{MSY} proxy
- Spawning stock below MSY Btrigger
- Caught in mixed fishery with sole, high discard rates (38 % during 2019-2021)

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

Catch (2021) = 846 t (45 % discards)

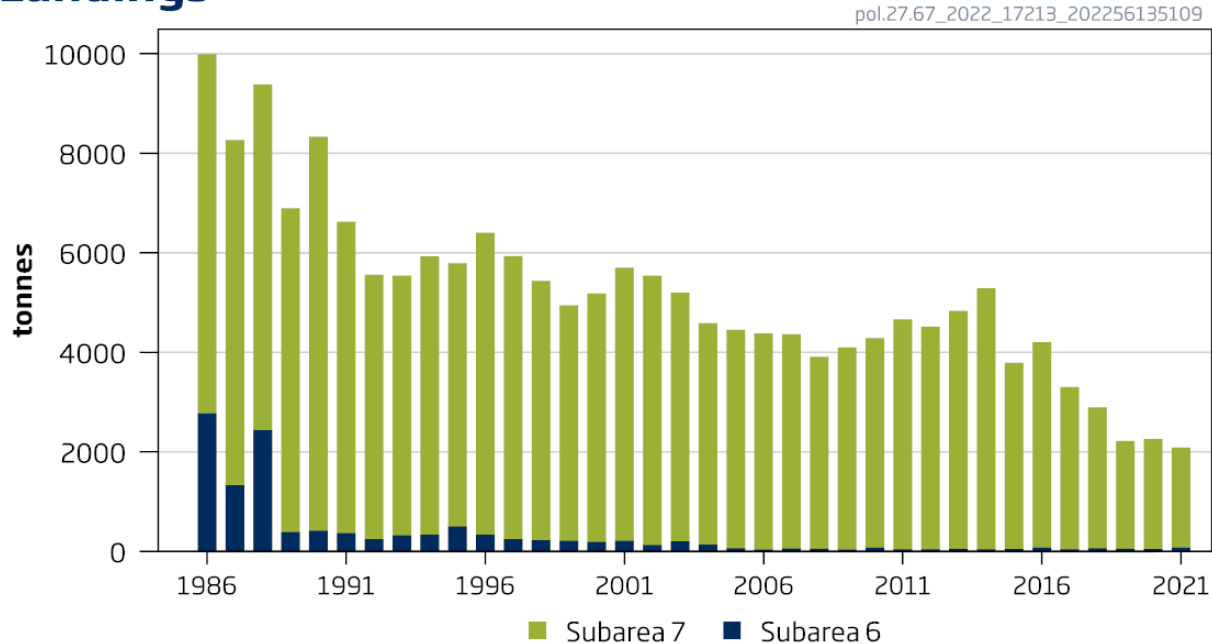
Mean catch 2019-2021 (C_y)	793 tonnes
Biomass index trend	
Index A (2020–2021)	58.9 kg / 100 km
Index B (2017–2019)	89.9 kg / 100 km
r: Stock biomass trend (index ratio A/B)	0.655
Fishing pressure proxy	
Mean catch length ($L_{\text{mean}} = L_{2021}$)	28.3 cm
MSY proxy length ($L_{F=M}$)	30.2 cm
f: Fishing pressure proxy relative to MSY proxy ($L_{2021}/L_{F=M}$)	0.937
Biomass safeguard	
Last index value (I_{2021})	49.3 kg / 100 km
Index trigger value ($I_{\text{trigger}} = I_{\text{loss}} \times 1.4$)	57.0 kg / 100 km
b: index relative to trigger value, $\min\{I_{2021}/I_{\text{trigger}}, 1\}$	0.87
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.95
RFB calculation**	402 tonnes
Stability clause (+20%/-30% compared to A_y , only applied if $b \geq 1$)	Not applied
Discard rate	38%
Catch advice for 2023 and 2024 [$C_y \times r \times f \times b \times m$]	402 tonnes
% advice change***	-77%

$A_{y+1} = C_y \times r \times f \times b \times m$, limited by stability clause if applicable – not applied

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

Advice for 2023 : PA: Commercial catch \leq 3 360 t

Landings

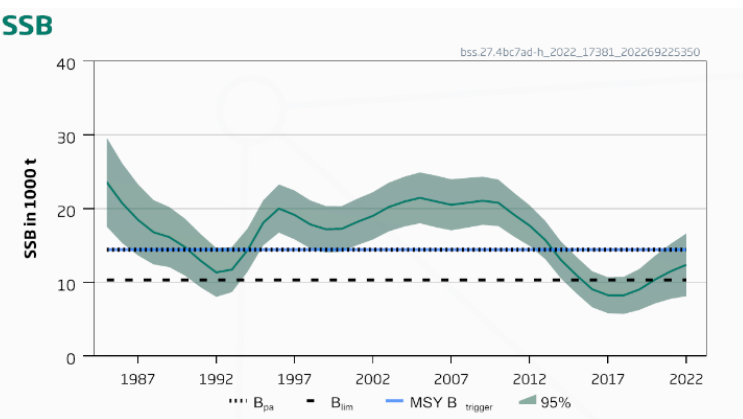
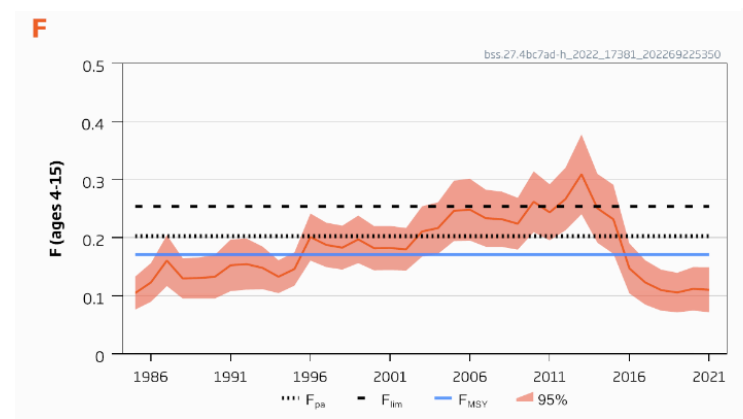
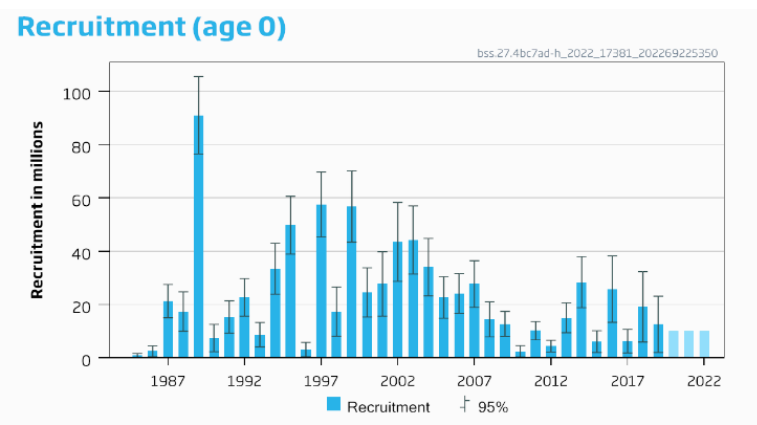
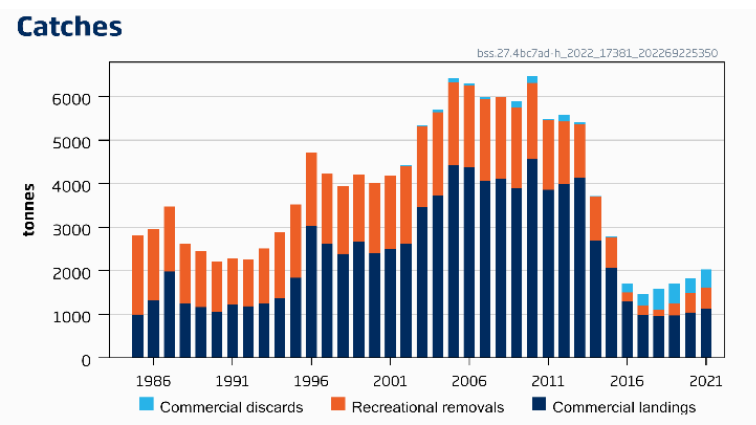


- Limited information available on pollack in this area.
- Catches have declined since the late 1980's, lowest in 2019-2021
- Fishing pressure considered to be below reference points.
- Stock size unknown

Catch (2021) = 2 087 t (commercial only – recreational unknown but substantial)

Advised commercial catches for 2022	3360 tonnes	
Discard rate	< 1%	
Uncertainty cap	Not applied	-
Commercial catches advice for 2023	3360 tonnes	
% advice change*	0	

Advice for 2023, MSY: Catch \leq 2 542 t: advice +14.7%



- Spawning stock above B_{lim} and B_{pa} but below MSY $B_{trigger}$
- Fishing pressure is below F_{MSY}
- Under advised catch, stock expected to decrease remaining below MSY $B_{trigger}$

EU MAP : Catch: 2133 – 2542t (F_{MSY} : 2542t)

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

Catch 2021: 2027 t (1126 t commercial, 412 t discards and 489 t recreational)

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



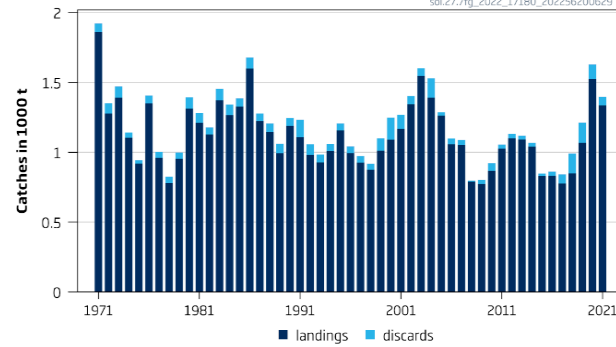
SSB(2022) = 12 052 t > B_{lim} 10 313 t but < MSY B_{trigger} = 14 439 t F_{MSY} = 0.1713

Basis	Total removals* (2023)	F _{total} (2023)	SSB (2024)	% SSB change**	% advice change ***
ICES advice basis					
MSY approach: F = F _{MSY} × SSB ₂₀₂₃ /MSY B _{trigger}	2542	0.153	12631	-2.1	14.7
Other scenarios					
EU MAP^: F _{MSY} × SSB ₂₀₂₃ /MSY B _{trigger}	2542	0.153	12631	-2.1	14.7
EU MAP^: F _{MSY upper} × SSB ₂₀₂₃ /MSY B _{trigger}	2542	0.153	12631	-2.1	14.7
EU MAP^: F _{MSY lower} × SSB ₂₀₂₃ /MSY B _{trigger}	2133	0.127	12964	0.50	-3.7
F = F _{MSY}	2821	0.171	12405	-3.8	27
F = 0	0	0	14716	14.1	-100
F _{pa}	3294	0.20	12021	-6.8	49
F _{lim}	4096	0.25	11430	-11.4	85
SSB ₂₀₂₄ = B _{lim}	5422	0.36	10313	-20	145
SSB ₂₀₂₄ = B _{pa}	336	0.0190	14439	11.9	-85
SSB ₂₀₂₄ = MSY B _{trigger}	336	0.0190	14439	11.9	-85
F = F ₂₀₂₂	1906	0.113	13149	1.94	-14.0
SSB ₂₀₂₄ = SSB ₂₀₂₃	2213	0.132	12899	0.00	-0.135

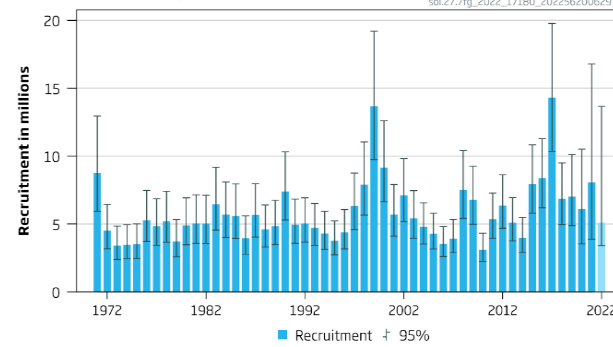
Sole in the Bristol Channel, Celtic Sea (7.f and 7.g)

Advice for 2023: MSY: Catch ≤ 1338 t advice +0.075%

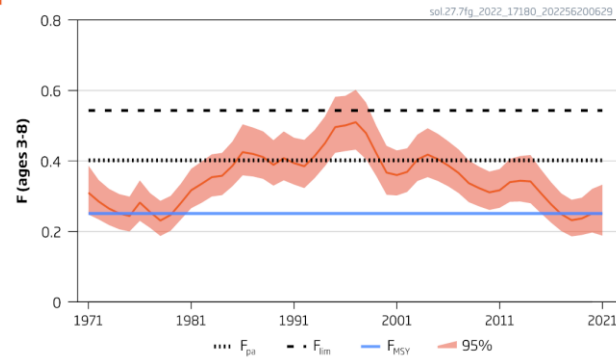
Catches



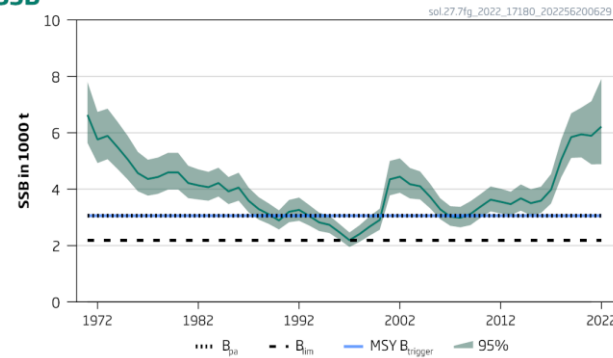
Recruitment (age 1)



F



SSB



- Fishing pressure at F_{MSY}
- Spawning stock above MSY Btrigger

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

Catch (2021) : 1 398 t (4 % discards)

F(2022) = 0.246 Catch 2022 1337 t

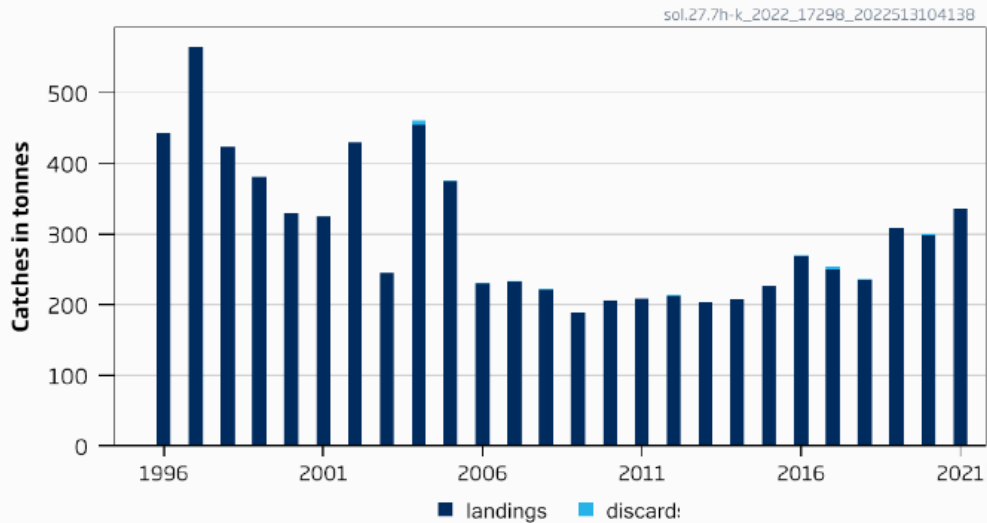
SSB (2023)= 6 120t > MSY_{Btrigger} (3 057t) F_{MSY}= 0.251

Basis	Total catch (2023)	Projected landings* (2023)	Projected discards** (2023)	F _{total} (2023)	F _{projected landings} (2023)	F _{projected discards} (2023)	SSB (2024)	% SSB change ***	% TAC change ^	% advice change^^
ICES advice basis										
MSY approach: F = F _{MSY}	1338	1258	80	0.251	0.23	0.018	5903	-3.5	0.075	0.075
Other scenarios										
EU MAP^^^: F _{MSY}	1338	1258	80	0.251	0.23	0.018	5903	-3.5	0.075	0.075
EU MAP^^^: F _{MSY lower}	765	720	45	0.136	0.126	0.0097	6504	6.3	-43	-43
EU MAP^^^: F _{MSY upper}	2232	2097	135	0.462	0.43	0.033	4963	-18.9	67	67
F = 0	0	0	0	0	0	0	7307	19.4	-100	-100
F= F _{pa}	1996	1877	119	0.402	0.37	0.029	5212	-14.8	49	49
F= F _{lim}	2531	2377	154	0.543	0.5	0.039	4647	-24	89	89
SSB ₂₀₂₄ = B _{lim}	4919	4572	347	1.59	1.48	0.114	2184	-64	268	268
SSB ₂₀₂₄ = B _{pa} MSY B _{trigger}	4063	3797	266	1.1	1.02	0.078	3057	-50	204	204
F = F ₂₀₂₂	1312	1234	78	0.246	0.23	0.0175	5930	-3.1	-1.87	-1.87
SSB ₂₀₂₄ = SSB ₂₀₂₃	1130	1064	66	0.21	0.193	0.0148	6120	0	-15.5	-15.5

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

Advice for 2023: PA: Catch \leq 213 t no change

Catches



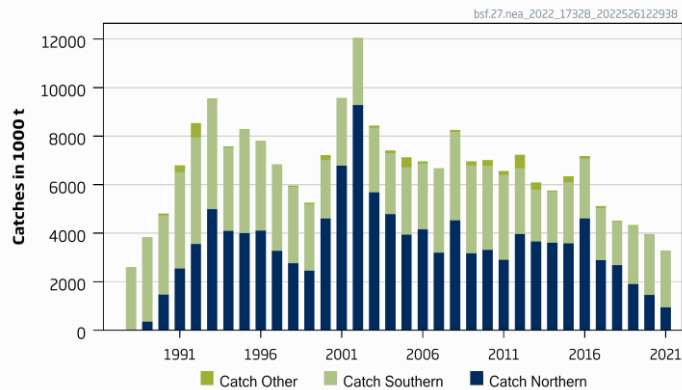
- Little information on stock identity possibility of 2 stocks based on fishery distribution
- Sampling lower 2020 and 2021 - Covid
- Catch in 2021 = 336 t (few discards)

Advised catch for 2022 issued in 2021	213 tonnes
Discard rate	Negligible
Precautionary buffer	Not applied -
Catch advice for 2023	213 tonnes
% advice change	0 %

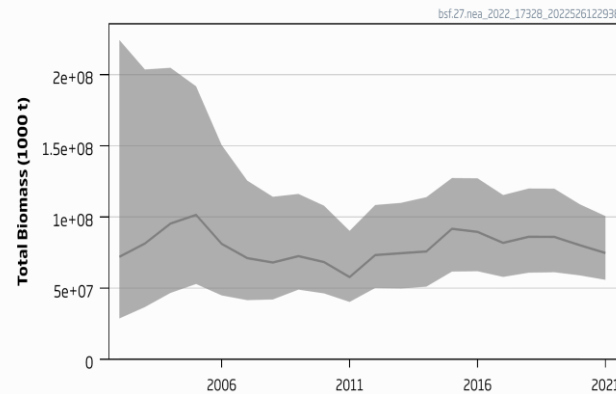
Black scabbardfish in the Northeast Atlantic and Arctic Ocean

Advice for 2023 and 2024, PA: Catch \leq 4 214 t advice -6%

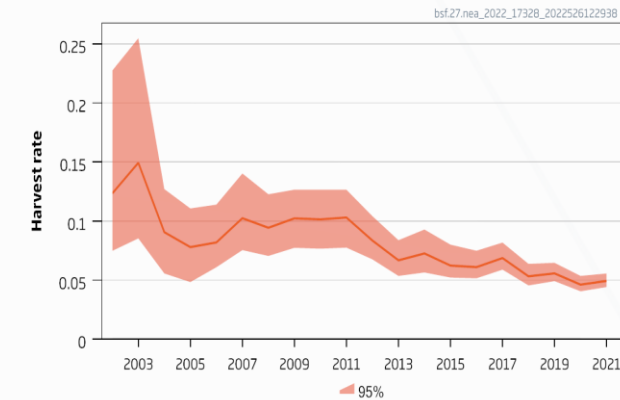
Catches



Total biomass index



Total harvest rate



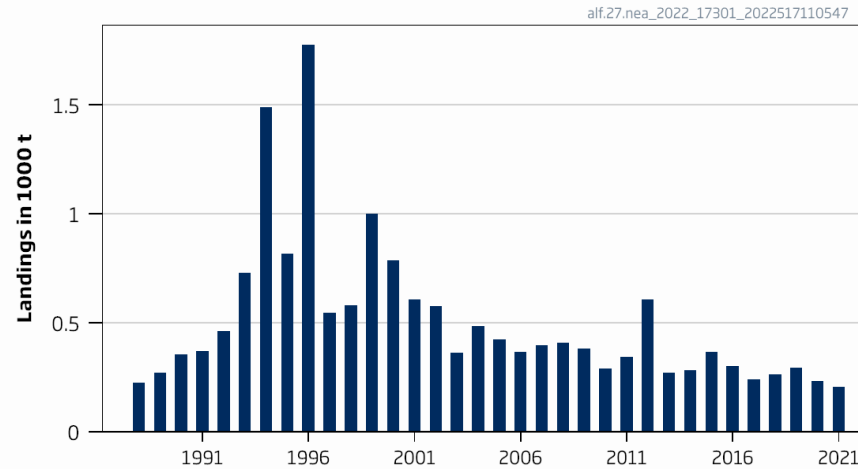
Minimum slope of the two component slopes		-0.0648
Uncertainty cap	Not applied	-
Recent advised catch for 2021–2022 issued in 2020		4506 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice**		4214 tonnes
% advice change***		-6%

- Cannot assess status
- Migrates through NE Atlantic
- Advice not split by area because of changes in catch proportion in the different areas

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

Advice for 2023 and 2024 , PA: Landings \leq 179 t advice -20%

Landings



Landings in 2021 = 205 t.

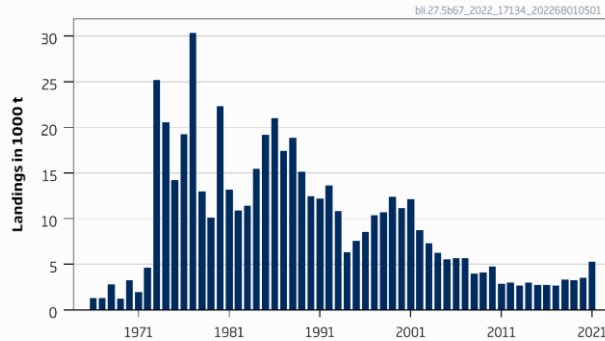
- Two Beryx species : most catch in Azorean EEZ and in Mid-Atlantic Ridge.
- Cannot assess stock status
- PA buffer last applied 2018 so applied again

Advised landings for 2021–2022 issued in 2020		224 tonnes
Discard rate		Unknown
Precautionary buffer	Applied	0.8
Landings advice **		179 tonnes
% advice change ***		-20

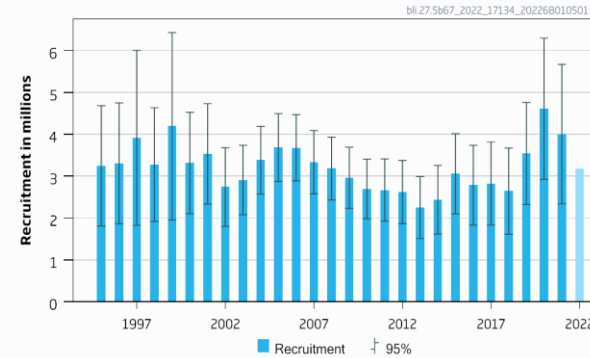
Blue ling in 6–7 and 5.b (Celtic Seas, English Channel, and Faroes grounds)

Advice for 2023 and 2024, MSY: Catch $\leq 10\,859$ t and $\leq 10\,972$ t

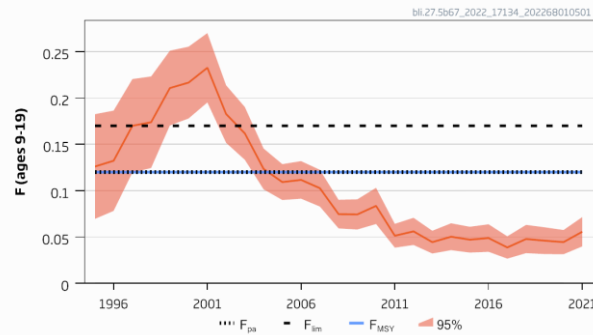
Catches



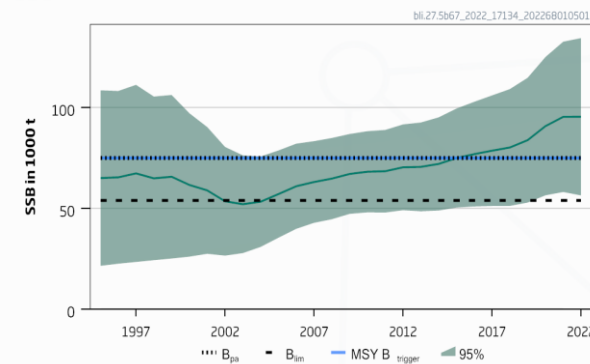
Recruitment (age 9)



F



SSB



- Fishing pressure below F_{MSY}
- Spawning stock above MSY Btrigger

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

Catch (2021) : 5 285 t

F(2022) = 0.056 Fsq=2021

SSB (2023)= 95 770 > MSY_{Btrigger} (75 037) F_{MSY}= 0.12



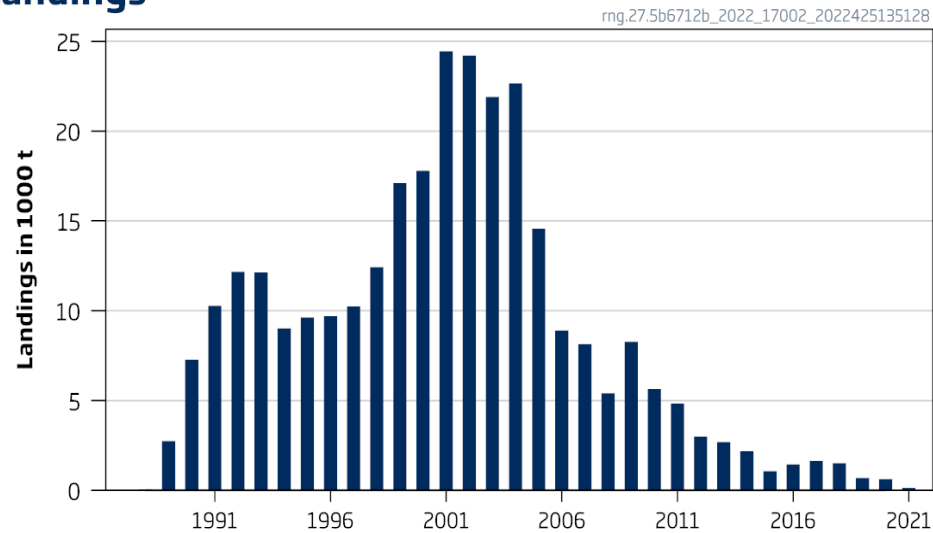
Rationale	Catch (2023)	F (2023)	SSB (2024)	% SSB change*	% advice change^
ICES advice basis					
MSY approach (F = F _{MSY})	10 952	0.12	90 298	-5.7	1
Other scenarios					
F _{pa}	10 952	0.12	90 298	-5.7	1
F ₂₀₂₁ = 0	0	0	106 655	5.6	-100
F ₂₀₂₁ = F _{lim}	15 161	0.17	86 136	-10.1	40
SSB (2024) = B _{pa} = MSY B _{trigger}	26 411	0.32	75 037	-21.6	144
SSB (2024) = B _{lim}	48 895	0.67	54 000	-43.6	351
F ₂₀₂₃ = F _{sq} = F ₂₀₂₁	5 237	0.056	95 958	0.2	-52

Catch scenario table for 2023

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

Advice for 2023 and 2024, PA: Catch \leq 3 177 t no change

Landings

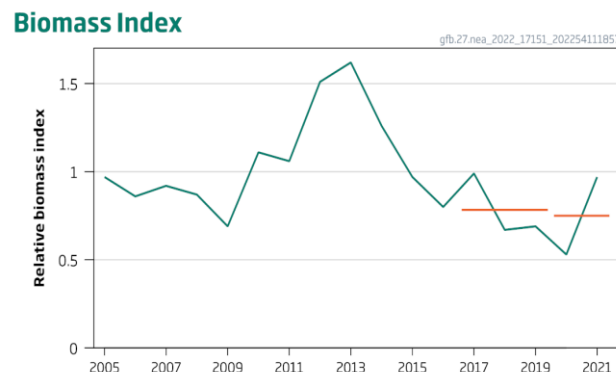
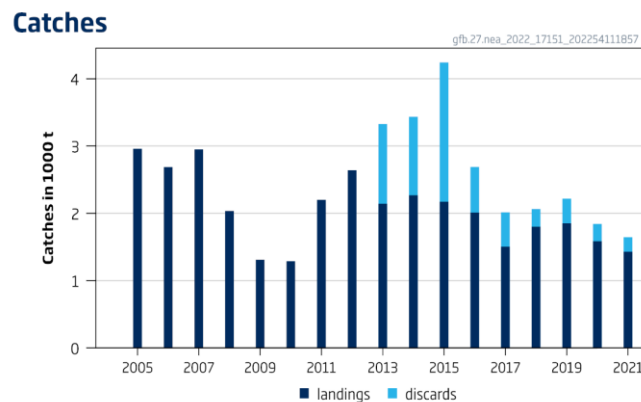


- Landings (2021) =140 t
- Cannot assess status
- Ban on fishing with bottom trawls in EU waters deeper than 800 m
- Less fishing activity
- PA buffer not applied

Advised catches for 2021–2022, issued in 2020	3177 tonnes
Discard rate (average 2019–2021)	Negligible
Precautionary buffer	Not applied -
Catch advice **	3177 tonnes
Landings corresponding to the catch advice***	3177 tonnes
% advice change^	0%

Greater forkbeard Subareas 1-10, 12, 14 Northeast Atlantic and adjacent waters

Advice for 2023 and 2024, PA: Catch \leq 818 t advice -5%



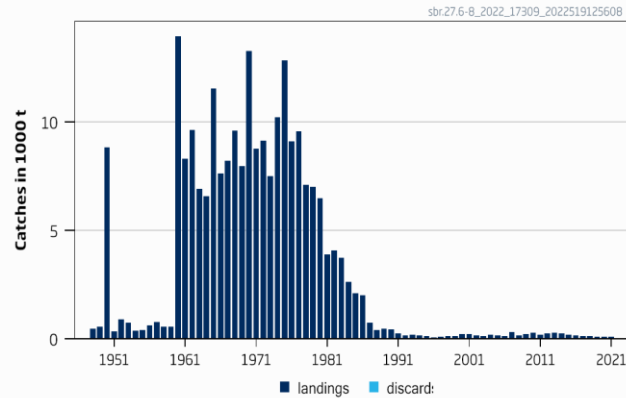
- Landings (2021) = 1429 t
- Poor discard sampling
- Cannot assess status
- 2 over 3 rule

Index A (2020–2021)		0.75
Index B (2017–2019)		0.79
Index ratio (A/B)		0.95
Uncertainty cap	Not applied	
Advised landings for 2021–2022 issued in 2020		861 tonnes
Discard rate (average 2019–2021)		Not fully quantified
Precautionary buffer	Not applied	
Landings advice **		818 tonnes
% advice change ***		-5%

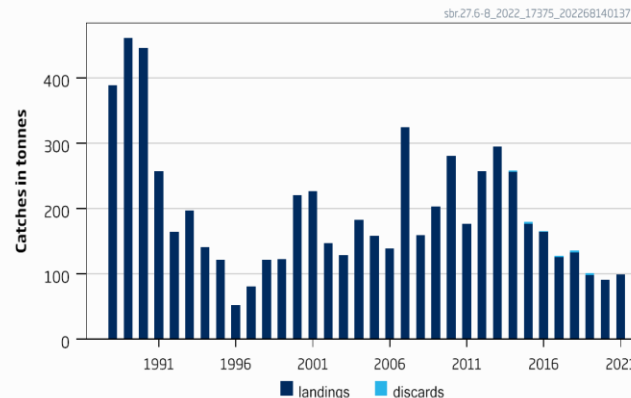
Blackspot seabream subareas 6-8 Celtic Seas, English Channel, Bay of Biscay

Advice for 2023 and 2024, PA: Zero Catch – no change

Catches



Catches since 1988



- Landings (2021) =99 t
- Cannot assess status
- No information clearly indicating exploitation level appropriate

Advised catches for 2021–2022 issued in 2020	0 tonnes
Discard rate	Negligible
Precautionary buffer	Not applied -
Catch advice	0 tonnes
% advice change*	0%



**Thank you
for your
attention!**

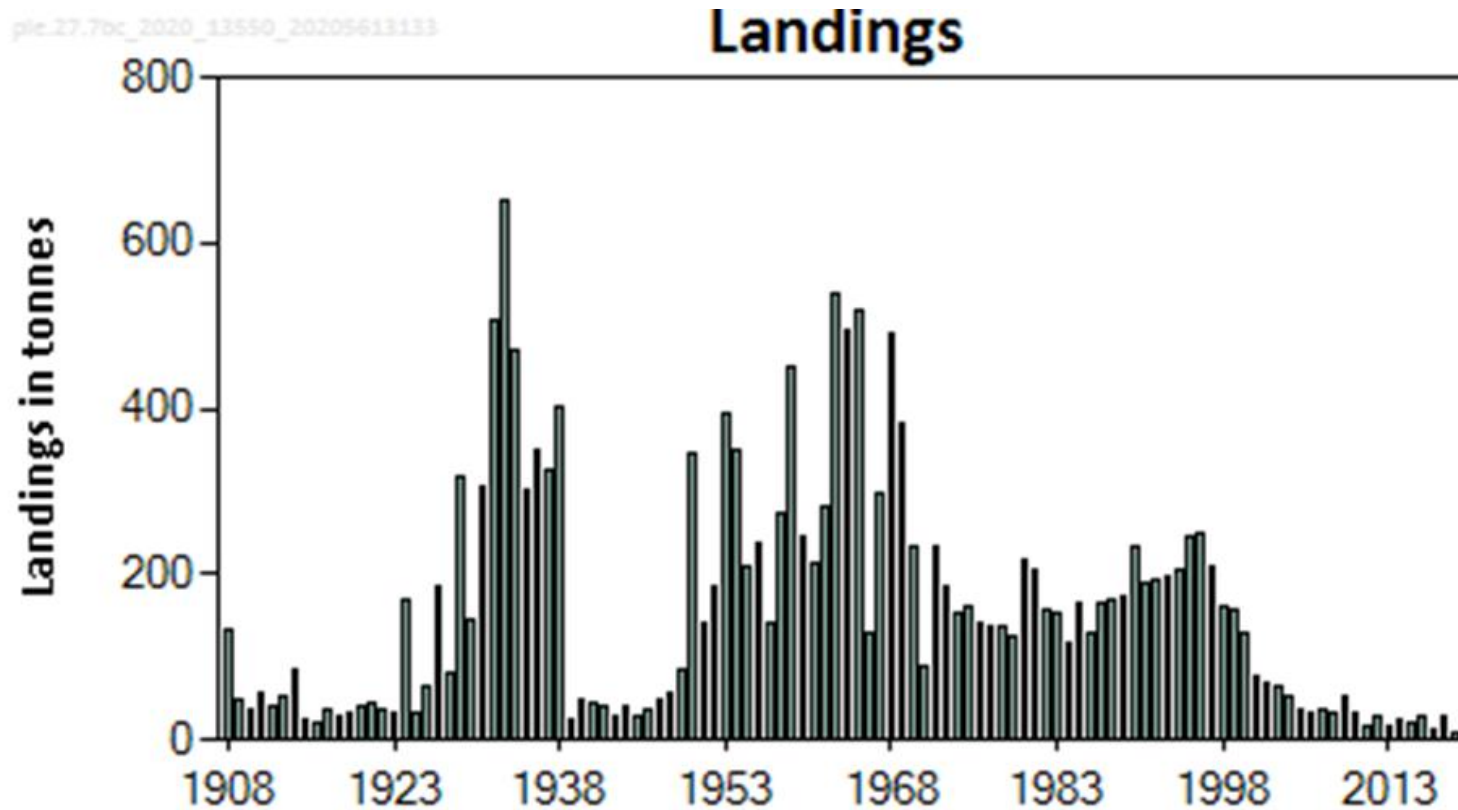
Joanne.Morgan@ices.dk



Science for sustainable seas

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

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

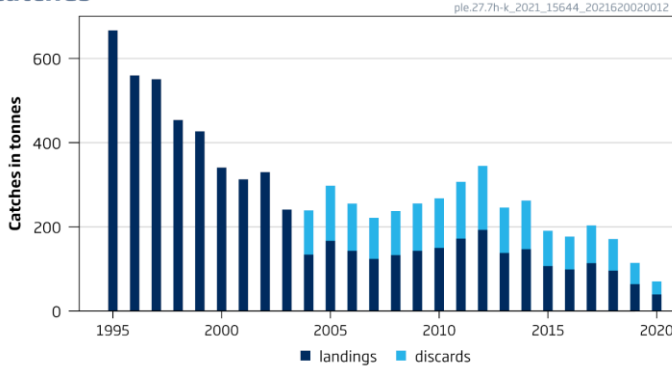


- Advice issued in 2020.
- State of the stock unknown.
- Landings in 2019 = 9 t
- Discards rates uncertain.
- Precautionary reduction in advised catches from 24 t to 19 t.

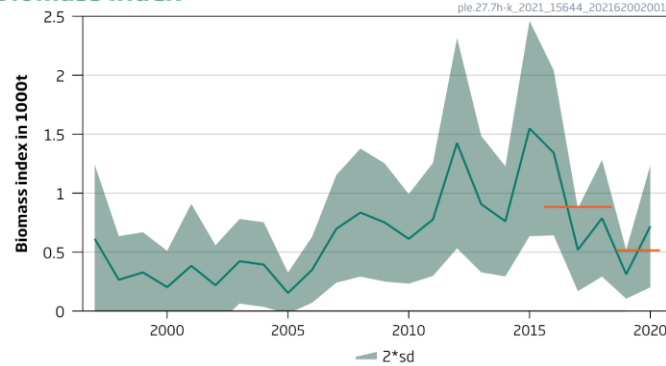
Plaice in the Celtic Sea South, southwest of Ireland (7.h-k)

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.

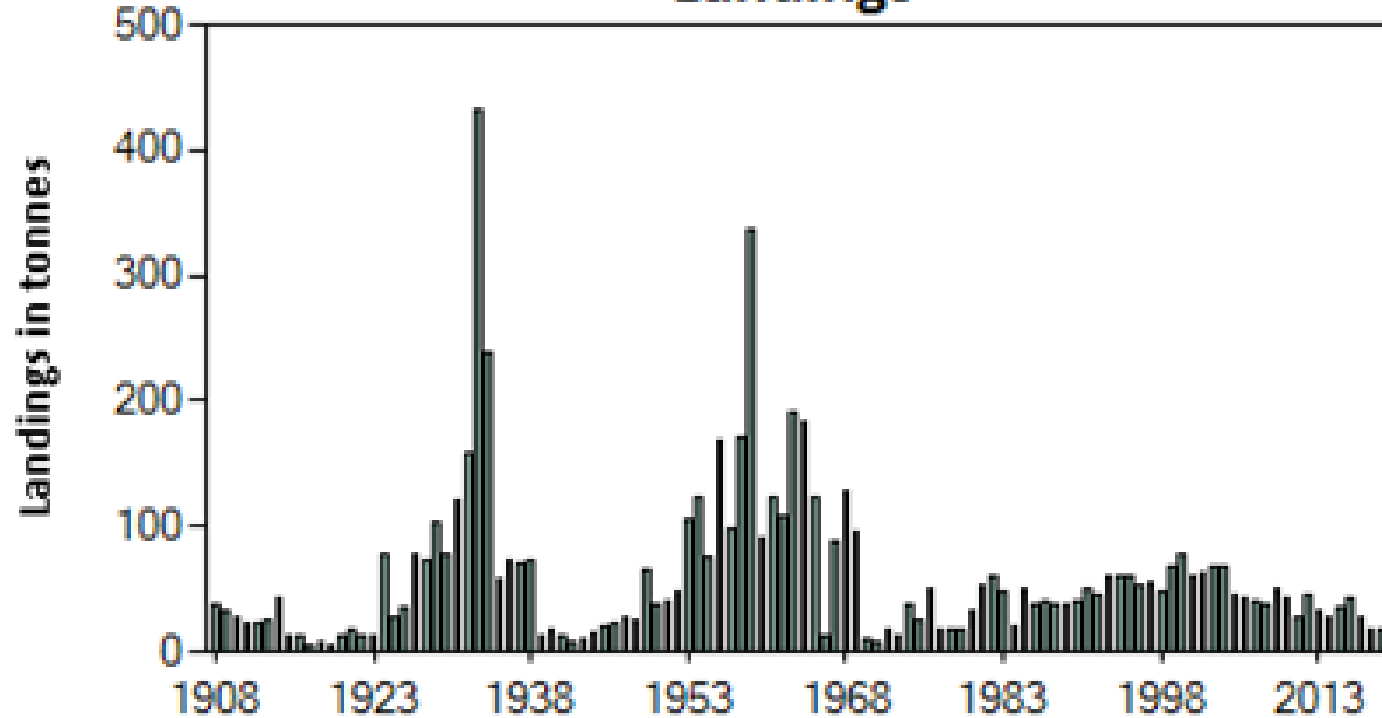
Index A (2019, 2020)	516	
Index B (2016, 2017, 2018)	883	
r: Index ratio (A/B)	0.58	
m: Multiplier to maintain the biomass above B_{lim} to with 95% probability	0.95	
f: Multiplier for relative mean length in catches ($L_{mean}/L_{F=M 2020}$)	1.03	
b: Multiplier for index relative to trigger ($I_{2020}/I_{trigger}$; $I_{trigger} = I_{loss} * 1.4 = 1.05$)	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 **	-	

Sole in the West of Ireland (7.bc)

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

sol.17.7bc_2020_13627_202001111352

Landings

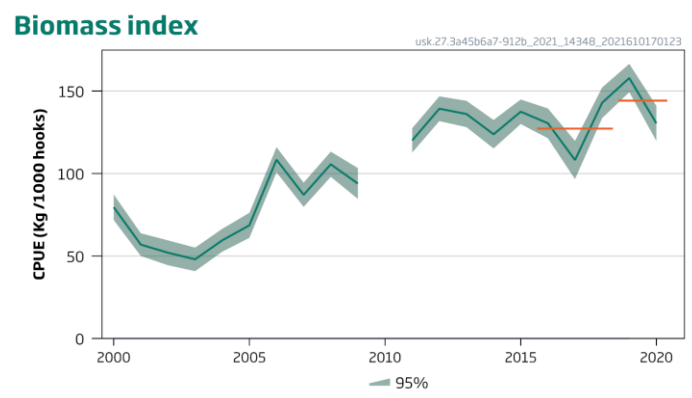
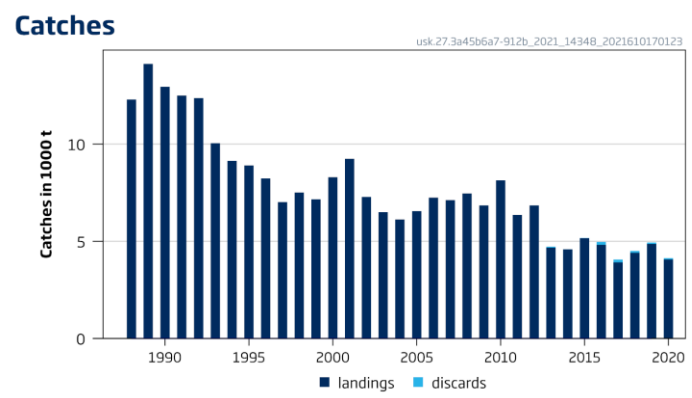


- Advice issued in 2020.
- State of the stock unknown.
- Landings in 2019, 18 t; discards considered negligible.
- Precautionary reduction advised from 24 t to 19 t.

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

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



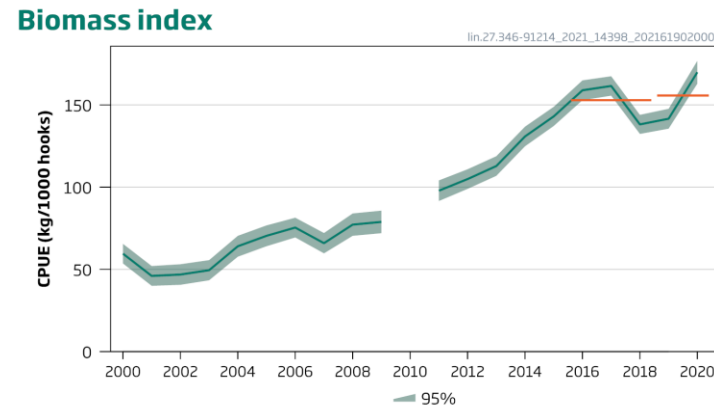
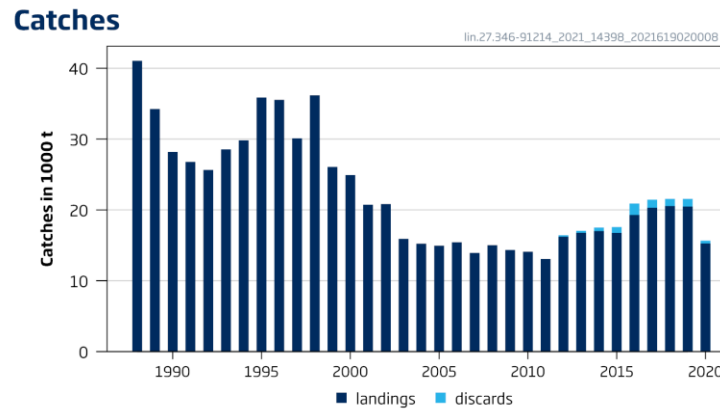
Catch (2020) = 4 134 t (2% discards)

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)

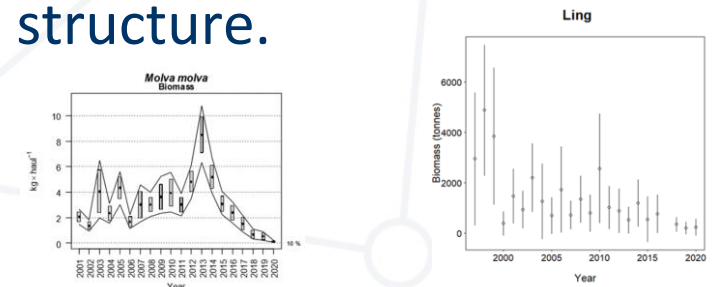
Advice for 2022 and 2023, PA: Catch \leq 15 092 t



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

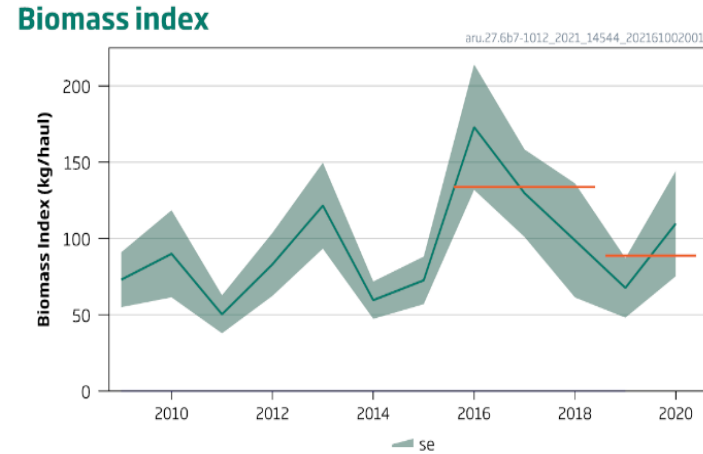
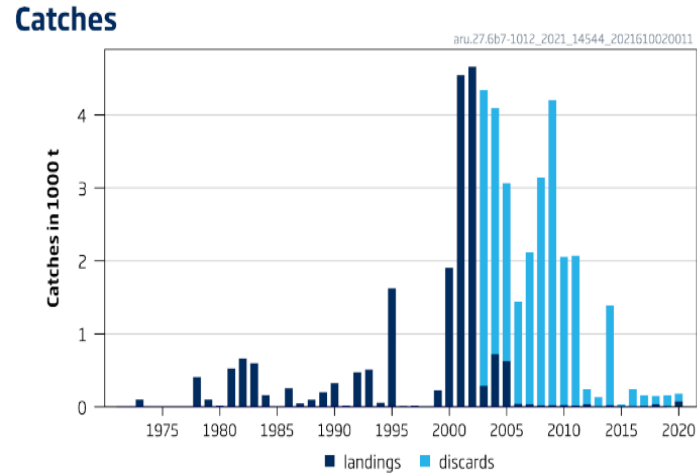
- Landings have been lightly higher in the last 3 years.
- Discards have declined in 2017-2018
- Catch per unit effort (cpue) based on the Norwegian longline fleet is high.
- Low abundance in Subarea 7 and 8.
- Uncertainty about the stock structure.

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%



Greater Silver Smelt subareas 7-10, 12 and division 6b other areas

Advice for 2022 and 2023, PA: Catch \leq 124t Landings \leq 28 t



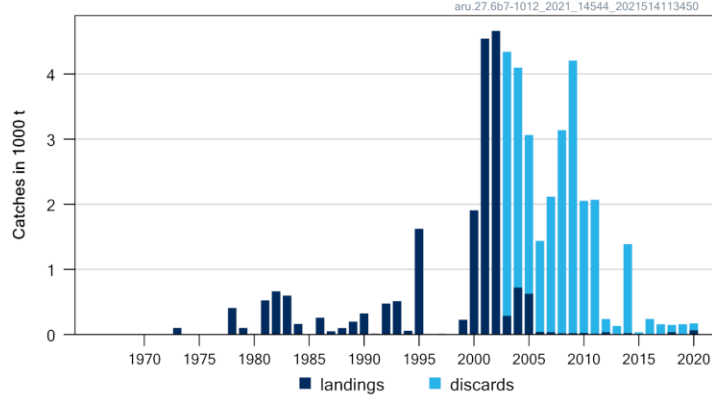
Cannot assess status
2 over 3 rule
Catch (2021) 183 t – 58% discards

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%

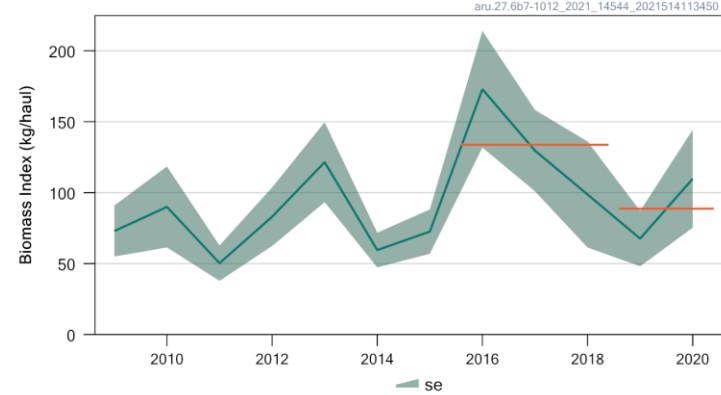
Greater silver smelt in other areas (7–10 and 12, 6.b)

Advice for 2022 and 2023, PA: Catches \leq 124 t advice -36%

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%	