ICES advice for North Western Waters stocks for 2024

NWWAC meeting, July 3, 2022

ENGLISH CHANNEL

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Science for sustainable seas

Image Dirk Vonten, Fotolia

Introduction – English Channel

- Includes advice released up to 30 June 2023.
- 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 changes to advice rules documented in sheets
- Advice to be released in the autumn: cod 4, 7.d, Skagerrak; rays and skates
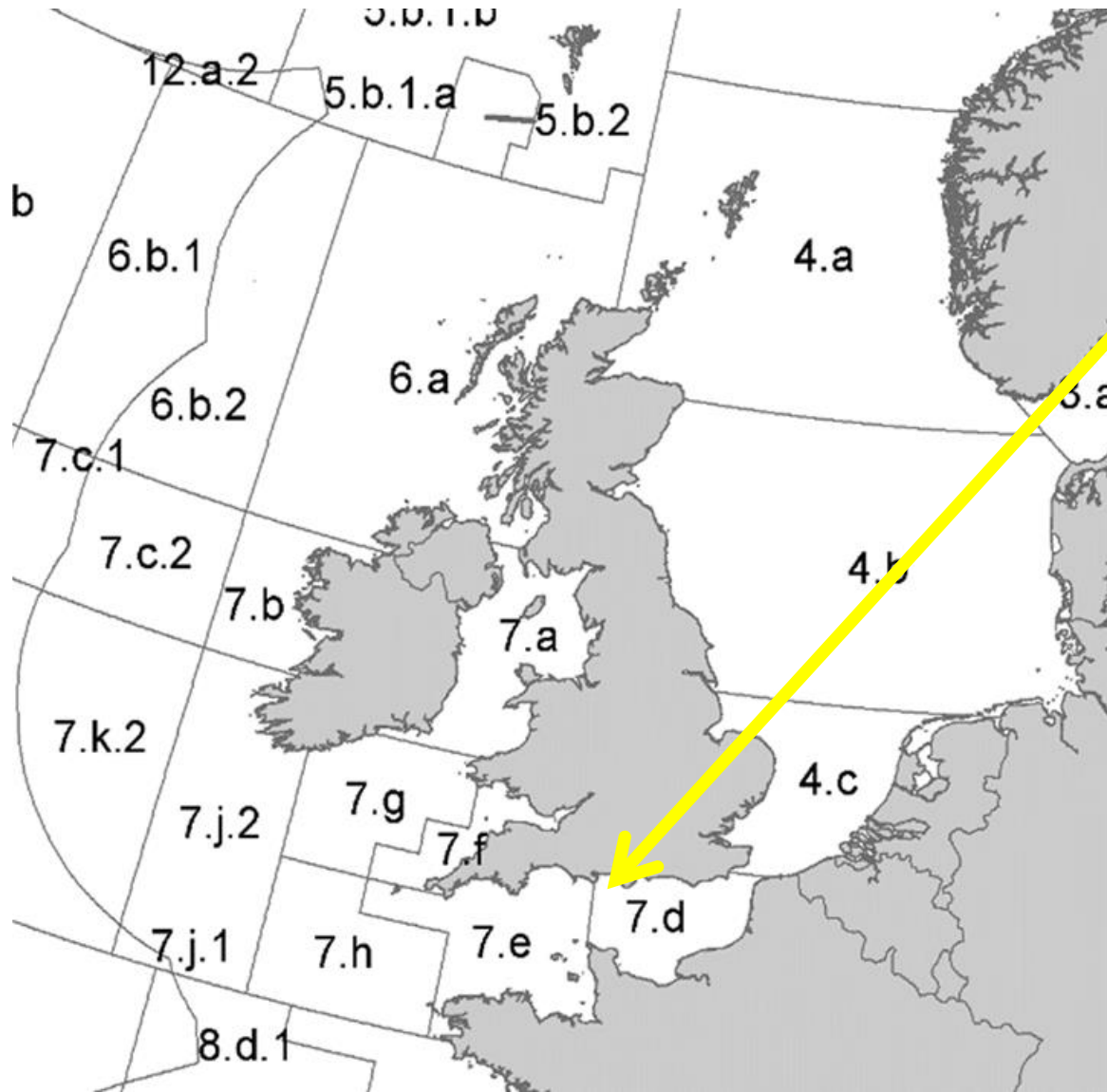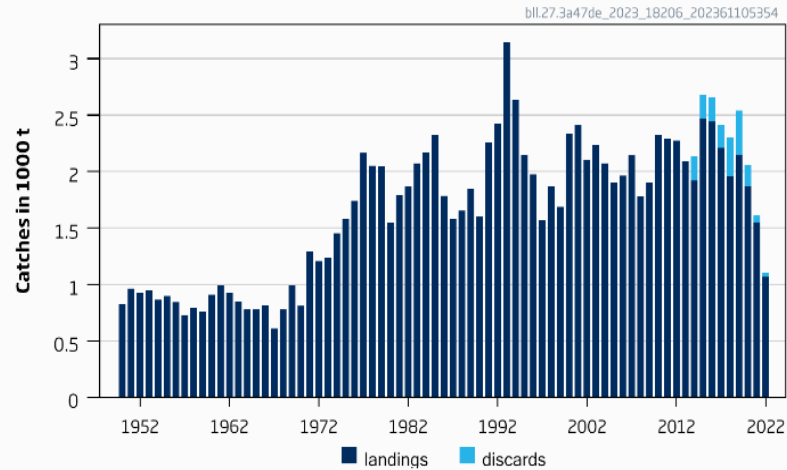
- Brill (3a, 4, 7d)
- Lemon sole (3a,4,7d)
- Plaice (7.d)
- Plaice (7.e)
- Sea bass (4.bc, 7.a,d-h)
- Sole (7.d)
- Sole (7.e)
- Sprat (7.de)
- Striped red mullet (4,7.d,3.a)
- Whiting (4,7.d)
- Advice delayed
  - Cod (4, 7.d, Skagerrak)
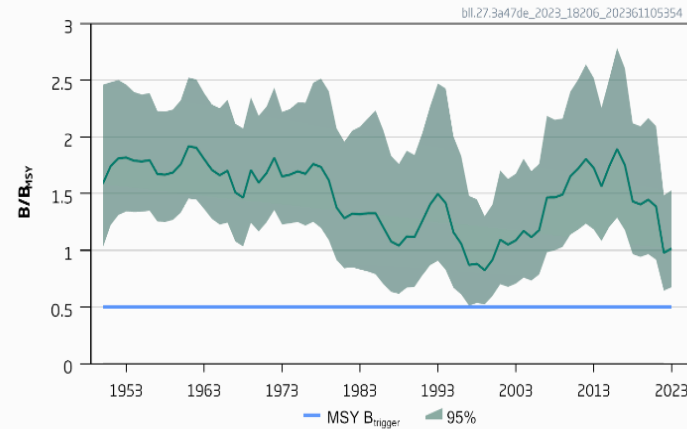- Autumn
  - Rays and skates

Advice for 2024, MSY: Catch ≤ 2456 t advice +87%

Catches

bll.27.3a47de_2023_18206_202361105354

■ landings ■ discards

Relative exploitable biomass

bll.27.3a47de_2023_18206_202361105354

— MSY $B_{trigger}$ ▨ 95%

Relative fishing pressure

bll.27.3a47de_2023_18206_202361105354

— F_{MSY} ▨ 95%
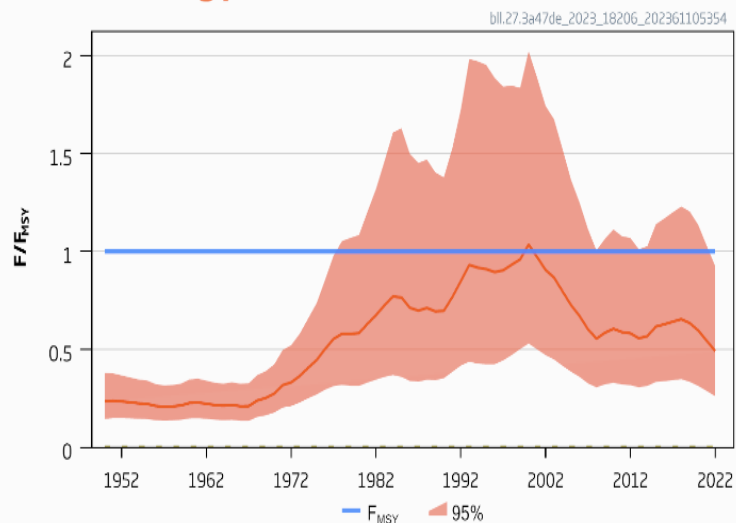
- Benchmark – SPiCT – 3 indices covering whole area (11 surveys); no longer using LPUE which covered only part of area
- Catches have been declining since 2019
- F also declining, below Fmsy
- Stock size declining since 2016, remains above MSY Btrigger

Management of brill and turbot fisheries under a combined species TAC prevents effective control of the single-species exploitation rates and could lead to the overexploitation of either species. ICES advises that management should be implemented at the species level and cover the entire stock distribution area (Subarea 4 and divisions 3.a and 7.d–e).

Table 2   Brill in Subarea 4 and divisions 3.a and 7.d−e. Annual catch scenarios. Weights are in tonnes.

| Basis	Total catch (2024)*	Projected landings (2024)	Projected discards (2024)**	Fishing mortality F_{2024}/F_{MSY}	Stock size B_{2025}/B_{MSY}	% B change ***	% Advice change^
ICES advice basis							
MSY approach (35th percentile of predicted catch distribution under F = F_{MSY})	2456	2326	130	0.91	1.15	−1.40	87
Other scenarios							
F_{MSY}	2657	2516	141	1.00	1.12	−3.8	102
F = F_{2023}	1404	1330	74	0.49	1.29	11	6.8
F = 0	0	0	0	0	1.48	27.2	−100

* (Projected landings)/(1-average discard rate); average discard rate by weight 2020−2022 = 5.3%.

** Including below minimum size (BMS) landings. Assuming average discard rate by weight 2020−2022 = 5.3%.

Catch (2021) =1101 t (3 % discards) − 517 t in 7.de

Advice for 2023, MSY: Catch ≤ 22 946 t advice +61%

Catches

Recruitment (age 1)

Fishing pressure

Spawning Stock Biomass
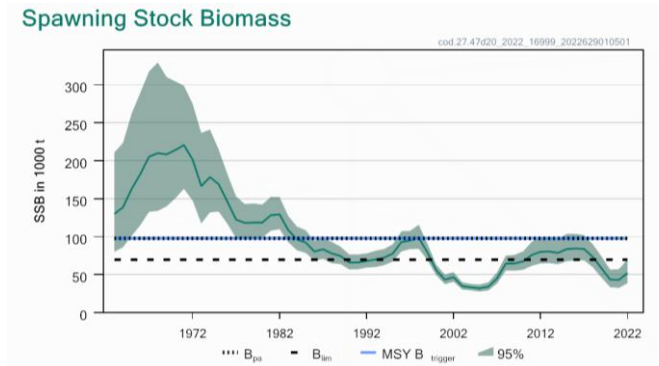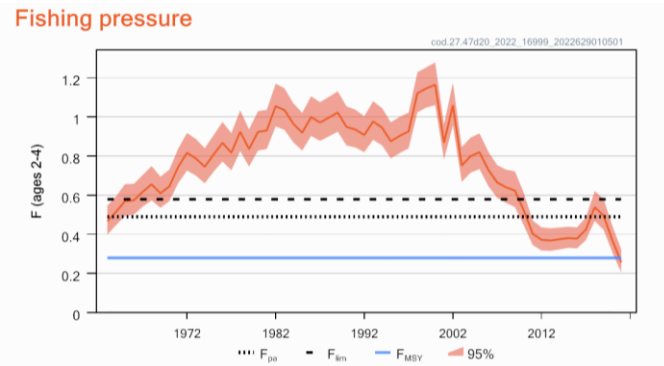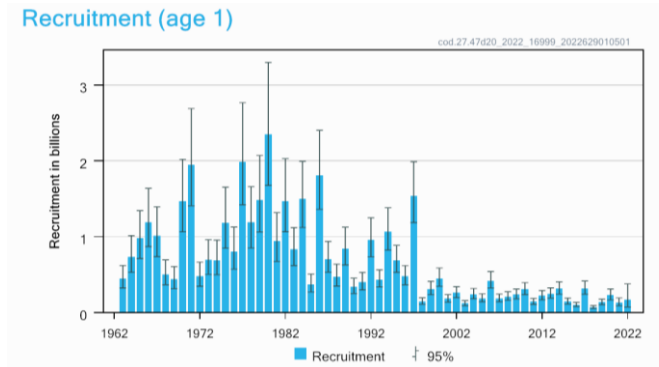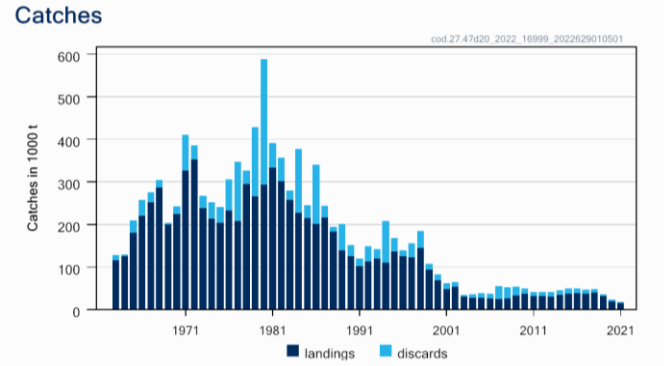
Advice for 2024 delayed until September - benchmark

Advice for 2024, MSY: Catch ≤ 2072 t advice -30%
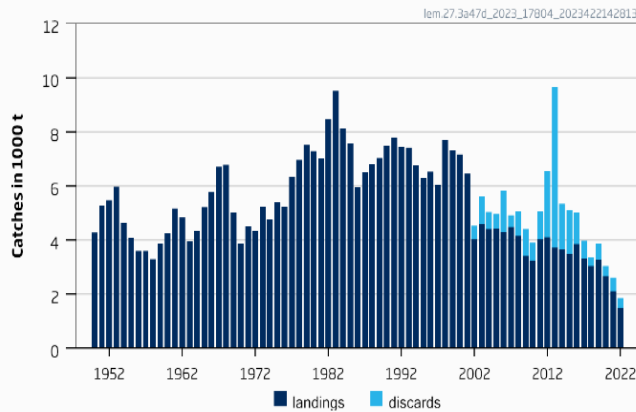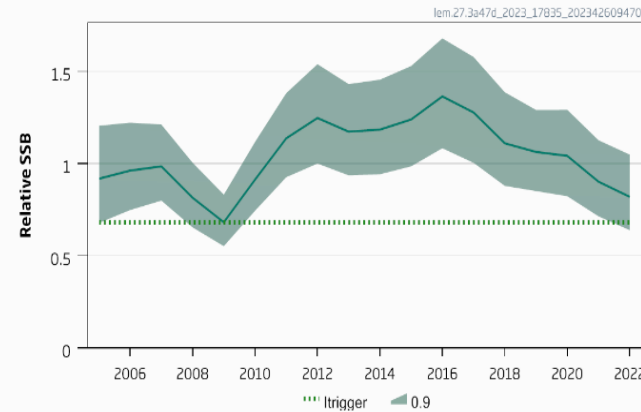
- DLS method – chr –stability clause (-30%) applied
- Catches declining since; 2016 F below FMSY proxy
- Stock size indicator (now SURBAR) declining but above Itrigger
- SURBAR used to combined indices this year

Catch (2022) =1851 t (19% discards); landings of 74 t in 7.d

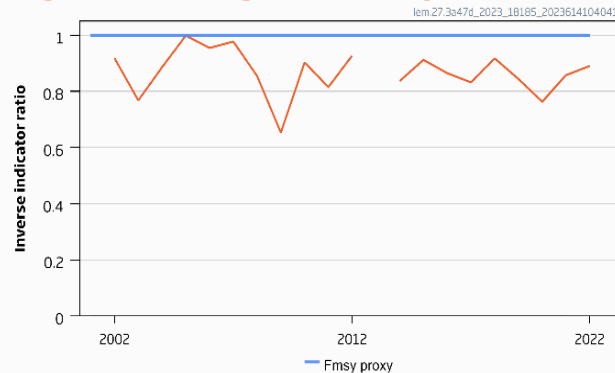**Management of lemon sole and witch flounder fisheries under a combined species TAC prevents effective control of the single-species exploitation rates and could lead to the overexploitation of either species. ICES advises that management should be implemented at the species level and cover the entire stock distribution area (Subarea 4 and divisions 3.a and 7.d).**

Table 1   Lemon sole in Subarea 4 and divisions 3.a and 7.d. The basis for the catch scenarios.*
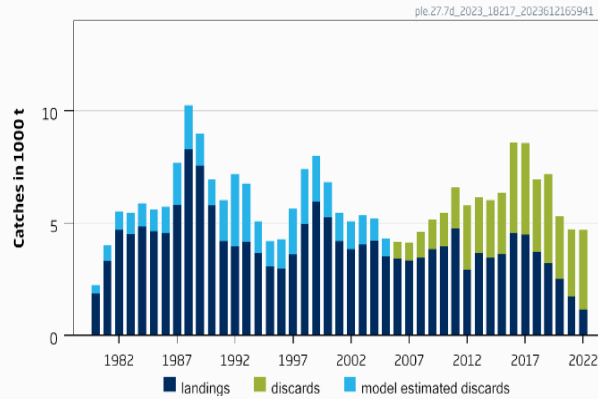
Previous catch advice A_y (advised catch for 2023)		2960 tonnes
Biomass index		
I: most recent biomass index (I_{2022})		0.82
MSY proxy harvest rate		
$HR_{MSY\ proxy}$: MSY proxy harvest rate (average of the ratio of catch to biomass index for the years for which f>1, where f = $L_{mean}/L_{F=M}$)		4120
Biomass safeguard		
Index trigger value ($I_{trigger}$)		0.682
b: index relative to trigger value, min{$I_{2022}/I_{trigger}$, 1}		1
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability		
m: multiplier (generic multiplier based on life history)		0.5
CHR calculation**		1689 tonnes
Stability clause (+20%/−30% compared to A_y, only considered if b=1)	Applied	
Catch advice A_{y+1} for 2024**		2072 tonnes
% advice change***		−30%

Formula: $A_{y+1} = I \times HR_{MSY\ proxy} \times b \times m$, stability clause applied
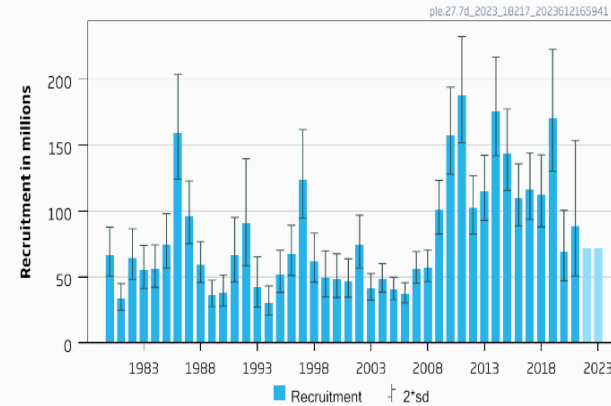
Advice for 2024, MSY: Catch ≤ 2367t advice -50%

- Part of the catches in 7d are from the Western Channel and North Sea: advice is **2826 t** when taking other stocks caught in 7.d into account
- F decreased last few years; above Fmsy
- SSB decreasing since 2016 below MSY $B_{trigger}$
- Lower advice: decreased recruitment, downward revision of SSB and change in target F as SSB below trigger
- No UK-BTS in area in 2022 increasing uncertainty on recruitment estimate and not used in forecast
- Planned survivability roadmap

Catch (2022) : 6380 t for the plaice 7d stock (81 % discards); 7520t in 7d area
F(2023) = 0.187 (Average (2020-2022));
SSB (2024)= 28864 t< MSY$_{Btrigger}$ (37761t)   F$_{MSY}$= 0.156   AAP assessment

| Basis	Division 7.d plaice stock									All plaice in Division 7.d#				
	Total catch (2024)^	Projected landings (2024)	Projected discards* (2024)	F$_{total}$ (ages 3−6) (2024)	F$_{projected landings}$ (ages 3−6) (2024)	F$_{projected discards}$ (ages 3−6) (2024)	SSB (2025)	% SSB change **	% advice change$	Total catch (2024)	Projected landings (2024)	Projected discards* (2024)	% change in projected catches^^	% advice change##
ICES advice basis														
MSY approach: F$_{MSY}$ × SSB (2024)/MSY B$_{trigger}$	2367	1058	1309	0.119	0.029	0.090	29 594	2.5	−50	2826	1263	1562	−62	−50
Other scenarios														
F = F$_{MSY lower}$ × SSB (2024) / MSY B$_{trigger}$	1737	777	960	0.086	0.021	0.065	30 449	5.5	−63	2074	927	1146	−72	−63
F$_{MSY lower}$	2249	1005	1243	0.113	0.028	0.085	297 54	3.1	−53	2684	1200	1484	−64	−53
F$_{MSY}$	3052	1364	1688	0.156	0.038	0.118	28 668	−0.68	−36	3643	1628	2015	−52	−36
F = 0	0	0	0	0	0	0	32 828	13.7	−100	0	0	0	−100	−100
F$_{pa}$	4510	2014	2496	0.238	0.058	0.180	26 714	−7.5	−4.8	5383	2403	2980	−28	−5.1
F$_{lim}$	6836	3047	3789	0.381	0.093	0.29	23 644	−18.1	44	8160	3637	4523	8.5	44
SSB (2025) = B$_{lim}$	4185	1869	2316	0.22	0.054	0.166	27 147	−5.9	−11.7	4996	2231	2765	−34	−11.9
SSB (2025) = B$_{pa}$ = MSY B$_{trigger}$ ###														
F = F$_{2023}$	3611	1613	1998	0.187	0.046	0.141	27 917	−3.3	−24	4310	1925	2384	−43	−24

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
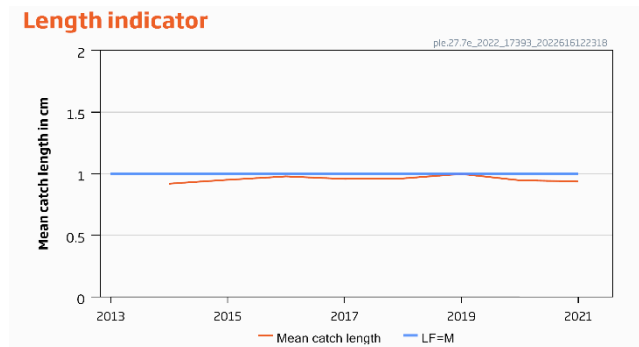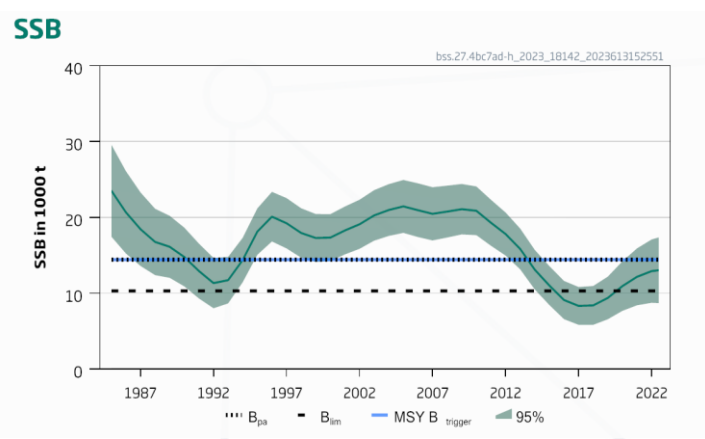
Advice for 2023 and 2024, MSY: Catch ≤ 1 219 t

No new advice this year
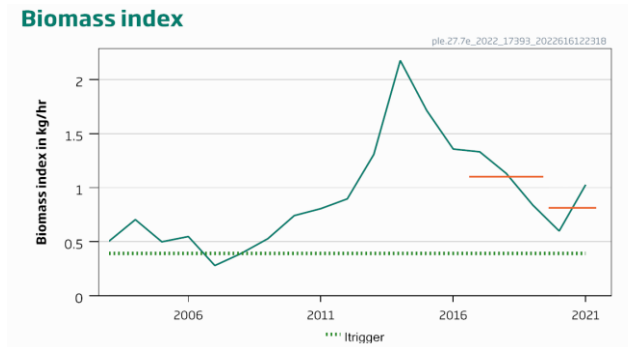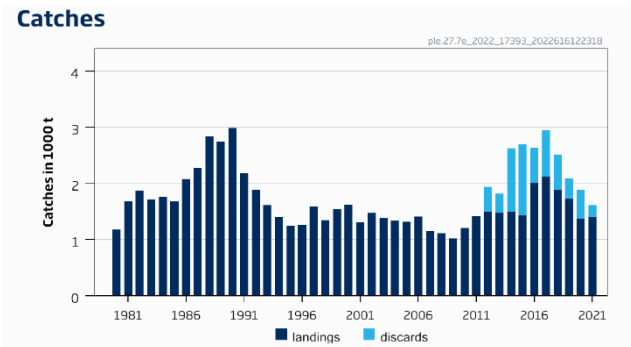
- Planned for survivability roadmap

Advice for 2024, MSY: total removals ≤ 2 432 t: advice -4%

Catches

Recruitment (age 0)

F

SSB
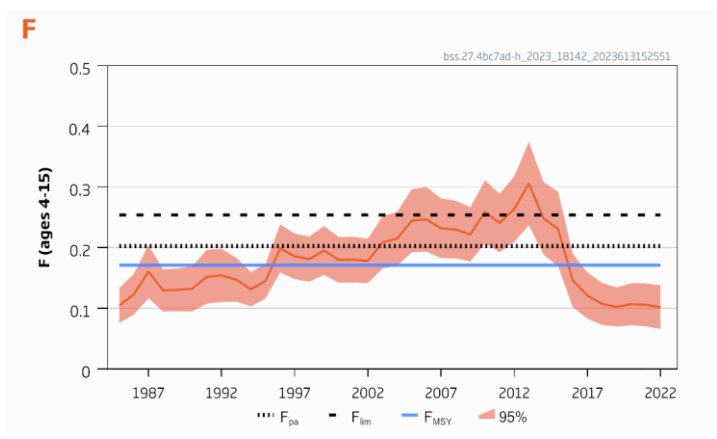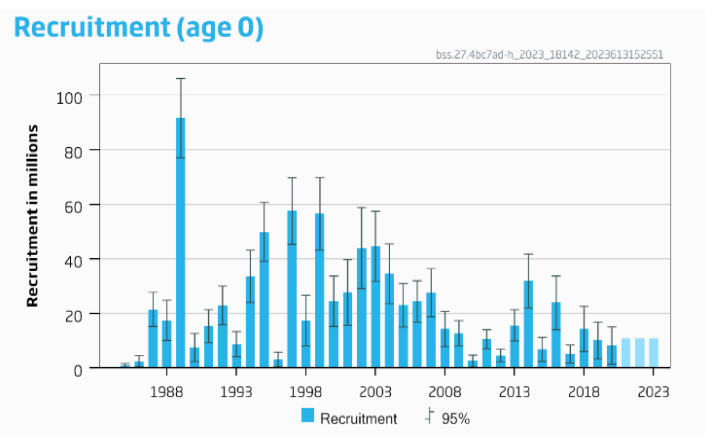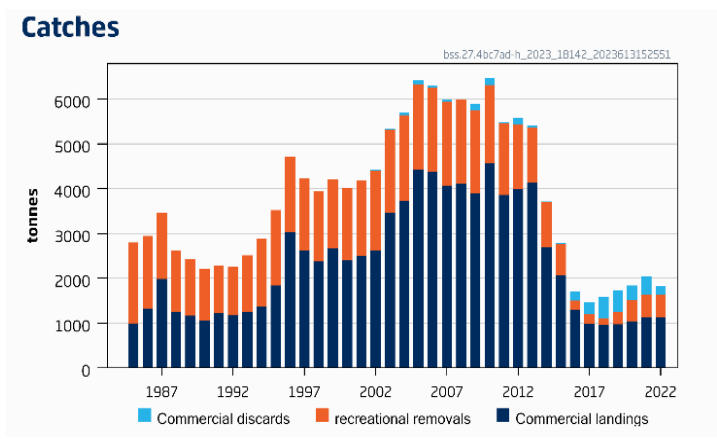
- Spawning stock below MSY Btrigger leading to target F in advice < Fmsy
- Fishing pressure is below F_{MSY}
- Under advised catch, stock expected to decrease slightly remaining below MSY Btrigger
- Benchmark planned

EU MAP : total removals: 2042– 2432t (F_{MSY}: 2683t)

Catch 2022: 1831 t (1126 t commercial, 196 t discards and 509 t recreational)
F (2023)= 0.105 (Fsq for commercial fishery and full compliance in recreational)
SSB(2024) = 12 978 t > B_{lim} 10 313 t but < MSY $B_{trigger}$= 14 439 t F_{MSY} = 0.1713

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

| Basis	Total removals* (2024)	F_{total} (2024)	SSB (2025)	% SSB change**	% advice change ***
ICES advice basis					
MSY approach: $F = F_{MSY} \times SSB_{2024}/MSY B_{trigger}$	2432	0.154	11975	−7.7	−4.3
EU MAP^: $F_{MSY} \times SSB_{2024}/MSY B_{trigger}$	2432	0.154	11975	−7.7	−4.3
EU MAP^: $F_{MSY\ upper} \times SSB_{2024}/MSY B_{trigger}$	2432	0.154	11975	−7.7	−4.3
EU MAP^: $F_{MSY\ lower} \times SSB_{2024}/MSY B_{trigger}$	2042	0.128	12304	−5.2	−19.7
$F = F_{MSY\ lower}$	2256	0.142	12124	−6.6	−11.2
$F = F_{MSY\ upper}$	2683	0.171	11764	−9.4	5.5
$F = F_{MSY}$	2683	0.171	11764	−9.4	5.5
$F = 0$	0	0	14040	8.2	−100
F_{pa}	3132	0.20	11387	−12.3	23
F_{lim}	3825	0.25	10807	−16.7	51
$SSB_{2025} = B_{lim}$	4418	0.30	10313	−21	74
$SSB_{2025} = B_{pa}$^^					
$SSB_{2025} = MSY B_{trigger}$^^					
$F = F_{2023}$	1698	0.105	12595	−3.0	−33
$SSB_{2025} = SSB_{2024}$	1247	0.076	12978	0	−51

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

Stock synthesis

Advice for 2024, MSY : Catch ≤ 1 504 t -14%
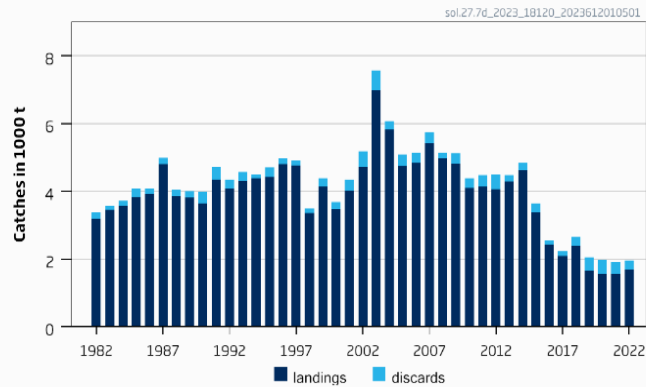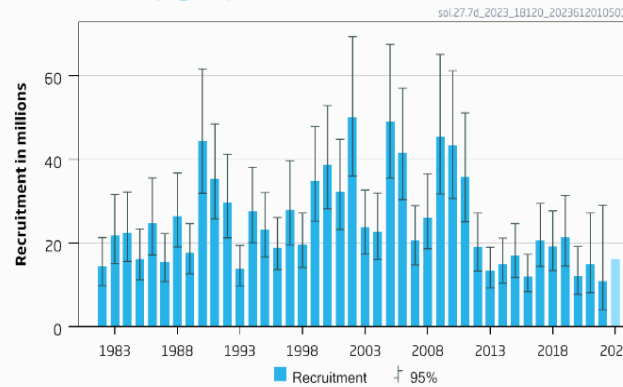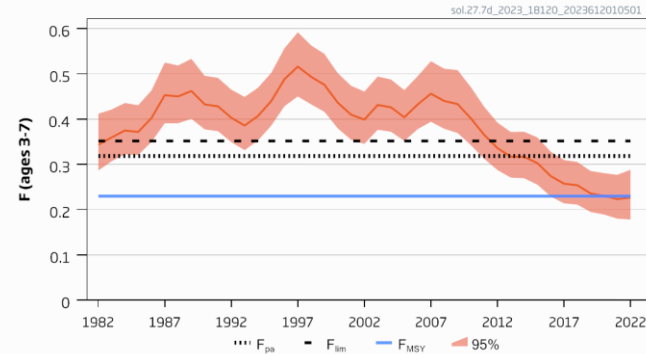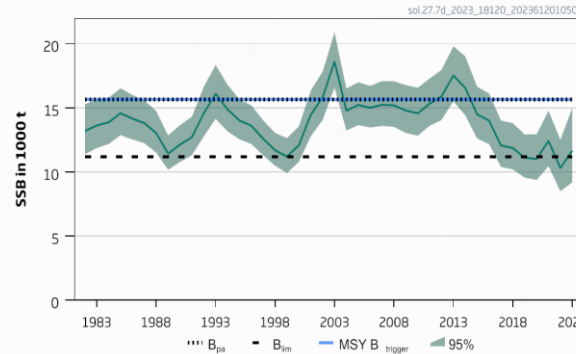
- Catches lower
- F similar 20-22: just below F_{MSY} in 2022
- SSB decreased since 2016: below MSY $B_{trigger}$
- Recruitment lower since 2011
- Two tuning fleets missing in 2022 (UK and Belgian beam trawls)– little effect
- Planned survivability roadmap

Catch (2022) : 2029 t (16% discards)
F(2023) = 0.20 (catch constraint for 2023)
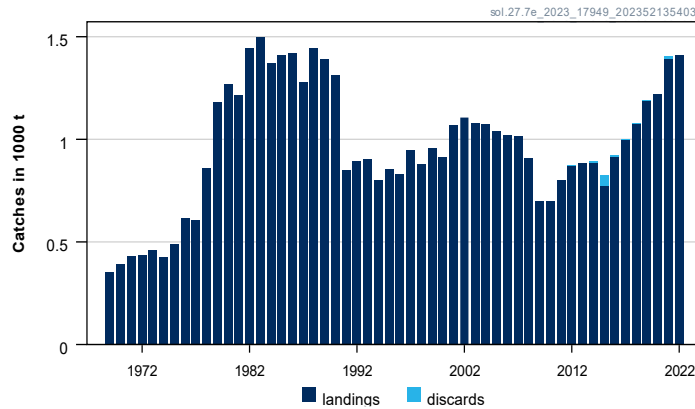**SSB (2024)= 11 849t > B_{lim} 11 181 t but < MSY $B_{trigger}$= 15 654t F_{MSY} = 0.23**

Basis	Total catch (2024)	Projected landings^ (2024)	Projected discards^^ (2024)	F_{total} (ages 3–7) (2024)	$F_{projected\ landings}$ (ages 3–7) (2024)	$F_{projected\ discards}$ (ages 3-7) (2024)	SSB (2025)	% SSB change*	% TAC change**	% advice change**
ICES advice basis										
MSY approach: $F_{MSY} \times$ SSB (2024)/MSY $B_{trigger}$	1504	1294	210	0.174	0.141	0.033	12387	4.5	−13.9	−13.9
Other scenarios										
$F_{MSY\ lower} \times$ SSB (2024)/ MSY $B_{trigger}$	1048	902	146	0.118	0.096	0.022	12922	9.1	−40	−40
F = 0	0	0	0	0	0	0	14131	19.3	−100	−100
F_{pa}	2588	2228	360	0.318	0.26	0.059	11138	-6.0	48	48
F_{lim}	2820	2427	393	0.352	0.29	0.066	10872	-8.2	61	61
SSB (2025) = B_{lim}	2552	2196	356	0.31	0.26	0.058	11181	-5.6	46	46
SSB (2025) = B_{pa} = MSY $B_{trigger}$[#]										
F = F_{2023}	1739	1499	240	0.20	0.166	0.038	12114	2.2	−0.46	−0.46
$F_{MSY\ lower}$	1361	1171	190	0.156	0.127	0.029	12551	5.9	−22	−22
F_{MSY}	1938	1670	268	0.230	0.187	0.043	11874	0.21	10.9	10.9

SAM assessment

Advice for 2024, MSY : Catch ≤ 1 057 t -24%
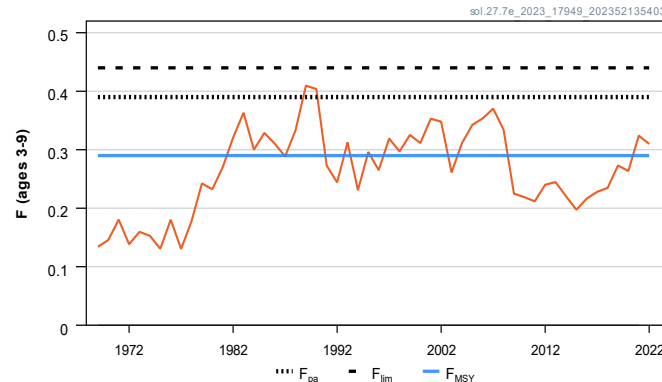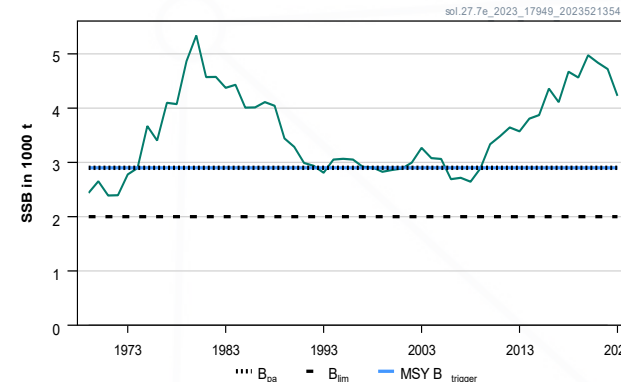
Catches

Recruitment (age 2)
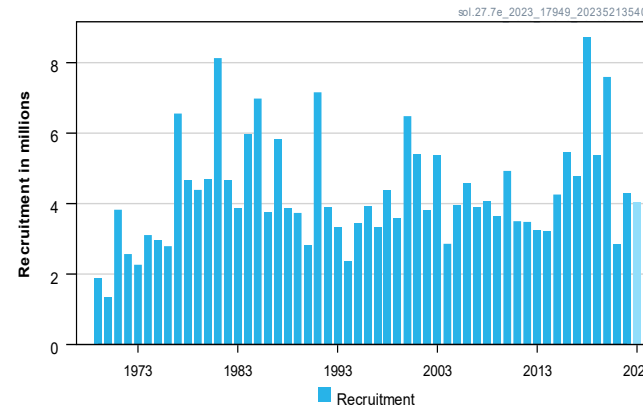
F

SSB

- Fishing pressure above F_{MSY}
- SSB above MSY $B_{trigger}$
- Recruitment variable
- SSB declining trend and revised downward (retrospective)
- One survey not completed and not used in 2022 – negligible impact

EU MAP : Catch: 620 – 1 210 t (F_{MSY}: 1 057t)

Catch (2022) : 1 412 t (<1 % discards)

**F(2023) = 0.34 (Based on assumed landings)**

SSB (2024)= 3 705 t > MSY$_{Btrigger}$ (2 900 t)   F$_{MSY}$= 0.29

| Basis	Total catch* (2024)	Projected landings (2024)	Projected discards (2024)	F$_{projected\ landings}$ (2024)	SSB (2025)	% SSB change **	% TAC change***	% advice change^
ICES advice basis								
MSY approach: F = F$_{MSY}$	1057	1052	4	0.29	3500	−5.5	−24	−24
EU MAP^^: F$_{MSY}$	1057	1052	4	0.29	3500	−5.5	−24	−24
EU MAP^^ F$_{MSY\ lower}$	620	618	2	0.160	3924	5.9	−56	−56
EU MAP^^ F$_{MSY\ upper}$	1210	1205	5	0.34	3351	−9.5	−13.2	−13.2
F = 0	0	0	0	0	4529	22	−100	−100
F = F$_{pa}$	1357	1351	5	0.39	3210	−13.4	−2.7	−2.7
F = F$_{lim}$	1496	1490	6	0.44	3075	−17.0	7.3	7.3
SSB$_{2025}$ = B$_{lim}$	2623	2613	11	0.97	2000	−46	88	88
Rollover TAC	1394	1388	6	0.40	3174	−14.3	0	0
SSB$_{2025}$ = B$_{pa}$ = MSY B$_{trigger}$	1678	1672	7	0.51	2900	−22	20	20
SSB$_{2025}$ = SSB$_{2024}$	846	842	3	0.23	3705	0	−39	−39
F = F$_{2023}$	1224	1219	5	0.34	3338	−9.9	−12.2	−12.2

FLXSA assessment

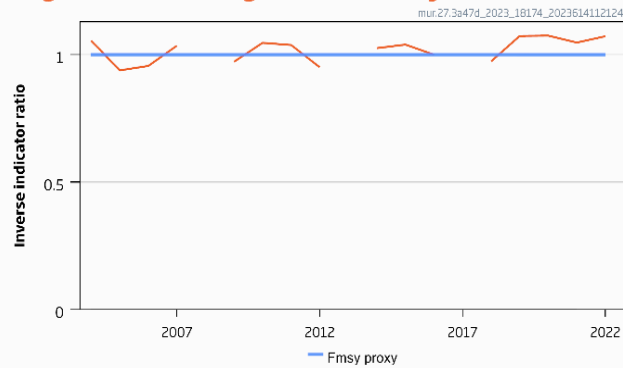## Advice for 2024 and 2025 , MSY: Catch ≤ 1 985 t +2%

Catches
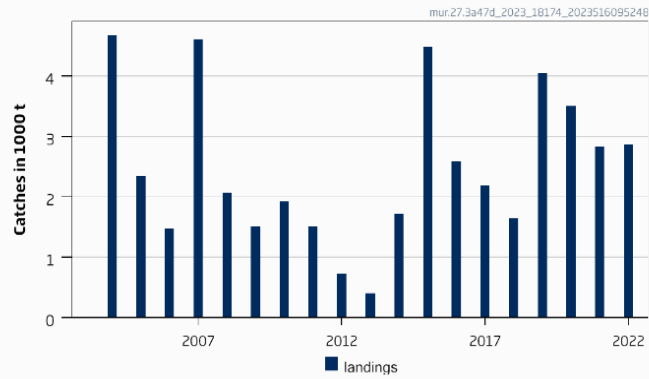
Stock size indicator
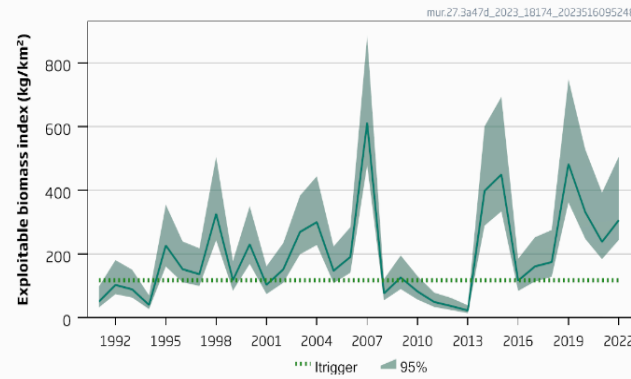
Length-based Fishing Pressure Proxy

- New DLS method - chr
- Catches remain high: F Fishing pressure proxy
- Stock size has shown some increase
- No UK-BTS in are in 2022 and 5 stations missing from FR-GFS – minimal impact

Catch (2022) : 2 866t (negligible discards)

|	
Previous catch advice A_y (advised catch for 2022 and 2023)	1950 tonnes
Biomass index	
I: most recent biomass index (I_{2022})	306.13
MSY proxy harvest rate	
$HR_{MSY\ proxy}$: MSY proxy harvest rate (average of the ratio of catch to biomass index for the years for which f>1, where f = $L_{mean}/L_{F=M}$)	12.97
Biomass safeguard	
Index trigger value ($I_{trigger}$)	117.38
b: index relative to trigger value, min{$I_{2022}/I_{trigger}$, 1}	1
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.5
CHR calculation**	1985 tonnes
Stability clause (+20%/−30% compared to A_y, only considered if b=1)	Not applied
Discard rate	0%
Catch advice A_{y+1} for 2024 and 2025**	1985 tonnes
Landings corresponding to the advice for 2024 and 2025 ***	1985 tonnes
% advice change	1.80%

$$A_{y+1} = I \times HR_{MSY\ proxy} \times b \times m$$

Advice for 2024, MSY: Catch ≤ 128 290 t advice +16.5%

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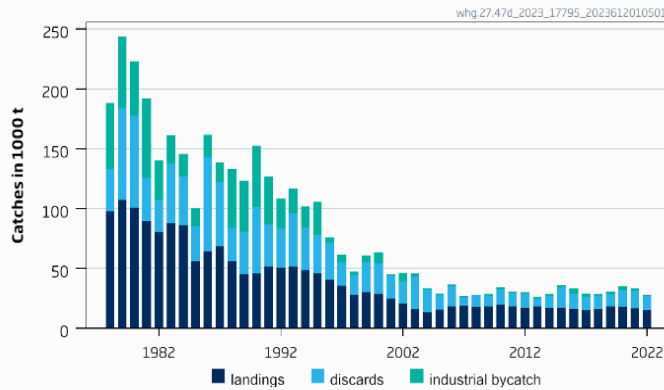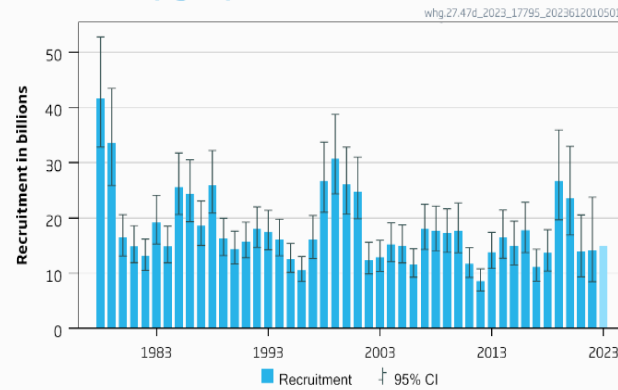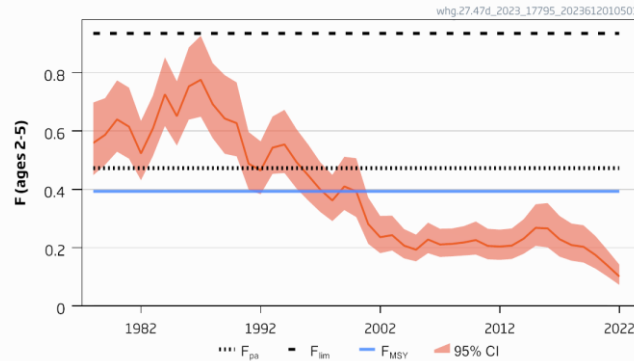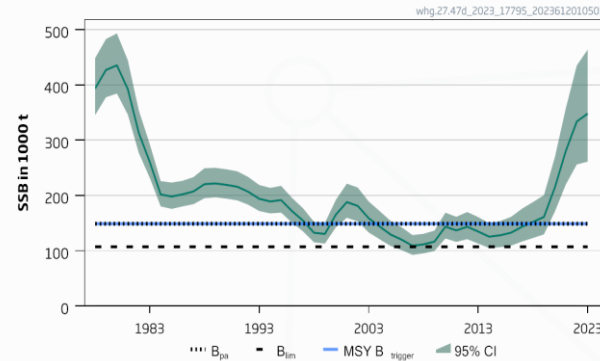
- Catches stable
- F decreasing and below F_{MSY}
- SSB increasing: above MSY $B_{trigger.}$
- 7d common TAC with 7b-c, e-k – management should be at stock level
- About 20% of the catches are taken in the Eastern Channel area.
- Increase in advice – increase in SSB and underestimation of SSB (retrospective)

Catch (2022): 27 907 t (43% discards) ; Catch of 4 742 t in 7.d
F (2023)=0.101 (Average exploitation pattern(2020-2022), scaled to 2022)
SSB(2024) = 347863 t> MSY$_{Btrigger}$ =148 888 t   F$_{MSY}$=0.393

SAM assessment

Basis	Total catch (2024)	Projected landings (2024)*	Projected discards (2024)*	Projected IBC (2024)*	Human Consumption catch (2024)	F$_{total}$ (ages 2–5) (2024)**	F$_{projected}$ landings (ages 2–5) (2024)	F$_{projected}$ discards (ages 2–5) (2024)	F$_{projected IBC}$ (ages 2–5) (2024)***	SSB (2025)	% SSB change^	% advice change^^
ICES advice basis												
MSY approach: F$_{MSY}$	128290	89707	36502	2082	126209	0.393	0.25	0.137	0.0074	268348	−23	16.5
Other scenarios												
F$_{MSY}$ upper	154187	108173	44033	1981	152206	0.473	0.30	0.165	0.0074	248162	−29	40
F$_{MSY}$ lower	95596	66393	26993	2209	93387	0.292	0.184	0.101	0.0074	293833	−15.5	−13.2
F = 0 (IBC only)	2571	0	0	2571	0	0.0074	0	0	0.0074	366442	5.3	−98
F = F$_{2023}$	53837	36616	14849	2372	51465	0.163	0.101	0.055	0.0074	326383	−6.2	−51
Rollover TAC	43995	29598	11986	2410	41584	0.133	0.083	0.046	0.0074	334055	−4.0	−60
15% TAC decrease (27.4 only)^^^	37781	25167	10180	2435	35347	0.113	0.070	0.039	0.0074	338898	−2.6	−66
15% TAC increase (27.4 only)^^^	50208	34029	13793	2386	47822	0.152	0.096	0.053	0.0074	329211	−5.4	−54
0.75 × F$_{2023}$†	26127	16857	6791	2480	23647	0.080	0.045	0.025	0.0074	347983	0.00034	−76
1.25 × F$_{2023}$†	41241	27634	11186	2421	38820	0.124	0.075	0.041	0.0074	336202	−3.4	−63
F$_{pa}$	154187	108173	44033	1981	152206	0.473	0.30	0.165	0.0074	248162	−29	40
F$_{lim}$	303741	214817	87526	1398	302343	0.935	0.60	0.33	0.0074	131587	−62	176
SSB (2025) = B$_{pa}$ = MSY B$_{trigger}$	281346	198848	81014	1485	279861	0.87	0.55	0.30	0.0074	148888	−57	155
SSB (2025) = B$_{lim}$	334854	237003	96575	1277	333577	1.03	0.66	0.36	0.0074	107146	−69	204

Advice for 2024, MSY: Catch ≤ 1 579 t advice +32%
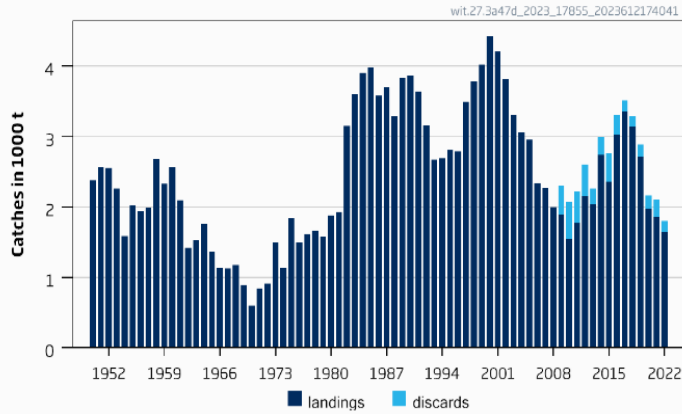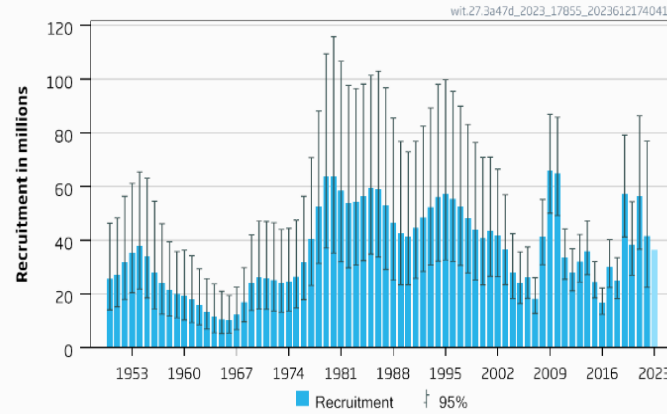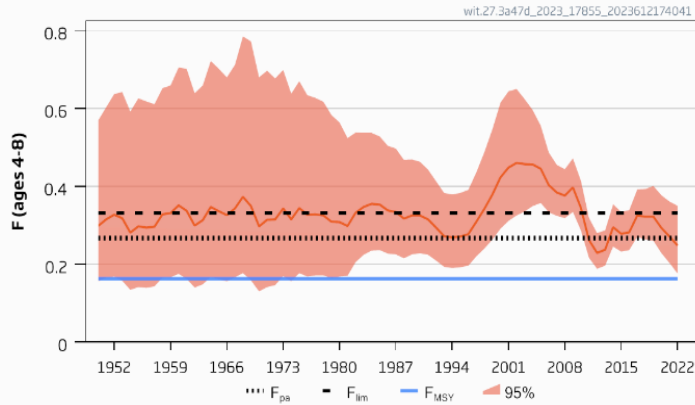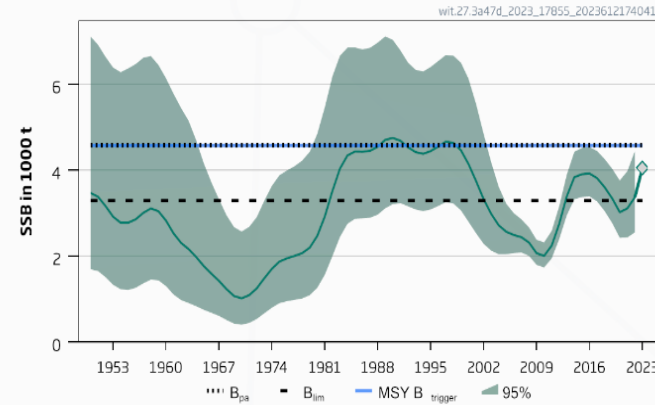
- Catches have declined
- F decreasing: above F_{MSY} below F_{PA}
- SSB some increase: below MSY $B_{trigger}$.
- Increase in advice – increase in SSB; closer to MSY Btrigger so higher F target
- Combined TAC with lemon sole – should be species specific

Catch (2022): 1 793t (11% discards) ;

F (2023)=0.25 (F 2022)

SSB(2023) = 4050 t< MSY$_{Btrigger}$ =4 576 t > Blim 3293   F$_{MSY}$=0.163

Basis	Total catch (2024)	Projected landings (2024)	Projected discards* (2024)	F_{total} (ages 4–8) (2024)	SSB^ (2024)	SSB^€ (2025)	% SSB change**	% advice change***
ICES advice basis								
MSY approach: $F_{MSY} \times$ SSB(2023)/MSY $B_{trigger}$	1579	1474	105	0.144	4987	5911	23	32
Other scenarios								
$F_{MSY\ lower} \times$ SSB(2023)/MSY $B_{trigger}$	1098	1027	71	0.098	5106	6314	26	−8.3
F = 0	0	0	0	0	5355	7244	32	−100
F_{pa}	2764	2573	191	0.267	4699	5044	16.0	131
F_{lim}	3331	3091	240	0.331	4557	4650	12.5	177
F = F_{2023}	2588	2413	175	0.25	4740	5159	17.0	116
SSB (2025) = B_{lim}	5556	5119	437	0.63	3973	3293	−1.90	360
SSB (2025) = B_{pa} = MSY $B_{trigger}$	3443	3191	252	0.34	4525	4576	11.7	187
Rollover advice	1198	1120	78	0.108	5082	6332	25	0
F_{MSY}	1770	1650	120	0.163	4941	5769	22	48
$F_{MSY\ lower}$	1233	1153	80	0.111	5073	6198	25	2.9

SAM assessment

**Thank you
for your
attention!**

www.ices.dk

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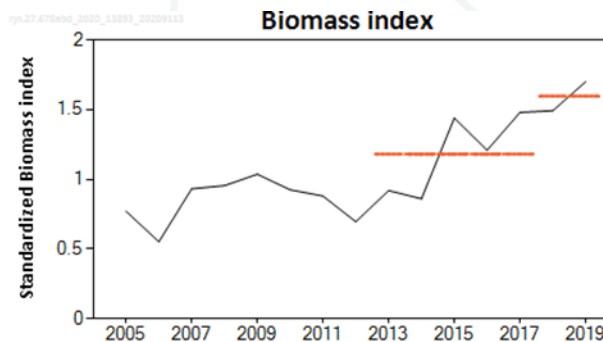ICES
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Science for sustainable seas

- ## 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
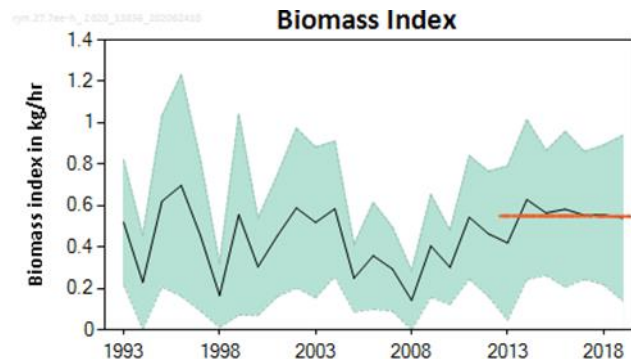
Cuckoo ray in 6, 7, 8 abd

Undulate ray in 7.de