ICES advice

Réunion du Conseil Consultatif des eaux

Occidentales australes-CC-SUD

11 July 2023

Joanne Morgan
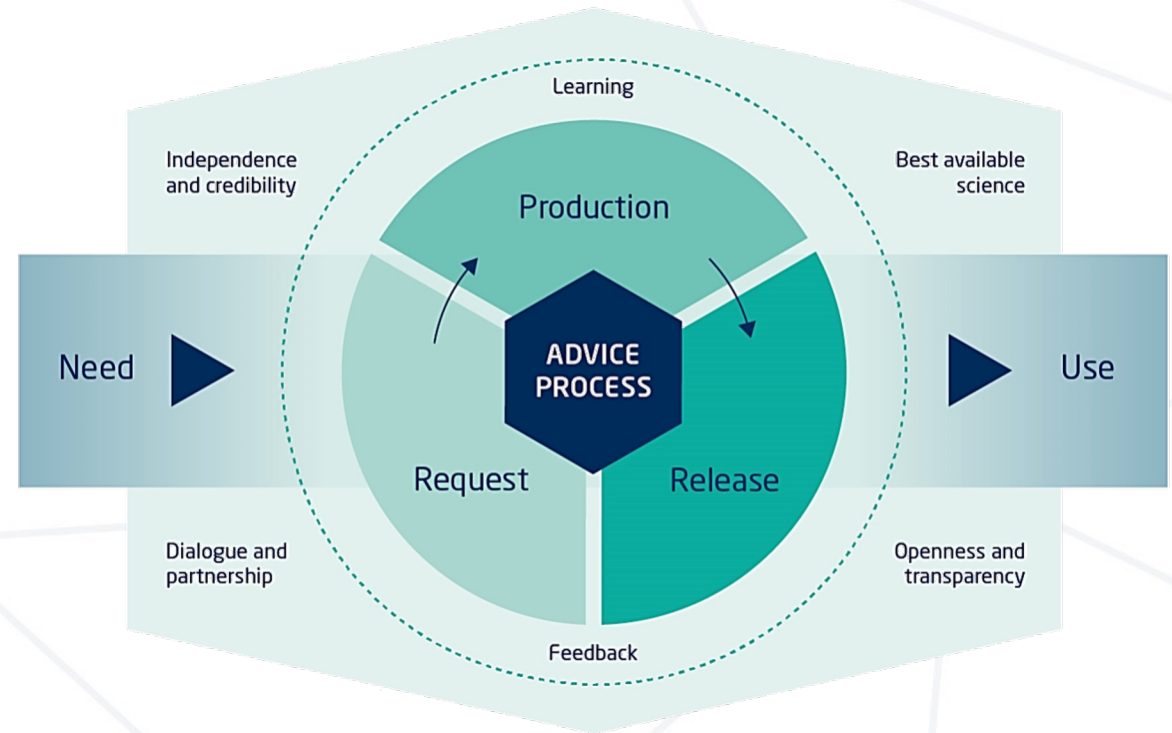
ICES ACOM vice-chair

Image Dirk Vonten, Fotolia

Introduction –

- Includes advice released up to 30 June 2023.
- Any changes to advice rules applied by ICES in developing advice documented in sheets.
- Quality of assessment and issues relevant to advice in sheets

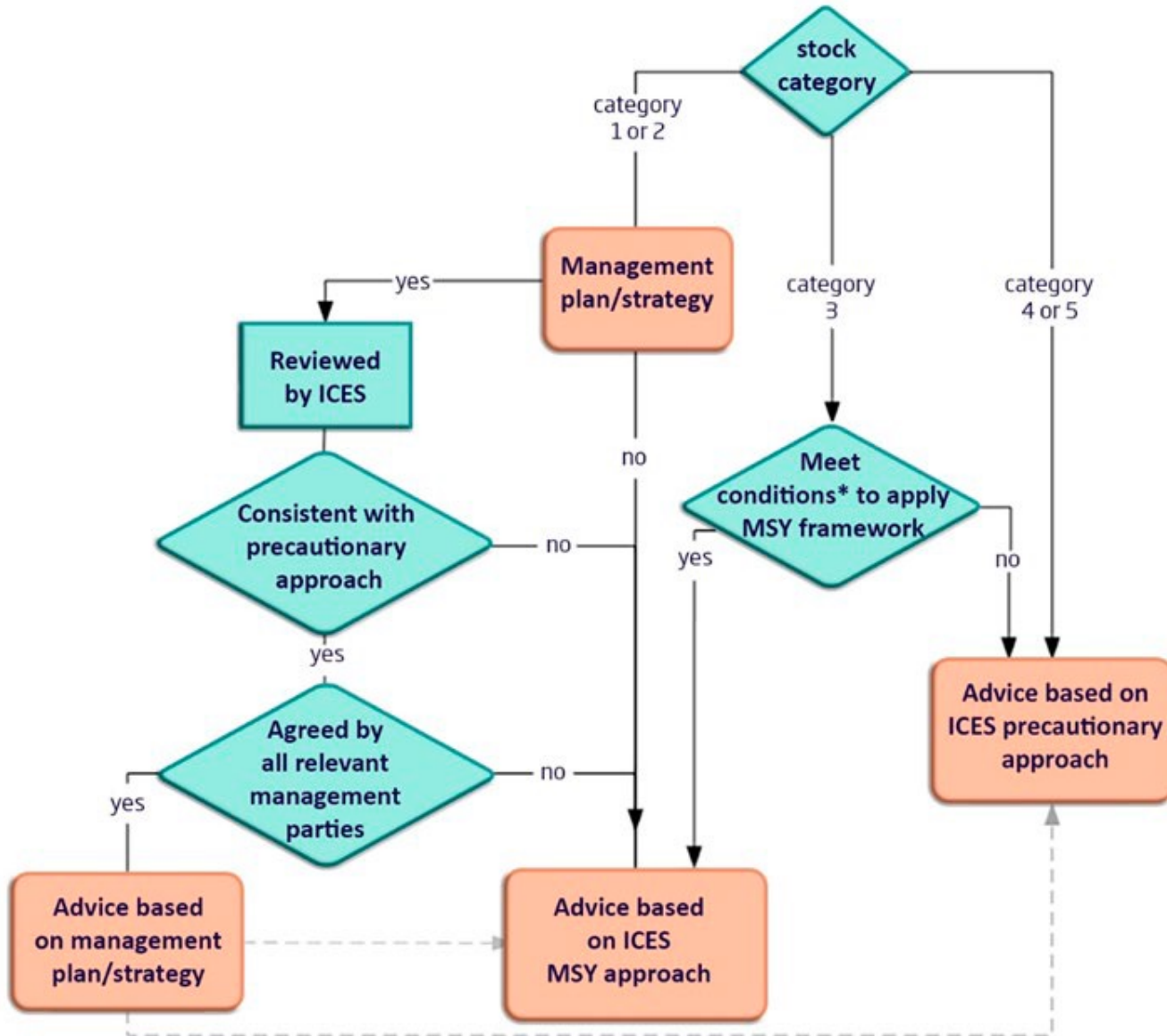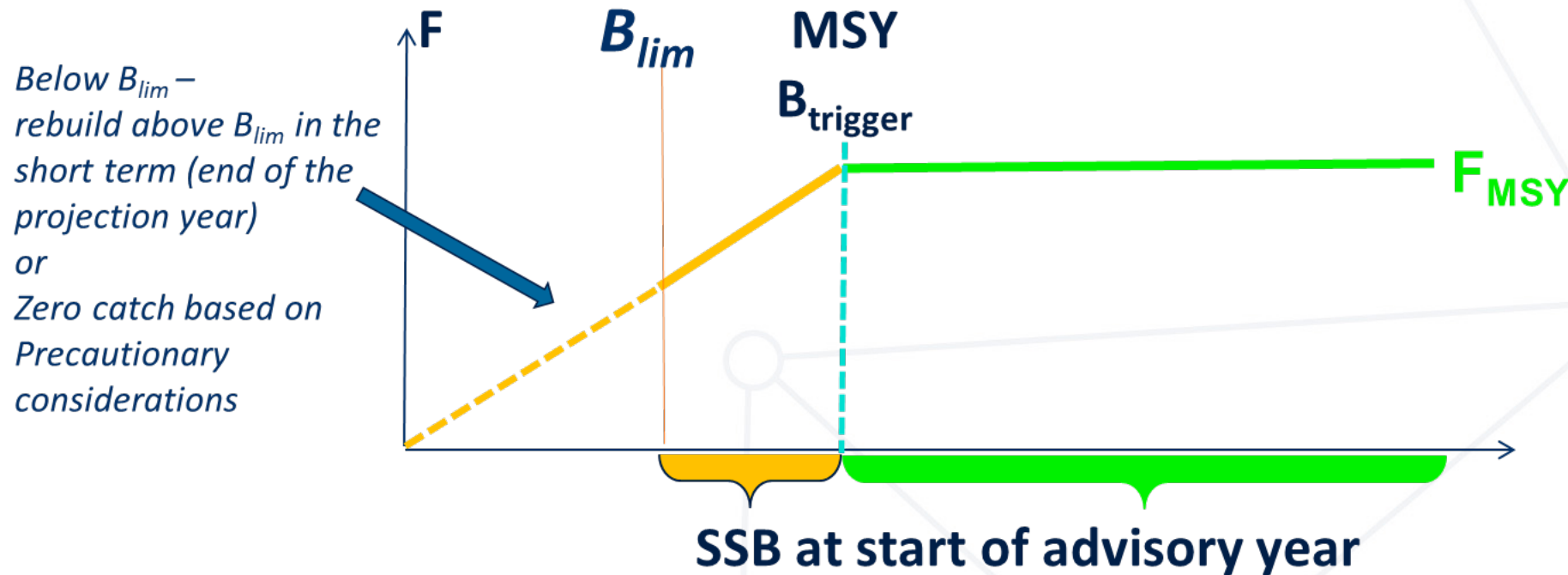# Governed by
10 principles of advice

Advice Process

ADVICE PRINCIPLES

1. Document openly
2. Formulate request iteratively
3. Clarify objectives & risks
4. Deliver timely knowledge
5. Use best available science
6. Apply FAIR data principles
7. Undergo peer review
8. Delvelop clear & consistent advice
9. Agree by consensus
10. Explain without advocacy

Release
Request
Production

Need

Use

Independence and credibility
Best available science
Dialogue and partnership
Openness and transparency
Learning
Feedback

ADVICE PROCESS

Production
Request
Release

No other fisheries body has these specifically stated

https://doi.org/10.17895/ices.advice.7648

Basis of advice

- Advice is based on clients requests and is consistent with their policy objectives and frameworks. e.g. EU MAP
- Must be evaluated to be precautionary
- Type of assessment based on data available

ICES MSY approach for category 1 & 2 stocks

Below B_{lim} – rebuild above B_{lim} in the short term (end of the projection year)
or
Zero catch based on Precautionary considerations

F

B_{lim}

MSY
$B_{trigger}$

F_{MSY}

SSB at start of advisory year

For more details, see ' Advice on fishing opportunities 2023'

Conservation status advice

- Some stocks for which ICES provides fishing opportunities advice are more affected by other anthropogenic pressures than by fishing. In these cases, ICES will now include 'conservation status advice' in the respective fishing opportunities advice sheet.

Workshops

- WKREBUILD2 – develop framework and evaluation guidelines for rebuilding plans

- WKNEWREF – hands on – estimate reference points suggested by WKREF2 and identify strengths and weaknesses

- WKSTIMP – implementation of stakeholder engagement strategy (Met in May)

- WKAFPA -workshop on accounting for fishers and other stakeholders' perceptions of the dynamics of fish stocks in ICES advice (WKAFPA).

Where to find the advice

- https://ices-library.figshare.com/

- AdviceXplorer

  - https://ices-taf.shinyapps.io/online-single-stock-advice/

Stocks covered

Golfe de Gascogne et Eaux de la Péninsule Ibérique
Plie - plaice
Lieu jaune - pollack
Merlan -whiting

Golfe de Gascogne
Baudroies – white anglerfish
Cardines - megrims
Langoustines -nephrops
Merlu -hake
Sole -sole
Bar sea bass

Eaux de la Péninsule Ibérique
Baudroies – black bellied and white anglerfish
Cardines - megrims
Langoustines -neprhops
Merlu - hake
Sole - sole
Anchois - anchovy
Bar –sea bass

Golfe de Gascogne et Eaux de la Péninsule Ibérique

Advice for 2024 and 2025, PA: Landings $\leq$ 124 t -20%
Can not quantify corresponding catches
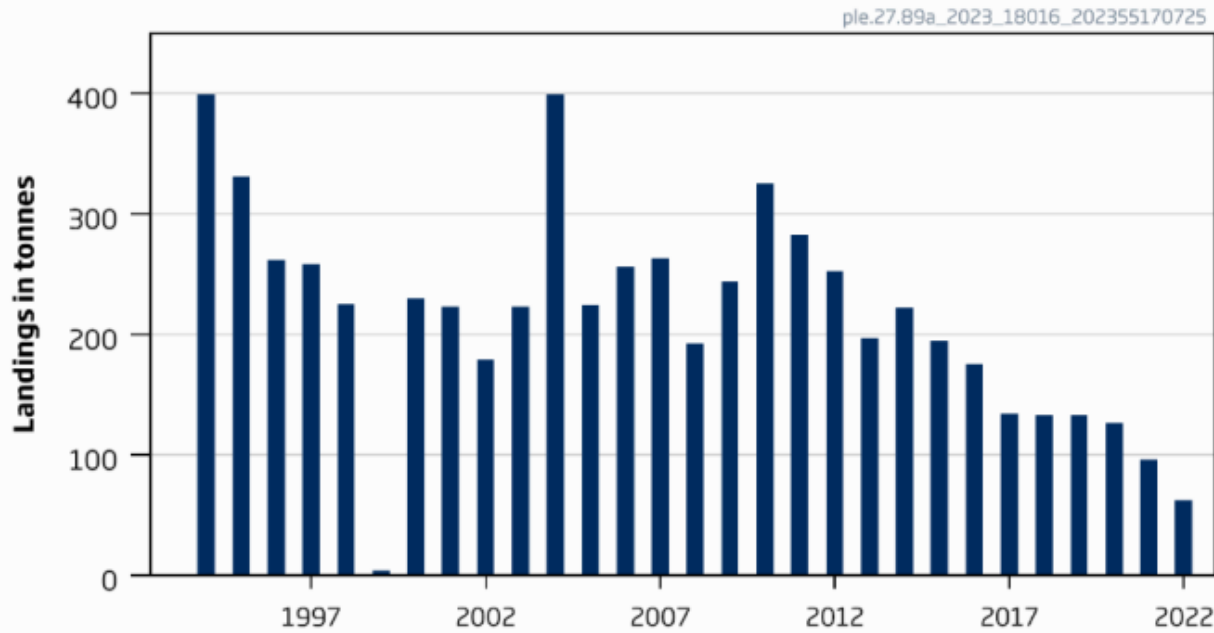
- Category 6
- Discards likely >5% but uncertain – landings advice
- PA buffer applied (last applied 2019)
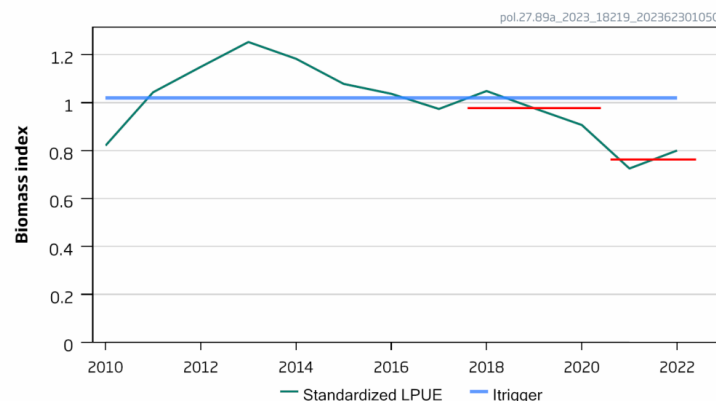- Stock definition uncertain
- Landings 2022 62 t

Advice for 2024 and 2025, MSY: commercial catch $\leq$ 872 t -4%

Can not quantify total catches – lack recreational catch

Landings
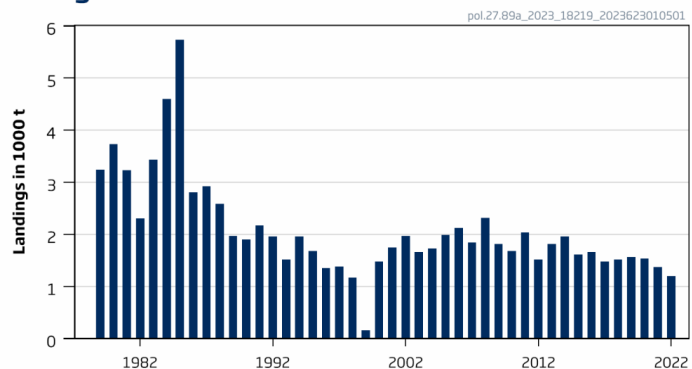
Stock size indicator

Fishing pressure indicator
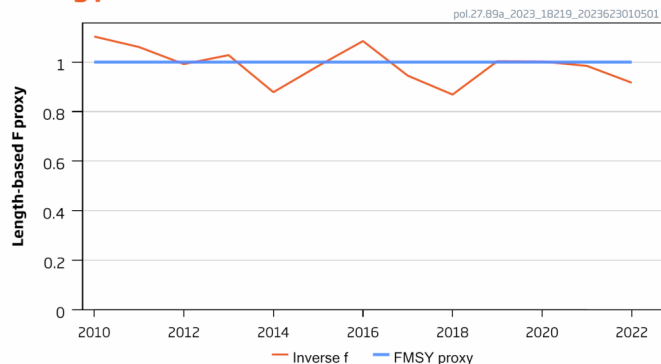
- Benchmark 2023
- DLS – rfb
- Index – LPUE French gillnet
- Recreational catches not quantified
- Stock size indicator lower in last 2 years, below Itrigger

Catch (2022) : 1199 t (does not include recreational catch)

Table 1   Pollack in Subarea 8 and Division 9.a. The basis for the catch scenarios .

|	
Cy (average catch of last three years 2020, 2021, 2022)	1369 tonnes
Stock biomass trend	
Index A (2021, 2022)	0.76
Index B (2018, 2019, 2020)	0.98
r: Index ratio (A/B)	0.78
Fishing pressure proxy	
Mean catch length ($L_{mean} = L_{2022}$)	50.6 cm
MSY proxy length ($L_{F = M}$)	46.4 cm
f: multiplier for relative mean length in catches ($L_{mean}/L_{F = M}$)	1.09
Biomass safeguard	
Last index value (I_{2022})	0.80
Index trigger value ($I_{trigger} = I_{loss} \times 1.4$)	1.02
b: multiplier for index relative to trigger min$\{I_{2022}/I_{trigger}, 1\}$	0.79
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.95
RFB calculation: $Cy+1 = Cy \times r \times f \times b \times m$	872 tonnes
Stability clause (+20%/−30% compared to C_y, only applied if b ≥ 1)	Not applied
Catch advice for 2024 and 2025	872 tonnes
Discard rate	Negligible
% advice change^	−36%

rfb applied to average catch (2020-2022): Difference in recent catch vs advice and first application of rule. Advice 36% less than recent catch
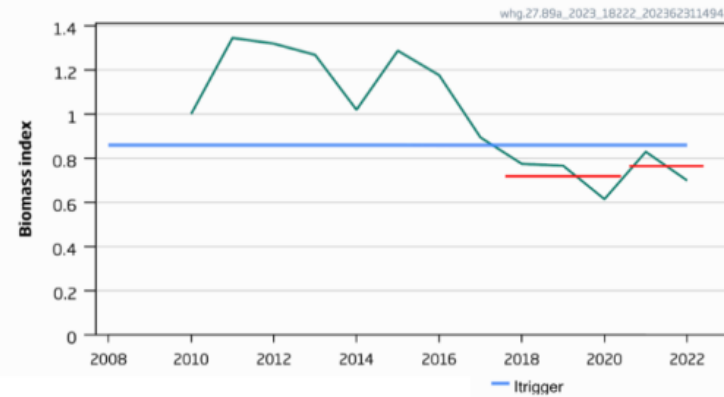
$Cy+1 = Cy \times r \times f \times b \times m$

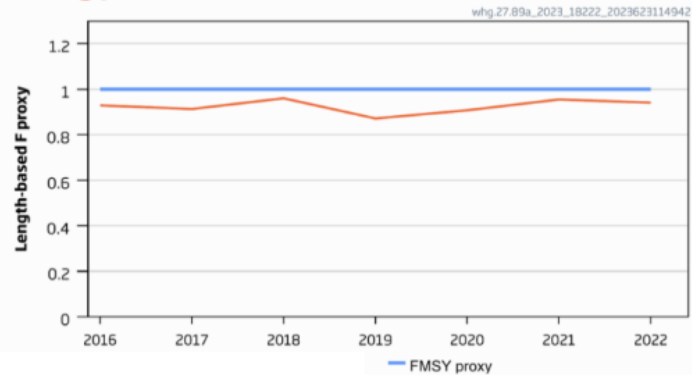**Advice for 2024 and 2025, MSY:** Catch $\leq$ 1347 t -41%

Catches
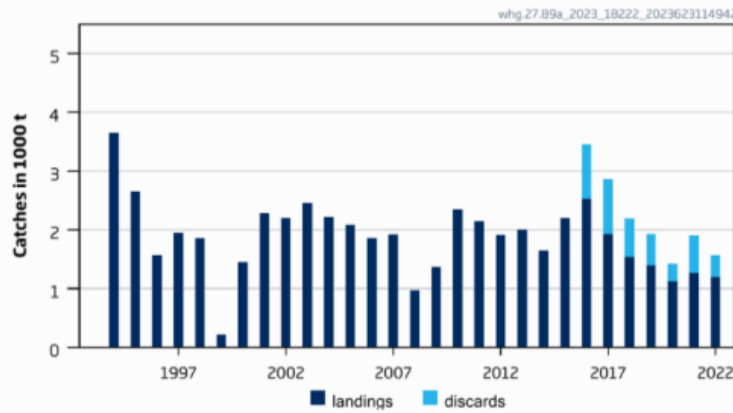
Stock size indicator

Fishing pressure indicator

- Benchmark 2023
- DLS – rfb
- Index – LPUE French bottom trawl
- Fishing pressure below FMSY proxy
- Stock size indicator slightly higher last 2 years but below trigger
- So stability clause not applied

Catch (2022) : 1567 t (24% discards)

Cy (average catch of last three years 2020, 2021, 2022)	1630 tonnes
Stock biomass trend	
Index A (2021, 2022)	0.76
Index B (2018, 2019, 2020)	0.72
r: Index ratio (A/B)	1.06
Fishing pressure proxy	
Mean catch length ($L_{mean} = L_{2022}$)	340 mm
MSY proxy length ($L_{F=M}$)	320 mm
f: multiplier for relative mean length in catches ($L_{mean}/L_{F=M\ 2022}$)	1.06
Biomass safeguard	
Last index value (I_{2022})	0.70
Index trigger value ($I_{trigger} = I_{loss} \times 1.4$)	0.86
b: multiplier for index relative to trigger $\min\{I_{2022}/I_{trigger}, 1\}$	0.81
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.90
rfb calculation: $Cy+1 = Cy \times r \times f \times b \times m$	1347 tonnes
Stability clause (+20%/−30% compared to A_y, only applied if b ≥ 1)	Not applied
Catch advice for 2024 and 2025 ($A_y \times$ stability clause)	1347 tonnes
Discard rate (average 2016-2022)	0.28
Projected landings corresponding to advice**	970 tonnes
% advice change^	−41%

rfb applied to average catch (2020-2022): Difference in recent catch vs advice and first application of rule. Advice 17% less than recent catch
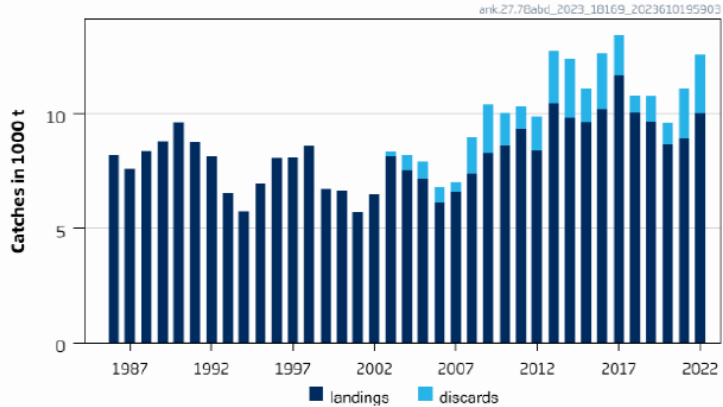
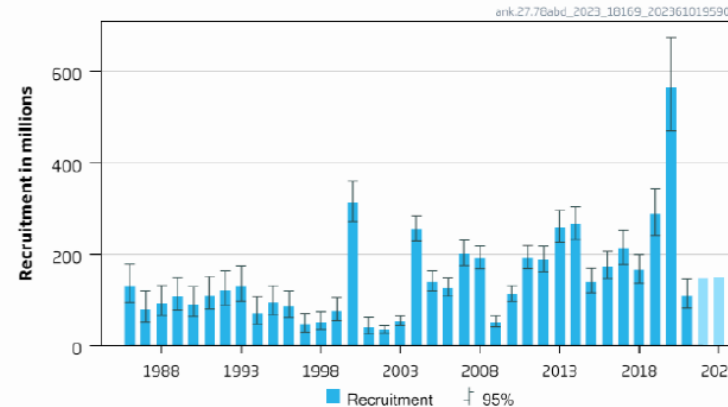$$Cy+1 = Cy \times r \times f \times b \times m$$
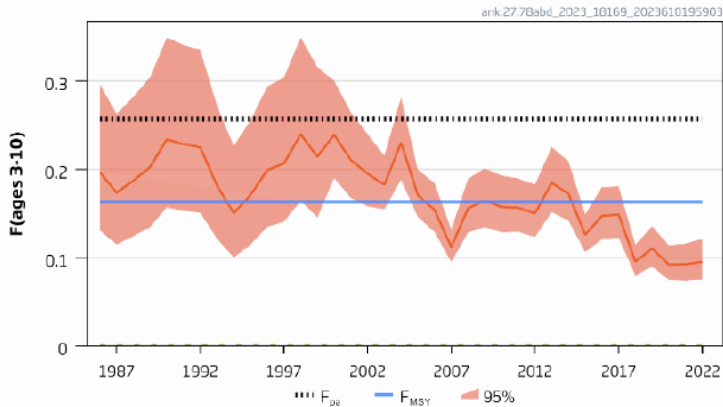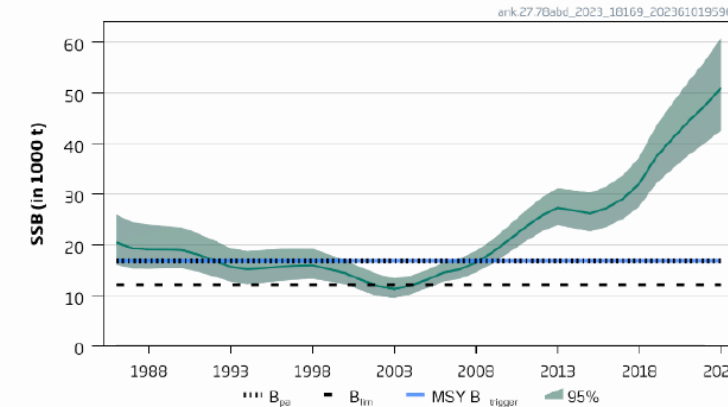
Golfe de Gascogne

Advice for 2024, MSY: Catch $\leq$ 25 579 t advice +9%

- F fairly stable below F_{MSY}
- SSB increasing and above MSY Btrigger
- Two species not separated in landing statistics
- TAC combined with white anglerfish
- Advice higher as stock size is increasing

Catch (2022) : 12 600 t (20 % discards)

F(2023) = 0.093 (average F 2020-2022)

SSB(2024) = 56 821t > $MSY_{Btrigger}$ (16 776t) F_{MSY} = 0.163

Basis	Total catch (2024)	Projected landings* (2024)	Projected discards** (2024)	$F_{ages\ 3-10}$ Total (2024)	$F_{ages\ 3-10}$ Projected landings (2024)	$F_{ages\ 3-10}$ Projected discards (2024)	SSB (2025)	% SSB change ***	% advice change^
ICES advice basis									
MSY approach = F_{MSY}	25579	21175	4404	0.163	0.155	0.0081	60186	5.9	9.1
Other options									
$F_{MSY\ lower}$	17990	14896	3094	0.112	0.106	0.0056	63335	11.5	−23
$F_{MSY\ upper}$	37050	30659	6390	0.24	0.23	0.0122	55448	−2.42	58
F = 0	0	0	0	0	0	0	70841	25	−100
F_{pa}	38656	31987	6669	0.26	0.24	0.0128	54786	−3.6	65
$SSB_{2025} = B_{lim}$	147906	121633	26273	1.77	1.68	0.088	12073	−79	531
$SSB_{2025} = B_{pa} = MSY\ B_{trigger}$	134868	111042	23825	1.44	1.37	0.072	16776	−70	475
$SSB_{2025} = SSB_{2024}$	33718	27906	5812	0.22	0.21	0.0110	56821	0	44
F = F_{2023}	15096	12501	2595	0.093	0.089	0.0046	64539	13.6	−36

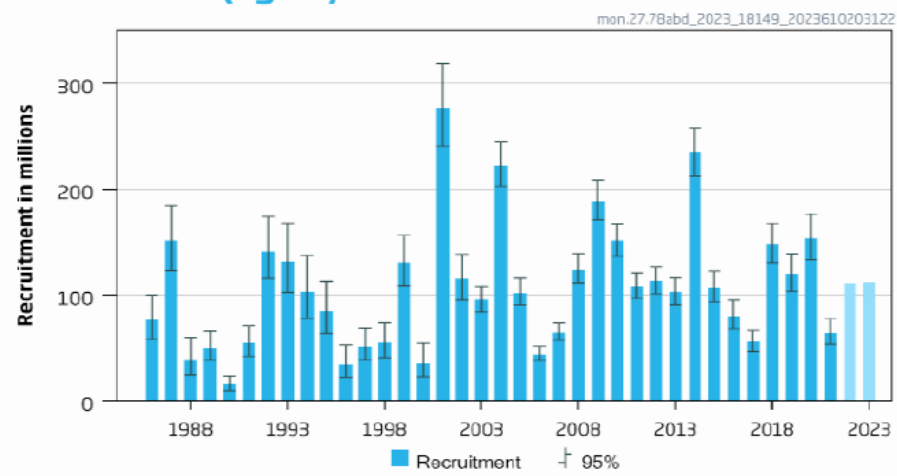Length based age structured stock synthesis

Advice for 2024, MSY: Catch $\leq$ 35 502 t advice +3%

- F fairly stable below F_{MSY}
- SSB increasing: above MSY Btrigger
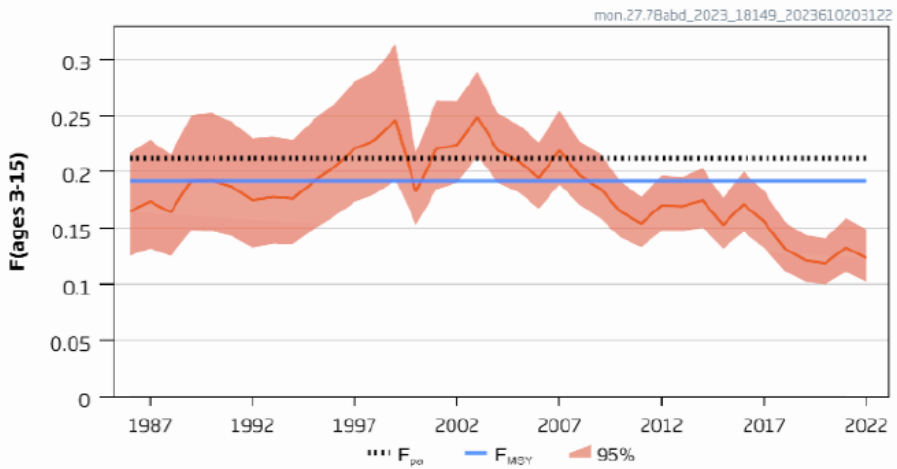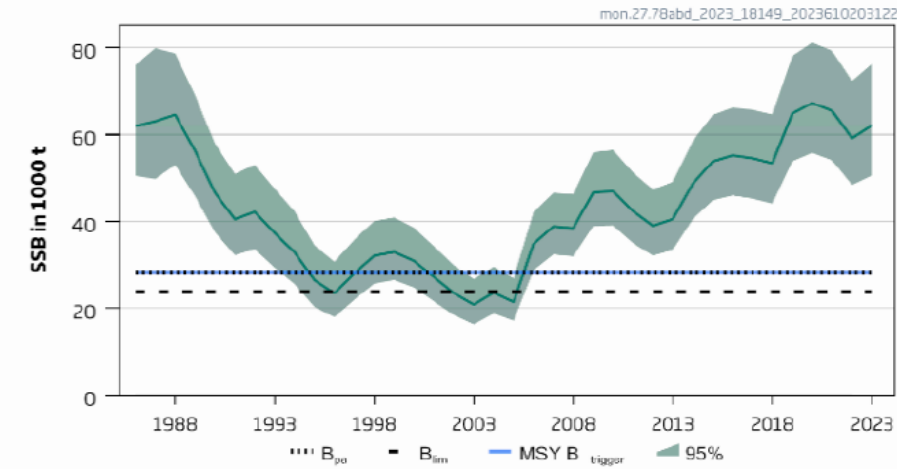- TAC combined with white anglerfish
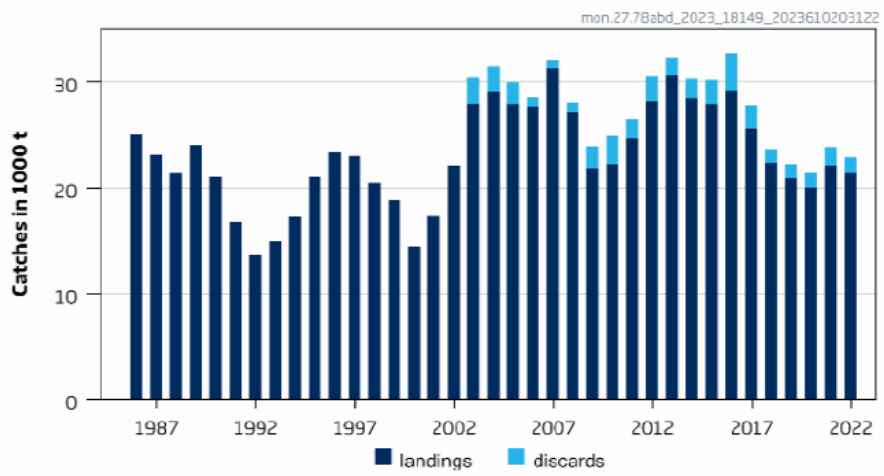
Catch (2022) : 22 895t (7 % discards)

F(2023) = 0.125 (average F 2020-2022)

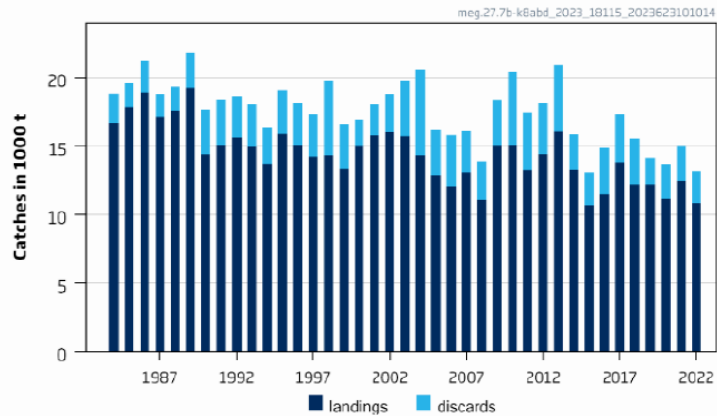SSB(2024) = 64 207 t > $MSY_{Btrigger}$ (28 275 t) F_{MSY}= 0.192

Basis	Total catch (2024)	Projected landings* (2024)	Projected discards** (2024)	$F_{ages\ 3-15}$ Total (2024)	$F_{ages\ 3-15}$ Projected landings (2024)	$F_{ages\ 3-15}$ Projected discards (2024)	SSB (2025)	% SSB change ***	% advice change^
ICES advice basis									
MSY approach = F_{MSY}	35502	31090	4411	0.192	0.190	0.00170	64669	0.72	2.8
Other scenarios									
$F_{MSY\ lower}$	24976	21876	3100	0.131	0.130	0.00116	68929	7.4	−28
$F_{MSY\ upper}$	38811	33987	4824	0.21	0.21	0.00188	63331	−1.36	12.4
F = 0	0	0	0	0	0	0	79055	23	−100
F_{pa}	38811	33987	4824	0.21	0.21	0.00188	63331	−1.36	12.4
$SSB_{2025} = B_{lim}$	138080	120497	17584	1.15	1.14	0.0102	23868	−63	300
$SSB_{2025} = B_{pa}$ = MSY $B_{trigger}$	126690	110634	16056	0.99	0.98	0.0087	28275	−56	267
$SSB_{2025} = SSB_{2024}$	36645	32091	4554	0.199	0.197	0.00176	64207	0	6.1
F = F_{2023}	23873	20911	2962	0.125	0.124	0.00111	69375	8.0	−31

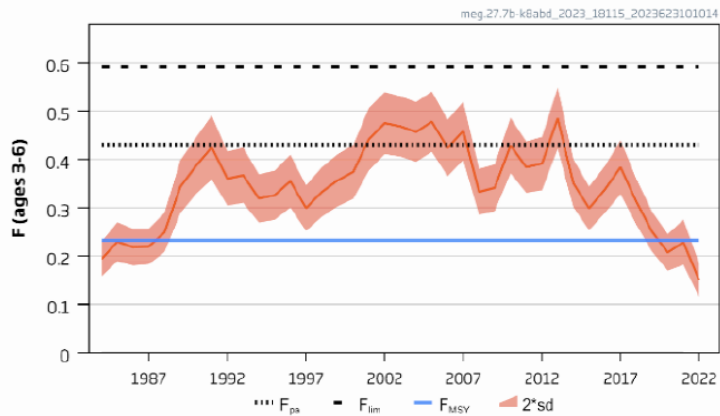Length based age structured stock synthesis
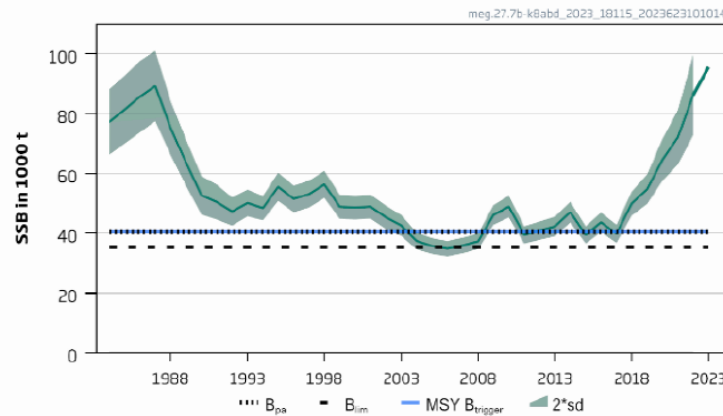
Advice for 2024, MSY: Catch $\leq$ 2 3 303t advice -1%
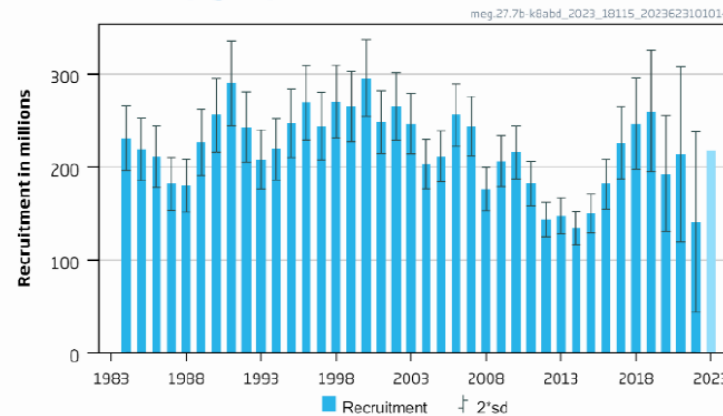
- F decreased in 2022 and is below F_{MSY}
- SSB increasing since about 2010: above MSY Btrigger
- Two species not separated in landing statistics
- TAC combined with four spot megrim
- Some downward revision of SSB (retrospective) in 2023 compared to 2022 assessment

Catch (2022) : 13 161t (18 % discards)

F(2023) = 0.195 (average F 2020-2022)

SSB(2023) = 95 693t > MSY$_{Btrigger}$ (40 444t)   F$_{MSY}$= 0.233

A4A SCAA

Basis	Total catch (2024)	Projected landings* (2024)	Projected discards** (2024)	F$_{ages\ 3–6}$ Total (2024)	SSB (2025)	% SSB change ***	% advice change^
ICES advice basis							
MSY approach: F$_{MSY}$	23303	19670	3633	0.23	89889	−6.1	−1.24
Other scenarios							
EU MAP^^ = F$_{MSY}$	23303	19670	3633	0.23	89889	−6.1	−1.24
F = MAP^^ F$_{MSY\ lower}$	14912	12606	2306	0.14	98649	3.1	−37
F = MAP^^ F$_{MSY\ upper}$	37722	31750	5972	0.41	74956	−22	60
F = 0	0	0	0	0.00	114313	19.5	−100
F$_{pa}$	39152	32943	6209	0.43	73485	−23	66
F$_{lim}$	49586	41616	7970	0.59	62817	−34	110
SSB (2025) = B$_{lim}$	72018	59997	12021	1.07	40444	−58	205
SSB (2025) = B$_{pa}$	77246	64204	13042	1.23	35398	−63	227
SSB (2025) = MSY B$_{trigger}$	72018	59997	12021	1.07	40444	−58	205
SSB (2025) = SSB (2024)	17739	14988	2751	0.169	95693	0	−25
F = F$_{2023}$	20166	17032	3134	0.195	93158	−2.6	−14.5

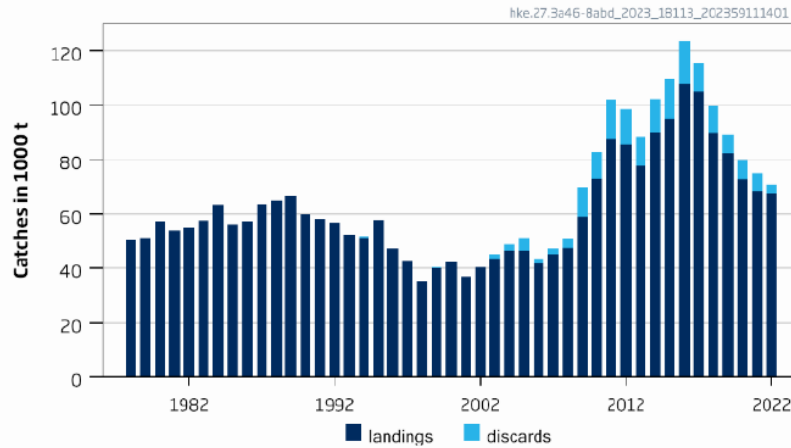**Advice for 2023, 2024 and 2025 : PA:** catch ≤ 867t
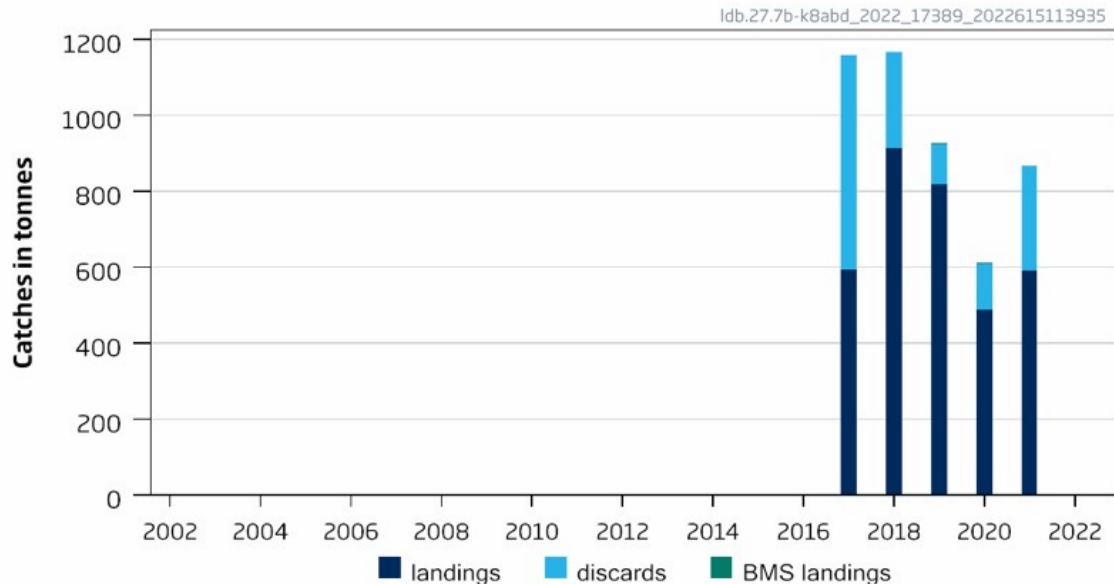
- Can not assess status
- Sampling impacted by covid: could not estimate complete catch 2020 and 2021
- Partial catch estimate for 2021 is 866 t -32% discards
- Two species not separated in landing statistics
- TAC combined with megrim
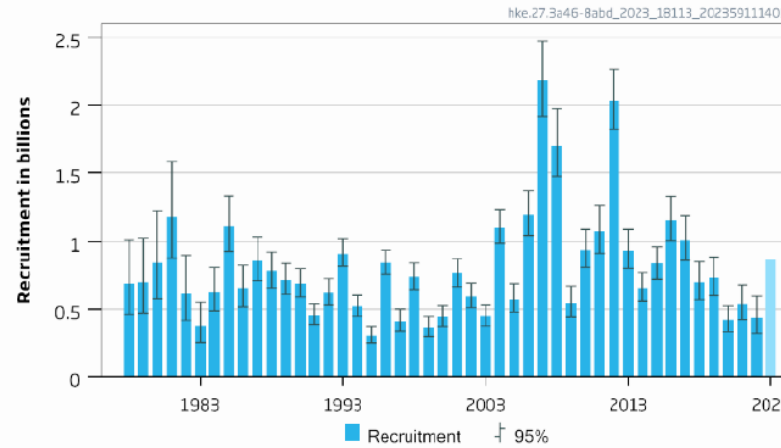
Advice released 2022 not updated

Advice for 2024: MSY: Catch $\leq$ 72 839t advice -12%

Catches

Recruitment (age 0)

F
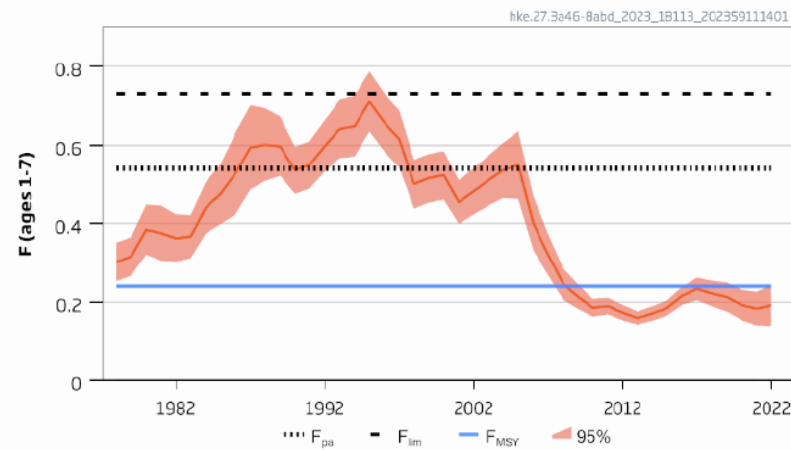
Female-only SSB
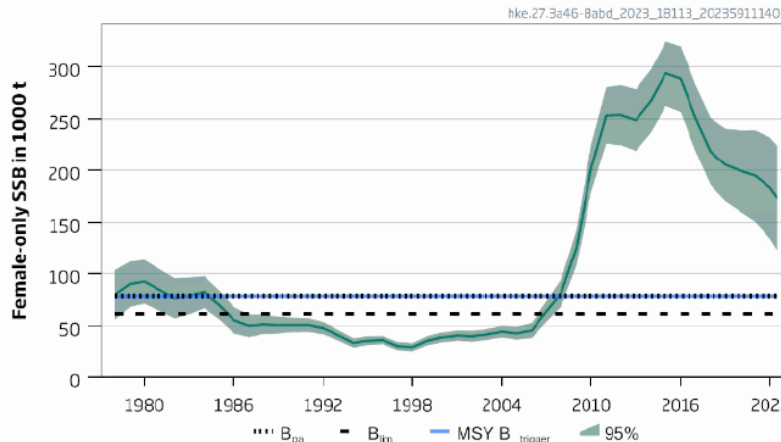
- F below F_{MSY}
- SSB (female only) above MSY $B_{trigger}$ but declining
- Recruitment lower last 3 years
- Advice lower because stock size is declining
- No survey that covers entire area
- TAC area does not match stock area

Catch (2022) : 69 382 t (3 % discards)

F(2023) = 0.189 Average F $_{2020-2022}$

SSB (2024)= 147 052t > MSY$_{Btrigger}$ (78 405t)   F$_{MSY}$= 0.24

Length based and sex disaggregated stock synthesis

Basis	Total catch (2024)	Projected landings (2024)	Projected discards (2024)	$F_{ages\,1-7}$ total (2024)	$F_{ages\,1-7}$ projected landings (2024)	$F_{ages\,1-7}$ projected discards (2024)	SSB (2025)	% SSB change*	% advice change**
ICES advice basis									
MSY approach = F$_{MSY}$	72839	67637	5202	0.24	0.23	0.0174	129326	−12.1	−12.4
Other scenarios									
EU MAP^: F$_{MSY}$	72839	67637	5202	0.24	0.23	0.0174	129326	−12.1	−12.4
F = MAP^:F$_{MSY\,lower}$	46722	43486	3236	0.147	0.137	0.0102	146172	−0.60	−44
F = MAP^:F$_{MSY\,upper}$	102890	95251	7640	0.37	0.34	0.027	110272	−25	24
F = 0	0	0	0	0	0	0	176869	20	−100
F = F$_{pa}$	135857	125263	10594	0.54	0.5	0.042	89853	−39	63
SSB (2025) = B$_{lim}$	183455	167811	15644	0.86	0.79	0.074	61563	−58	121
SSB (2025) = B$_{pa}$	154777	142318	12460	0.65	0.6	0.052	78405	−47	86
SSB (2025) = MSY B$_{trigger}$	154777	142318	12460	0.65	0.6	0.052	78405	−47	86
SSB (2025) = SSB(2024)	45368	42230	3138	0.142	0.132	0.0098	147052	0	−45
F = F$_{2023}$	58652	54534	4118	0.189	0.176	0.0133	138447	−5.9	−29

Advice 2023: MSY $\leq$ 6734 +11%

Catches

- Advice for 2023 **will be updated October**
- F below FMSY proxy
- No biomass reference point
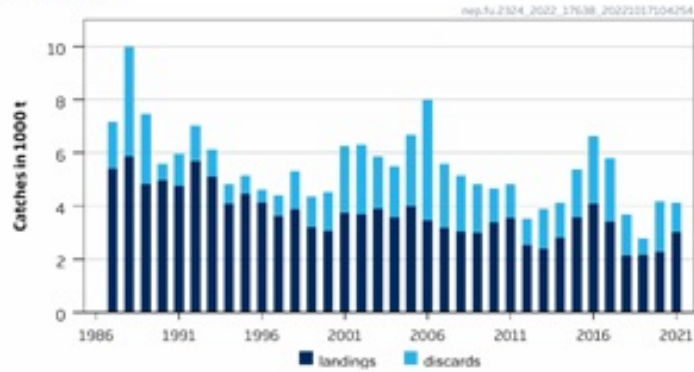
Fishing pressure
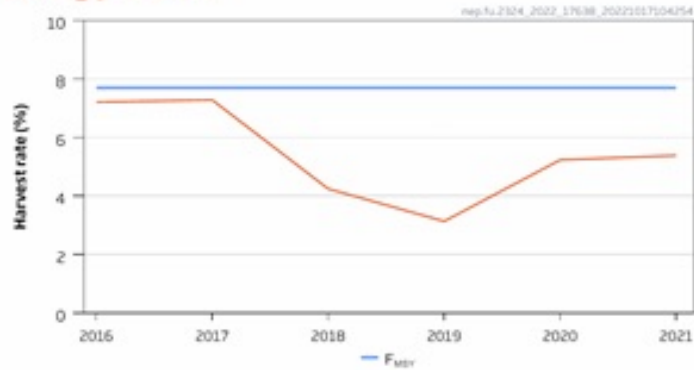
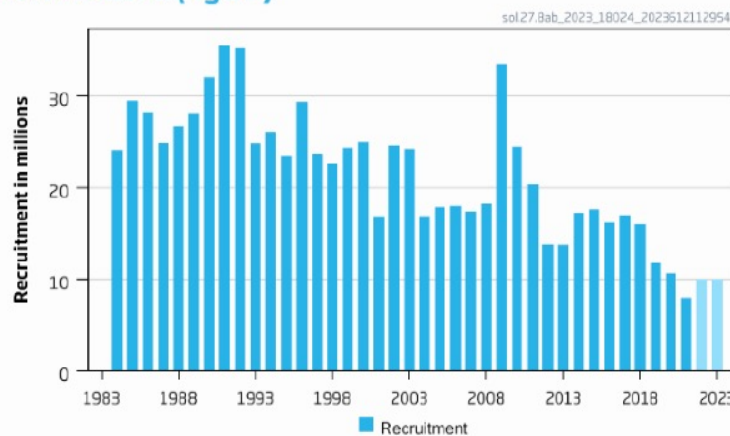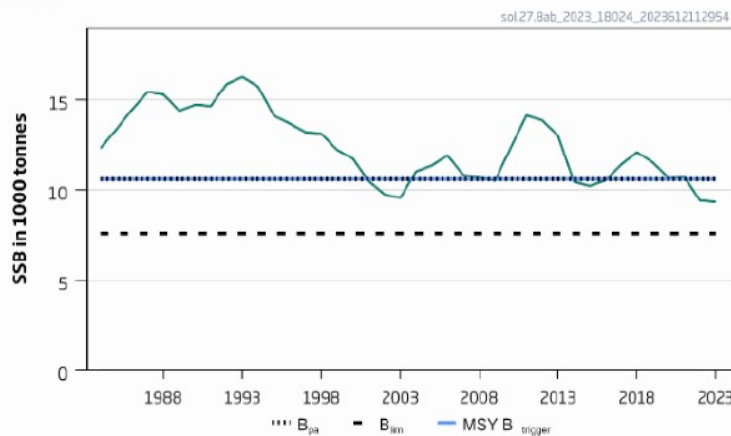Stock size

Advice for 2024: EU MAP: Catch 1454-2489 t advice ~ -7%
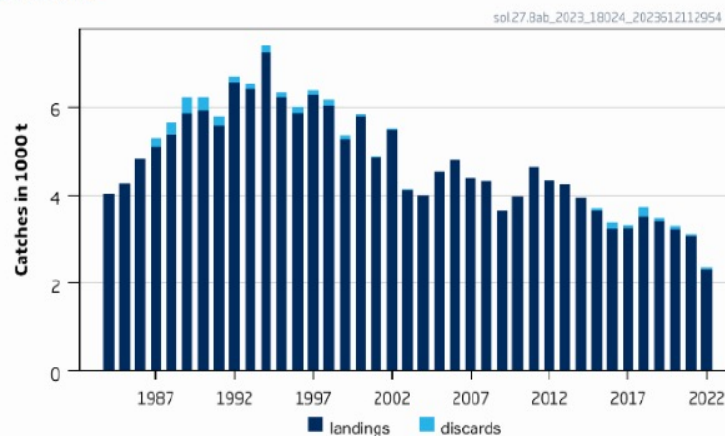
- F below F_{MSY}
- SSB has been declining and is below MSY Btrigger,
- Recruitment declining in last 3 years
- Lower advice – lower recruitment
- No 2022 survey
- Recruitment tends to be over estimated – retrospective – used lower rec assumption

Catch (2022) : 2 343 (1 % discards)

F(2023) = 0.26 Selection pattern 2020 to 2022, scaled to the F of 2022

SSB (2024)= 9 405 t < MSY$_{Btrigger}$ (10 600)   F$_{MSY}$= 0.33

FLXSA

Benchmark planned

Basis	Total catch* (2024)	Landings (2024)	Discards (2024)	F$_{ages\ 3\text{-}6}$ Projected landings (2024)	SSB (2025)	% SSB change #	% TAC change ##	% advice change ^^^
ICES advice basis								
EU MAP ^: F = F$_{MSY}$ × SSB$_{2024}$/MSYB$_{trigger}$	2489	2435	54	0.29	9263	−1.51	−7.3	−7.3
EU MAP ^: F = F$_{MSY\ lower}$ × SSB$_{2024}$/MSYB$_{trigger}$	1454	1422	31	0.16	10278	9.3	−46	−7.0^^
Other scenarios								
MSY approach = F$_{MSY}$	2784	2724	60	0.33	8975	−4.6	3.7	3.7
F = 0	0	0	0	0	11708	24	−100	−100
F$_{PA}$	5935	5807	128	0.88	5910	−37	121	121
SSB$_{2025}$ = B$_{lim}$	4192	4102	90	0.54	7600	−19.2	56	56
SSB$_{2025}$ = B$_{pa}$ = MSYB$_{trigger}$	1126	1102	24	0.12	10600	12.7	−58	−58
SSB$_{2025}$ = SSB$_{2024}$	2344	2294	50	0.27	9405	0	−12.7	−12.7
F = F$_{2023}$	2261	2212	49	0.26	9487	0.87	−15.8	−15.8
Landings 2023 = landings from TAC of 2685 tonnes	2744	2685	59	0.32	9014	−4.2	2.2	2.2
Total catch equal to TAC$_{2023}$	2684	2626	58	0.32	9073	−3.5	−0.037	−0.037

Advice for 2024: EU MAP: total removals 2429-2642 t ~ -22%
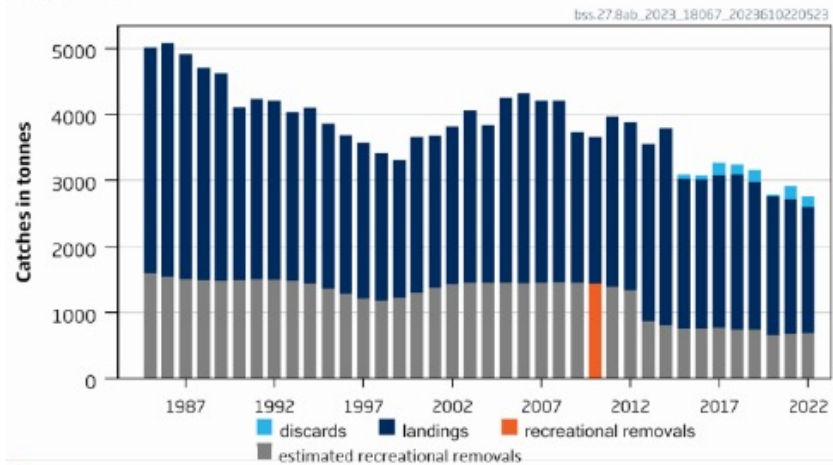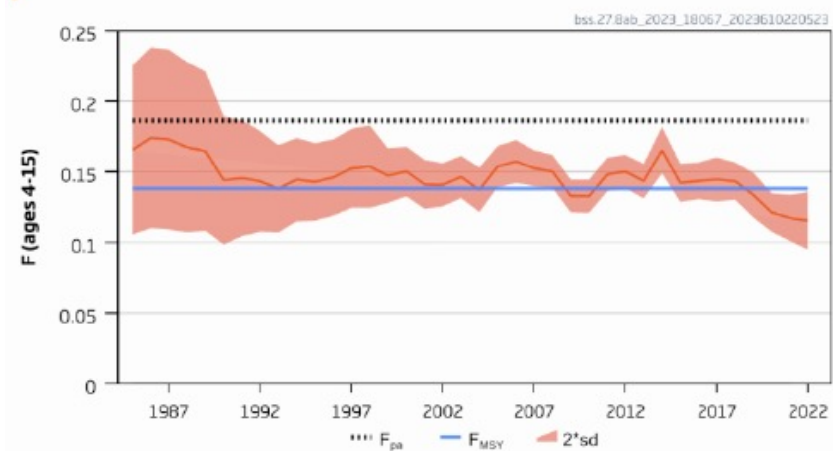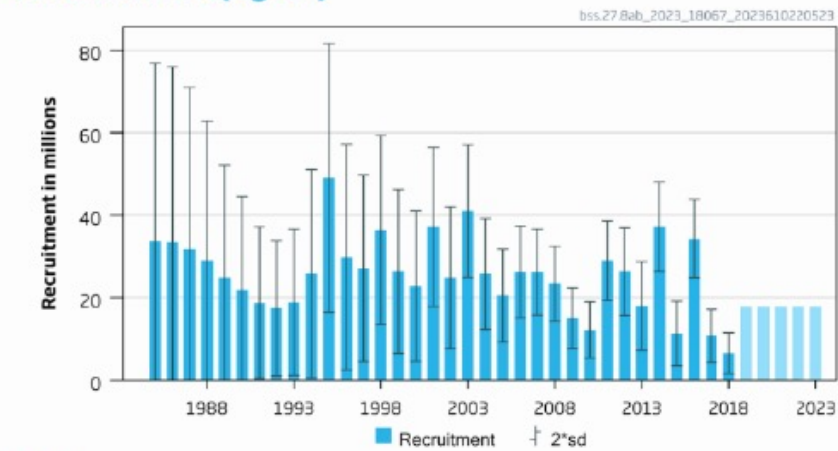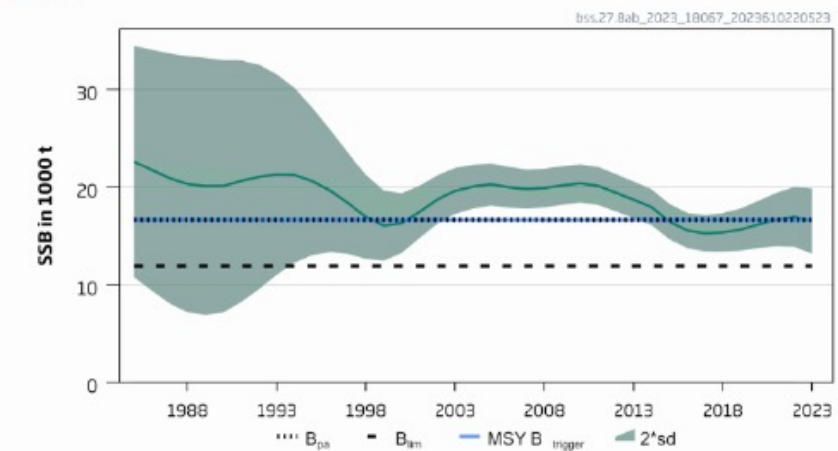
- F declining: below F_{MSY}
- SSB below MSY Btrigger
- Stock identity poorly understood
- Limited data on recreational removals
- Advice lower: downward revision of recruitment (retrospective) and lower Ftarget
- Benchmark planned

Catch (2022) : 2 757 (6 % discards commercial)
F(2023) = 0.115 Average F 2020-2022 scaled to F 2022 plus Frec (0.031)
SSB (2024)= 15 569t < MSY$_{Btrigger}$ (16 688 t) F$_{MSY}$= 0.138

Basis	Total removals (2024)#	Commercial landings * (2024)	Recreational removals * (2024)	Commercial discards (2024)	F$_{total}$ (2024)	F$_{commercial landings}$ * (2024)	F$_{recreational removals}$ * (2024)	SSB (2025)	% SSB change ##	% advice change ###
ICES advice basis										
EU MAP^ : F$_{MSY}$ × SSB$_{2024}$/MSY B$_{trigger}$	2642	1906	620	116	0.129	0.098	0.031	14509	−6.8	−22
F = MAP^ : F$_{MSY\ lower}$ × SSB$_{2024}$/MSY B$_{trigger}$	2249	1530	626	93	0.109	0.078	0.031	14816	−4.8	−22
Other scenarios										
MSY approach : F$_{MSY}$	2820	2077	617	126	0.138	0.107	0.031	14370	−7.7	−17.0
F = 0	0	0	0	0	0	0	F = 0	16593	6.6	−100
F = F$_{pa}$	3722	2940	603	179	0.186	0.155	0.031	13669	−12.2	9.5
SSB$_{2025}$ = B$_{lim}$	5994	5115	568	311	0.32	0.29	0.031	11920	−23	76
SSB$_{2025}$ = B$_{pa}$^^										
SSB$_{2025}$ = MSY B$_{trigger}$^^										
SSB$_{2025}$ = SSB$_{2024}$	1287	610	640	37	0.061	0.03	0.031	15569	0	−62
F = F$_{2022}$ = F$_{sq}$	2379	1660	618	101	0.115	0.085	0.031	14714	−5.5	−30

No TAC in this area –technical measures
Age and length based stock synthesis including recreational catches
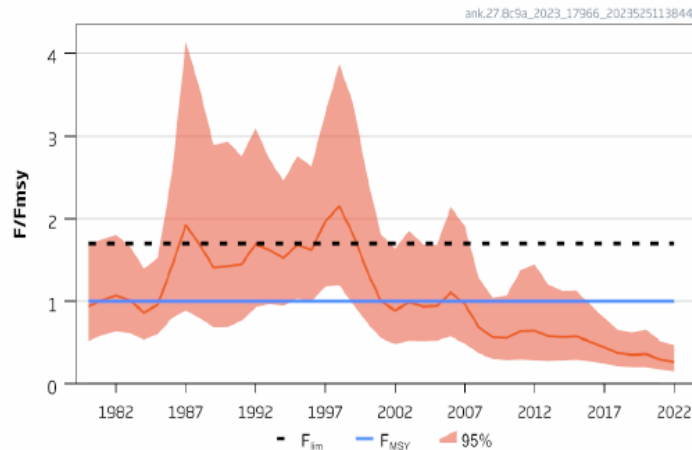
Eaux de la Péninsule Ibérique

Advice for 2024: MSY: Catch $\leq$ 2111 advice +2.3%
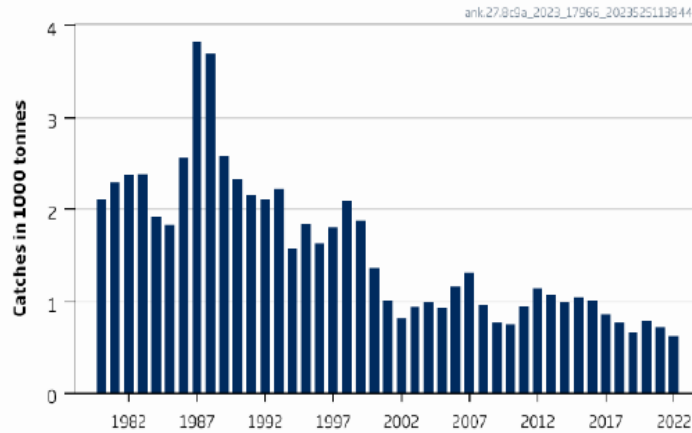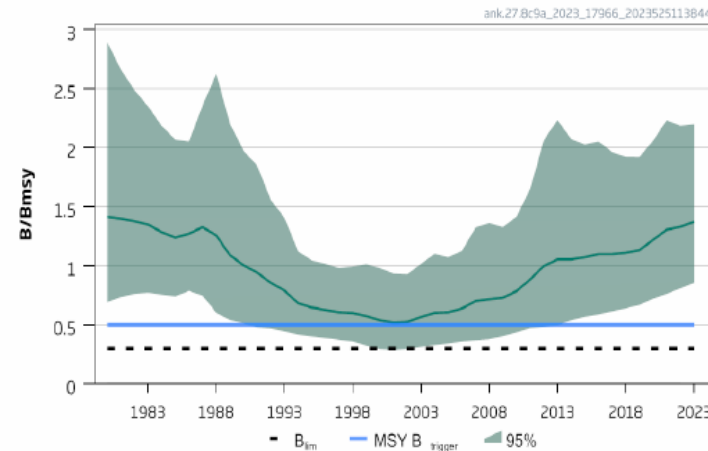
- F declining: below F_{MSY}
- Biomass increasing: above MSY Btrigger
- Only fishery dependent data in assessment
- Two species not separated in landing statistics
- TAC combined with white anglerfish

Catch (2022) : 621t (negligible discards)

F(2023)/FMSY = 0.27 Fsq

Biomass (2024)/BMSY= 1.43 >MSY$_{Btrigger}$ 0.5

Basis	Total catch (2024)	Fishing mortality F_{2024}/F_{MSY}	Stock size B_{2025}/B_{MSY}	% biomass change^	% advice change^^
ICES advice basis					
MSY approach (35th percentile of predicted catch distribution under F = F$_{MSY}$)	2111	0.90	1.38	−3.5	2.3
Other scenarios					
F = F$_{msy}$	2337	1.00	1.36	−4.9	13.2
F = F$_{2022}$ = F$_{sq}$	651	0.27	1.48	3.5	−68.5
F = 0	0	0	1.52	6.3	−100

SPiCT

Advice for 2024: EU MAP: Catch 1805 – 3334 t advice ~+12%
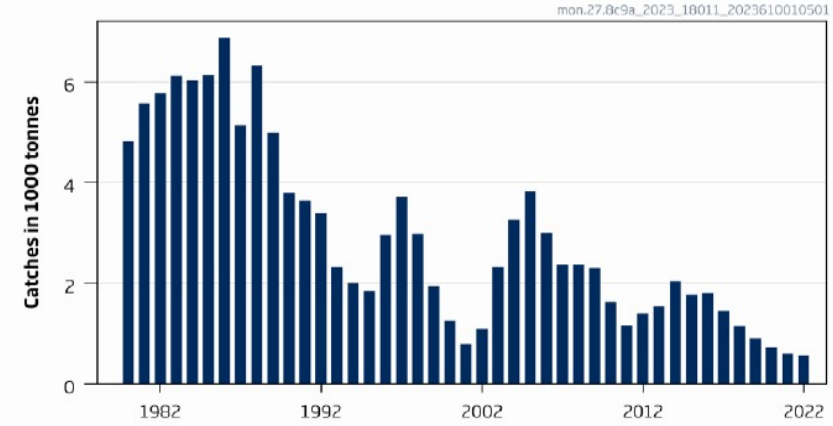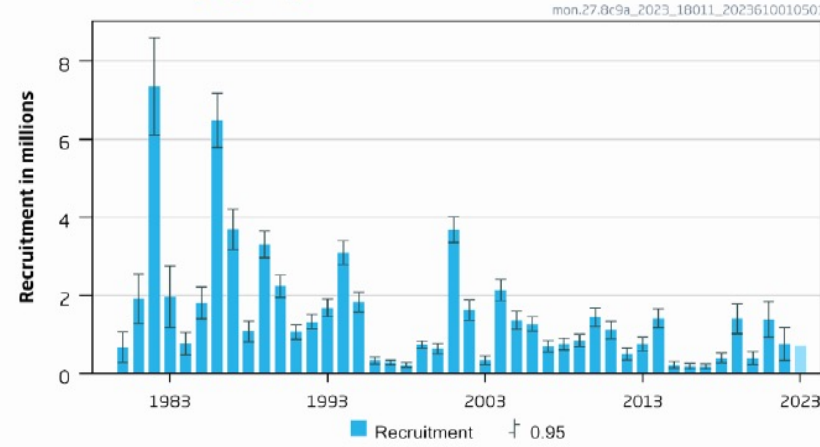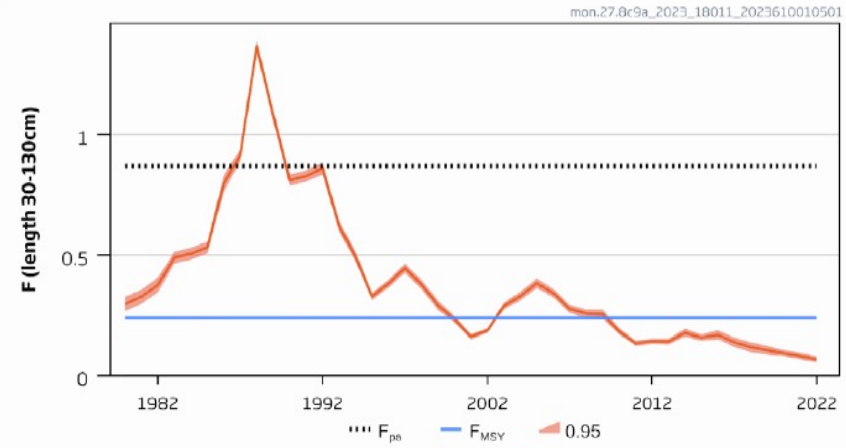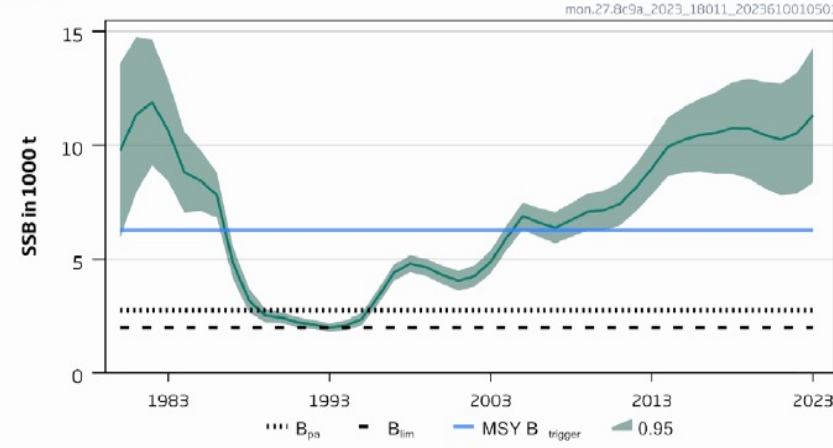
- F declining: below F_{MSY}
- SSB above MSY Btrigger
- Advice higher – increase in stock size, upward revision of recruitment (retrospective)
- SSB overestimated (retro) – no index for older fish

Catch (2022) : 574 t (negligible discards)
F(2023)=0.081 (Average 2020-2022)
SSB(2024)= 12 239 t >MSY$_{Btrigger}$ (6283 t) F$_{MSY}$ =0.24

not computed because the TAC is for the two species (*L. piscatorius* and *L. budegassa*) combined.

Basis	Total catch (2024)	F$_{30-130\ cm}$ Total (2024)	SSB (2025)	% SSB change**	% advice change^
ICES advice basis					
EU MAP*: F$_{MSY}$	2539	0.24	11607	−5.2	11.8
F = MAP* F$_{MSY\ lower}$	1805	0.164	12365	1.03	11.9^^
F = MAP* F$_{MSY\ upper}$	3334	0.33	10781	−11.9	11.7^^
Other options					
F = 0	0	0	14220	16.2	−100
F$_{pa}$	6798	0.87	7114	−42	199
SSB (2025) = B$_{lim}$	11193	3.0	1993	−84	393
SSB (2025) = B$_{pa}$	10600	2.4	2769	−77	367
SSB (2025) = MSY$_{Btrigger}$	7561	1.04	6283	−49	233
SSB$_{2025}$ = SSB$_{2024}$	1927	0.176	12239	0	−15.1
F = F$_{2023}$	937	0.081	13259	8.3	−59

Length based stock synthesis

- Two species not separated in landing statistics
- TAC combined with black-bellied anglerfish

Advice for 2024: EU MAP: Catch 859 – 1915 t advice ~+31%
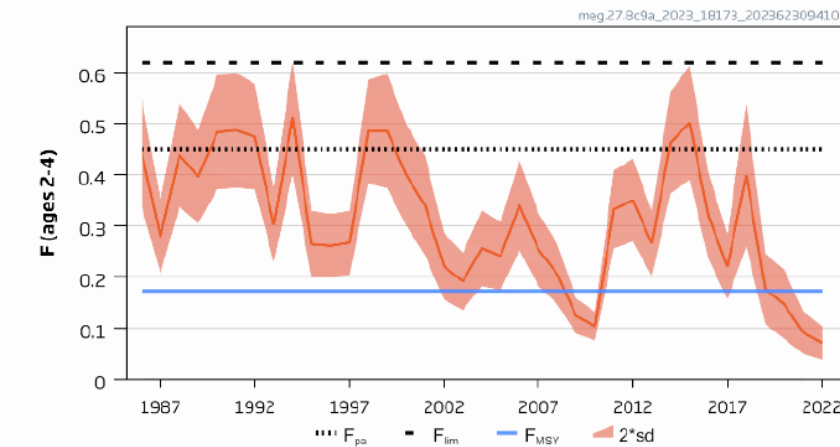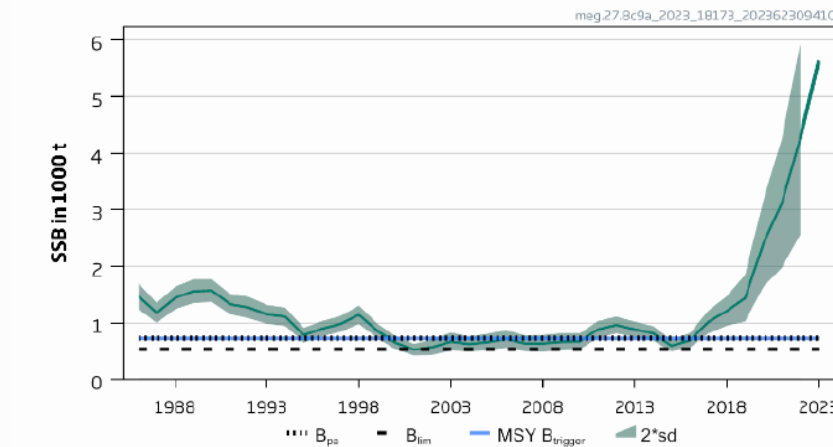
Catches
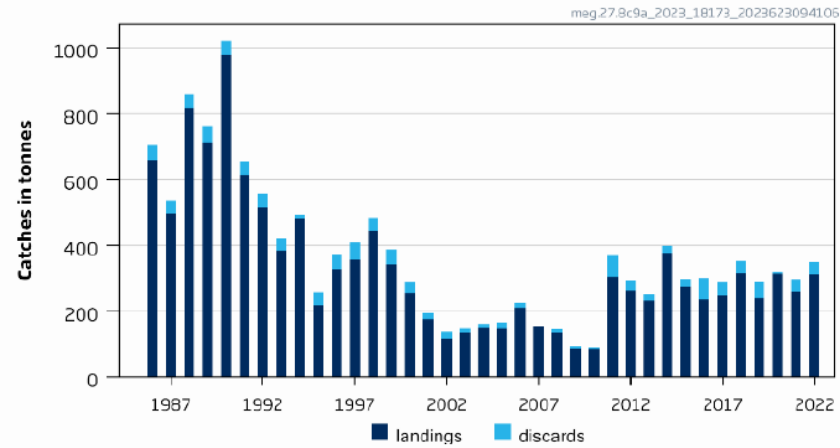
Recruitment (age 1)
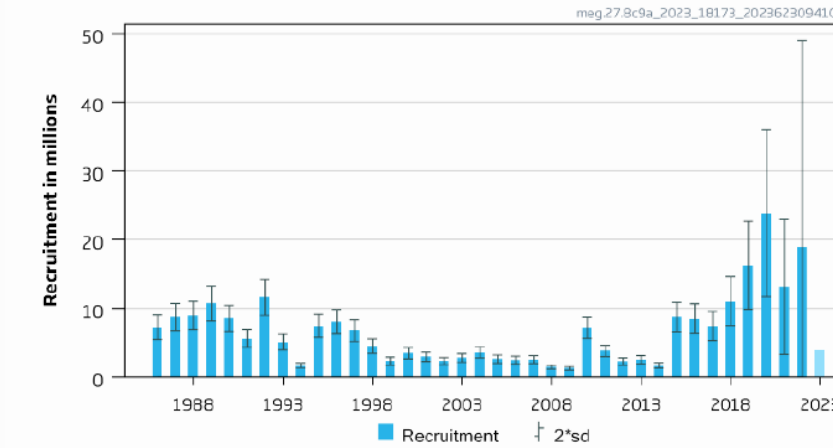
F

SSB

- F declining: below F_{MSY}
- SSB increasing: above MSY Btrigger
- Two species not separated in landing statistics
- TAC combined with four spot megrim
- Increase advice: increase stock size, upward revision ages 1-4 (retrospective)

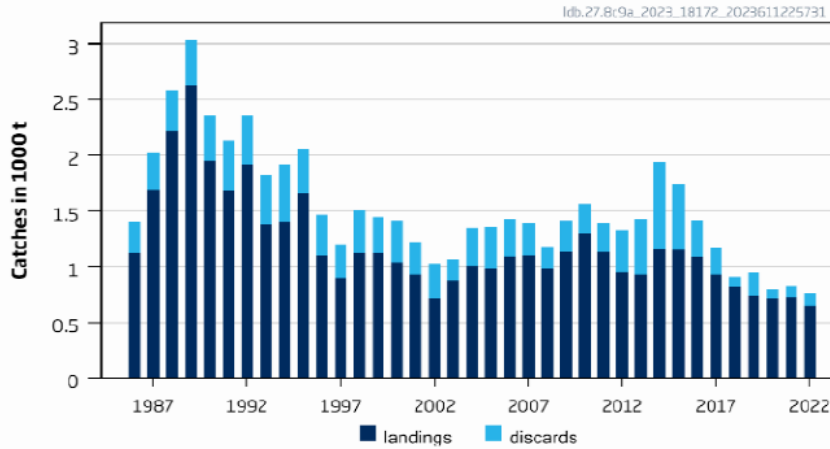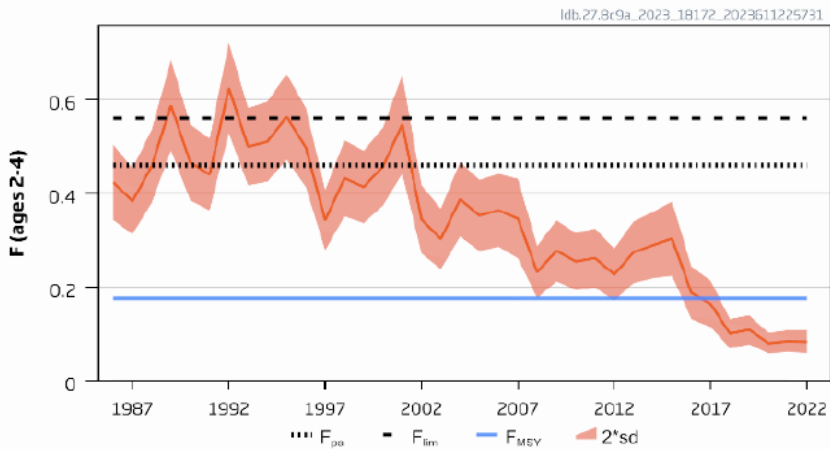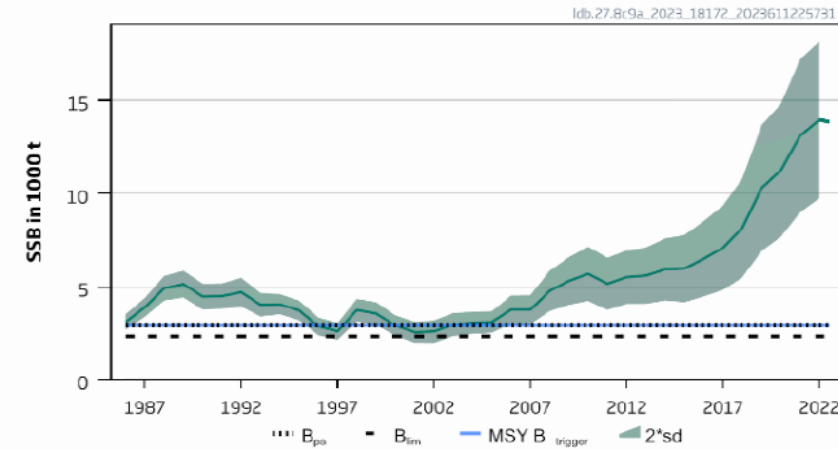**Catch (2022) : 350 t (11% discards)**
F(2023)=0.104 (Average 2020-2022)
SSB(2024)= 6 207t >MSY$_{Btrigger}$ (725 t) F$_{MSY}$ =0.173
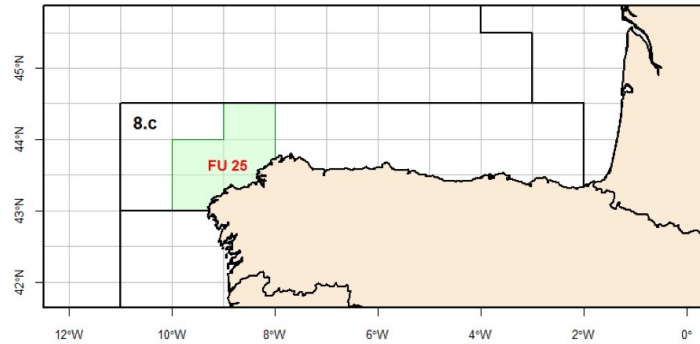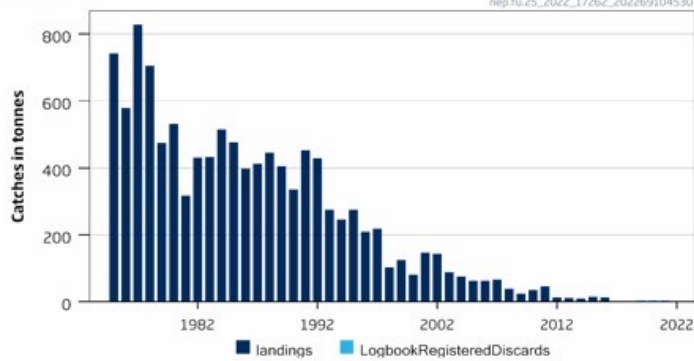
Basis	Total catch (2024)	Projected landings (2024)	Projected discards (2024)	$F_{ages\ 2-4}$ Total (2024)	$F_{ages\ 2-4}$ Projected landings (2024)	$F_{ages\ 1-2}$ Projected discards (2024)	SSB (2025)	% SSB change*	% advice change**
ICES advice basis									
EU MAP^: F_{MSY}	1271	1229	42	0.173	0.138	0.057	5575	−10.2	31
F = MAP^ $F_{MSY\ lower}$	859	831	28	0.112	0.089	0.037	6070	−2.2	31^^
F = MAP^ $F_{MSY\ upper}$	1915	1850	65	0.28	0.22	0.093	4809	−23	32^^
Other scenarios									
F = 0	0	0	0	0	0	0	7102	14.4	−100
F_{pa}	2757	2660	97	0.45	0.36	0.149	3814	−39	185
F_{lim}	3417	3292	124	0.62	0.49	0.20	3042	−51	253
SSB (2025) = B_{pa}	5487	5250	237	1.77	1.42	0.59	725	−88	467
SSB (2025) = B_{lim}	5677	5425	252	2.0	1.63	0.68	532	−91	486
SSB (2025) = MSY $B_{trigger}$	5487	5250	237	1.77	1.42	0.59	725	−88	467
SSB_{2025} = SSB_{2024}	744	720	24	0.096	0.077	0.032	6207	0	−23
F = F_{2023}	799	773	26	0.104	0.083	0.034	6141	−1.06	−17.5

A4A

Advice for 2024: EU MAP: Catch 1640 – 3537 t advice ~+3%
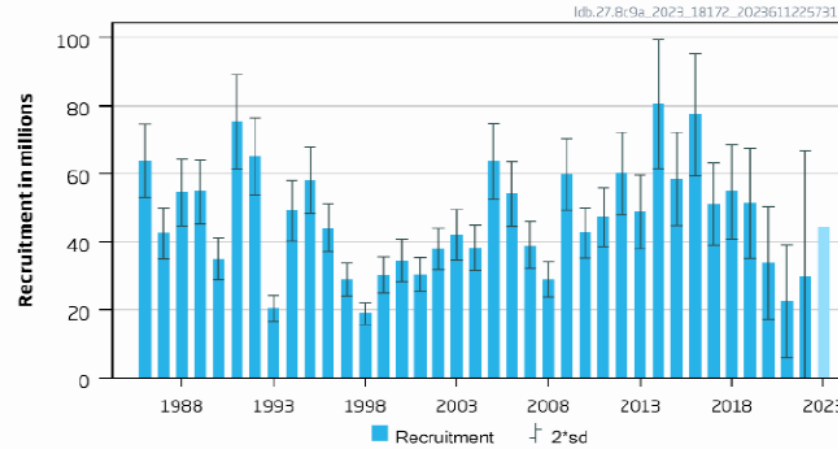
- F fairly stable below F_{MSY}
- SSB increasing: above MSY Btrigger
- Two species not separated in landing statistics
- TAC combined with megrim

Catch (2022) : 763 t (16% discards)

F(2023)=0.083 (Average 2020-2022)

SSB(2023)= 13 130 t >MSY$_{Btrigger}$ (2932 t) F$_{MSY}$ =0.176

Basis	Total catch (2024)	Projected landings (2024)	Projected discards (2024)	F$_{ages\ 2-4}$ Total (2024)	F$_{ages\ 2-4}$ Projected landings (2024)	F$_{ages\ 1-2}$ Projected discards (2024)	SSB (2025)	% SSB change*	% advice change^
ICES advice basis									
EU MAP^^: F$_{MSY}$	2351	2186	165	0.176	0.113	0.049	11371	−13.4	3.0
F = MAP^^ F$_{MSY\ lower}$	1640	1526	114	0.119	0.076	0.033	12126	−7.6	2.8^^^
F = MAP^^ F$_{MSY\ upper}$	3537	3284	253	0.280	0.179	0.078	10117	−23	3.4^^^
Other scenarios									
MSY approach = F$_{MSY}$	2351	2186	165	0.176	0.113	0.049	11371	−13.4	3.0
F = 0	0	0	0	0	0	0	13877	5.7	−100
F$_{pa}$	5291	4902	389	0.460	0.295	0.129	8277	−37	132
F$_{lim}$	6107	5651	456	0.558	0.357	0.153	7428	−43	168
SSB (2025) = B$_{pa}$	10564	9677	886	1.430	0.914	0.40	2932	−78	360
SSB (2025) = B$_{lim}$	11203	10238	965	1.660	1.060	0.46	2321	−82	390
SSB$_{2025}$ = SSB$_{2024}$	699	651	48	0.049	0.031	0.013	13130	0.00	−69
SSB (2025) = MSY B$_{trigger}$	10564	9677	886	1.430	0.914	0.40	2932	−78	360
F = F$_{2023}$	1166	1085	81	0.083	0.053	0.023	12632	−3.8	−49

A4A

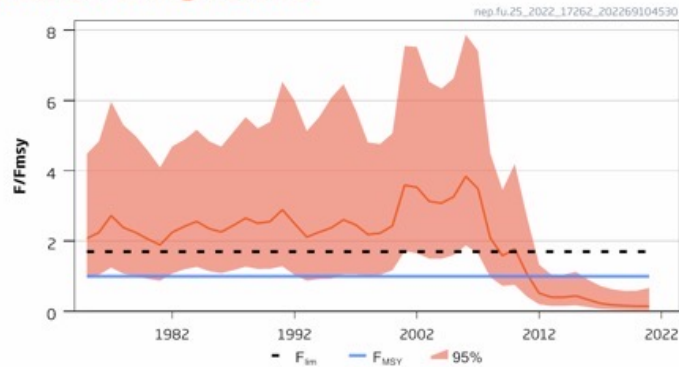**Advice for 2023, 2024, 2025: MSY:** Catch= 0 t No change

ICES CIEM
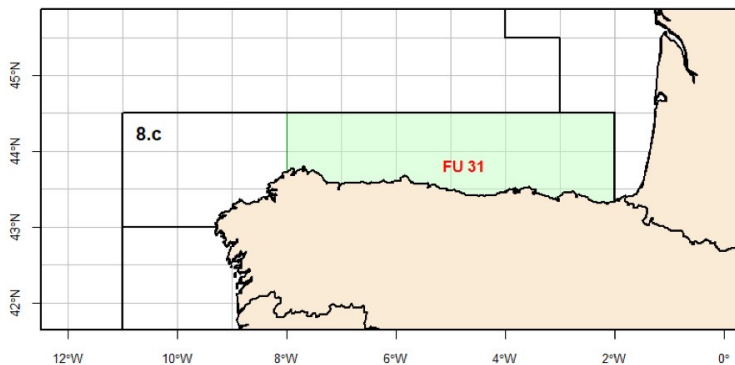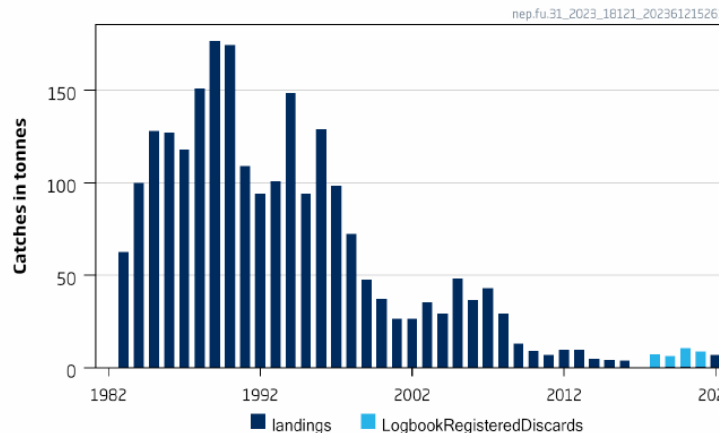
- Advice released 2022 no update

  Fishing pressure below F_{MSY}
  Spawning stock below B_{lim}
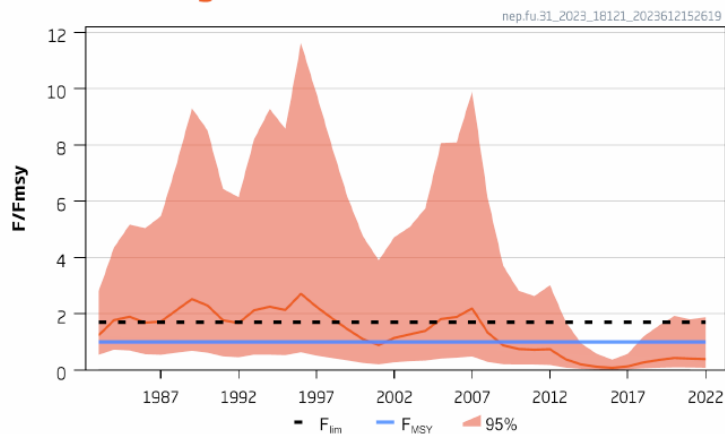 No catch scenario that will rebuild the stock above B_{lim} by 2024

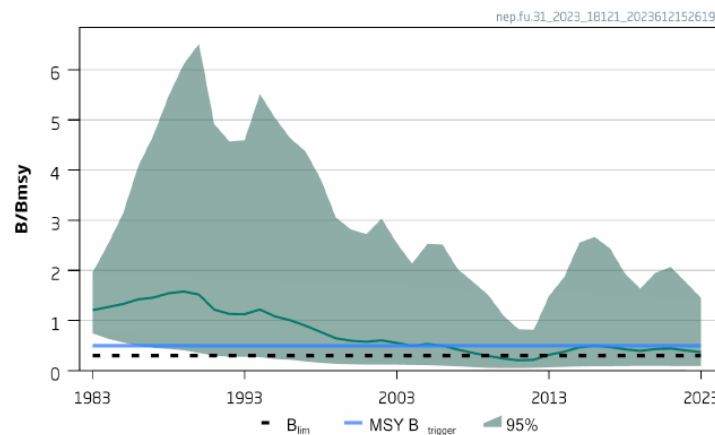**Advice for 2024: MSY:**   Catch $\leq$ 12.4 t   advice -28%
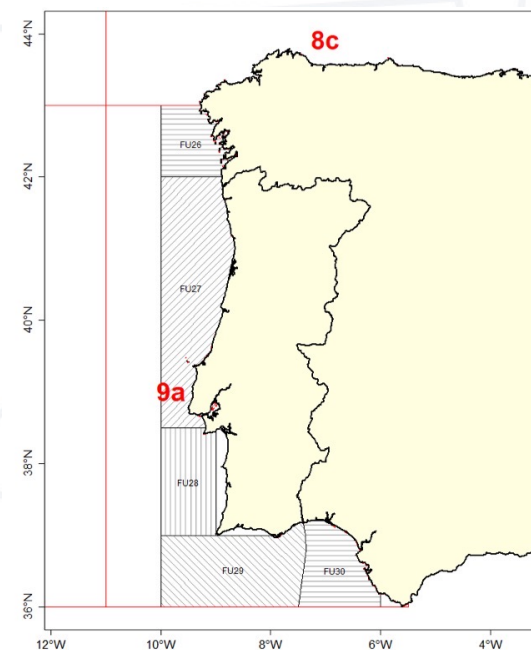
ICES CIEM

Catches

nep.fu.31_2023_18121_20236121526

Relative Fishing Pressure

nep.fu.31_2023_18121_2023612152619

Relative Biomass

nep.fu.31_2023_18121_2023612152619

- Fishing pressure below F_{MSY}
- Spawning stock below MSY Btrigger but above B_{lim}
- Decrease advice: decrease stock size and lower F target – further below trigger

Catch (2022) : 6.9 t (0 discards)
F(2023)/FMSY = 0.39 Fsq
Biomass (2024)/BMSY= 0.41 < MSY$_{Btrigger}$ 0.5

Basis	Total catch (2024)	Fishing pressure F_{2024}/F_{MSY}	Biomass B_{2025}/B_{MSY}	% Biomass change^	% TAC change^^^	% advice change^^
ICES advice basis						
MSY approach: 35th percentile of predicted catch distribution under F = F$_{MSY}$	12.4	0.60	0.43	4.9	−27	−28
Other scenarios						
F = F$_{2022}$ = F$_{sq}$	8.0	0.39	0.44	7.3	−53	−54
F = F$_{MSY}$	16.5	0.81	0.43	4.9	−2.9	−4.6
F = 0	0	0	0.46	12.2	−100	−100

SPiCT

Advice for 2023, 2024 and 2025: MSY: Catch= 0 t no change

ICES CIEM

Catches

- Fishing pressure below F_{MSY}
- Spawning stock below B_{lim}
- No catch scenario that will rebuild the stock above B_{lim} by 2024
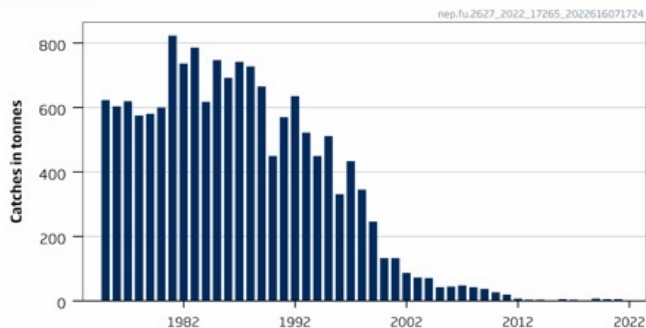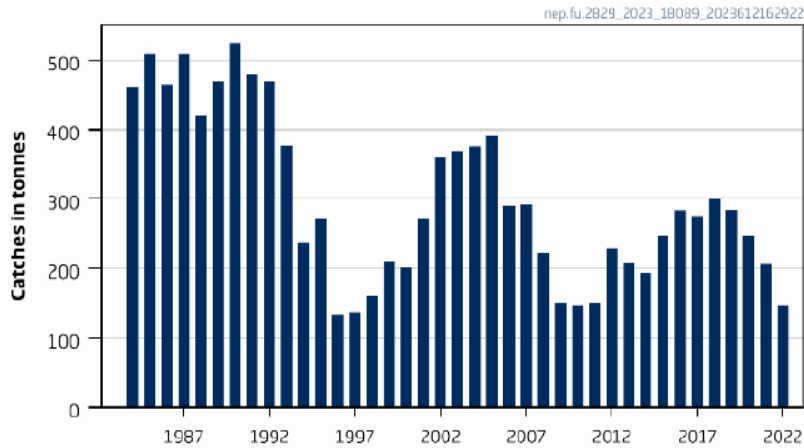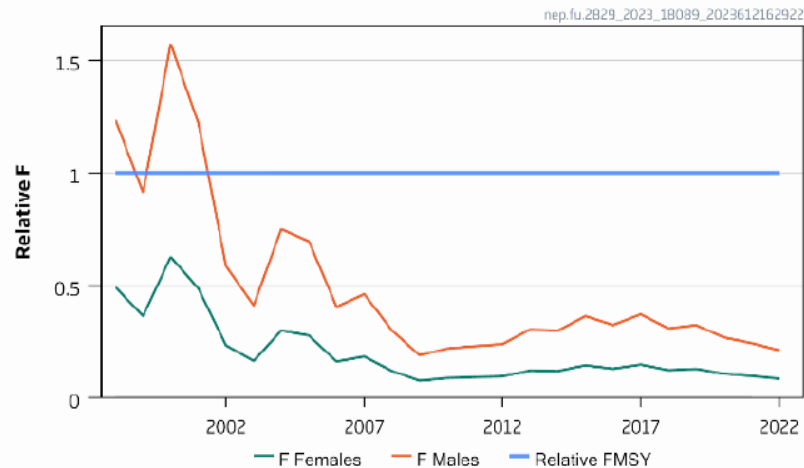
Relative Fishing Pressure

Relative Biomass

Advice released 2022 no update

Advice for 2024 and 2025: PA: Catch≤ 213 t -20%

Catches

Relative F

Biomass index
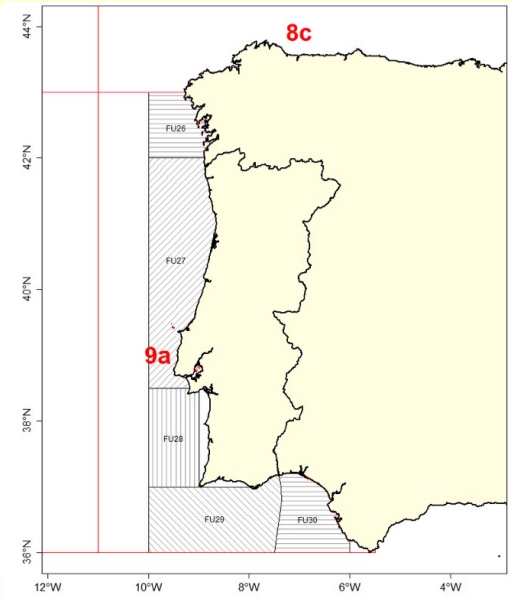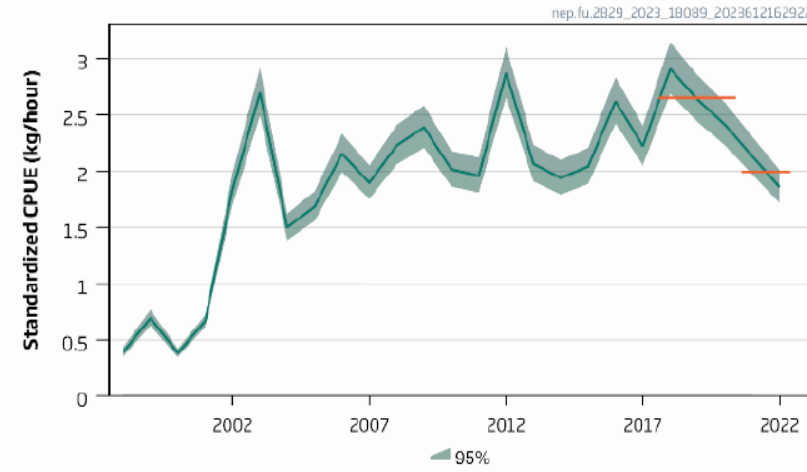
- Fishing pressure below F_{MSY}
- No biomass ref pt
- Advice lower: decline in biomass trend – uncertainty cap applied

Catch (2022) : 148 t (negligible discards)

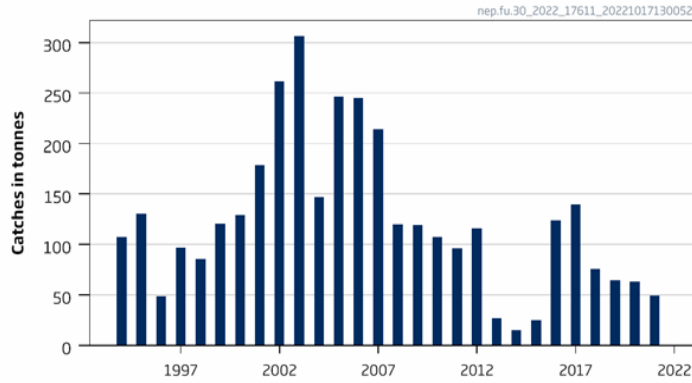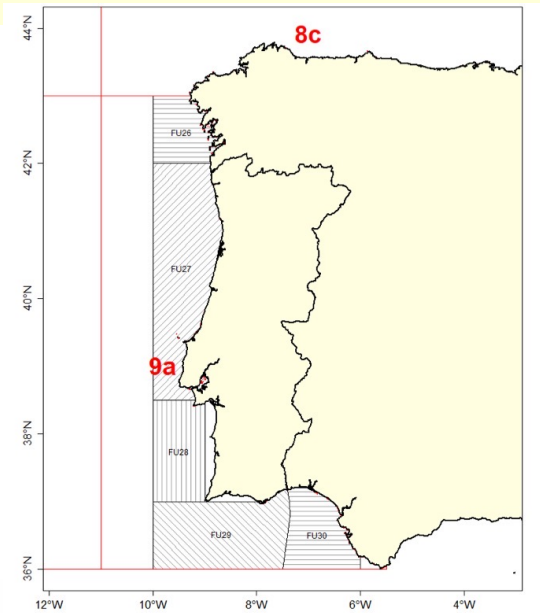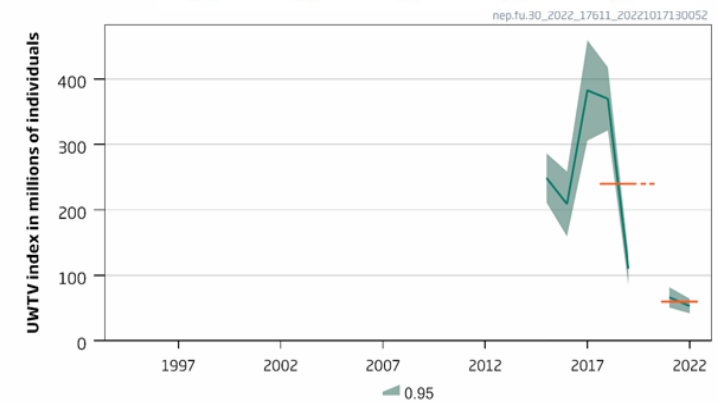|		
Index A (2021–2022)		1.99 kg h^{-1}
Index B (2018–2020)		2.65 kg h^{-1}
Index ratio (A/B)		0.75
Uncertainty cap	Applied	0.80
Advised catch for 2022 and 2023 (issued in 2021)		266 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice for 2024 and 2025 **		213 tonnes
% Advice change***		−20%

Category 3: 2 over 3

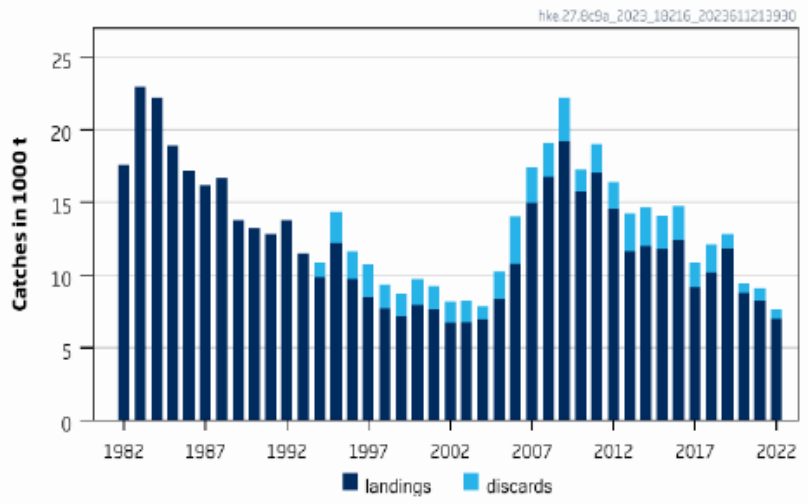**Advice for 2023: PA:** Catch$\leq$ 32 t -36%

Catches

- No reference points
- Fishing pressure variable
- Stock size declining
- PA buffer and uncertainty cap applied

Fishing pressure

Stock size

Advice released 2022 no update – advice for 2024 will be released in October

Advice for 2023: EU MAP: Catch 9199 – 17 445 t advice ~ +10%
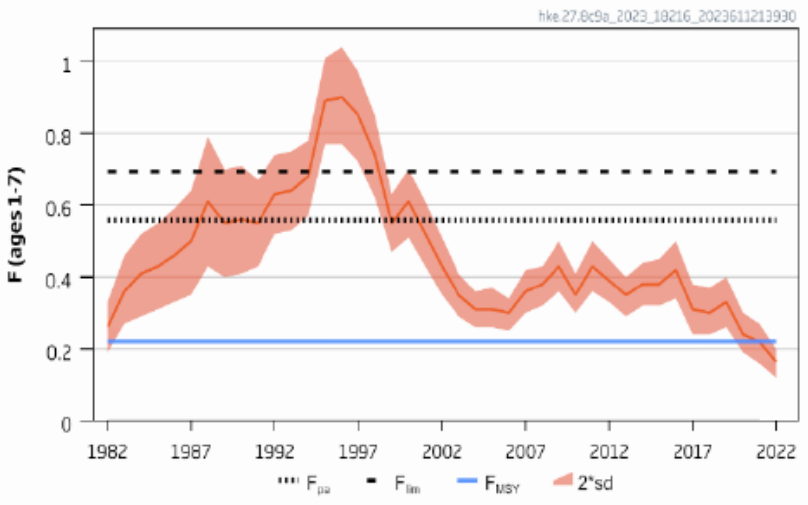
ICES
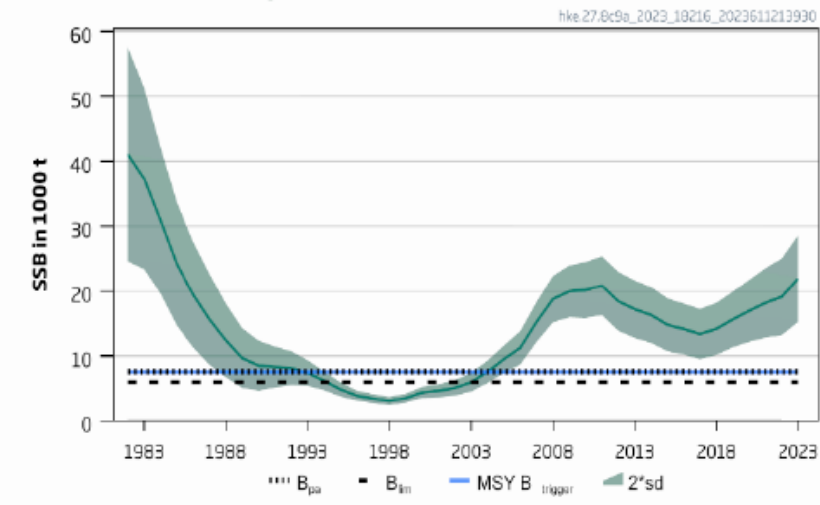CIEM

Catches

Recruitment
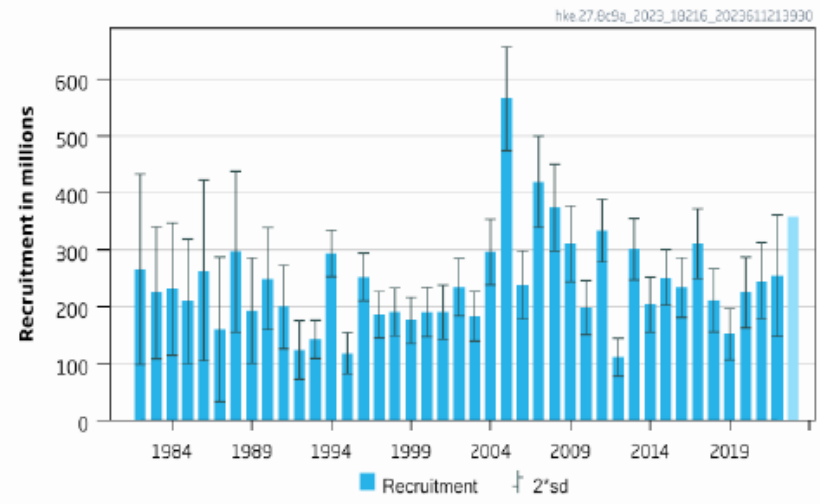
F

SSB (females only)

- Sex disaggregated – SSB females only
- F declining and below F_{MSY}
- SSB increasing and above MSY Btrigger

Catch (2022) : 7 582t (8% discards)
**F(2023)=0.21 (Average 2020-2022)**
SSB(2024)= 24 301 t >MSY$_{Btrigger}$ (7556 t) F$_{MSY}$ =0.221

Basis	Total catch (2024)	Projected landings (2024)	Projected discards (2024)	F$_{ages 1-7}$ total (2024)	F$_{ages 1-7}$ projected landings (2024)	F$_{ages 1-7}$ projected discards (2024)	SSB (2025)	% SSB change*	% TAC change^^	% advice change**
ICES advice basis										
EU MAP F = F$_{MSY}$^	12919	11783	1136	0.22	0.20	0.0190	26726	10.0	−18.9	9.6
EU MAP F = F$_{MSY lower}$	9119	8329	790	0.15	0.138	0.0130	28771	18.4	−43	9.6
EU MAP F = F$_{MSY upper}$	17445	15883	1563	0.31	0.28	0.028	24311	0.041	9.5	9.5
Other scenarios										
F = 0	0	0	0	0	0	0	33740	39	−100	−100
F = F$_{lim}$	32757	29591	3166	0.69	0.63	0.067	16349	−33	106	178
F = F$_{pa}$	28044	25406	2638	0.56	0.51	0.052	18756	−23	76	138
SSB (2025) = B$_{lim}$	54090	47993	6097	1.65	1.47	0.186	6011	−75	240	359
SSB (2025) = B$_{pa}$	50719	45182	5538	1.43	1.28	0.156	7556	−69	218	330
SSB (2025) = MSY B$_{trigger}$	50719	45182	5538	1.43	1.28	0.156	7556	−69	218	330
SSB (2025) = SSB (2024)	17463	15899	1564	0.31	0.28	0.028	24301	0	9.7	48
F = F$_{2023}$	12221	11150	1072	0.21	0.190	0.0180	27101	11.5	−23	3.7

Length based and sex disaggregated stock synthesis
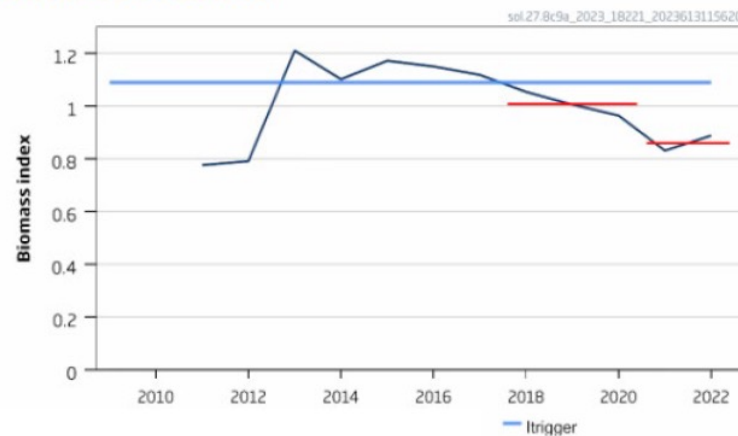
Advice for 2024 and 2025: MSY: Catch $\leq$ 209 t -35%
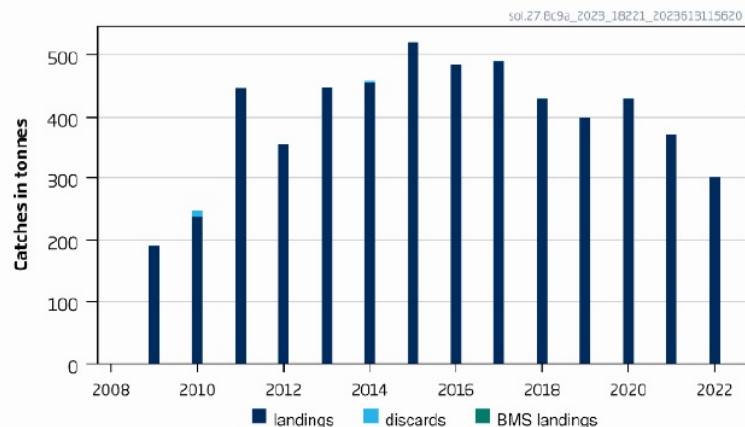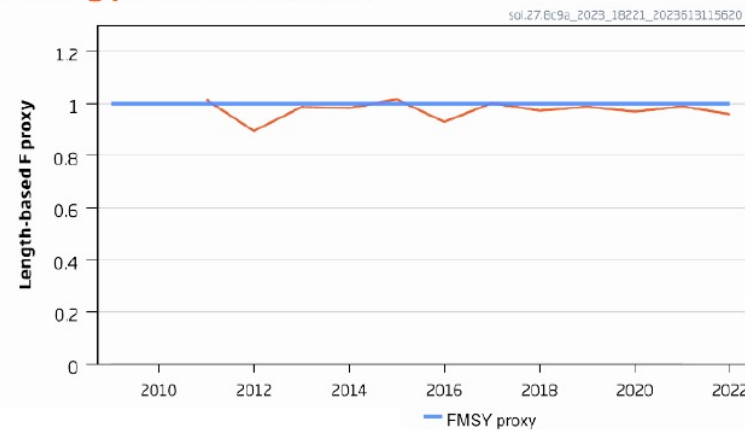
- F just below F_{MSY}
- Stock size decreased and below Itrigger
- Decrease in advice: lower stock size and below trigger so further reduction
- All sole under single TAC

Catch (2021) : 430 t (negligible discards)

Previous catch advice Ay (2022, 2023)	320 tonnes
Stock biomass trend	
Index A (2021, 2022)	0.86
Index B (2018, 2019, 2020)	1.01
r: Index ratio (A/B)	0.85
Fishing pressure proxy	
Mean catch length ($L_{mean} = L_{2022}$)	34.5 cm
MSY proxy length ($L_{F=M}$)	33.1 cm
f: multiplier for relative mean length in catches ($L_{mean}/L_{F=M\ 2022}$)	1.04
Biomass safeguard	
Last index value (I_{2022})	0.89
Index trigger value ($I_{trigger} = I_{loss} \times 1.4$)	1.09
b: multiplier for index relative to trigger $\min\{I_{2022}/I_{trigger}, 1\}$	0.82
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.90
RFB calculation: $A_{y+1} = A_y \times r \times f \times b \times m$	209 tonnes
Stability clause (+20%/−30% compared to A_y, only applied if b ≥ 1)	Not applied
Discard rate	Negligible
Catch advice for 2024 and 2025 ($A_y \times$ stability clause)	209 tonnes
Projected landings corresponding to advice**	209 tonnes
% advice change^	−35%

rfb rule

$Ay+1 = Ay \times r \times f \times b \times m$

Advice for 2024 and 2025: PA: Catch $\leq$ 382 t no change
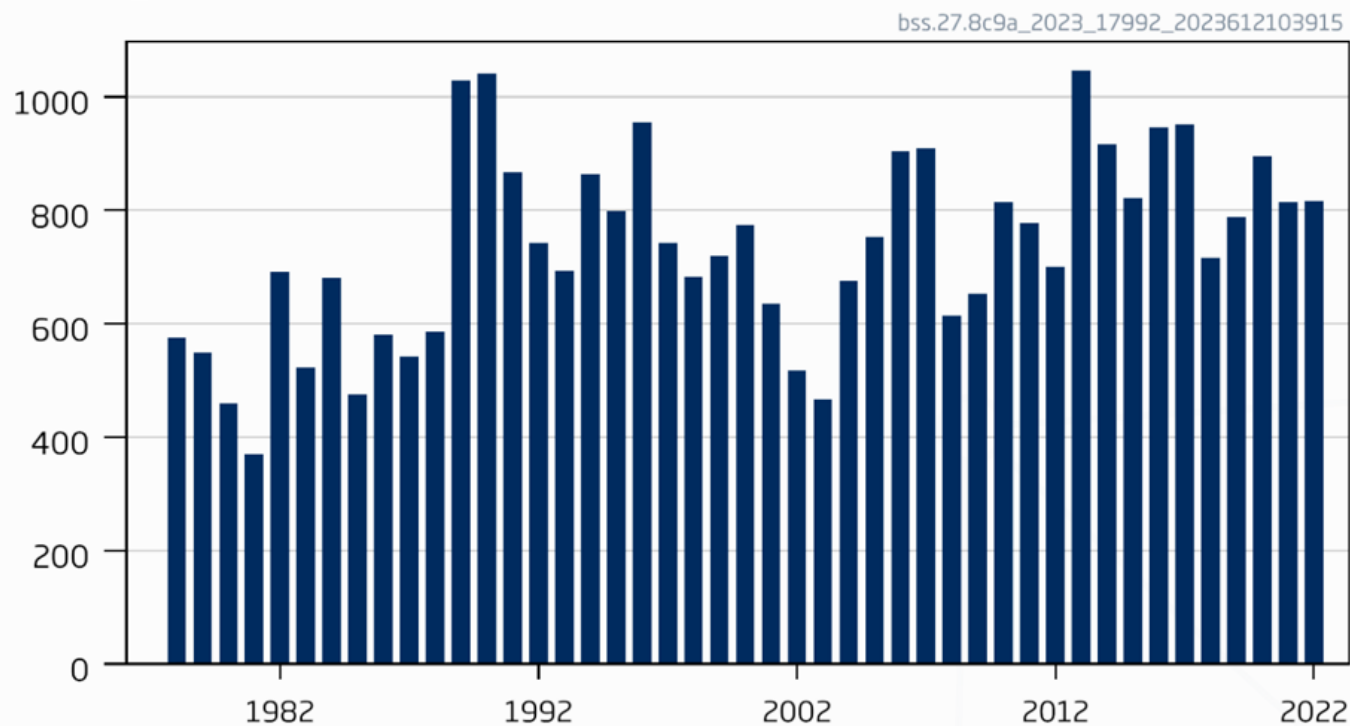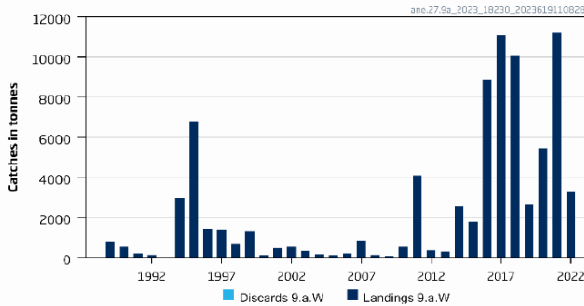
- Category 5
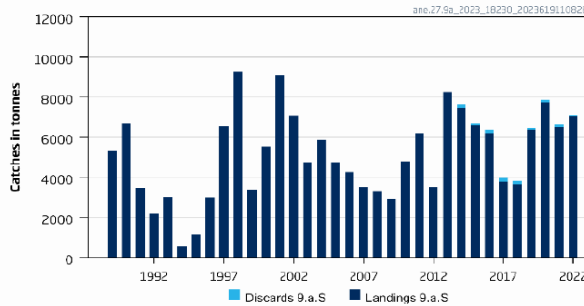- Recreational catch substantial but unquantified
- PA buffer not applied

Advice for 1 July 2023 – 30 June 2024: MSY:
Western ≤ 18 354 +30% Southern ≤ 2 201 +30%
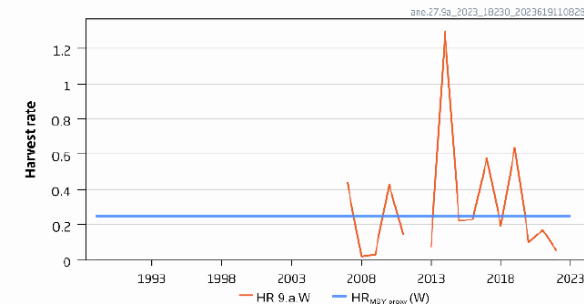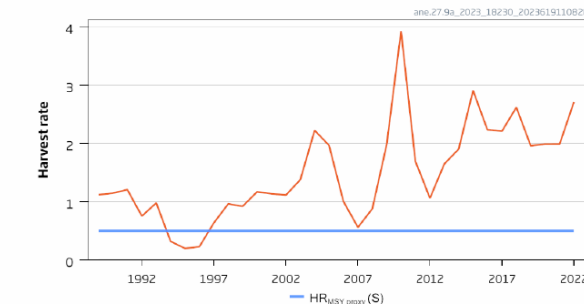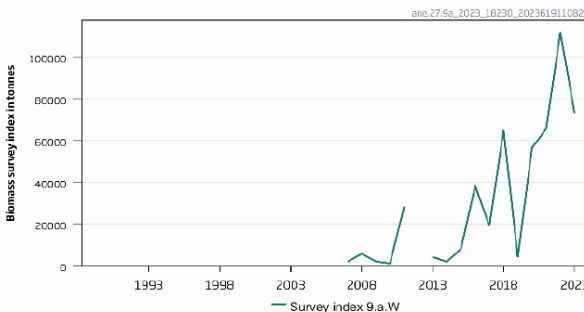
- Western: F below proxy, no stock size ref pts
- Southern: F above proxy, stock size above Blim and Bpa
- New chr based on MSE for each component – increase advice
- Southern – 2 missing surveys 2021 and 2022; age readings one survey 2023 not included – both these increase uncertainty in biomass index (result of GADGET)
- Management should be at component level

Catch (2022) : Western 3 548 t (0 discards)

: Southern 6 795t (2% discards)

Western component chr rule

Biomass index	
I: most recent biomass index (I_{2023})	73414 tonnes
MSY proxy harvest rate	
$HR_{MSY\ proxy}$: MSY proxy harvest rate (derived through an MSE)	0.25
chr calculation**	
Discard rate	Negligible
Catch advice Ay=1 for 1 July 2023 – 30 June 2024	18354 tonnes
% advice change***	30%

Southern component chr rule

Biomass index	
I: most recent biomass index (I_{2023})	4402 tonnes
MSY proxy harvest rate	
$HR_{MSY\ proxy}$: MSY proxy harvest rate (derived through an MSE)	0.50
chr calculation**	
Discard rate	Negligible
Catch advice Ay=1 for 1 July 2023 – 30 June 2024	2201 tonnes
% advice change***	30%

$$Ay+1 = I_{2023} \times HR_{MSY\ proxy}$$

Benchmark planned

Thank you for your attention!

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