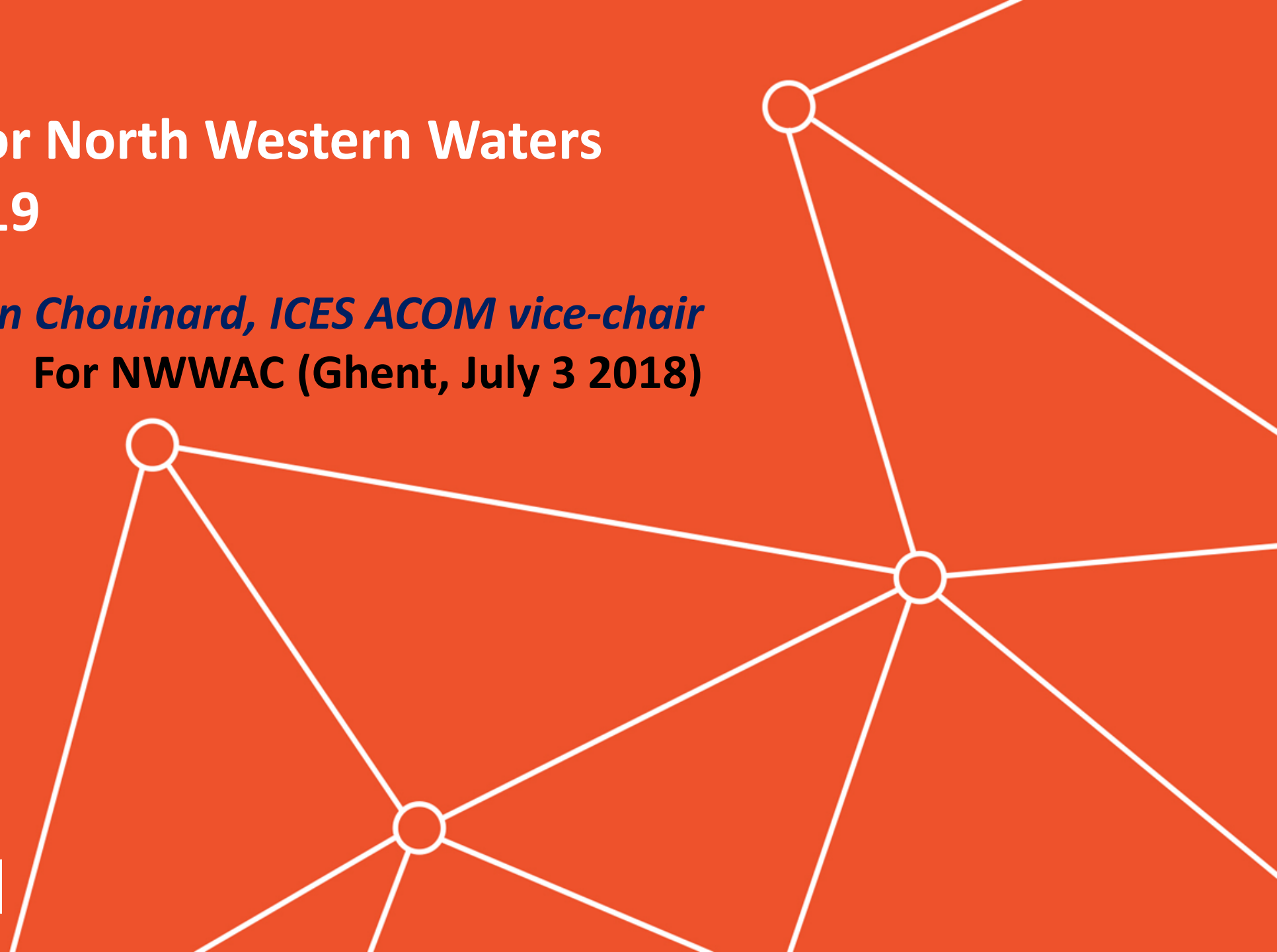
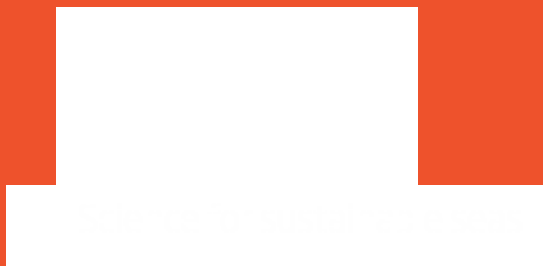


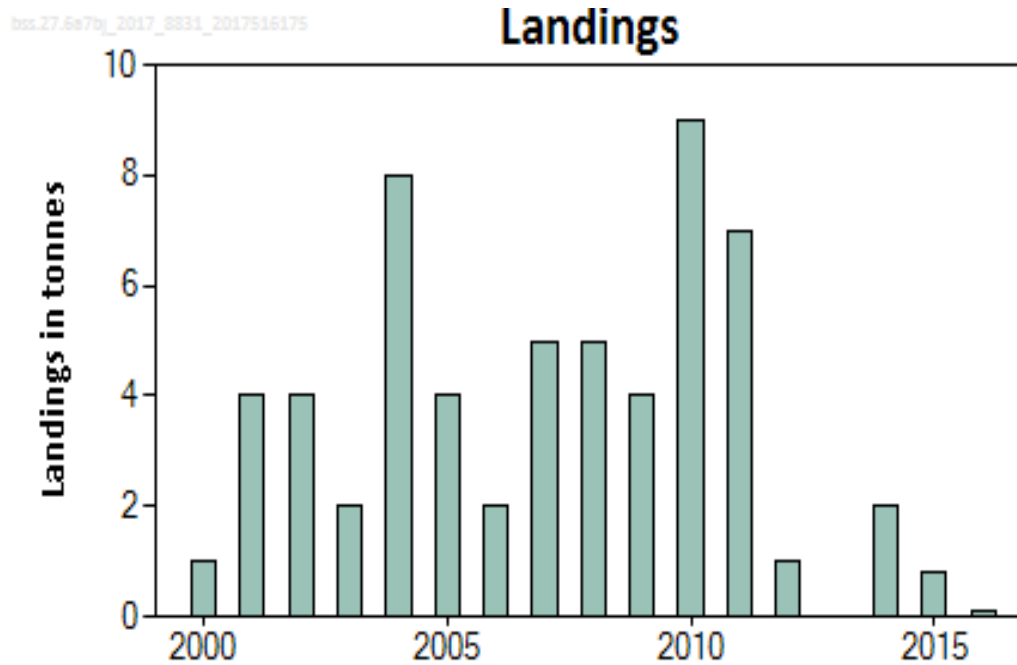
ICES advice for North Western Waters stocks for 2019

Ghislain Chouinard, ICES ACOM vice-chair
For NWWAC (Ghent, July 3 2018)



Seabass 6.a, 7.b, and 7.j

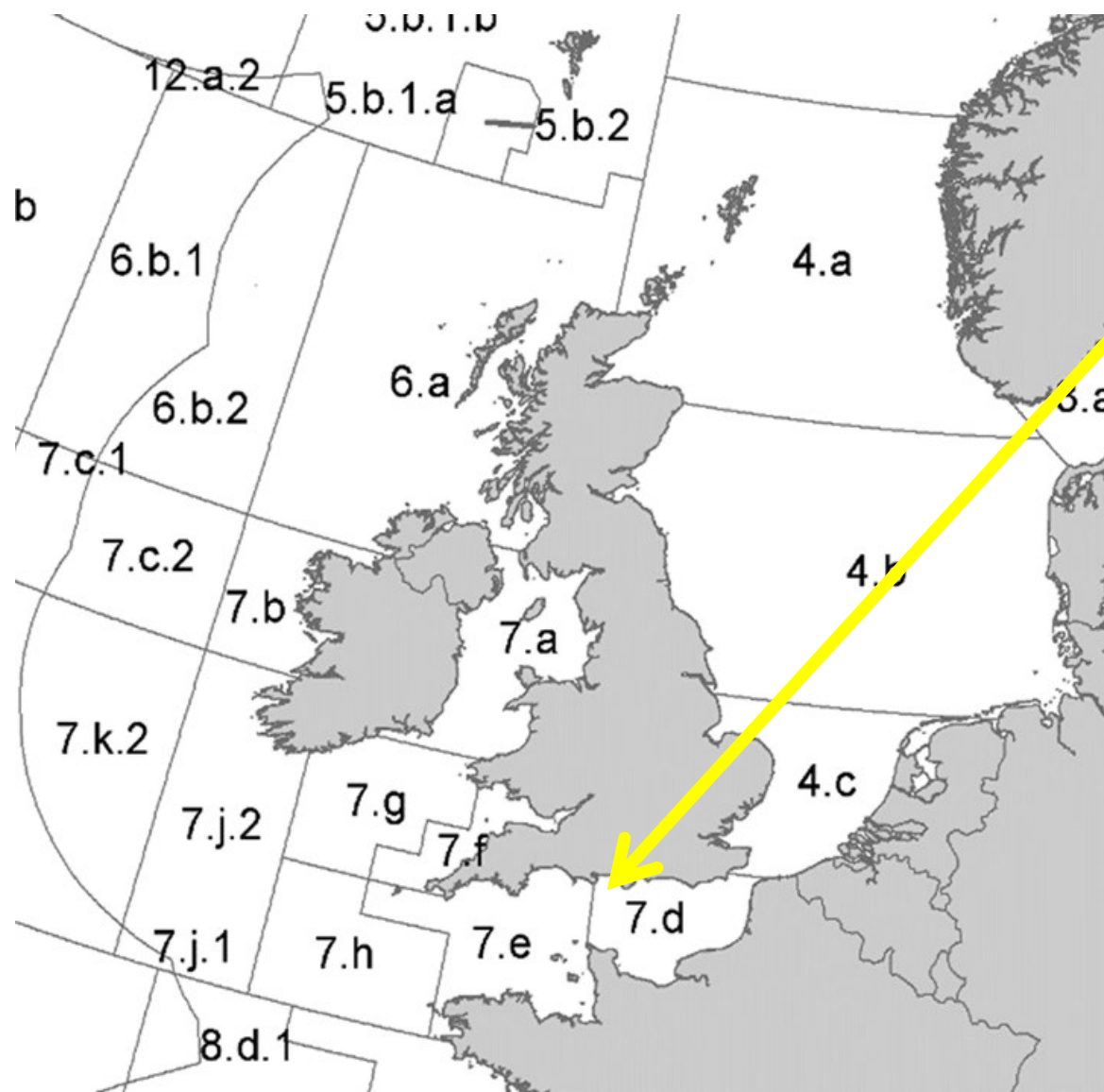
Advice for 2018, 2019 and 2020: PA: Catch ≤ 4 t



- Limited information available on seabass in this area.
- Reported catches: 0.1 t in 2016.
- Stock identity is unknown.
- Advice based on precautionary reduction of recent advised catch.

	Fishing pressure				Stock size					
		2014	2015	2016		2014	2015	2016		
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSY_{B_{escapement}}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—	Not applicable	S_{SBMGT}	—	—	—	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	Qualitative evaluation	?	?	?	Unknown

English Channel (Divisions 7.d and e)

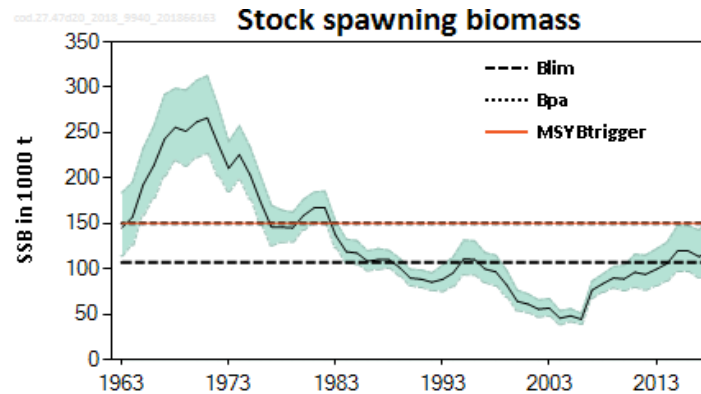
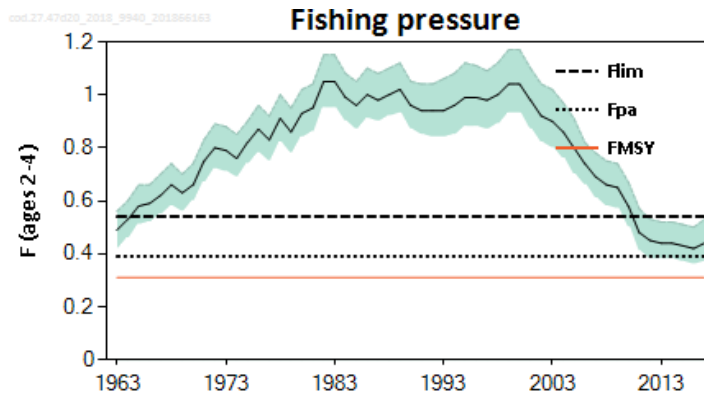
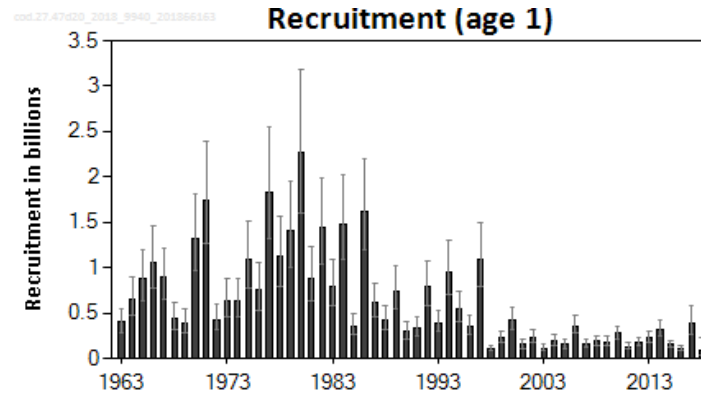
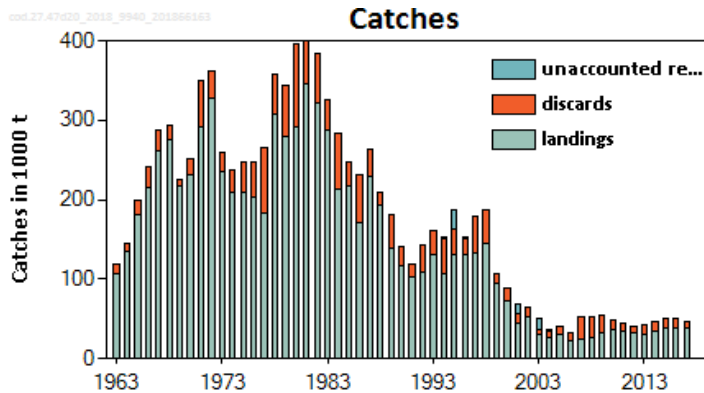


- Cod (4, 7.d, Skagerrak)
- Sole (7.d)
- Sole (7.e)
- Plaice (7.d)
- Plaice (7.e)
- Whiting 4,7.d
- Seabass 4.b-c, 7.a, 7.d-h

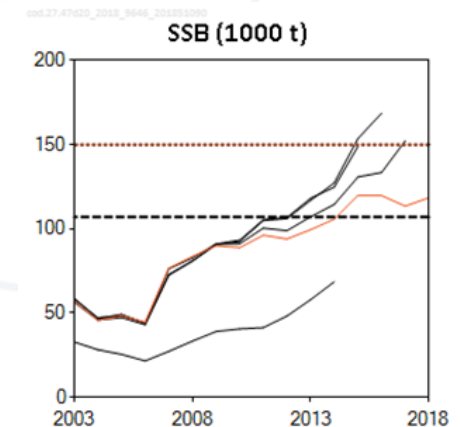
Cod in Subarea 4 and Divisions 7.d and subdivision 20



Advice for 2019, MSY: Catch \leq 28 204 t



- Revised perception of the stock.
- Spawning stock has increased since 2006 but still below MSY B_{trigger}.
- Fishing pressure declined since 2000, but remains above F_{MSY}.
- Recruitment remains poor.



	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	F _{MSY}	✘	✘	✘ Above	MSY B _{trigger}	✘	✘ Below trigger
Precautionary approach	F _{pa} , F _{lim}	○	○	○ Increased risk	B _{pa} , B _{lim}	○	○ Increased risk
Management plan	F _{MGT}	—	—	— Not applicable	B _{MGT}	—	— Not applicable

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

Catch (2017) : 46 725 t (19 % discards)

F(2018) = 0.45 (Average exploitation pattern (2015-2017) scaled to 2017);

SSB (2019)= 116 380 t <MSY B_{trigger} (150 000 t) F_{MSY}= 0.31



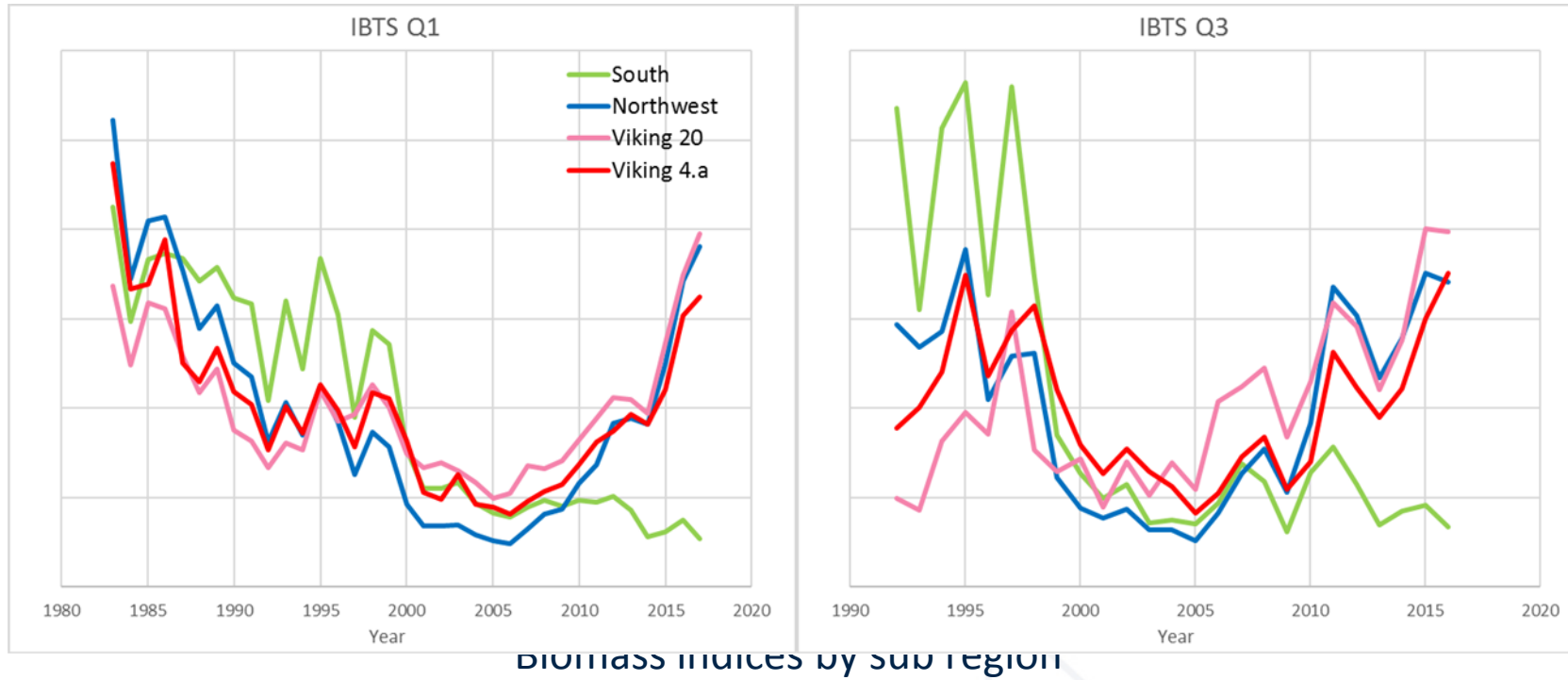
Basis	Total catch (2019)	Wanted catch* (2019)	Unwanted catch* (2019)	F _{total} (2019)	F _{wanted} (2019)	F _{unwanted} (2019)	SSB (2020)	% SSB change **	% TAC change ***	% Advice change^
ICES advice basis										
MSY approach: F _{MSY} ×SSB(2019)/MSY B _{trigger}	28204	22331	5873	0.24	0.17	0.07	141896	22	-47	-47
Other scenarios^^^										
F = MAP^^ F _{MSY lower} ×SSB(2019)/MSY B _{trigger}	18759	14900	3859	0.154	0.109	0.045	152399	31	-65	-65
EU–Norway Management Strategy	42307	33357	8950	0.38	0.27	0.111	126249	8.5	-20	-20
F = 0	0	0	0	0	0	0	173375	49	-100	-100
F _{pa}	43081	33947	9134	0.39	0.28	0.113	125436	7.8	-18.5	-18.8
F _{lim}	56130	44231	11899	0.54	0.38	0.157	111247	-4.4	6.1	5.8
SSB (2020) = B _{lim}	60232	47418	12814	0.59	0.42	0.172	107000	-8.1	13.9	13.5
SSB (2020) = B _{pa}	20989	16647	4342	0.174	0.123	0.051	150000	29	-60	-60
SSB (2020) = MSY B _{trigger}	20989	16647	4342	0.174	0.123	0.051	150000	29	-60	-60
TAC (2018) – 20%	42307	33357	8950	0.38	0.27	0.111	126249	8.5	-20	-20
TAC (2018) – 10%	47596	37493	10103	0.44	0.31	0.127	120469	3.5	-10	-10.3
Constant TAC	52884	41655	11229	0.5	0.36	0.146	114646	-1.49	0	-0.33
TAC (2018) + 10%	58172	45801	12371	0.56	0.4	0.164	109085	-6.3	10	9.6
TAC (2018) + 20%	63460	49989	13471	0.63	0.45	0.185	103620	-11	20	19.6
F = F ₂₀₁₈	48422	38138	10284	0.45	0.32	0.131	119592	2.8	-8.4	-8.7
F=F _{MSY lower}	23669	18765	4904	0.198	0.14	0.058	147011	26	-55	-55
F = F _{MSY}	35358	27950	7408	0.31	0.22	0.09	133964	15.1	-33	-33

** SSB 2020 relative to SSB 2019.

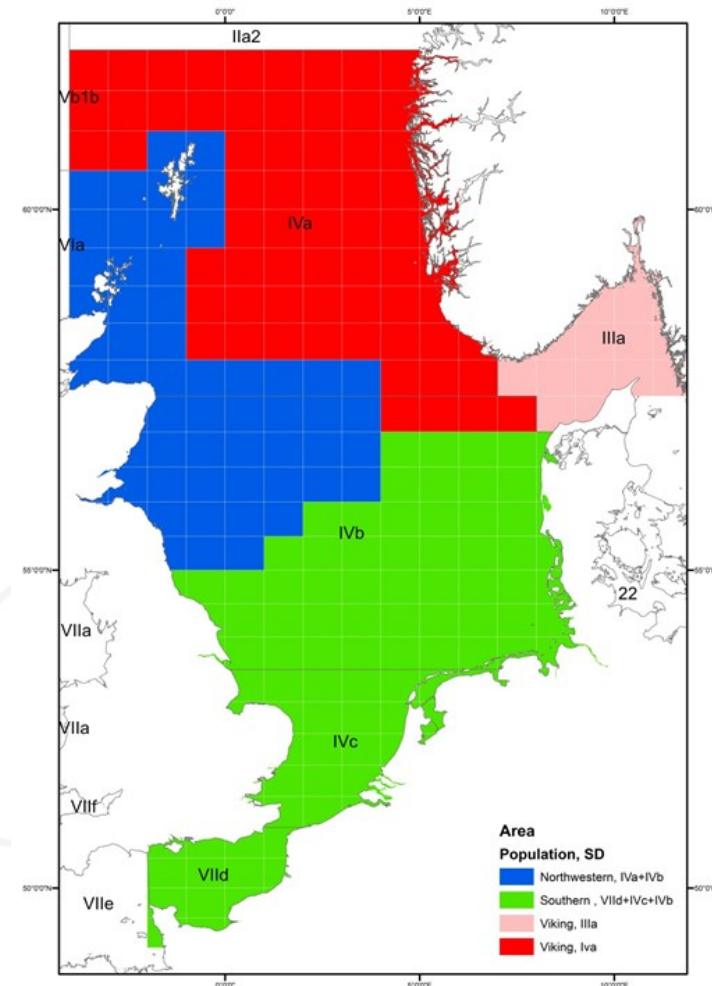
*** Catch in 2019 relative to TAC in 2018: North Sea (43 156 t) + Skagerrak (7995 t) + Eastern English Channel (1733 t) = 52 884 t.

^ Total catch 2019 relative to advice value 2018 (53 058 t).

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



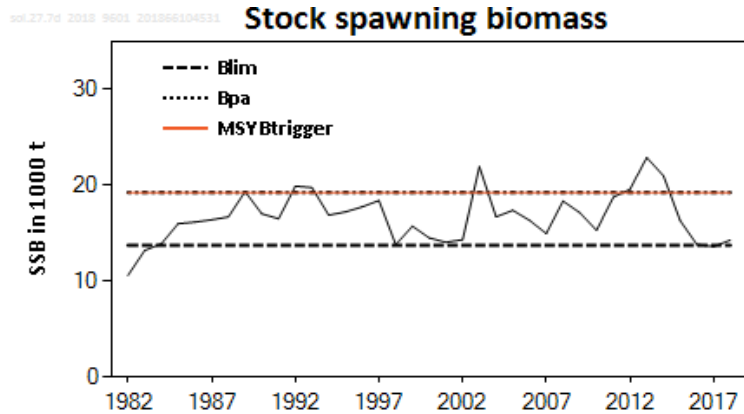
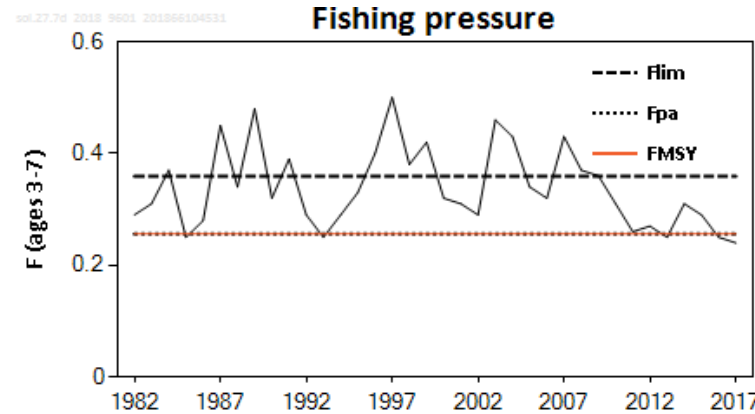
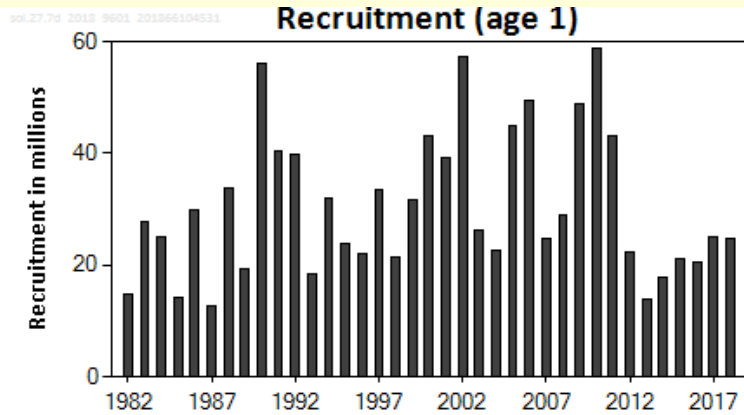
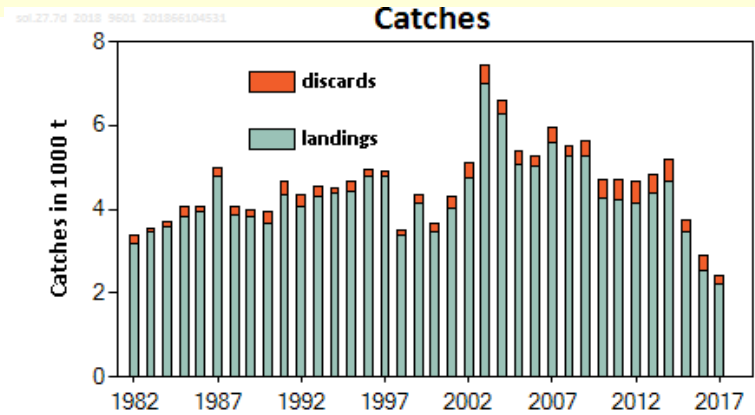
- General increase in all areas apart from the southern area.
- Causes – climate change; biological, and/or fisheries effects ?



Sole in the eastern English Channel (7.d)

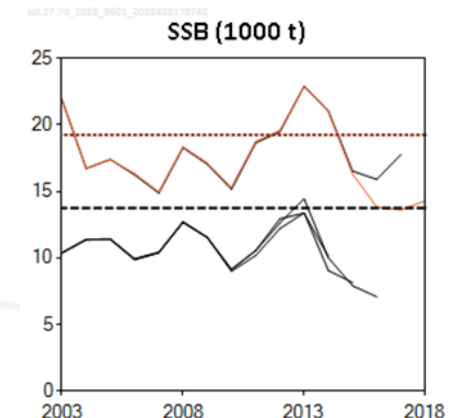


Advice for 2019: MSY: Catch ≤ 2571 t



- Spawning stock fluctuating, now around B_{lim} and MSY $B_{trigger}$
- Fishing mortality has been decreasing since 2014 and is below F_{MSY} in 2017.
- Recruitment has been fluctuating without trend, no strong recruitment since 2011.

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	F_{MSY}	✘	✔	✔ Below	$MSY B_{trigger}$	✘	✘ Below trigger
Precautionary approach	F_{pa}, F_{lim}	○	✔	✔ Harvested sustainably	B_{pa}, B_{lim}	○	✘ Increased risk
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	— Not applicable



Sole in the eastern English Channel (7.d)

Catch (2017) : 2428 t (8 % discards)

F(2018) = 0.24 (Recent average exploitation pattern (2015-2017, scaled to 2017);

SSB (2019)= 15 224 t < MSY_{Btrigger} (19 251 t) F_{MSY}= 0.256



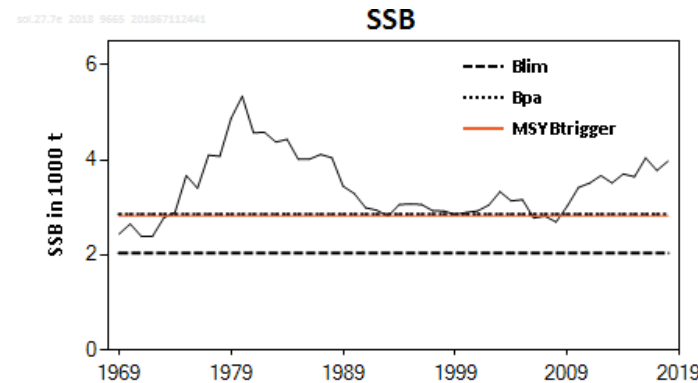
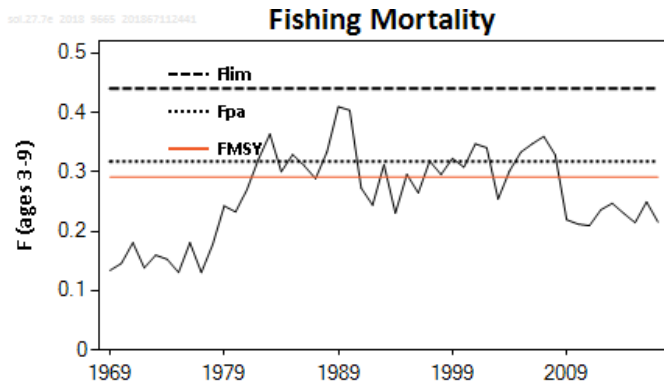
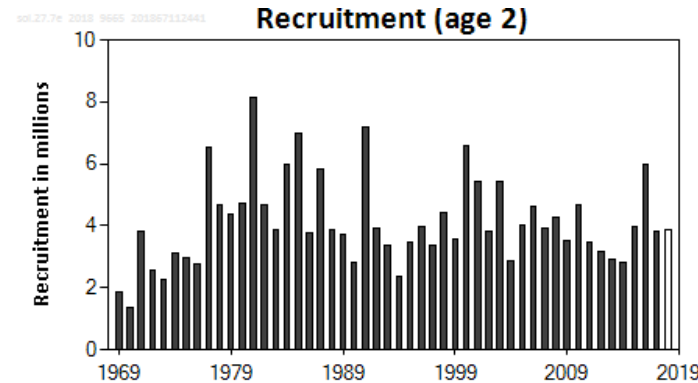
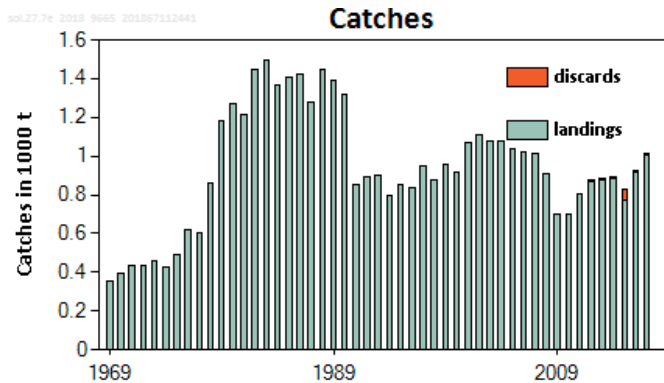
Basis	Total catch (2019)	Wanted catch * (2019)	Unwanted catch* (2019)	F _{total}	F _{wanted} (ages 3-7)	F _{unwanted} (ages 1-3)	SSB (2020)	% SSB change **	% TAC change***	% Advice change ^
ICES advice basis										
MSY approach: F _{MSY} × SSB (2019)/MSY B _{trigger}	2 571	2 266	305	0.2	0.185	0.056	16 615	9.1	-24	-33
Other scenarios^^										
F= F _{MSY lower} × SSB (2019)/MSY B _{trigger}	1 998	1762	236	0.154	0.141	0.043	17 205	13	-41	-48
Constant TAC	3 405	2 997	408	0.28	0.25	0.076	15 757	3.5	0	-11.9
TAC (2018) +15% ^	3 916	3 444	472	0.32	0.3	0.089	15 232	0.053	15	1.29
TAC (2018) -15% ^	2 894	2 549	345	0.23	0.21	0.064	16 282	7	-15	-25
F = 0	0	0	0	0	-	-	19 267	27	-100	-100
F _{MSY}	3 181	2 800	381	0.256	0.23	0.071	15 988	5	-6.6	-17.7
F _{pa}	3 181	2 800	381	0.256	0.23	0.071	15 988	5	-6.6	-17.7
F _{lim}	4 279	3 761	518	0.359	0.33	0.099	14 860	-2.4	26	10.7
SSB (2020) = B _{lim}	5 360	4 704	656	0.47	0.43	0.13	13 751	-9.7	57	39
SSB (2020) = B _{pa}	16	14	2	0.00114	0.00104	0.00031	19 251	26	-100	-100
SSB (2020) = MSY B _{trigger}	16	14	2	0.00114	0.00104	0.00031	19 251	26	-100	-100
F ₂₀₁₉ = F ₂₀₁₈	3 013	2 653	360	0.24	0.22	0.066	16 160	6.1	-11.5	-22
F = F _{MSY lower}	2 484	2 189	295	0.195	0.179	0.054	16 704	9.7	-27	-36

** SSB 2020 relative to SSB 2019. *** Total catch in 2019 relative to TAC in 2018 (3 405 t) ^ Total catch in 2019 relative to advice value 2018 (3 866 t).

Sole in the western English Channel (7.e)



Advice for 2019: MSY: Catch \leq 1 272 t



- Spawning-stock biomass (SSB) has been above MSY $B_{trigger}$ since 2009.
- Fishing mortality (F) has been below F_{MSY} since 2009.
- Recruitment has been variable without an overall trend.

Assessment includes UK beam trawl and otter trawl commercial indices.

	Fishing pressure			Stock size				
	2015	2016	2017	2016	2017	2018		
Maximum sustainable yield	F_{MSY}	✓	✓	✓	Below			
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓	Harvested sustainably			
Management plan	F_{MGT}	—	—	—	Not applicable			
				MSY $B_{trigger}$	✓	✓	✓	Above trigger
				B_{pa}, B_{lim}	✓	✓	✓	Full reproductive capacity
				B_{MGT}	—	—	—	Not applicable

Sole in the western English Channel (7.e)

Catch (2017) : 1 012 t (<1 % discards)

F(2018) = 0.22 (Recent average fishing pressure (2015-2017, scaled to 2017);

SSB (2019)= 4 105 t > MSY_{Btrigger} (2 900 t) F_{MSY} = 0.29



Basis	Total catch* (2019)	Wanted catch** (2019)	Unwanted catch** (2019)	F _{wanted} (2019)	SSB (2020)	% SSB change ***	% TAC change ^	% Advice change
ICES advice basis								
MSY approach: FMSY	1 272	1 237	35	0.29	3 882	-5.4	5.8	2.7
Other scenarios								
F = FMSY lower	748	728	20	0.16	4 379	6.7	-38	-40
F = FMSY upper	1 456	1 416	40	0.34	3 709	-9.6	21	18
F = 0	0	0	0	0	5 092	24	-100	-100
Fpa	1 383	1 346	38	0.32	3 777	-8	15	12
Flim	1 797	1 748	49	0.44	3 387	-18	50	45
SSB (2020) = Blim	3 291	3 202	89	1.05	2 000	-51	174	166
SSB (2020) = Bpa= MSY								
Btrigger	2 317	2 254	63	0.61	2 900	-29	93	87
F = F2018	980	953	27	0.22	4 159	1.32	-18	-21
Management plan: F = 0.27 with 15% TAC constraint	1 196	1 163	32	0.27	3 955	-3.7	-0.499	-3.5

* Total catch derived from the wanted catch and the unwanted catches ratio.

*** SSB 2020 relative to SSB 2019.

^ Total catch in 2019 relative to TAC in 2018 (1 202t).

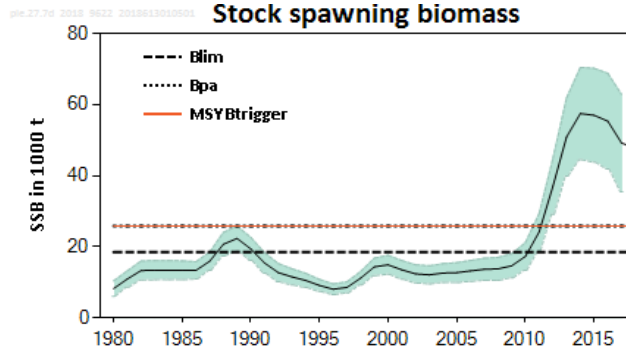
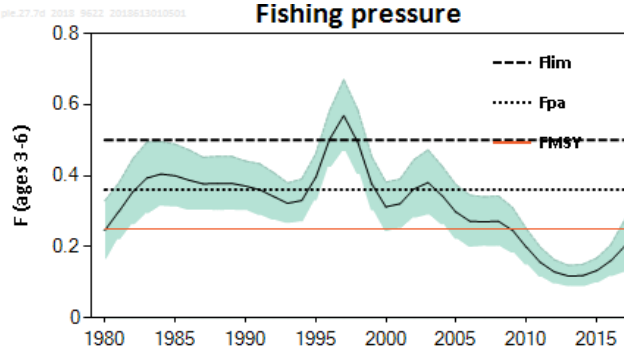
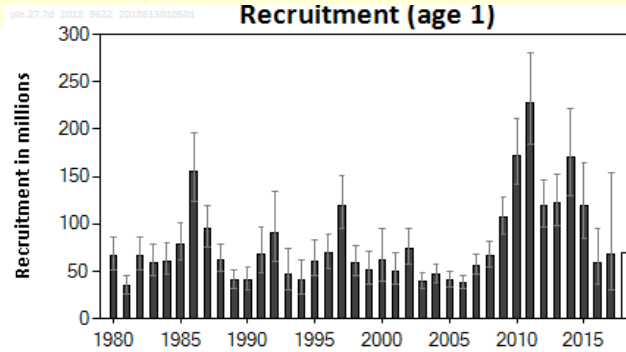
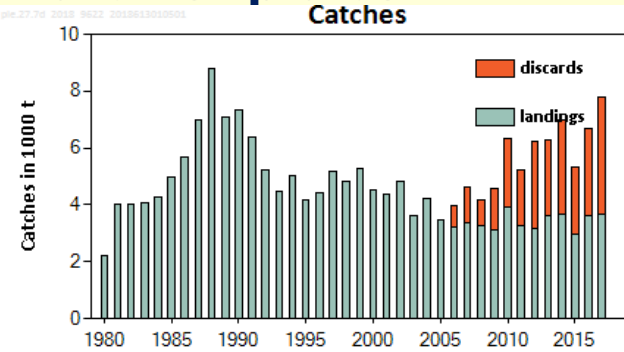
^^Advice value for 2019 relative to advice value for 2018 (1 239t).

Plaice in the eastern English Channel (7.d)



Advice for 2019, MSY: Catch $\leq 7\ 864$ t (stock)

Catch of plaice in Div. 7.d* $\leq 9\ 225$ t



- Part of the catches of plaice in Division 7.d are from the Western Channel and North Sea stocks.
- Spawning stock has increased during 2008-2015 and well above MSY $B_{trigger}$.
- Fishing mortality has declined since the early 2000s and has been below F_{MSY} since 2009.
- Recruitment lower in recent years but about average
- Caught in mixed fishery with sole – high discards of plaice

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum Sustainable Yield	F_{MSY}	✓	✓	✓ Below	MSY	✓	✓ Above trigger
Precautionary Approach	F_{pa} F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa} B_{lim}	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	— Not applicable

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

Plaice in the eastern English Channel (7.d)



Catch (2017) : 7 764 t - for the plaice 7d stock (52 % discards); 9 678 t in 7d
F(2018) = 0.201 (Average exploitation pattern (2015-2016) scaled to F2017);
SSB (2019)= 42 420 t > MSY_{Btrigger} (25 826 t) F_{MSY}= 0.25

Basis	Division 7.d plaice stock										Plaice in Division 7.d #					
	Total catch (2019) [^]	Wanted catch (2019)	Unwanted catch (2019)	F _{total} (2019)	F _{wanted} (2019)	F _{unwanted} (2019)	SSB (2020)	% SSB change **	% change in wanted catch	% advice change [§]	Total catch (2019)	Wanted catch* (2019)	Unwanted catch* (2019)	% change in wanted catch ^{^^}	% change in the 7.d portion	% advice change ^{###}
ICES advice basis																
ICES MSY approach (F_{MSY})	7864	4878	2986	0.25	0.117	0.133	37200	-12.3	32	-26	9225	5722	3503	24	17.2	-25
Other scenarios																
F= F _{MSY lower}	5670	3509	2162	0.175	0.082	0.093	39571	-6.7	-4.9	-46	6651	4116	2536	-10.8	-15.5	-46
F= F _{MSY upper}	10435	6491	3944	0.344	0.161	0.183	34455	-18.8	76	-1.48	12239	7614	4626	65	55	-1.12
F = 0	0	0	0	0	0	0	45814	8	-100	-100	0	0	0	-100	-100	-100
F _{pa}	10853	6755	4099	0.36	0.169	0.191	34012	-19.8	83	2.5	12731	7923	4808	72	62	2.9
F _{lim}	14302	8936	5367	0.5	0.234	0.266	30399	-28	142	35	16776	10481	6295	127	113	36
SSB (2020) = B _{lim}	26337	16674	9663	1.152	0.539	0.612	18447	-57	350	149	30892	19558	11334	320	290	150
SSB (2020) = B _{pa}	18778	11791	6987	0.707	0.331	0.376	25826	-39	220	77	22026	13831	8195	200	180	78
SSB (2020) = MSY B _{trigger}	18778	11791	6987	0.707	0.331	0.376	25826	-39	220	77	22026	13831	8195	200	180	78
F = F ₂₀₁₈	6452	3996	2456	0.201	0.094	0.107	38723	-8.7	8.3	-39	7568	4687	2881	1.6	-3.8	-39

§ Total catch in 2019 relative to advice value 2018 (10 592 t) for the Division 7.d plaice stock

^^ Wanted catch in 2019 relative to the ICES estimates of landings in 2017 (4 613 t) for plaice caught in Division 7.d.

Total catch in 2019 relative to the Division 7.d proportion of the TAC in 2018 (7 871 t), assuming the same proportion of the TAC is taken from Division 7.e during 2003–2017.

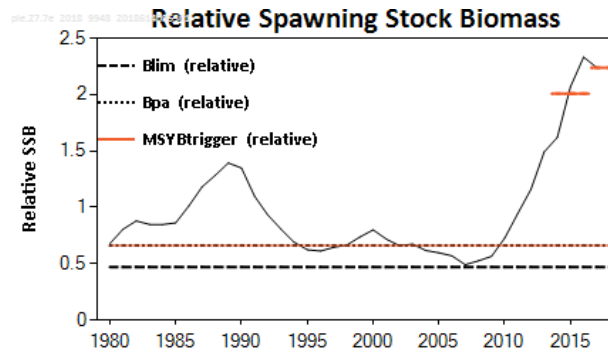
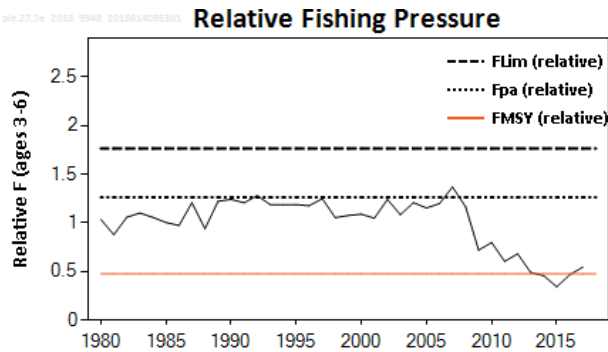
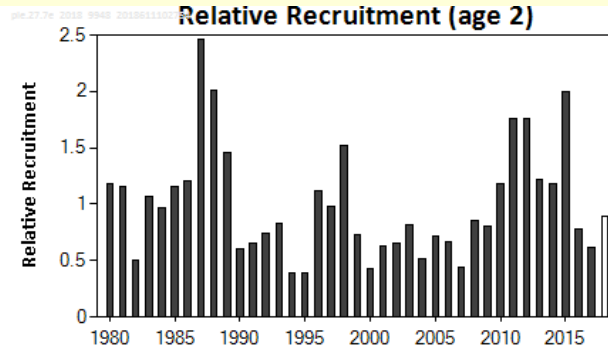
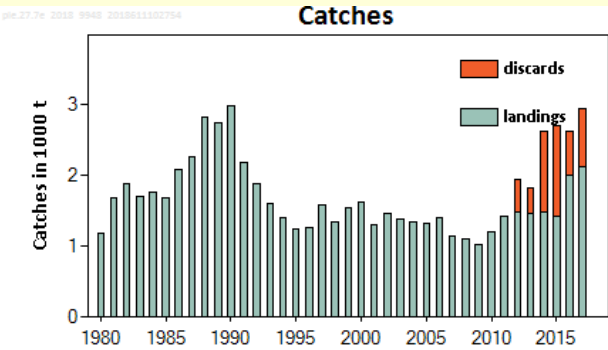
Total catch in 2019 relative to advice value 2018 (12 378 t) for plaice caught in Division 7.d

Plaice in the western English Channel (7.e)



Advice for 2019, PA: Catch $\leq 3,648$ t (stock)

Catch of plaice in Div. 7.e* $\leq 3,283$ t



- Assessment indicative of trends: discards not in assessment, but taken into account when producing advice. Includes UK-FSP survey.
- Spawning stock has increased since 2008 and near highest in time-series
- F declined substantially after 2007 but increased again since 2015 and is currently above F_{MSY} .
- Recruitment has been fluctuating without trend.

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	F_{MSY} proxy	✓	✓	✗ Above proxy	$MSY B_{trigger}$ proxy	✓	✓ Above proxy
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa}, B_{lim}	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	— Not applicable

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

Plaice in the western English Channel (7.e)

Catch (2017) : 2 949 t (28% discards)



Division 7.e plaice stock	
Index A (2017–2018)	2.2
Index B (2014–2016)	2.0
Index ratio (A/B)	1.12
Uncertainty cap	Not Applied -
Advised catch for 2018 issued in 2017	3 257 tonnes
Discard rate (2012–2017)	0.31
Precautionary buffer	Not applied -
Catch advice**	3 648 tonnes
Wanted catch corresponding to catch advice^	2 517 tonnes
% Advice change (plaice 7.e stock)***	12%
Plaice in Division 7.e	
Proportion of Division 7.e stock landings caught in Division 7.e (2003–2017)	0.90
Catch of plaice in Division 7.e corresponding to the advice for the stock	3 283 tonnes
Wanted catch of plaice in Division 7.e corresponding to the advice for the stock^	2 265 tonnes

** (recent advised catch × index ratio).

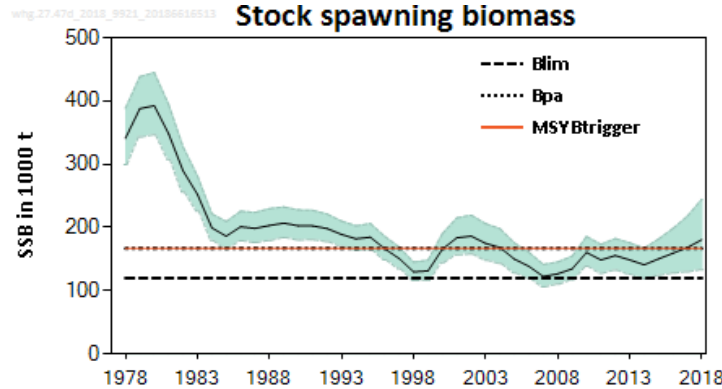
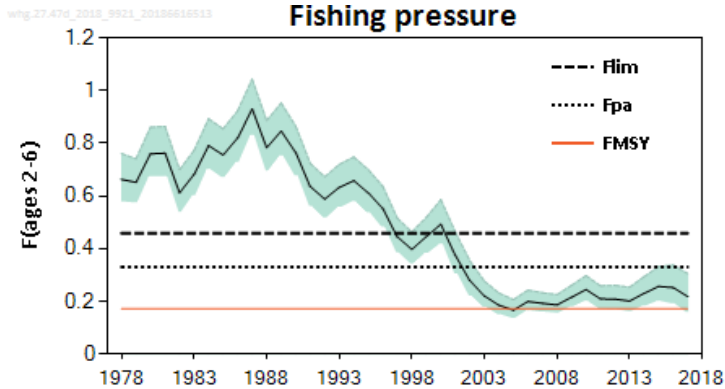
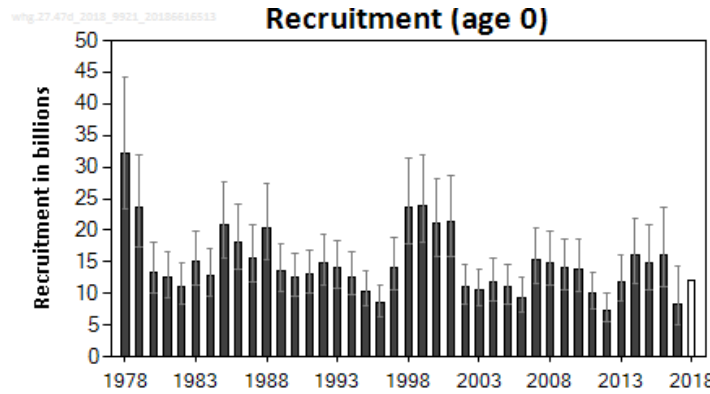
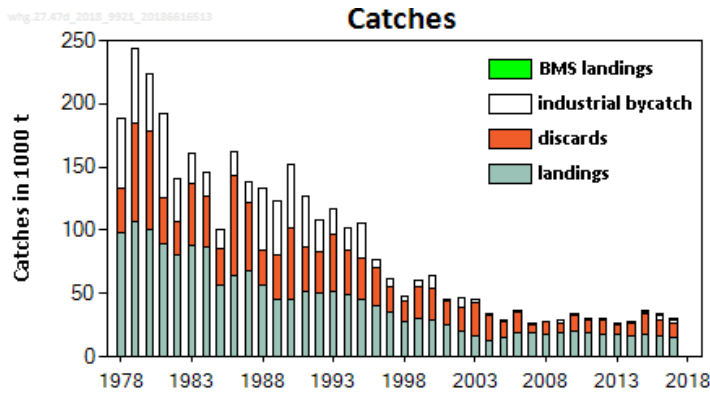
***Advice value 2019 relative to advice value 2018.

^ “Wanted catch” is used to describe fish that would be landed in the absence of the EU landing obligation.

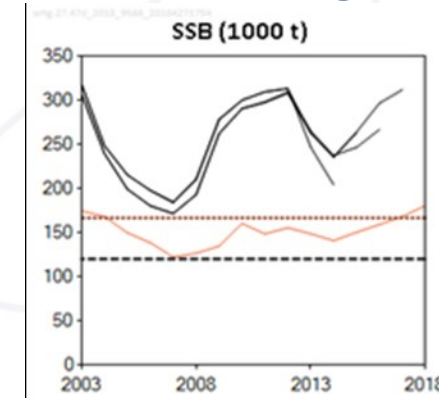
Whiting in the North Sea and eastern English Channel (4 and 7.d)



Advice for 2019, MSY: Catch \leq 25 302 t



- Benchmark in 2018: Downward scaling of spawning stock biomass.
- Spawning stock above $B_{trigger}$.
- Fishing pressure remains above F_{MSY} .
- Recruitment generally lower.



XSA
SAM

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	F_{MSY}	✗	✗	✗ Above	$B_{trigger}$	✗	✓ Above trigger
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa}, B_{lim}	○	✓ Full reproductive capacity
Management plan	F_{MGT}	-	-	- Not applicable	B_{MGT}	-	- Not applicable

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



Catch (2017): 29 344 t (39 % discards and 9 % IBC)

F (2018)=Average exploitation pattern(2015-2017), scaled to 2017;

SB(2019) = 178 kt > MSY_{Btrigger} (167↓)

F_{MSY}=0.172↑

Basis	Total catch 2019	Total wanted catch 2019	Total unwanted catch 2019	Total IBC 2019 **	HC catch 4+7.d 2019	HC catch 4 2019 ***	HC catch 7.d 2019 ***	Total F 2019 +	F (wanted catch) 2019	F (unwanted catch) 2019	F(IBC) 2019 ++	SSB 2020	% SSB change ^	% TAC change (HC catch 4)^^	% Advice change ^^
ICES advice basis															
MSY approach: F_{MSY}	25302	13298	8815	3190	22113	18026	4086	0.172	0.099	0.051	0.022	171663	-3.80%	-18.30%	-3.40%
Other scenarios															
F = MAP [#] F _{MSY lower}	23382	12145	8030	3207	20174	16446	3728	0.158	0.09	0.046	0.022	172992	-3.00%	-25%	-10.70%
F = MAP F _{MSY upper} ^{##}	25302	13298	8815	3190	22113	18026	4086	0.172	0.099	0.051	0.022	171663	-3.80%	-18.30%	-3.40%
F ₂₀₁₉ = 0(IBC only)	3385	0	0	3385	0	0	0	0.022	0	0	0.022	186996	4.80%	-100%	-87%
F ₂₀₁₉ = F ₂₀₁₈	31614	17087	11394	3133	28481	23218	5263	0.22	0.129	0.067	0.022	167297	-6.20%	5.30%	21%
Rollover TAC	30203	16239	10818	3146	27060	22057	5000	0.21	0.123	0.063	0.022	168274	-5.70%	0%	15.30%
15% TAC decrease (27.4 only)	26181	13824	9175	3182	23008	18748	4250	0.178	0.103	0.053	0.022	171057	-4.10%	-15.00%	-0.04%
15% TAC increase (27.4 only)	34225	18655	12461	3110	31111	25366	5750	0.24	0.142	0.073	0.022	165491	-7.20%	15.00%	31%
0.75 × F ₂₀₁₈ ⁺⁺⁺	24930	13075	8663	3193	21737	17720	4017	0.169	0.097	0.05	0.022	171920	-3.60%	-20%	-4.80%
1.25 × F ₂₀₁₈ ⁺⁺⁺	38402	21162	14169	3072	35330	28801	6529	0.27	0.162	0.084	0.022	162602	-8.80%	31%	47%
F _{pa}	46981	26311	17675	2995	43986	35858	8129	0.33	0.2	0.105	0.022	156668	-12.20%	63%	79%
F _{lim}	64544	36854	24853	2837	61707	50303	11403	0.46	0.29	0.148	0.022	144521	-19.00%	128%	146%
SSB (2020) = B _{pa} = MSY B _{trigger}	32464	17597	11742	3126	29339	23917	5422	0.22	0.133	0.069	0.022	166708	-6.50%	8.40%	24%
SSB (2020) = B _{lim}	99878	58065	39294	2520	97359	79367	17992	0.72	0.46	0.24	0.022	119970	-32.70%	260%	281%
F _{mgt} = 0.15 (EU–Norway Management Strategy)	22284	11486	7581	3217	19067	15543	3524	0.15	0.084	0.044	0.022	173751	-2.60%	-30%	-14.90%

^ SSB 2020 relative to SSB 2019.

^^ Human consumption catch (HC catch) for Subarea 4 in 2019 relative to TAC for Subarea 4 and Division 2.a in 2018 (22 057 t).

^^^ Total catch 2019 relative to advice value 2018 (26 191 t).

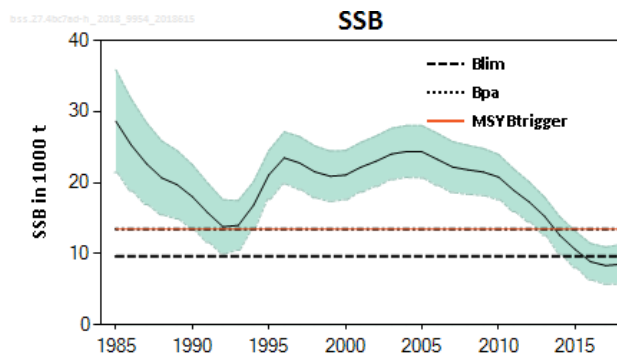
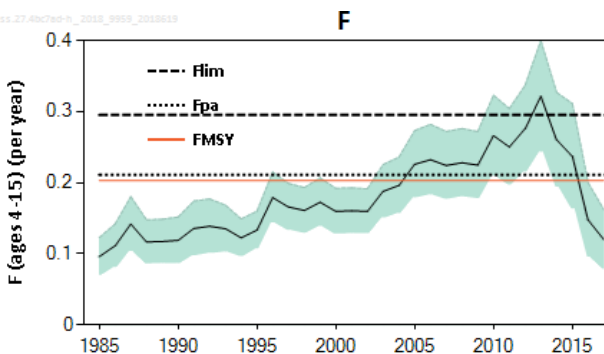
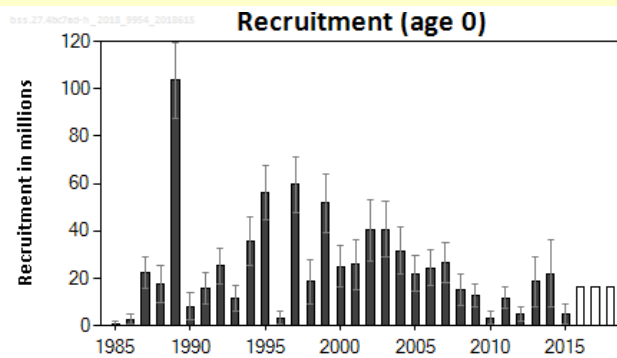
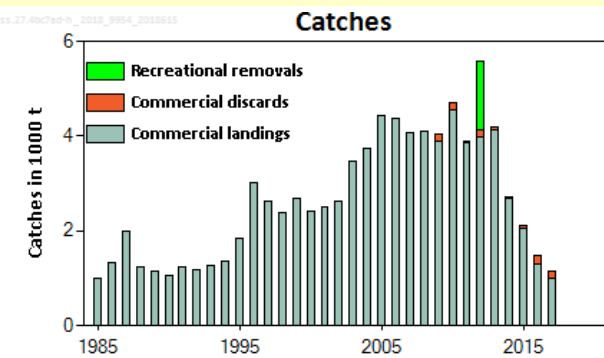
Sea bass in divisions 4.b–c, 7.a, and 7.d–h



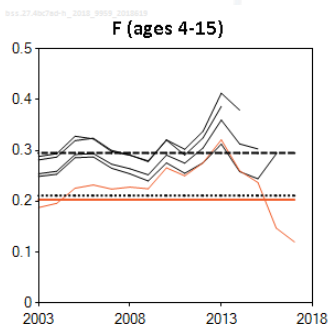
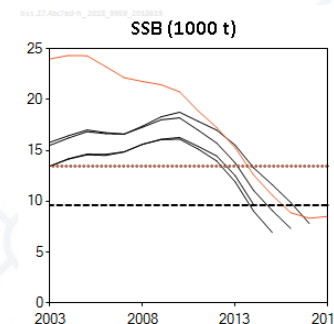
Revised Advice for 2018, MSY: Catch \leq 880 t

Advice for 2019, MSY: Catch \leq 1 789 t

- Benchmark held in early 2018 and advice for 2018 is revised.
- Spawning stock below B_{lim} in 2018 but reaches B_{lim} in 2019 with advised catch of 880 t.
- Fishing pressure is below F_{MSY} .
- Recruitment poor except for 2013–2014.



	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	F_{MSY}	✗	✓	✓ Below	MSY	✗	✗ Below trigger
Precautionary approach	F_{pa}, F_{lim}	○	✓	✓ Harvested sustainably	B_{pa}, B_{lim}	✗	✗ Reduced reproductive capacity
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	— Not applicable



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



Revised advice for 2018:

Catch (2017): 1 362 t (12 % discards) Recreational catch estimate 216 t

SSB(2018) = 8 513 < B_{lim} 9618 - with 880 t in 2018 SSB in 2019 = B_{lim}

Basis	Total catch* (2018)	Commercial landings (2018)	Commercial discards (2018)	Recreational removals (2018)	Total F [^] (2018)	F Commercial landings ^{^^} 2018	F Commercial discards (2018)	F Recreational removals ^{^^} (2018)	SSB (2019)	% SSB change **	% Advice change ***
ICES advice basis											
MSY approach: $SSB_{2019} = B_{lim}$	880	662	73	145	0.075	0.06	0.002	0.0124	9618	13	–
Other scenarios											
F = 0	0	0	0	0	0	0	0	0	10300	21	–
$F = F_{MSY} \times SSB_{2018} / MSY B_{trigger}$	1474	1108	123	243	0.128	0.104	0.0034	0.021	9162	7.6	–
$F = F_{MSY lower} \times SSB_{2018} / MSY B_{trigger}$	1041	783	86	172	0.089	0.072	0.0024	0.0148	9494	11.5	–
$F = F_{MSY upper} \times SSB_{2018} / MSY B_{trigger}$	1474	1108	123	243	0.128	0.104	0.0034	0.021	9162	7.6	–
F_{pa}	2337	1753	199	385	0.211	0.17	0.0056	0.035	8504	-0.104	–
F_{lim}	3153	2361	273	520	0.3	0.24	0.0078	0.049	7890	-7.3	–
$SSB(2019) = B_{pa}^{\wedge}$											
$SSB(2019) = MSY B_{trigger}^{\wedge}$											
$F = F_{2017}$	1381	1038	115	228	0.12	0.097	0.0032	0.02	9233	8.5	–

** SSB 2019 relative to SSB 2018 (8513 tonnes).

***Advice value 2018 relative to advice value 2017. This is not provided as the advice in 2017 was zero.

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



Advice for 2019

$F(2018) = 0.107$ (Fsq for commercial fishery and full compliance in recreational)

$SSB(2019) = 9,340 < B_{lim} 9618$ but with MSY approach SSB in 2020 = 9973 > B_{lim}

Basis	Total catch* (2019)	Commercial landings (2019)	Commerical discards (2019)	Recreational removals (2019)	Total F^^ (2019)	F Commercial landings^^ 2019	F Commercial discards 2019	F Recreational removals^^ (2019)	SSB (2020)	% SSB change **	% Advice change ***
ICES advice basis											
MSY approach: $F_{MSY} \times SSB_{2019} / MSY B_{trigger}$	1789	1532	144	113	0.141	0.127	0.0042	0.0092	9973	6.8	103
Other scenarios											
$F = 0$	0	0	0	0	0	0	0	0	11378	22	-100
$F = F_{MSY\ lower} \times SSB_{2019} / MSY B_{trigger}$	1267	1085	101	80	0.098	0.089	0.0029	0.0064	10381	11.2	44
$F = F_{MSY\ upper} \times SSB_{2019} / MSY B_{trigger}$	1789	1532	144	113	0.141	0.127	0.0042	0.0092	9973	6.8	103
F_{pa}	2600	2223	212	165	0.211	0.191	0.0062	0.0138	9344	0.04	195
F_{lim}	3505	2993	290	222	0.295	0.267	0.0087	0.0192	8646	-7.4	300
$SSB_{2020} = B_{lim}$	2245	1921	182	142	0.18	0.163	0.0053	0.0117	9618	3	155
$F = F_{2018}$	1379	1181	111	87	0.107	0.097	0.0032	0.007	10293	10.2	57

** SSB 2020 relative to SSB 2019.

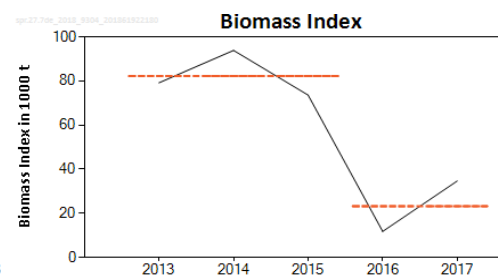
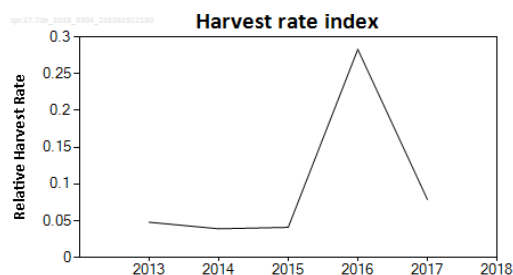
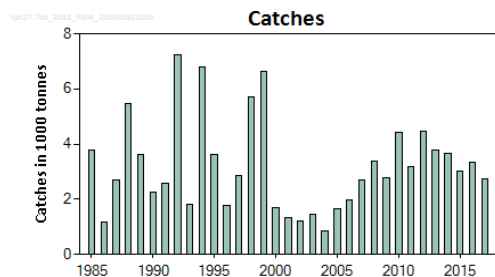
***Advice value for 2019 relative to advice value for 2018 (880 tonnes).

Sprat in subdivisions 7.d-e



Advice for 2019, PA: Catch $\leq 1\ 883\text{t}$

Catch (2017) = 2 733 t



	Fishing pressure			Stock size						
	2015	2016	2017	2015	2016	2017				
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSYB_{Trigger}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	-	-	-	Not applicable	SSB_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	→	↗	↘	Decreasing	Qualitative evaluation	↘	↘	↗	Increasing

Index A (2016–2017)	23249 tonnes	
Index B (2013–2015)	82187 tonnes	
Index ratio (A/B)	0.28	
Uncertainty cap	Applied	0.8
Advised catch for 2018 (issued in 2017)	2354 tonnes	
Discard rate	Negligible	
Precautionary buffer	Not applied	
% advice change**	-20%	
Catch advice***	1883 tonnes	

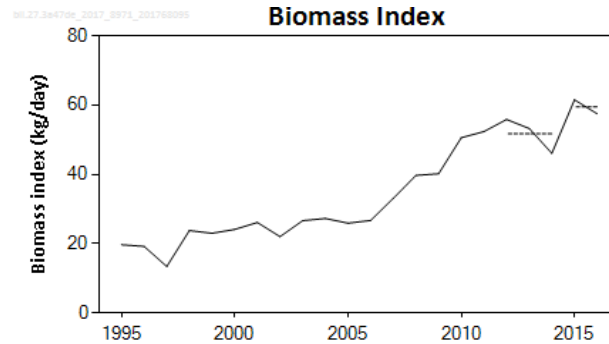
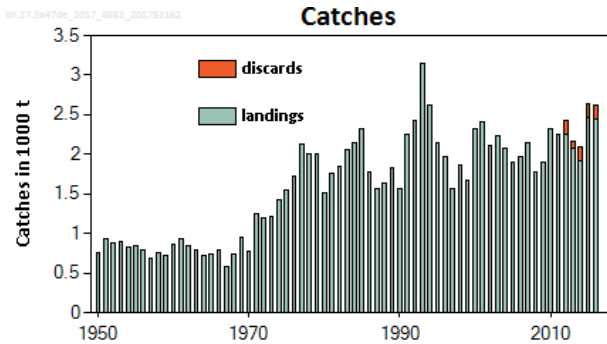
** Advice value for 2019 relative to advice value for 2018.

*** [advice for 2018] × [uncertainty cap].

- Short-lived species
- Acoustic survey does not cover the entire distribution
- An in-year advice valid from 1st of July to 30th of June might be more appropriate for this stock.

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

Advice for 2018 and 2019, PA: Catch $\leq 3\ 170$ t (Landings $\leq 2\ 943$ t)



	Fishing pressure			Stock size						
	2014	2015	2016	2014	2015	2016				
Maximum sustainable yield	F_{MSY}	✓	✓	✓	Below	$MSY B_{trigger}$	✓	✓	✓	Above
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓	Below possible reference points	B_{pa}, B_{lim}	✓	✓	✓	Above possible reference points
Management plan	F_{MGT}	-	-	-	Not applicable	B_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	-	-	-	-	-	-	-	-	-

Catch (2016) = 2 621 t (7% discards)

Index A (2015–2016)		59 kg d ⁻¹
Index B (2012–2014)		52 kg d ⁻¹
Index ratio (A/B)		1.15
Uncertainty cap	Not applied	-
Advised catch for 2016–2017		2756 tonnes
Discard rate (2014–2016)		7.20%
Precautionary buffer	Not applied	-
Catch advice**		3170 tonnes
Landings corresponding to the catch advice***		2943 tonnes

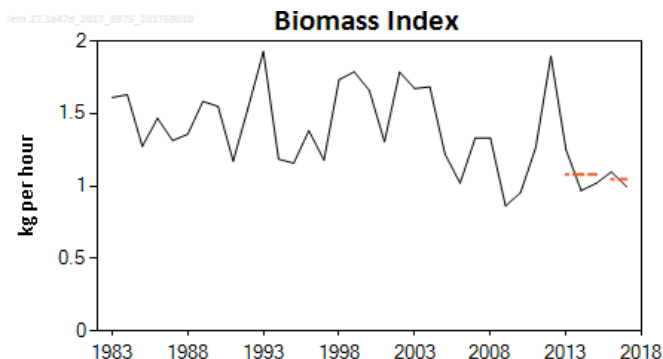
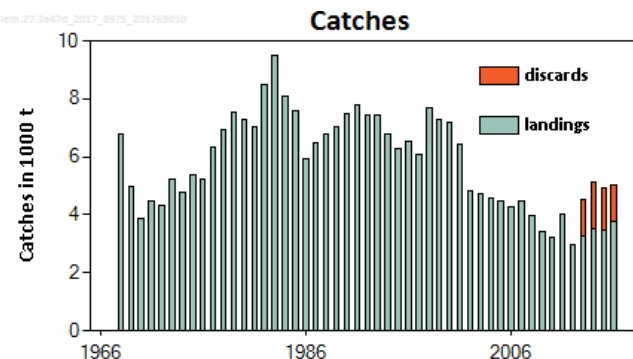
** Advised catch for 2016–2017 × index ratio.

*** Advised catch for 2016–2017 × index ratio × (1 – discard rate).

- Landings have been stable for the last five years.
- Biomass index (Dutch beam trawl commercial index) has been gradually increasing.
- Proxy reference points calculated.

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

Advice for 2018 and 2019, PA: Catch $\leq 5\,484\text{t}$ (Landings $\leq 3\,924\text{t}$)



		Fishing pressure			Stock size		
		2014	2015	2016	2015	2016	2017
Maximum sustainable yield	F_{MSY} proxy	✓	✓	✓ Below	MSY $B_{trigger}$ proxy	✓	✓ Above trigger
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓ Below possible reference points	B_{pa} , B_{lim}	✓	✓ Above possible reference points
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	— Not applicable

Catch (2016) = 5 012 t (25% discards)

Index A (2016–2017)	1.05 kg h ⁻¹	
Index B (2013–2015)	1.08 kg h ⁻¹	
Index ratio (A/B)	0.97	
Uncertainty cap	Not applied	-
Advised catch for 2016–2017	5655 tonnes	
Discard rate (2014–2016)	28.44%	
Precautionary buffer	Not applied	-
Catch advice**	5484 tonnes	
Landings corresponding to the catch advice***	3924 tonnes	

** [Advised catch for 2016–2017] × [index ratio].

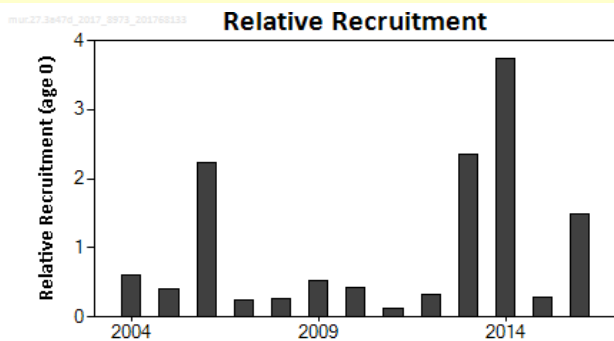
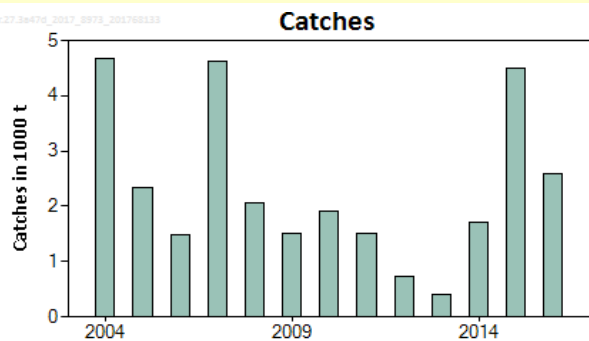
*** [Advised catch for 2016–2017] × [index ratio] × [1 –discard rate].

- Landings declined since late 1980's but increased recently.
- Biomass index has fluctuated without trend.
- Discard rates stable (25-30%).
- Proxy reference points calculated.

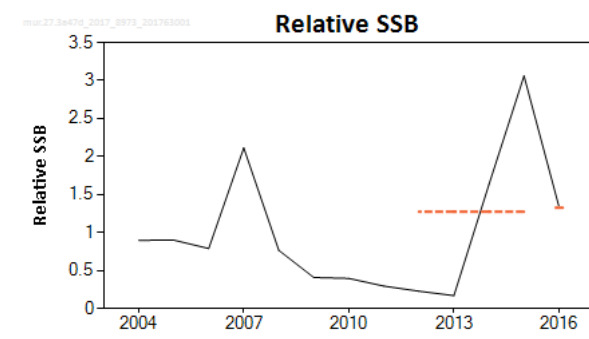
Striped red mullet in the North Sea, Skagerrak and Kattegat, E-English Channel (4, 3.a, 7.d)



Advice for 2018 and 2019, PA: Catch ≤ 465



		Fishing pressure			Stock size		
		2014	2015	2016	2014	2015	2016
Maximum sustainable yield	$F_{MSY proxy}$	✗	✗	✗ Above	$MSY B_{trigger}$?	? Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	? Undefined	B_{pa}, B_{lim}	?	? Undefined
Management plan	F_{MGT}	-	-	- Not applicable	B_{MGT}	-	- Not applicable
Qualitative evaluation	-	-	-	-	-	↗ ↘	↘ Decreasing



Catch (2016) = 2 579 t

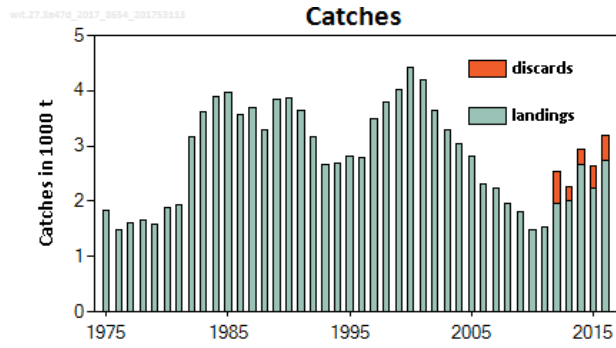
- Landings and biomass increased in 2014-2015.
- Strong recruitment in 2014.
- Biomass decrease in 2016.
- Discards negligible.
- Proxy reference point calculated.

Index A (2016)	2.2	
Index B (2012–2015)	0.68	
Index ratio (A/B)	1.05	
Uncertainty cap	Not applied	-
Advised catch for 2016–2017	552 tonnes	
Discard rate	Negligible	
Precautionary buffer	Applied	0.8
Catch advice**	465 tonnes	

** [Advised catch for 2016–2017] × [uncertainty cap] × [precautionary buffer].

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

Advice for 2018 and 2019, PA: Catch $\leq 2\,390$ (Landings $\leq 2\,079$ t)



		Fishing pressure			Stock size		
		2014	2015	2016	2015	2016	2017
Maximum sustainable yield	F_{MSY} proxy	✓	✓	✓ Below	$MSY B_{trigger}$ proxy	✓	✓ Above trigger
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓ Below possible reference points	B_{pa} , B_{lim}	✓	✓ Above possible reference points
Management plan	F_{MGT}	-	-	- Not applicable	B_{MGT}	-	- Not applicable
Qualitative evaluation	-	-	-	-	-	-	-

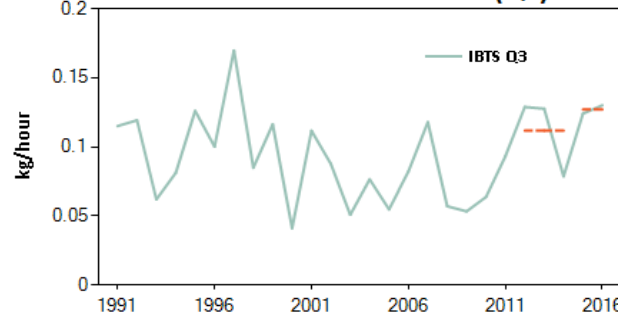
Catch (2016) = 3 187 t (14% discards)

- Landings declined to the late 2000 but have increased since.
- Biomass indices have fluctuated without trend in the last 5 years.
- Proxy reference points estimated.

Stock size index - biomass (Q1)



Stock size index - biomass (Q3)



Index A (2015–2016)	Q1: 0.158 kg h ⁻¹ ; Q3: 0.127 kg h ⁻¹
Index B (2012–2014)	Q1: 0.154 kg h ⁻¹ ; Q3: 0.112 kg h ⁻¹
Index ratio (A/B)	Q1: 1.026 and Q3: 1.137; average:
Uncertainty cap	Not applied
Advised catch for 2016–2017	2212 tonnes
Discard rate (average 2014–2016)	0.13
Precautionary buffer	Not applied
Catch advice**	2390 tonnes
Landings corresponding to the catch advice***	2079 tonnes

** [Advised catch for 2016–2017] × [average index ratio].

*** [Advised catch for 2016–2017] × [average index ratio] × [1 – discard rate].

English Channel (Divisions 7.d and e)



SUMMARY

Stock	Advice 2019	Advice 2018	Catch 2017	TAC 2018
Cod 3.a.20, 7.d. 4	28204	53058*	46725	52884
Sole 7.d	2571	3866	2428	3405
Sole 7.e	1272	1239	1012	1202
Plaice 7.d	7864	10592	7764	10360
Plaice 7.e	3648	3257	2949	
Whiting 4, 7.d	25302	26804	26191	22213
Seabass 4.b-c, 7.a, d-h	1789	880**	1362	-

For TAC 2018 in blue, area differ from the advice

Colours indicate that the value for the Advice for 2019 is either above (green) or below (red) the Advice for 2018 and above (green shade) or below (red shade) the Catch in 2017

English Channel (Divisions 7.d and e)



ICES advice provided in 2017

Stock	Advice 2018 (tonnes)	Advice 2019 (tonnes)
Brill in Subarea 4 and divisions 3.a and 7.d–e	Catch ≤ 3170	Catch ≤ 3170
Lemon sole in Subarea 4 and divisions 3.a and 7.d	Catch ≤ 5484	Catch ≤ 5484
Witch in Subarea 4 and divisions 3.a and 7.d	Catch ≤ 2390	Catch ≤ 2390
Striped red mullet in Subarea 4 and divisions 7.d and 3.a	Catch ≤ 465	Catch ≤ 465



**Thank you
for your
attention!**



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