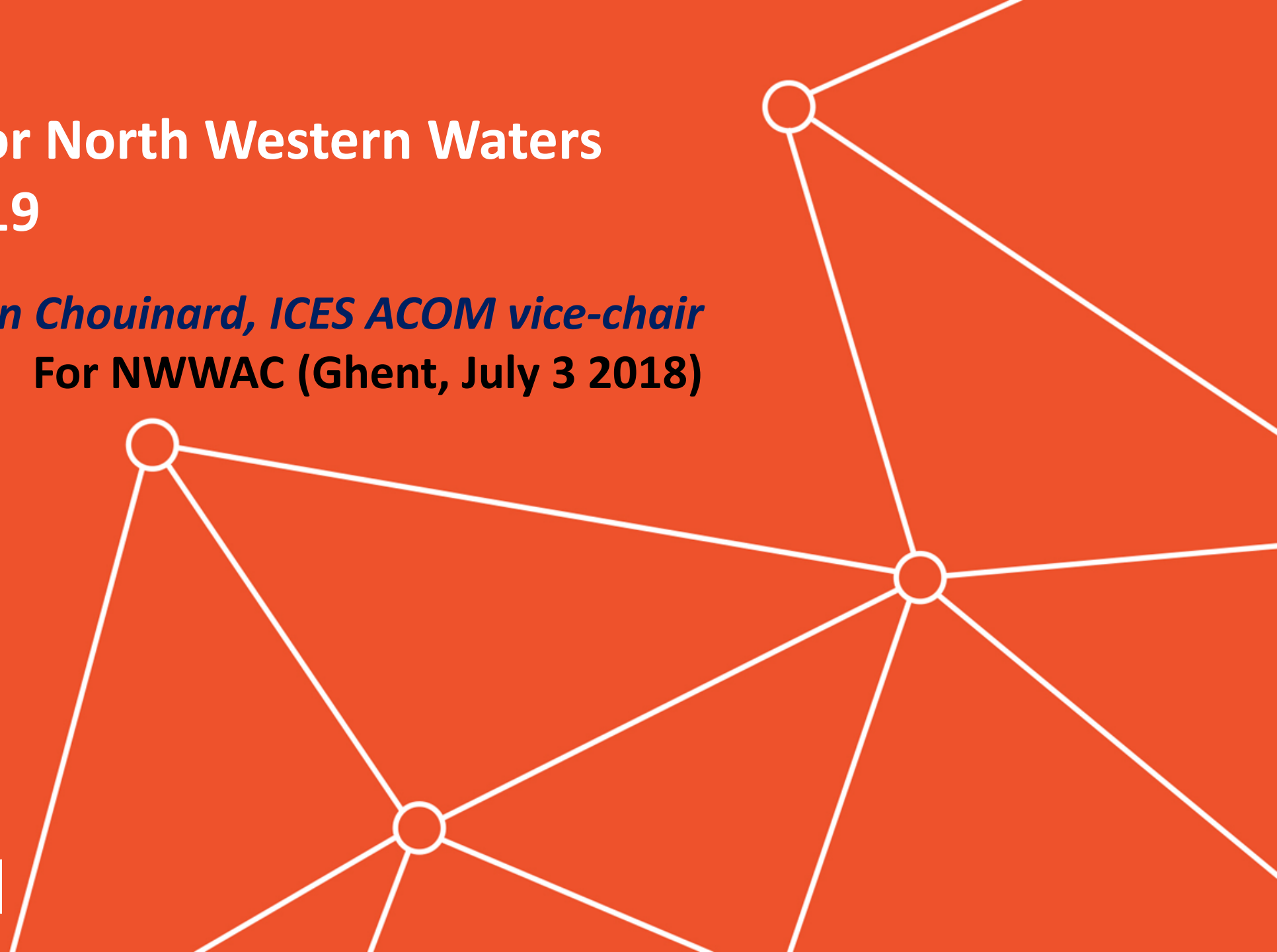
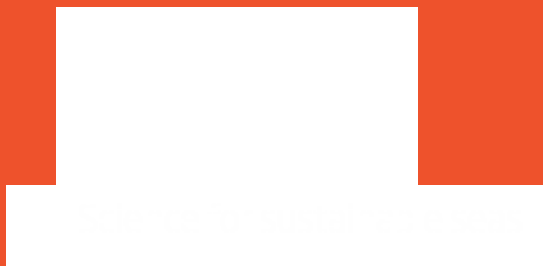


# ICES advice for North Western Waters stocks for 2019

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



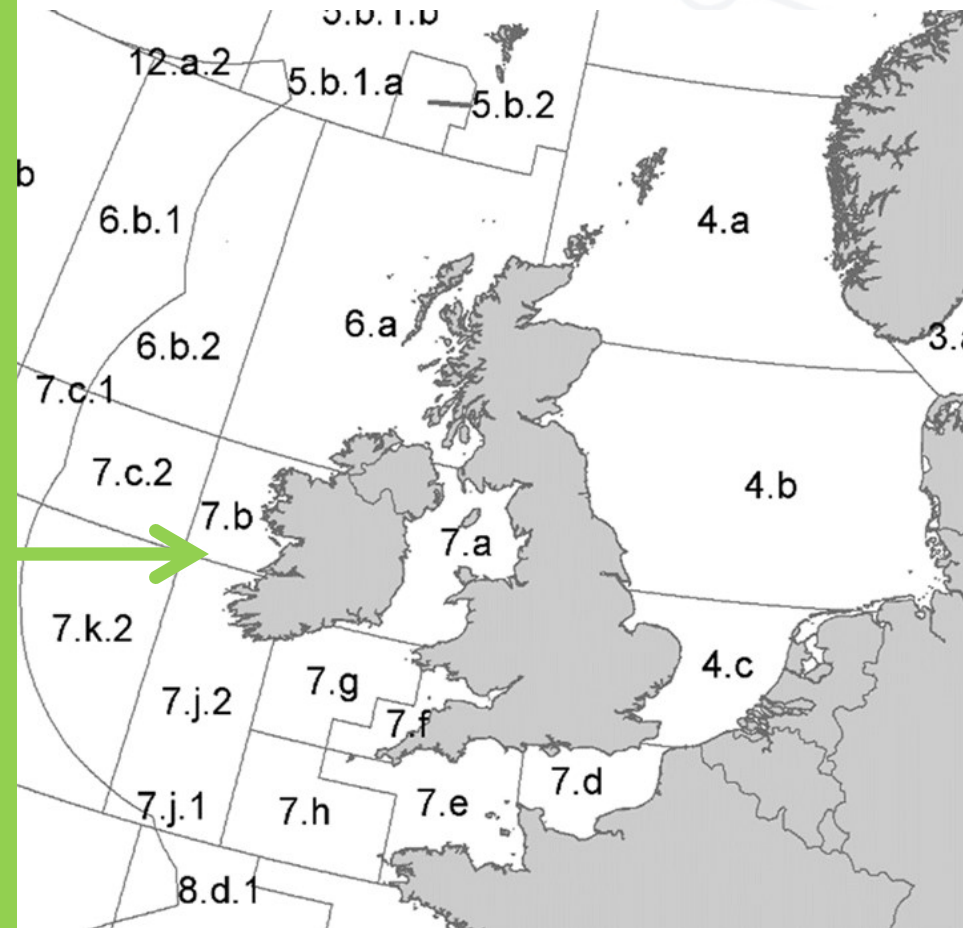
# Celtic Sea & West, Southwest Ireland



- Cod (7.e-k)
- Haddock (7.b-k)
- Whiting (7.bc,e-k)
- Sole (7.bc; 7.fg; 7.h-k;)
- Plaice (7.bc, 7.fg; 7.h-k;)
- Pollack (6,7)
- Northern hake
- Sea bass (6.a, 7.b, 7.j; 4.bc, 7.a,d-h)
- Megrin (7.b-k, 8.abd)
- B-B Anglerfish (7.b-k, 8.abd)
- Four-spot megrim
- White anglerfish (7, 8.a-b,d)

## IN AUTUMN:

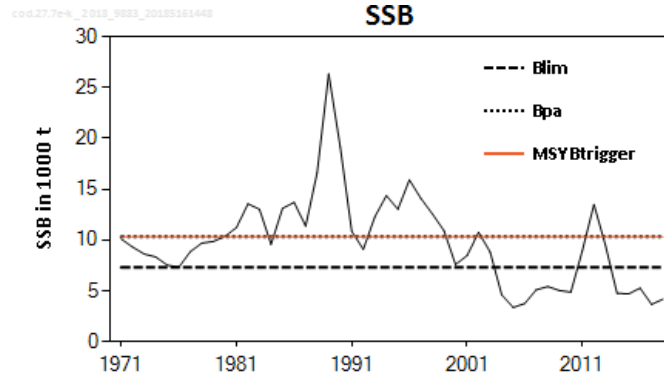
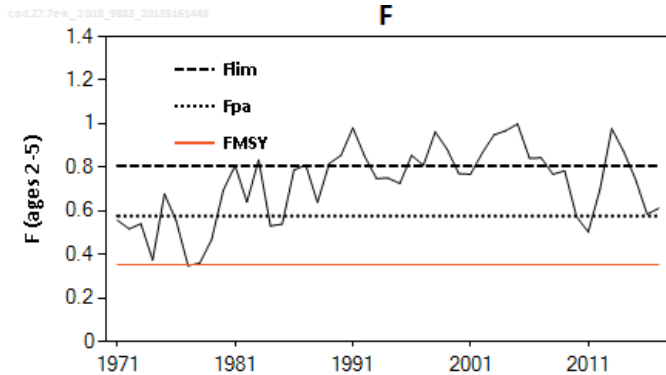
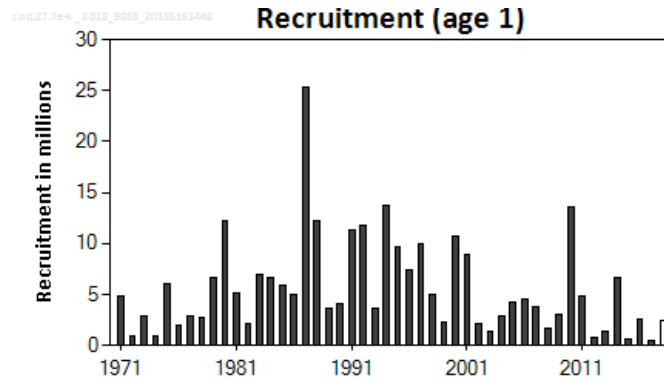
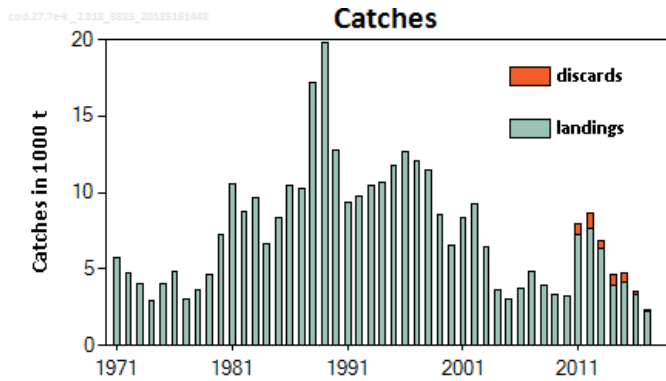
- *Nephrops* (FUs 16-17-20-22)
- Skates and rays



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



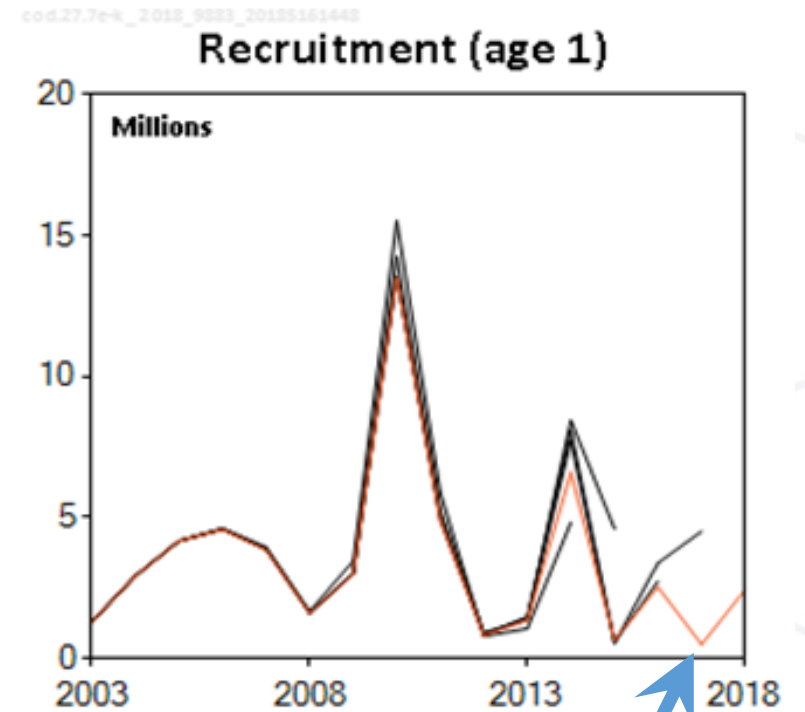
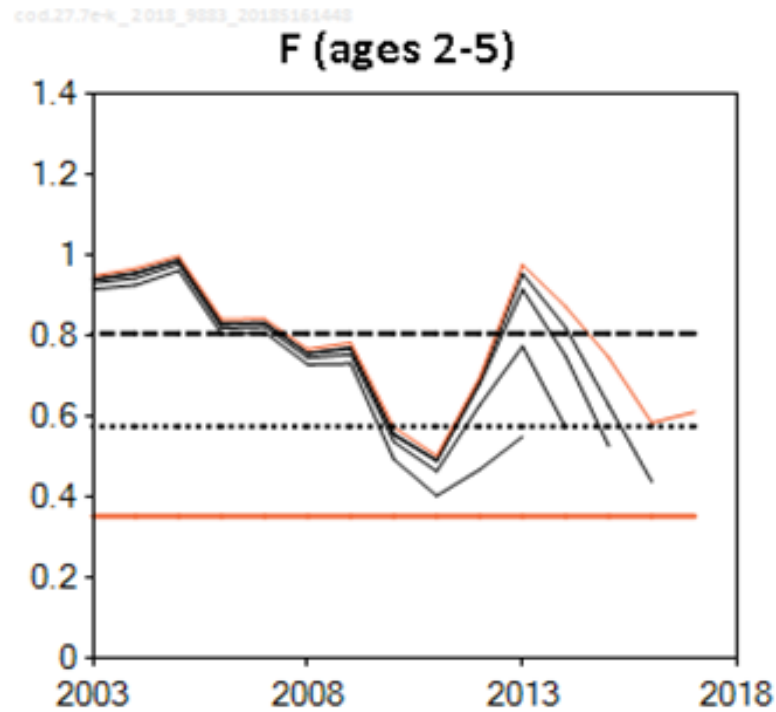
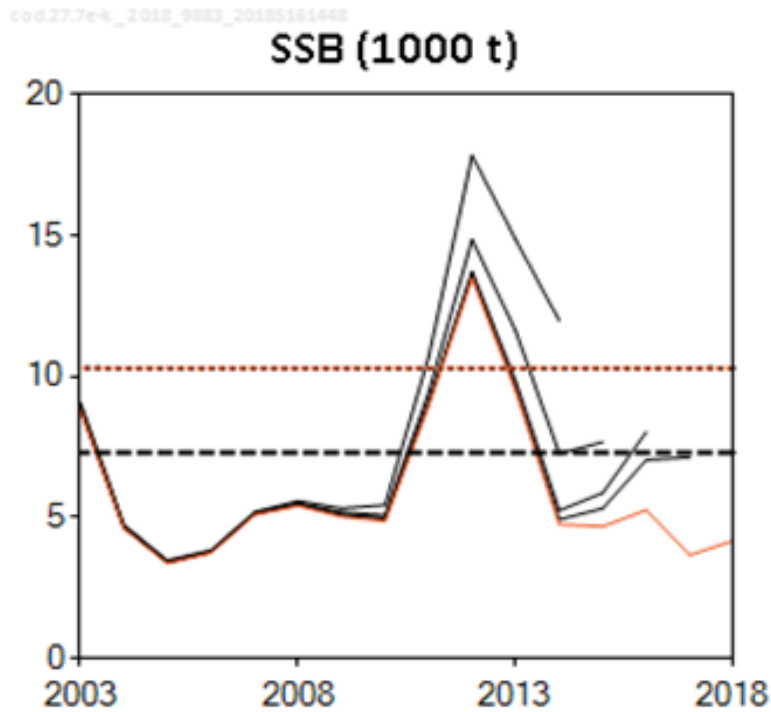
**Advice for 2019: MSY: Catch = 0 t**



- Assessment results in large downward revision of the stock size.
- Spawning stock below  $B_{lim}$  in 2018 and not expected to reach  $B_{lim}$  even with 0 catch.
- Fishing pressure similar to 2016 and above  $F_{MSY}$
- Recruitment variable, weak recently

	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	$B_{pa}, B_{lim}$	✘	✘	✘ Reduced reproductive capacity
Management plan	$F_{MGT}$	—	—	— Not applicable	$B_{MGT}$	—	—	— Not applicable

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



- Assessment results in large downward revision of the stock size.
- Estimate of 2017 recruitment much lower than assumption made last year
- Catches declined and lower than expected in 2017 despite similar level of effort as in previous years
- 25<sup>th</sup> quantile of recruitment now considered more appropriate for predictions

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



**Catch (2017) : 2354 t (5% discards)**

**F(2018) = 0 (Zero catch, SSB remains below  $B_{lim}$ );**

**SSB (2019)= 3 618t <  $B_{lim}$  (7 300 t)  $F_{MSY}$  = 0.35**

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: zero catch	0	0	0	0	6906	90.9	-100	-100
Other scenarios								
MSY approach: $F_{MSY} \times SSB(2019)/MSY B_{trigger}$	588	543	45	0.12	6266	73.2	-82	-83
$F_{MSY lower} : F_{MSY}$ $lower \times SSB(2019)/MSY B_{trigger}$	389	359	30	0.08	6482	79.2	-88	-89
$F_{MSY upper} : F_{MSY}$ $upper \times SSB(2019)/MSY B_{trigger}$	914	843	71	0.2	5914	63.5	-73	-73
$F_{pa}$	2334	2154	180	0.58	4403	21.7	-30	-32
$F_{lim}$	2970	2740	230	0.801	3744	3.5	-10.9	-13.4
SSB (2020) = $B_{lim}$								
SSB (2020) = $B_{pa}=MSY B_{trigger}$								
$F = F_{2018}$	2430	2242	188	0.61	4303	18.9	-27	-29
$F = F_{MSY}$	1531	1413	118	0.35	5252	45.2	-54	-55
$F = F_{MSY lower}$	1059	977	82	0.23	5756	59	-66	-69

\*\*SSB 2020 relative to SSB 2019.

\*\*\* Wanted catch in 2019 relative to TAC 2018 (3076 tonnes).

^ Total catch derived from the wanted catch and average discard rate for 2015–2017.

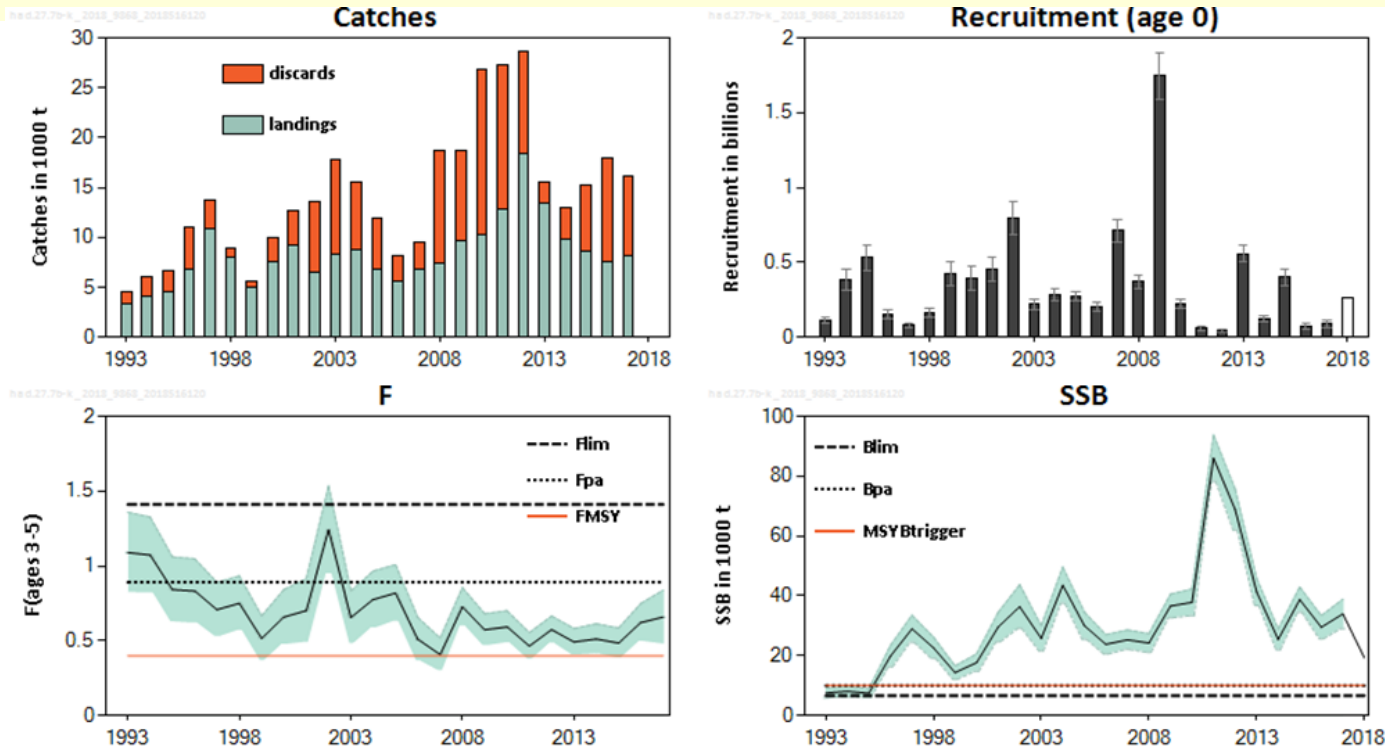
^^^ Advice value for 2019 relative to the advice value for 2018 (3428 tonnes).

- **Caught in mixed fisheries with haddock and whiting.**
- **Stock includes the south of Division 7.a (rectangles 33E2-3)**

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



**Advice for 2019: MSY: Catch  $\leq 6\,317$  t**



- Spawning stock declined since 2011 but remains above MSY  $B_{trigger}$
- Recruitment in 2017 among the lowest observed, cause of decline
- Fishing pressure above  $F_{MSY}$ .
- Discarding continued to be high in 2017.

	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

Assessment includes commercial index from the Irish fleet.

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



**Catch (2017) : 16 072t (50 % discards)**

**F(2018) = 0.66 (Recent average fishing pressure (2015-2017));**

**SSB (2019)= 13 365t > MSY<sub>Btrigger</sub> (10 000 t) F<sub>MSY</sub>= 0.40**

Basis	Total catch (2019)	Wanted catch* (2019)	Unwanted catch* (2019)	F <sub>total</sub> (2019)	F Wanted (2019)	F Unwanted (2019)	SSB (2020)	% SSB change **	% TAC change ***	% Advice change ^
ICES advice basis										
MSY approach: F <sub>MSY</sub>	6317	3761	2556	0.4	0.35	0.049	21650	62	-9	-55
Other options										
F <sub>MSYLOWER</sub>	4310	2592	1718	0.26	0.23	0.032	23559	76	-38	-69
F <sub>MSYUPPER</sub>	8863	5205	3659	0.6	0.53	0.074	19245	44	28	-38
F = 0	0	0	0	0			27695	107	-100	-100
F <sub>pa</sub>	11991	6905	5087	0.89	0.78	0.11	16324	22	74	-17
F <sub>lim</sub>	16326	9095	7232	1.41	1.24	0.174	12356	-8	136	9
SSB <sub>2020</sub> = B <sub>lim</sub>	22818	11868	10950	2.7	2.4	0.33	6700	-50	230	42
SSB <sub>2020</sub> = B <sub>pa</sub> = MSY B <sub>trigger</sub>	18969	10309	8660	1.83	1.6	0.23	10000	-25	175	23
F = F <sub>2018</sub>	9536	5578	3959	0.66	0.58	0.081	18613	39	38	-33

\*\* SSB 2020 relative to SSB 2019.

\*\*\* Total catch in 2019 relative to TAC in 2018 (6910 t).

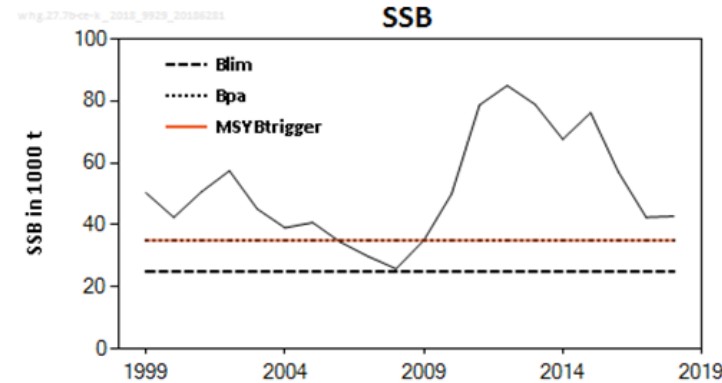
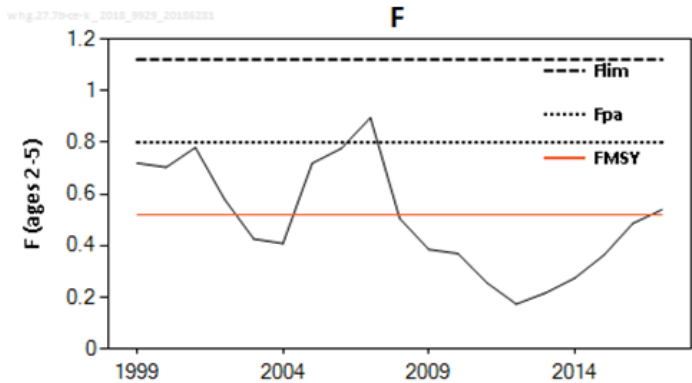
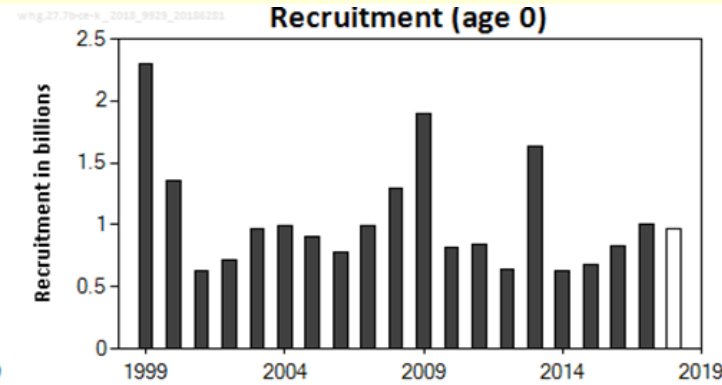
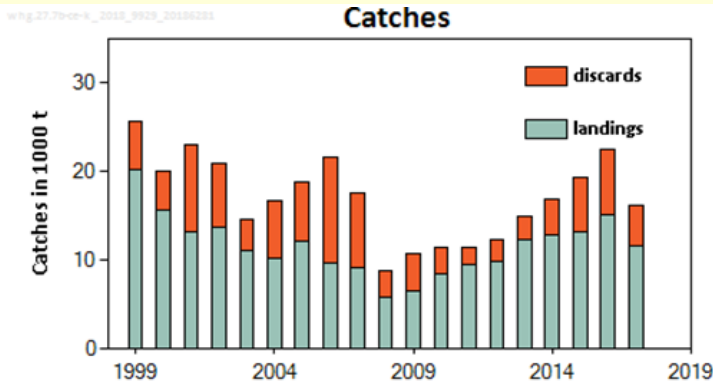
^ Advice value for 2019 relative to advice value for 2018 (8358 t).

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

# Whiting in the southern Celtic Seas and western English Channel (7.b–c and 7.e–k)

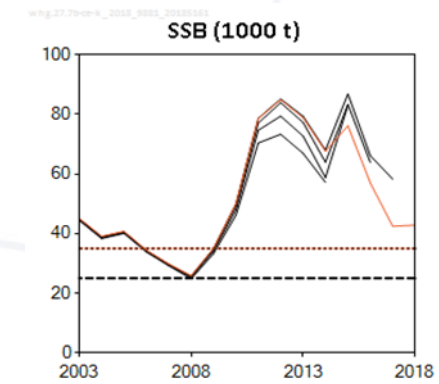


**Advice for 2019 : MSY: Catch  $\leq$  15 841 t**



- Stock size revised downwards.
- Spawning stock declined since 2012 but remains above MSY  $B_{trigger}$ .
- F increasing since 2008, above  $F_{MSY}$  in 2017.
- Recruitment stable with strong year-class in 2013.
- Caught in mixed fisheries with cod and haddock.

	Fishing pressure			Stock size				
	2015	2016	2017	2016	2017	2018		
Maximum sustainable yield	$F_{MSY}$	✓	✓	✗	Above			
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





# Whiting in the southern Celtic Seas and western English Channel (7.b–c and 7.e–k)



**Catch (2017) : 16 198 t (28 % discards)**

**F(2018) = 0.54 (Recent average fishing pressure (2015-2017));**

**SSB (2019)= 42 819 t > MSY<sub>Btrigger</sub> (35 000 t) F<sub>MSY</sub>= 0.52**

Basis	Total catch (2019)	Wanted catch*	Unwanted catch*	F <sub>total</sub> (2019)	F <sub>wanted</sub> (2019)	F <sub>unwanted</sub> (2019)	SSB -2020	% SSB change **	% Advice
ICES advice basis									
MSY approach: F <sub>MSY</sub>	15841	9882	5960	0.52	0.34	0.18	44943	5	-18.5
Other options									
F <sub>MSYLower</sub>	10468	6602	3866	0.32	0.21	0.11	49610	15.9	-46
F <sub>MSYUpper</sub>	19395	12002	7393	0.67	0.44	0.23	41904	-2.1	-0.17
F = 0	0	0	0	0	0	0	58900	37	-100
F = F <sub>pa</sub>	22190	13639	8552	0.8	0.53	0.27	39543	-7.7	14.2
F = F <sub>lim</sub>	28128	17013	11115	1.12	0.74	0.38	34628	-19.1	45
SSB <sub>2020</sub> =B <sub>lim</sub>	40437	23447	16990	2.08	1.37	0.71	25000	-42	108
SSB <sub>2020</sub> =B <sub>pa</sub> =B <sub>trigger</sub>	27672	16760	10912	1.09	0.72	0.37	35000	-18.3	42
F = F <sub>2018</sub>	16320	10169	6150	0.54	0.36	0.18	44532	-18.3	42

\*\* SSB 2020 relative to SSB 2019.

\*\*\* Advice for 2019 relative to 2018 (19 429t).

- Majority of discards occur above the minimum landing size.
- Stock includes south of Division 7.a (33E2-3)
- Mismatch between the assessment area and TAC area – (7.d not part of stock)

# Celtic Sea & West, Southwest Ireland



## Mixed fisheries – Celtic Sea gadoids (cod, haddock, whiting)

### Analysis assumes:

- “fleets’ stocks shares” in line with single-species advice for 2019 and historical proportion of stock landings taken by each fleet
- same fleet behaviour (fishing pattern, species catchability) in 2018 as in 2017
- fishing opportunities calculated for catches and all fish caught count against TAC

### Mixed fisheries scenarios examined:

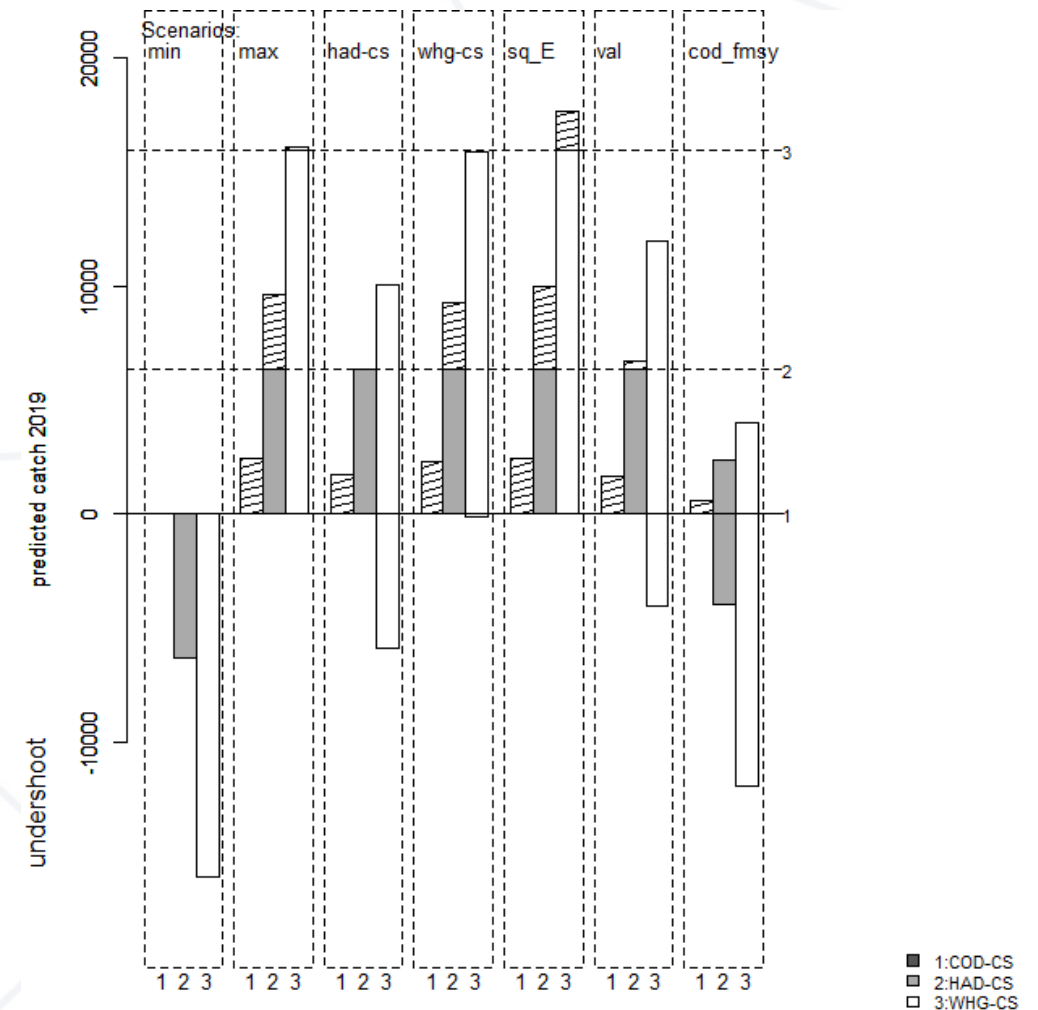
- **min**: each fleet stops fishing when its first stock share exhausted
- **max**: each fleet stops fishing when its last stock share exhausted
- **haddock**: each fleet stops fishing when its haddock stock share exhausted
- **whiting**: each fleet stops fishing when its whiting stock share exhausted
- **Status quo effort**: effort equal to 2016
- **Value**: based on average effort by fleet and economic importance of the stock
- **Cod\_fmsy**: cod share according to  $F_{MSY}$  ( $F = 0.12, F_{MSY} \times (SSB(2019) / MSY B_{trigger})$ )

# Celtic Sea & West, Southwest Ireland

## Mixed fisheries – Celtic Sea gadoids (cod, haddock, whiting)



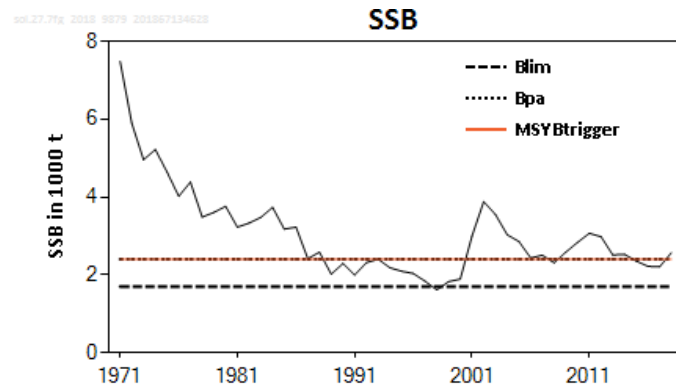
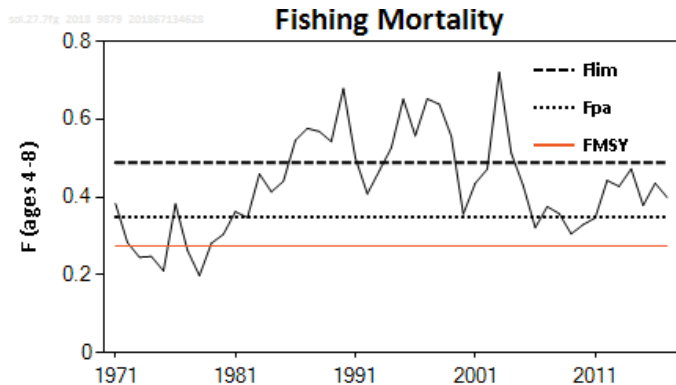
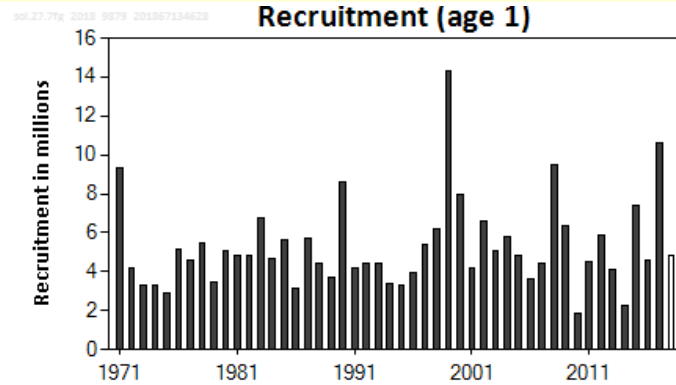
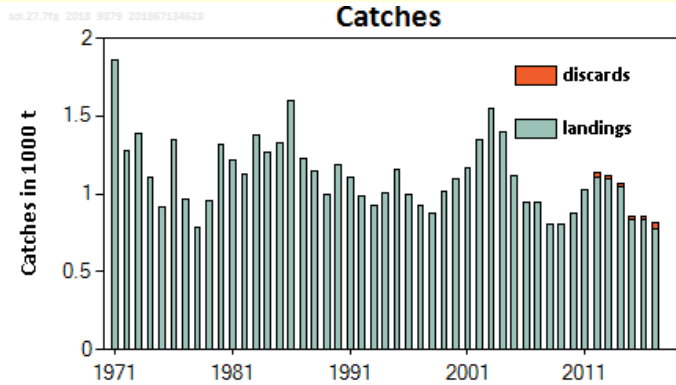
- To be consistent with the cod advice (0 catch) means no catch of haddock and whiting. (minimum scenario)
- Single-species advice:
  - Cod is most limiting
  - Whiting is the least restrictive.



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



## Advice for 2019 MSY: Catch $\leq 864$ t



- Revised estimates – SSB overestimated in previous years.
- Spawning stock has been fluctuating around MSY Btrigger.
- Fishing pressure has been fluctuating above  $F_{MSY}$  since 1979.
- Recruitment in 2015 and 2017 estimated to be well above average.

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

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



**Catch (2017) : 818 t (5 % discards)**

**F(2018) = 0.36 (Catch constraint : TAC 2018 =920 t)**

**SSB (2019)= 2 913 t > MSY<sub>Btrigger</sub> (2 400 t) F<sub>MSY</sub>= 0.27**

Basis	Total catch * (2019)	Wanted catch** (2019)	Unwanted catch** (2019)	F <sub>wanted</sub> (2019)	SSB (2020)	% SSB change ***	% TAC change ^	% Advice change ^^
ICES advice basis								
F=F <sub>MSY</sub>	864	820	44	0.27	3454	19	-6.1	-7.2
Other scenarios								
F=F <sub>MSY lower</sub>	504	478	26	0.15	3783	30	-45	-46
F=F <sub>MSY upper</sub>	1267	1202	65	0.42	3087	6	3 8	36
F = 0	0	0	0	0	4244	46	-100	-100
F <sub>pa</sub>	1058	1004	54	0.34	3277	12.5	15	13.6
F <sub>lim</sub>	1415	1343	72	0.48	2953	1.37	54	52
SSB (2020) = B <sub>lim</sub>	2822	2678	144	1.27	1700	-42	207	203
SSB (2020) = B <sub>pa</sub> = MSY B <sub>trigger</sub>	2030	1926	104	0.77	2400	-17.6	121	118
F = F <sub>2018</sub>	1112	1055	57	0.36	3227	10.8	21	19.4

\* Total catches are calculated from wanted catch (fish that would be landed in the absence of the EU landing obligation), based on the average discard rate in 2015–2017 (5.1% in weight).

\*\* “Wanted” and “unwanted” catch are used to describe fish that would be landed and discarded respectively in the absence of the EU landing obligation.

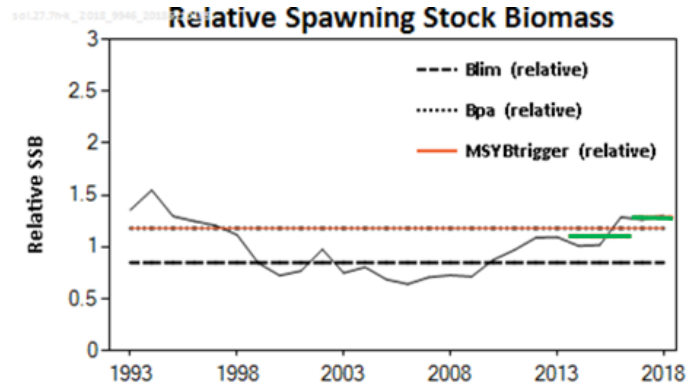
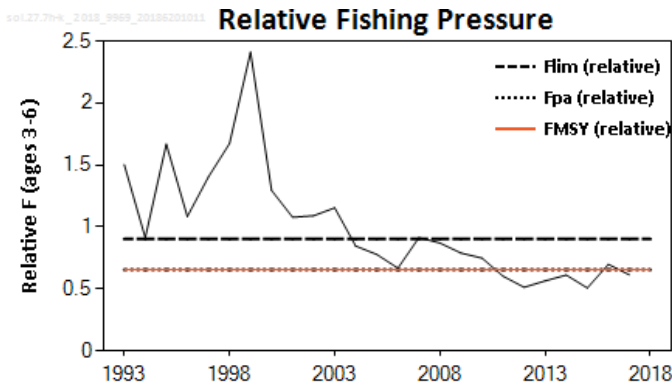
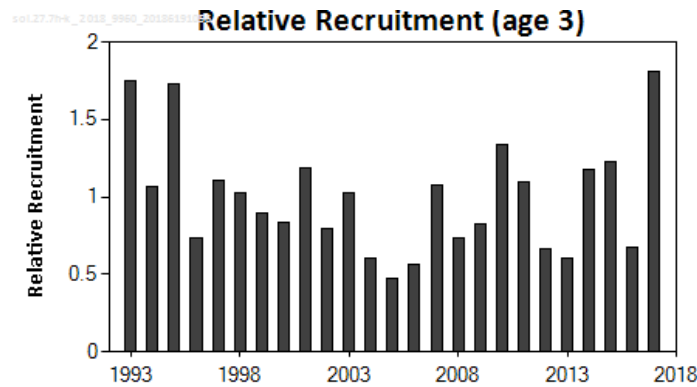
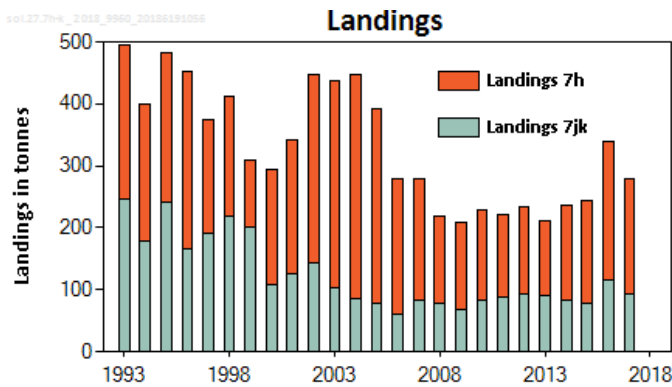
\*\*\* SSB 2020 relative to SSB 2019.; ^ Total catch in 2019 relative to TAC in 2018 (920 t).; ^^Advice value for 2019 relative to advice value for 2018 (931 t).

- Landings in the model; discards are then included to calculate a catch forecast

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



**Advice for 2019: PA: Catch  $\leq 311$  t**



- Assessment based on commercial data (Irish trawlers) from 7.jk – used as trends for entire stock (Cat. 3).
- Spawning stock has increased since 2005 and is above MSY  $B_{trigger}$  proxy.
- Recruitment fluctuates without trend.
- F below  $F_{MSY}$  proxy in 2017.

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

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

Catch (2017) = 300 t (negligible discards 5 t )



Index A (2017–2018)	1.28
Index B (2014–2016)	1.1
Index ratio (A/B)	1.16
Uncertainty cap	Not applied   -
Advised catch for 2018 issued in 2017	268
Discard rate	Negligible
Precautionary buffer	Not applied   -
Catch advice**	311
% Advice change***	16% increase

\*\* [advice for 2018] × [index ratio].

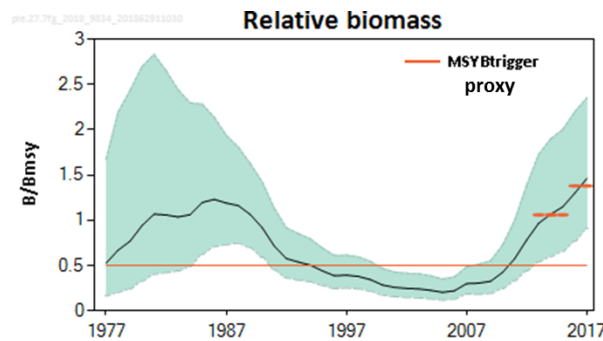
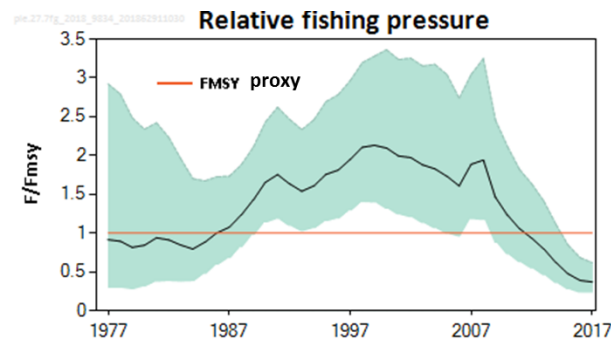
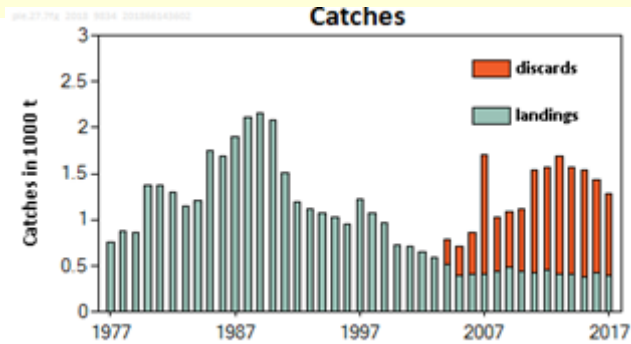
\*\*\* Advice value for 2019 relative to advice value for 2018

- Precautionary buffer not applied because fishing mortality and the SSB are estimated to be below and above MSY reference point proxies respectively.
- Discards are considered to be negligible.

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



**Advice for 2019: PA: Catch  $\leq$  2 160 t**



- Fishing pressure has declined and well below  $F_{MSY}$  proxy.
- Spawning stock has increased since 2005 and is above  $MSY_{Btrigger}$  proxy.
- Caught in mixed fishery with sole, high discard rates (71% during 2013-2017)

		Fishing pressure			Stock size		
		2015	2016	2017	2015	2016	2017
Maximum sustainable yield	$F_{MSY}$ proxy	✓	✓	✓ Below proxy	$MSY_{Btrigger}$ proxy	✓	✓ Above proxy
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



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



**Catch (2017) = 1 285 t (70% discards)**

Index A (2016–2017)		1.38
Index B (2013–2015)		1.06
Index ratio (A/B)		1.3
Uncertainty cap	Applied	1.2
Recent advised catch (2018)		1800 tonnes
Precautionary buffer	Not applied	-
Catch advice**		2160 tonnes
% Advice change***		20%

\*\* [Recent advised catch] × [uncertainty cap].

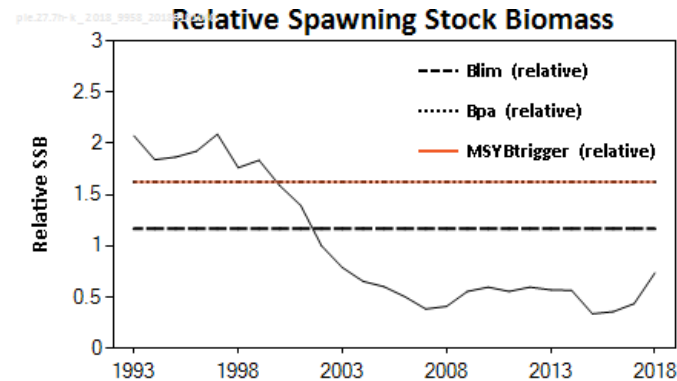
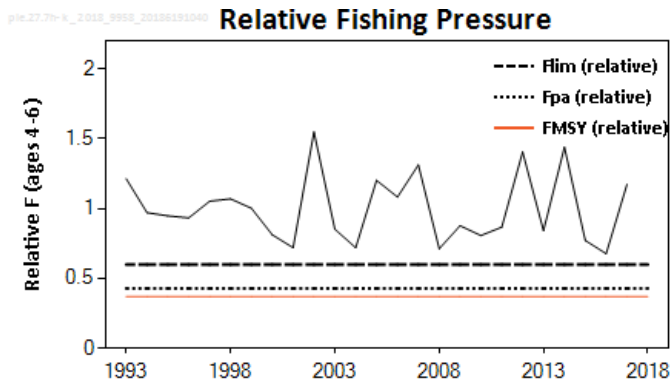
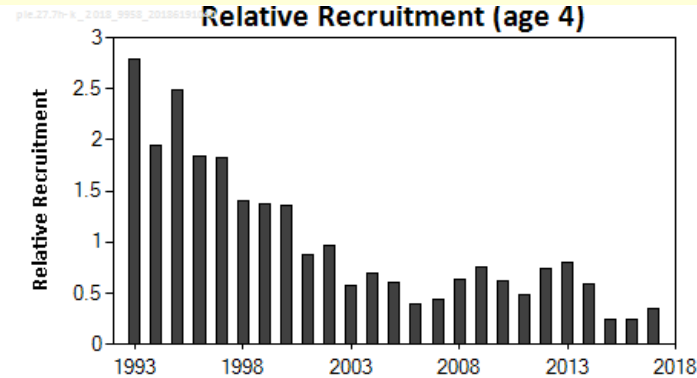
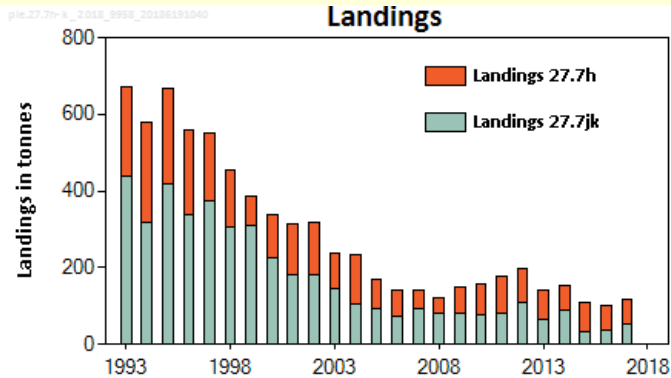
\*\*\* Advice value 2019 relative to advice value 2018.

- Increase in advice due to increase in spawning stock
- High discards of plaice in mixed sole and plaice fishery: mismatch between selectivity and minimum landing size & relatively low market value of plaice.
- 40% of the discarded plaice are estimated to survive.

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



## Advice for 2019 and 2020: PA: Catch = 0 t



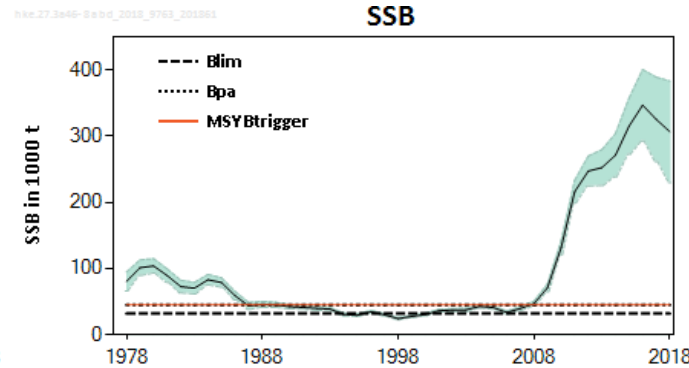
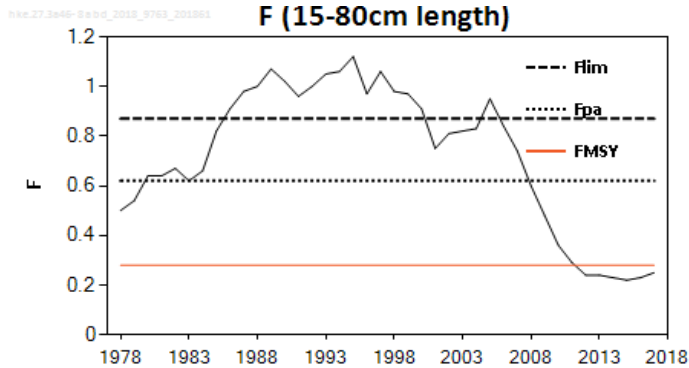
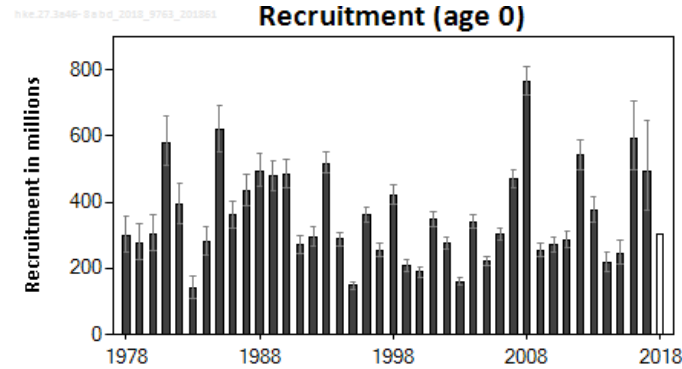
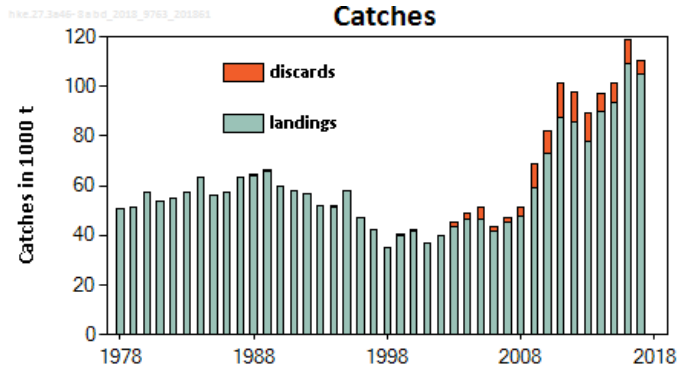
- Assessment based on commercial data (Irish trawlers) from 7.jk – used as trends for entire stock
- Spawning stock below  $B_{lim}$  since 2002 and likely to remain in 2019-2020.
- Recruitment low since 2003.
- Fishing pressure above  $F_{MSY}$ , highly variable with no trend.
- Because plaice is caught in distinct areas, restricting effort in areas where plaice are caught could be effective.
- Landings in 2017 – 115 tonnes
- No Catch scenarios presented.

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

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



**Advice for 2019: MSY: Catch  $\leq$  142 240 t**



- Spawning stock increased substantially since 2006 and it is well above historical estimates.
- Fishing pressure below  $F_{MSY}$  since 2012.
- Recruitment for 2016 and 2017 are both above average.

	Fishing pressure			Stock size						
		2015	2016	2017		2016	2017	2018		
Maximum sustainable yield	$F_{MSY}$	✓	✓	✓	Appropriate	$B_{trigger}$	✓	✓	✓	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

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

Catch (2017) : 111 770 t (6 % discards)

F(2018) = 0.23 (Recent average fishing pressure (2015-2017));

SSB (2019)= 346 616 > MSY<sub>Btrigger</sub> (45 000 t) F<sub>MSY</sub>= 0.28



Basis	Total catch (2019)	Wanted catch* (2019)	Unwanted catch*^ (2019)	F <sub>total</sub> (2019)	F <sub>wanted</sub> (2019)	F <sub>unwanted</sub> (2019)	SSB (2020)	% SSB change**	% Advice change***
ICES advice basis									
MSY approach: F <sub>MSY</sub>	142240	128236	14004	0.28	0.23	0.052	365492	5.5	27
Other scenarios									
F <sub>MSY lower</sub>	96792	87371	9422	0.18	0.147	0.033	408019	17.7	-13.4
F <sub>MSY upper</sub>	208200	187317	20883	0.45	0.37	0.083	303739	-12.4	86
F = 0	0	0	0	0	0	0	498590	44	-100
F <sub>pa</sub>	262175	235410	26765	0.62	0.51	0.115	253142	-27	135
F <sub>lim</sub>	324439	290502	33937	0.87	0.71	0.161	194612	-44	190
SSB (2020) = B <sub>lim</sub>	491220	433027	58193	2.78	2.3	0.52	32039	-91	339
SSB (2020) = B <sub>pa</sub>	479239	423457	55782	2.39	1.95	0.44	44977	-87	329
SSB (2020) = MSY B <sub>trigger</sub>	479239	423457	55782	2.39	1.95	0.44	44977	-87	329
F = F <sub>2018</sub>	122397	110408	11989	0.23	0.191	0.044	384060	10.8	9.5
EU Recovery Plan^^	129168	116494	12674	0.25	0.2	0.046	377724	9	15.6

\*\* SSB 2020 relative to SSB 2019.

\*\*\* Total catch 2019 relative to the TAC for 2018 (111 785 tonnes).

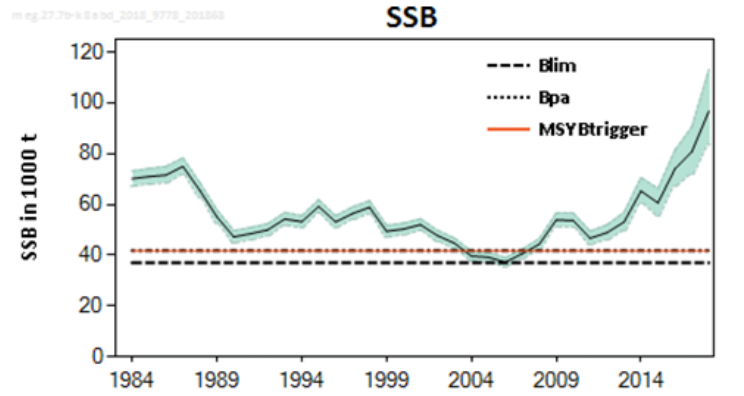
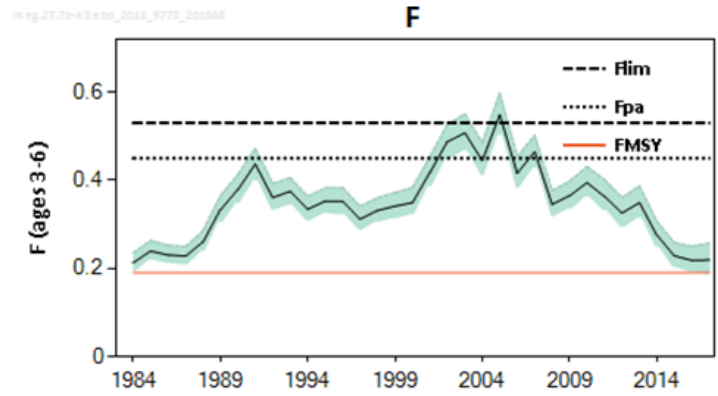
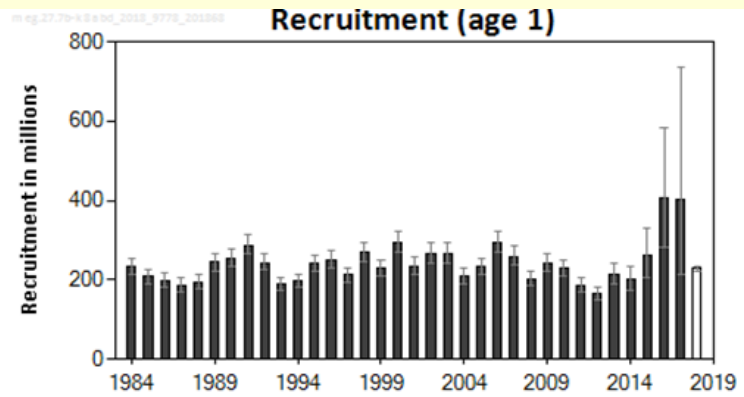
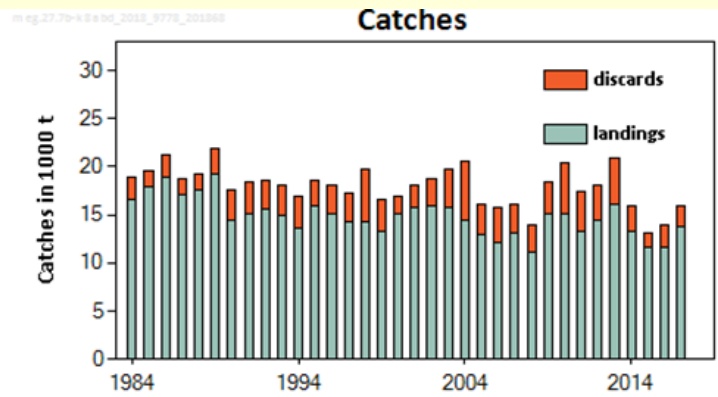
^^ Catch option corresponds to F<sub>2018</sub> = 0.25.

- In the most recent period, discarding of large individuals increased because of quota restrictions in certain fleets.
- Discards have decreased substantially in 2017.

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



## Advice for 2019: MSY: Catch $\leq$ 18 976 t



- Spawning stock has been above  $MSY B_{trigger}$  since 2008.
- The fishing pressure has decreased since 2004 although it is still above  $F_{MSY}$ .
- Recruitment has been relatively stable throughout the time-series.

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	$F_{MSY}$	✘	✘	✘ Above	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

Assessment includes Spanish and Irish commercial indices.

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



Catch (2017) : 15 957 t (14 % discards)

$F(2018) = 0.22$  (Recent fishing pressure (2017));

$SSB(2019) = 111\,887\text{ t} > MSY_{Btrigger} (41\,800\text{ t}) \quad F_{MSY} = 0.191$

Basis	Total catch (2019)	Landings (2019)	Discards (2019)	$F_{total}$ (2019)	SSB (2020)	% SSB change *	% Advice change **
ICES advice basis							
<b>MSY approach: <math>F_{MSY}</math></b>	<b>18976</b>	<b>15092</b>	<b>3884</b>	<b>0.191</b>	<b>122698</b>	<b>9.7</b>	<b>21</b>
Other scenarios							
$F = 0$	0	0	0	0	144860	29	-100
$F_{pa}$	39713	31337	8376	0.451	98849	-11.7	153
$F_{lim}$	45273	35634	9639	0.533	86513	-23	188
$SSB(2020) = B_{lim}$	96467	73309	23158	1.883	37100	-67	514
$SSB(2020) = B_{pa}$	91767	70056	21711	1.676	41800	-63	484
$SSB(2020) = MSY_{Btrigger}$	91767	70056	21711	1.676	41800	-63	484
$F = F_{2018}$	21879	17386	4493	0.224	119300	6.6	39
$F = F_{MSY\ lower}$	12528	9967	2541	0.122	130172	16.3	-20
$F = F_{MSY\ upper}$	27371	21704	5667	0.289	112972	0.97	74

\* SSB 2020 relative to SSB 2019.

\*\* Catches in 2019 relative to the advised catch in 2018 (15 720 t).

- The ICES advice is for *L. whiffiagonis*, whereas the TAC is for *L. whiffiagonis* and *L. boscii* combined and includes 7.a and 8.e..

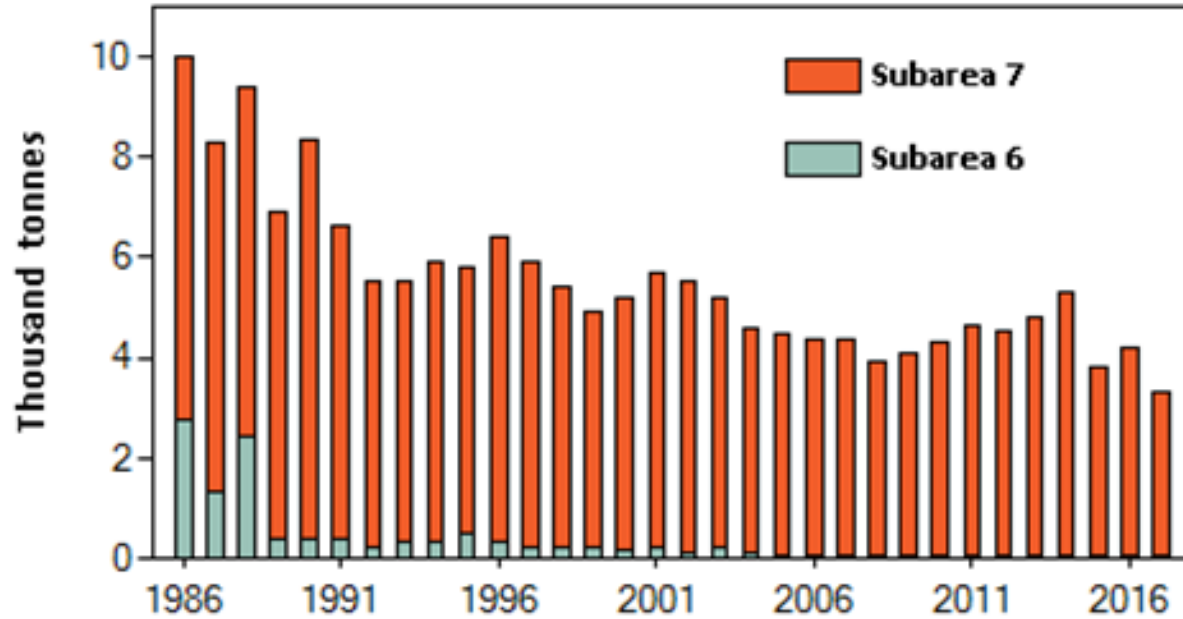
# Pollack in the Celtic Seas and the English Channel (6 and 7)



**Advice for 2019 : PA:** Catch  $\leq 3\,360t$

04.27.07 2010 9006 2018516190527

Catches



- Limited information available on pollack in this area.
- Catches have declined since the late 1980's, lowest in 2017
- Recreational catch unknown, but thought to be significant.

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

- Fishing pressure considered to be below reference points

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



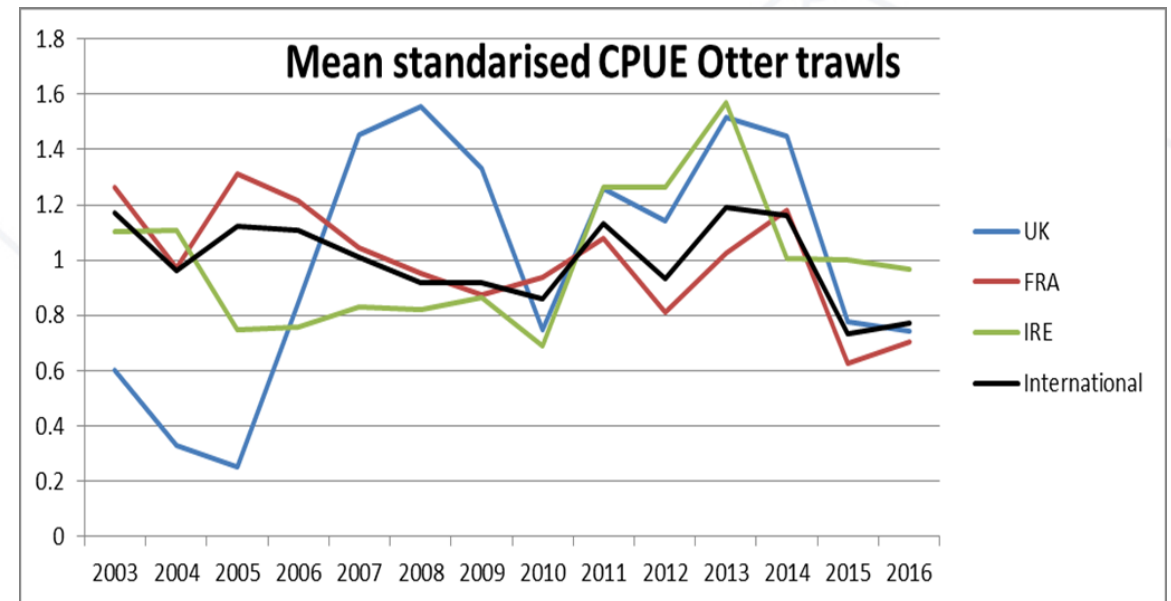
**Catch (2017) = 3 305 t (discards unknown)**

Advised commercial landings for 2018 issued in 2017	4200 tonnes	
Discard rate	< 1%	
Precautionary buffer	Applied	0.8
Commercial catches advice*	3360 tonnes	
% Advice change**	-20%	

\* [Advice for 2018] × [precautionary buffer].

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

- **Biomass unknown - Reduction in advised catch due to the application of the precautionary buffer**



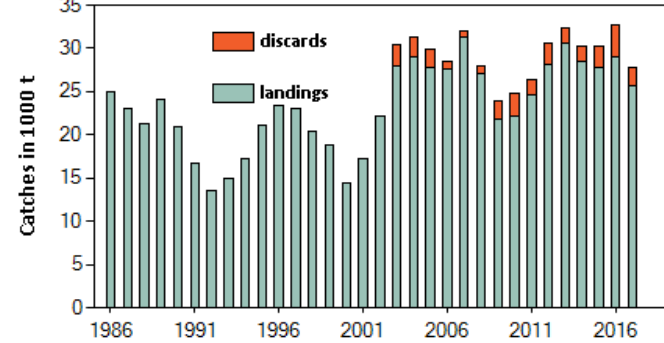


# White anglerfish in Subarea 7 and div. 8.a-b,d (Celtic Sea, Bay of Biscay)

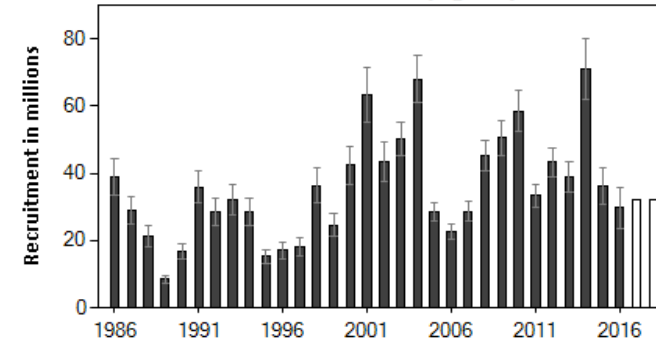


**Advice for 2019 : MSY: Catch  $\leq$  31 042 t**

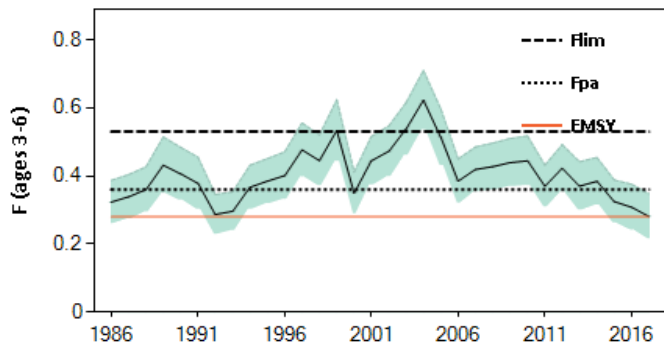
Catches



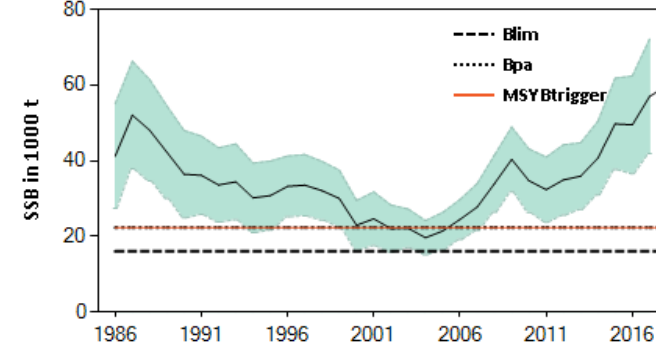
Recruitment (age 0)



F



SSB



- Benchmark in 2018 – resulted in analytical assessment.
- Spawning stock increasing since 2005 and highest in time-series.
- Fishing pressure decreasing, at  $F_{MSY}$  in 2017.
- Recruitment variable.

	Fishing pressure			Stock size			
		2015	2016	2017	2016	2017	2018
Maximum sustainable yield	$F_{MSY}$	✗	✗	✓ At	$B_{trigger}$	✓	✓ 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

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



Catch (2017) : 27 836 t (8 % discards)

F(2018) = 0.28 (Fishing pressure in 2017);

SSB (2019)= 73 972 t > MSY<sub>Btrigger</sub> (22 278t)  $F_{MSY} = 0.28$

Basis	Total catch (2019)	Wanted catch (2019)	Unwanted catch* (2019)	F <sub>total</sub> (2019)	F <sub>wanted</sub> (2019)	F <sub>unwanted</sub> (2019)	SSB (2020)	% SSB change **	% Advice change ***
ICES advice basis									
<b>MSY approach: F<sub>MSY</sub></b>	<b>31042</b>	<b>29293</b>	<b>1749</b>	<b>0.28</b>	<b>0.27</b>	<b>0.0063</b>	<b>80342</b>	<b>-0.63</b>	<b>9.7</b>
Other Scenarios									
F = 0	0	0	0	0	-	-	105382	30.33	-100
F <sub>pa</sub>	38487	36306	2182	0.36	0.35	0.0081	74462	-7.91	36
F <sub>lim</sub>	52569	49551	3018	0.53	0.52	0.0119	63497	-21.47	86
SSB (2019) = B <sub>lim</sub>	115618	108422	7196	2	1.96	0.045	18059	-77.66	306
SSB (2019) = B <sub>pa</sub> = MSY B <sub>trigger</sub>	109217	102494	6722	1.74	1.7	0.039	22278	-72.45	284
F = F <sub>2018</sub>	31150	29395	1755	0.28	0.27	0.0063	80256	-0.74	10
F = F <sub>MSY lower</sub>	21008	19834	1174	0.181	0.177	0.0041	88348	9.27	-26
F = F <sub>MSY higher</sub>	41138	38800	2337	0.39	0.38	0.0088	72382	-10.48	45

- 2 anglerfish species not totally separated in landings
- Under combined TAC with BB anglerfish

\* "Wanted catch"= landed catch above minimum size (AMS landings). "Unwanted catch" is landings below minimum size (BMS) and discards

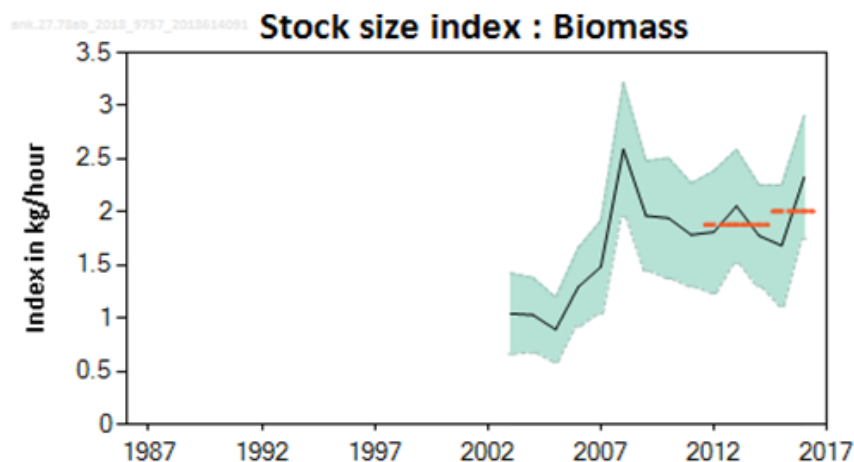
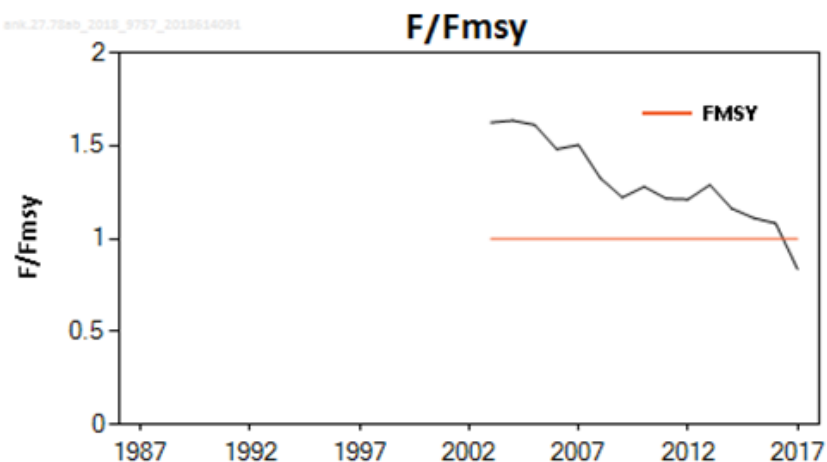
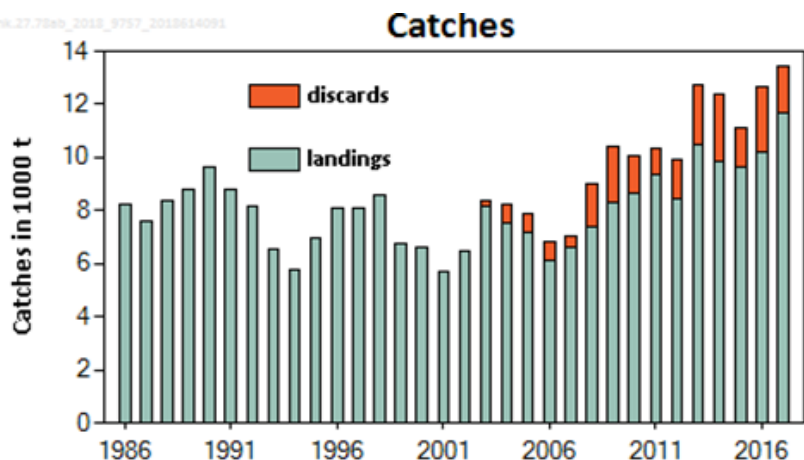
\*\*SSB 2020 relative to SSB 2019.

\*\*\* Percentage advice change refers to wanted catch (landings) for 2019 relative to landings advice for 2017 and 2018 (26 691 tonnes).

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



**Advice for 2019 : PA:** Catch  $\leq 10\,799$  t



- Fishing mortality declined below  $B_{lim}$ .
- Spawning stock stable in recent years with increase in 2016 - no complete survey index for 2017.
- Recruitment index average in last two years.

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



**Catch (2017) = 13 460 t ( 15% discards)**

Index A (2015–2016)	2.01 kg hr <sup>-1</sup>	
Index B (2012–2014)	1.88 kg hr <sup>-1</sup>	
Index ratio (A/B) *	1.07	
Uncertainty cap	Not applied	-
Advised landings for 2017 and 2018 (issued in 2016)	10757 tonnes	
Unwanted catch rate	15%	
Precautionary buffer	Applied	0.8
Catch advice **	10799 tonnes	
% Advice change ^	Not comparable	

\*\* [Advice for 2017 and 2018, issued in 2016] × [index ratio] × [precautionary buffer] / (1 – [unwanted catch rate]).

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

The advice for 2018 was for landings, while the advice for 2019 is for catches; these values cannot be compared.

# Celtic Sea & West, Southwest Ireland



## SUMMARY

Stock	Advice 2019	Advice 2018	Catch 2017	TAC 2018
Cod 7.e-k	0	3428	2354	3076
Haddock 7.b-k	6317	8358	16072	6910
Whiting 7.bc,e-k	15841	19429	16198	22213
Sole 7.fg	864	931	818	920
Sole 7.h-k	311	268	300	382
Plaice 7.fg	2160	1800	1285	511
Plaice 7.h-k	0	0	115	128
Northern hake 4,6,7, 3.a, 8ab,d	142240	115335	111770	111785
Megrim 7.b-k, 8.ab,d	18976	15720	15957	13528
Pollack 6-7	3360	4200	3305	12560
White anglerfish 7, 8.a–b, 8.d	31042	26691	27836	42486
B-B Anglerfish 7, 8.a–b, 8.d	10799	10757*	13460	

\* Advice for 2018 was for landings. For TAC 2018 in blue, area or species 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**

## ICES advice provided in 2017

Stock	Advice 2018 (tonnes)	Advice 2019 (tonnes)
Plaice in Division 7.b-c	Catch $\leq$ 24	Catch $\leq$ 24
Sole in Division 7.b-c	Catch $\leq$ 24	Catch $\leq$ 24
Seabass in divisions 6.a, 7.b, and 7.j	Catch $\leq$ 4	Catch $\leq$ 4



**Thank you  
for your  
attention!**



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