



ICES Advice for 2015

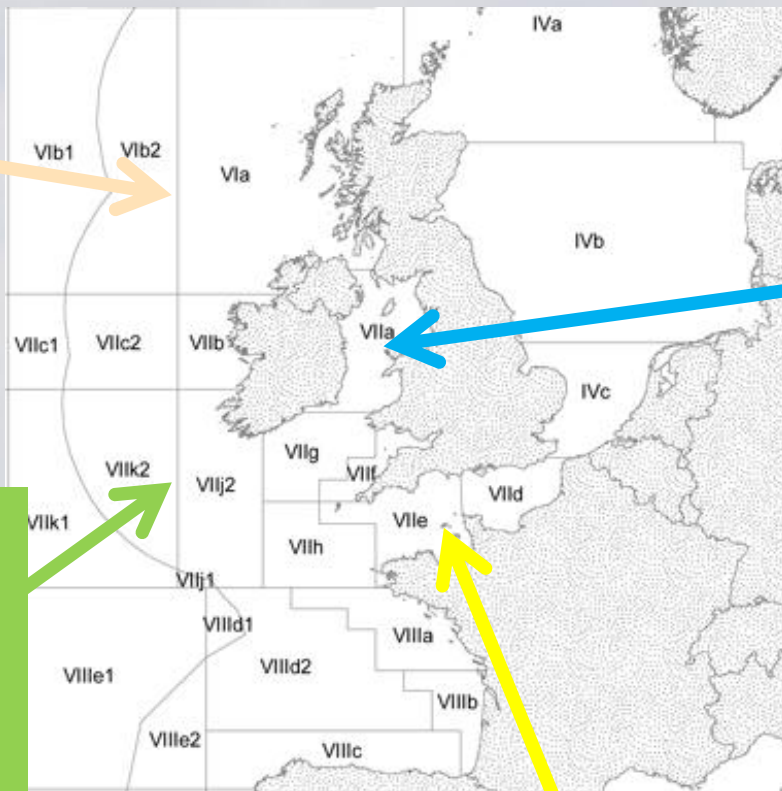
Carmen Fernández, ICES ACOM vice-chair

For NWWAC (Edinburgh, July 2, 2014)

West of Scotland & Rockall (VIab)

- Cod (VIa; VIb)
- Haddock (VIa; VIb)
- Whiting (VIa; VIb)
- Anglerfish (IIIa,IV,VI)
- Megrim (IVa-VIa; VIb)
- *Nephrops* (FUs11-12-13)

Advice for *Nephrops*, anglerfish in IV and VI, and Rockall megrim in autumn



Irish Sea (VIIa)

- Cod
- Haddock
- Whiting
- Plaice
- Sole
- *Nephrops* (FUs 14-15-19)

Deep-sea species

Celtic Sea &

West, Southwest Ireland

- Cod (VIIe-k)
- Haddock (VIIb-k)
- Whiting (VIIe-k)
- Plaice (CS; VIIh-k; VIIbc)
- Sole (CS; VIIh-k; VIIbc)
- Northern hake
- Anglerfish (VIIb-k, VIIIabd)
- Megrim (VIIb-k, VIIIabd)
- Pollack
- Sea bass
- *Nephrops* (FUs 16-17-20-22)

Channel

- Cod (IV, VIId, Skagerrak)
- Plaice (VIId)
- Plaice (VIIe)
- Sole (VIId)
- Sole (VIIe)

All advice available online at:

<http://www.ices.dk>

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In addition to advice items, [principles and advice basis](#) in document “General context to ICES advice, 2014”

For advice release dates, follow link:

Follow Advisory process → Advice requests and advice release dates

Advice online

Template (as in previous years)

Two-pager
simple
information for managers

Supporting information
Background to two-pager

ECOREGION North Sea
STOCK Sole in Subarea IV (North Sea)

Advice Summary for 2011

SSB has fluctuated around the precautionary reference points for the last decade. Fishing mortality has shown a declining trend since 1995 and is estimated to be below F_{msy} in 2008 and 2009.

Stock status

F (Fishing Mortality)			
	2007	2008	2009
MSY (F_{msy})	✗	✗	✗
Precautionary approach (F_{low}, F_{high})	✗	✓	✓
Management plan (F_{msy})	✗	✗	✗

SSB (Spawning Stock Biomass)			
	2008	2009	2010
MSY (B_{msy})	✓	✗	✗
Precautionary approach (B_{low}, B_{high})	✓	○	○
Management plan (B_{msy})	✓	✗	✗

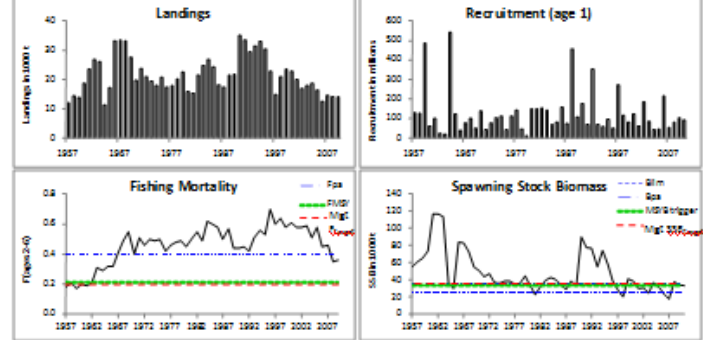
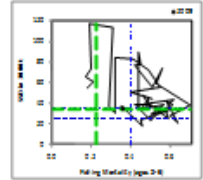











Figure 6.4.10.1 Sole in Subarea IV (North Sea). Summary of stock assessment (weights in 1000 tonnes). Top right: SSB and F over the years.










SSB has fluctuated around the precautionary reference points for the last decade. Fishing mortality has shown a declining trend since 1995 and is estimated to be below F_{msy} in 2008 and 2009.

Management plan

A management plan for North Sea plaice and sole was agreed by the EC in 2007 (Council Regulation (EC) No. 676/2007) which results in a TAC of 13 500 and effort reduction of 10%. ICES has evaluated the long-term management plan and concluded that it leads on average to a low risk of B_{low} within the next 10 years. ICES concludes that for sole the management plan can be provisionally accepted as precautionary.

State of stock table (as previous years)

F (Fishing Mortality)				
	2008	2009	2010	
MSY (F_{MSY})				Appropriate
Precautionary approach (F_{pa}, F_{lim})				Harvested sustainably
Management plan (F_{MGT})				Below target

SSB (Spawning Stock Biomass)				
	2009	2010	2011	
MSY ($B_{trigger}$)				Below trigger
Precautionary approach (B_{pa}, B_{lim})				Increased risk
Management plan (SSB_{MGT})				Above target

West of Scotland & Rockall (VIa & VIb)

- Cod (VIa; VIb)
- Haddock (Northern Shelf; VIb)
- Whiting (VIa; VIb)
- Megrin (IVa-VIa)

In autumn:

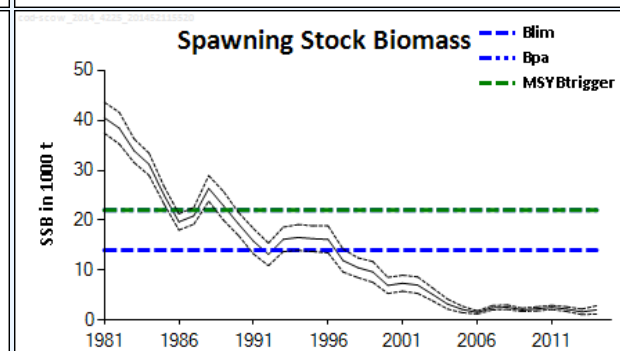
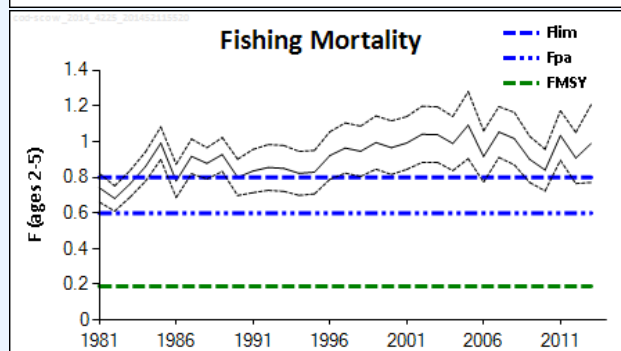
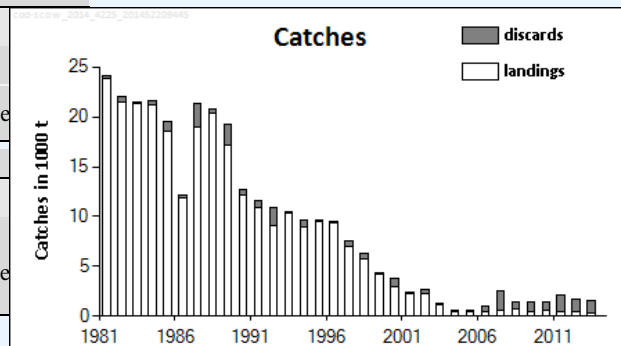
- Anglerfish (IIIa,IV,VI)
- Megrin (VIb)
- *Nephrops* (FUs11-12-13)



Cod in Division VIa (West of Scotland)

Advice for 2015, MSY/PA: No directed fisheries; minimise bycatch and discards

		Fishing pressure			
		2011	2012	2013	
MSY (F_{MSY})		✗	✗	✗	Above target
Precautionary approach (F_{pa}, F_{lim})		✗	✗	✗	Harvest unsustainable
		Stock size			
		2012	2013	2014	
MSY ($B_{trigger}$)		✗	✗	✗	Below trigger
Precautionary approach (B_{pa}, B_{lim})		✗	✗	✗	Reduced reproductive capacity



* Mortality high, very high discard rates in recent years

* $SSB \ll B_{lim}$

* Rec low in last decade

• Cod MP since 2008: not evaluated by ICES for conformity with PA, but catches have not been constrained and no increase in SSB

Interbenchmark 2015 (?)

• Catch 2013 ~ 1 500 t (discards 80%)

• Because catch dominated by discards: very important to maintain the highest possible sampling coverage of vessels in Division VIa

Cod in Division VIa (West of Scotland)

$F(2014) = F(2011-13) = 0.98$; $SSB(2015) = 2\,000\text{ t} \ll B_{lim}(14\,000\text{ t})$

$F_{MSY} = 0.19$

Rationale	Catch Total (2015)	Landings (2015)	Discards (2015)	Basis	F Total (2015)	F Land (2015)	F Disc (2015)	SSB (2016)	%SSB change ¹
MSY approach	38	8	30	$F_{MSY} \times SSB_{2015} / MSY$ $B_{trigger}$	0.02	0.01	0.01	3852	+91%
Precautionary approach	0	0	0	Zero catch ($SSB_{2016} < B_{pa}$)	0	0	0	3907	+94%
Management plan	1186	231	955	$F = F_{2014} \times 0.75$	0.73	0.27	0.47	2200	+9%
Zero catch	0	0	0	$F = 0$	0.00	0.00	0.00	3907	+94%
Other options	393	79	314	$F_{2014} \times 0.2$	0.20	0.07	0.12	3338	+65%
	724	144	580	$F_{2014} \times 0.4$	0.39	0.14	0.25	2861	+42%
	1004	197	807	$F_{2014} \times 0.6$	0.59	0.21	0.37	2459	+22%
	1242	241	1001	$F_{2014} \times 0.8$	0.78	0.28	0.50	2121	+5%
	1443	277	1166	$F_{2014} \times 1.0$	0.98	0.36	0.62	1835	-9%
	1615	306	1309	$F_{2014} \times 1.2$	1.17	0.43	0.74	1593	-21%

Weights in tonnes

TAC(2014)=0, bycatch may be landed up to 1.5% of retained catch by weight

SSB will remain well below B_{lim} in 2016

➔ MSY (“more caution” part of HCR) and PA:

no directed fisheries, minimise bycatch and discards

- Further technical measures to reduce catches should be implemented

Haddock in Subarea IV & Divisions 3aW and VIa (Northern Shelf)

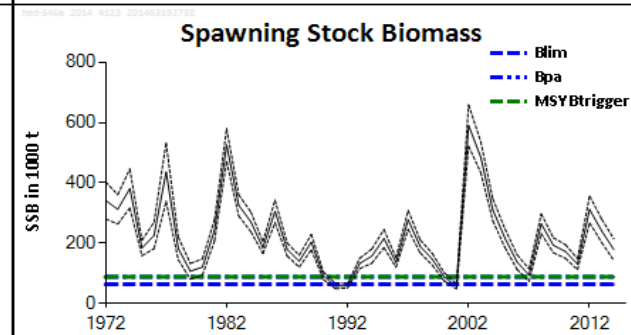
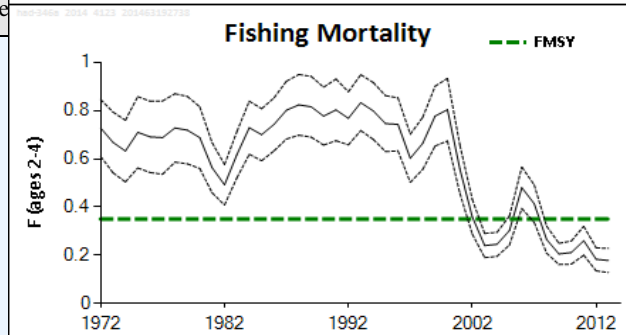
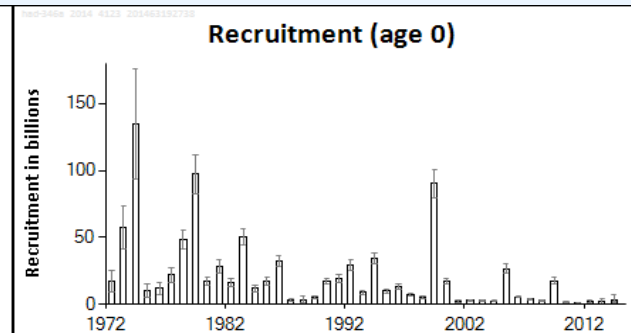
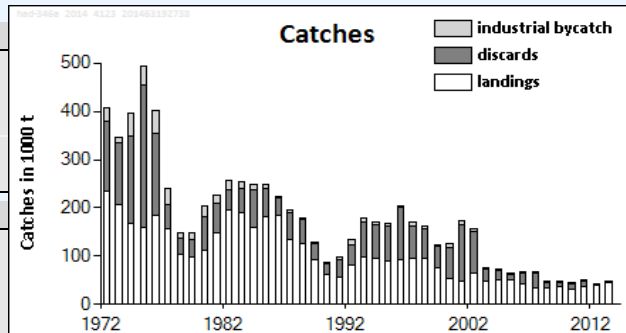
- Previously assessed as 2 different stocks:
North Sea & Skagerrak ; West of Scotland
- **2014 benchmark:** stocks not biologically distinct
 - * significant exchange of juveniles between areas
 - * transport of eggs and larvae from W. Scotland into North Sea
 - * similar length distributions of fish in both areas
 - * concordant recruitment time series in both areas
 - * landings and surveys: unbroken stock distribution across areas
→ **should be assessed as 1 stock**
 - * adults relatively sedentary
- Management should take into account protection of stock components to avoid local depletion
- ICES has not split the overall catch advice between areas
- To advise on possible TAC split, ICES would require policy guidelines and further analysis of stock distribution

Northern Shelf Haddock

Advice for 2015, MSY: Catch < 54 580 t

➔ HC Landings < 48 176 t, assuming discard and industrial bycatch rates stay at last 3-year average

Fishing pressure			
	2011	2012	2013
MSY (F_{MSY})	✓	✓	✓ Appropriate
Precautionary approach (F_{pa}, F_{lim})	?	?	? Not defined
Stock size			
	2012	2013	2014
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa}, B_{lim})	✓	✓	✓ Full reproductive



New:

- $F_{MSY} = 0.35$
- $B_{lim} = 63$ kt
- $B_{pa} = MSY B_{trigger} = 88$ kt

Trends in new assessment similar to those in previous assessments for the 2 stocks

F decreasing since 2000, and below F_{MSY} in recent years; $SSB > MSY B_{trigger}$

Recruitment: occasional large year classes (last one in 1999)

* 2 MPs (EU-Norway for North Sea and proposal for W. Scotland): not relevant
MP for whole area should be developed, accounting for local components

Northern Shelf Haddock

Catch 2013 ~ 46 800 t (discards: 7%, IBC 0.1%); high discarding in TR2 fleet

F(2014) = model trend = 0.19; SSB (2015) = 164 kt > MSY B_{trigger} (88 kt) ; F_{MSY}=0.35 Weights in '000 tonnes

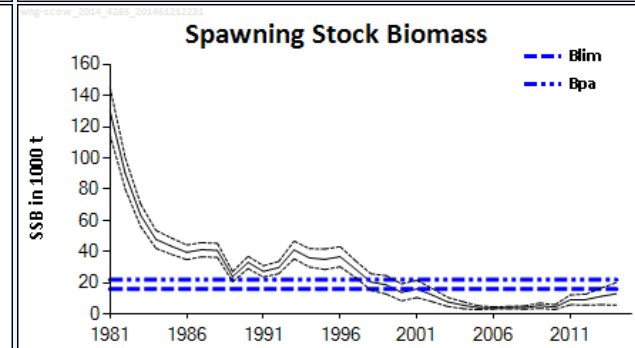
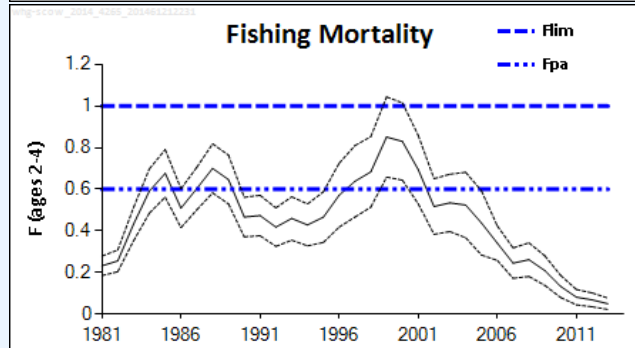
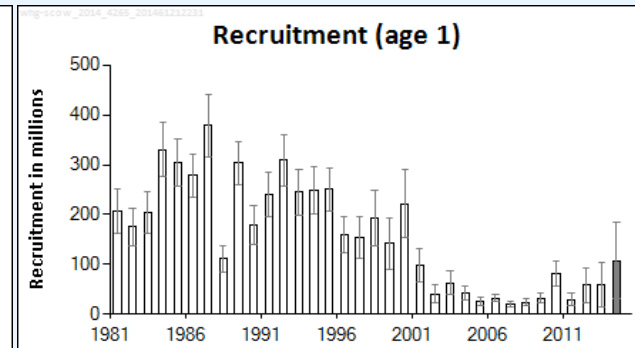
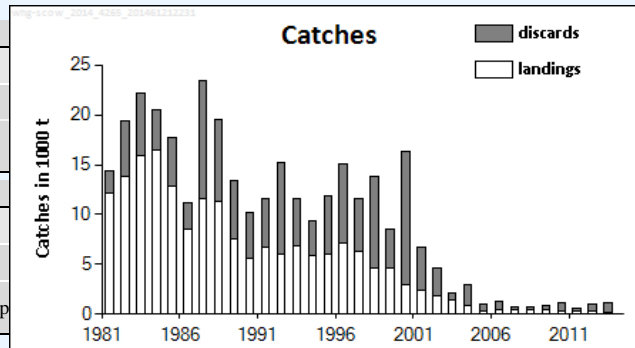
Rationale	Total catch 2015	Total Landing 2015	Total Discards 2015	Total IBC 2015	Basis	Total F 2015	F (land) 2015	F (disc) 2015	F (IBC) 2015	SSB 2016	% SSB change	% TAC change ¹⁾
MSY approach	54.580	48.176	6.404	< 0.001	F_{MSY}	0.35	0.287	0.063	< 0.001	117.426	-28%	8%
Management plan	47.020	41.518	5.502	< 0.001	MP target F	0.30	0.246	0.054	< 0.001	124.446	-24%	-7%
IBC only	0.000	0.000	0.000	< 0.001	No HC fishery	0	0	0.000	< 0.001	167.986	2%	-100%
Other options	23.129	20.479	2.650	< 0.001	0.75 × F(2014)	0.142	0.116	0.026	< 0.001	146.472	-11%	-54%
	32.211	27.658	3.553	< 0.001	F(2014)	0.189	0.155	0.034	< 0.001	138.916	-15%	-38%
	37.443	33.085	4.359	< 0.001	1.25 × F(2014)	0.237	0.194	0.043	< 0.001	133.275	-19%	-26%
	42.946	37.933	5.013	< 0.001	15% TAC decrease (full)	0.273	0.224	0.049	< 0.001	128.198	-22%	-15%
	50.546	44.627	5.919	< 0.001	Rollover TAC (full)	0.323	0.265	0.058	< 0.001	121.189	-26%	0%
	58.146	51.321	6.825	< 0.001	15% TAC increase (full)	0.373	0.306	0.067	< 0.001	114.180	-30%	15%
<i>Mixed-fisheries options – minor differences with calculation above can occur because of the different methodology used (ICES, 2014c)</i>												
Maximum	92.735	80.792	11.943	0	A	0.71	-	-	-	80.374	-51%	84%
Minimum	12.880	11.466	1.414	0	B	0.08	-	-	-	152.156	-7%	-74%
Cod MP	18.661	16.592	2.069	0	C	0.11	-	-	-	146.776	-11%	-62%
SQ effort	33.578	29.759	3.819	0	D	0.21	-	-	-	132.999	-19%	-32%
Effort_Mgt	15.811	14.066	1.745	0	E	0.09	-	-	-	149.426	-9%	-68%

1) Total landings compared with sum of TACs across the different stock areas

Whiting in Division VIa (West of Scotland)

Advice for 2015, PA: No directed fishery; minimise bycatch

	Fishing pressure			2013
	2011	2012	2013	
MSY (F_{MSY})	?	?	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	✓	✓	✓	Harvested sustainably
Stock size				
	2012	2013	2014	
MSY ($B_{trigger}$)	?	?	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	✗	✗	✗	Reduced reproductive cap



* Fishing mortality very low

* SSB increasing, remains $< B_{lim}$

* Rec low in last decade; 2009 yc relatively strong

Interbenchmark in 2015 (?)

- Mainly taken as bycatch with *Nephrops*, haddock, cod, anglerfish
- Very high discarding
- Catch (2013) ~ 1 200 t (80% discarded)
- Almost 90% of undersized discards are from *Nephrops* (TR2) fleet: square mesh panels introduced in 2012 expected to reduce discarding

Whiting in Division VIa (West of Scotland)

$F(2014) = F(2011-2013) = 0.07$; $SSB(2015) = 17.6 \text{ kt} < B_{pa} (22 \text{ kt})$

Rationale	Catch Total (2015)	Landings (2015)	Discards (2015)	Basis	F Total (2015)	F Landings (2015)	F Discards (2015)	SSB (2016)	% SSB change ¹⁾
Precautionary approach	0	0	0	zero catch	0	0	0	17 200	-2.3 %
Other options	190	90	99	$F_{2014} \times 0.2$	0.013	0.006	0.007	16 900	-4.0 %
	377	179	198	$F_{2014} \times 0.4$	0.027	0.012	0.015	16 700	-5.1 %
	561	267	295	$F_{2014} \times 0.6$	0.040	0.018	0.022	16 500	-6.3 %
	744	353	391	$F_{2014} \times 0.8$	0.053	0.024	0.029	16 300	-7.4 %
	924	438	486	$F_{2014} \times 1.0$	0.066	0.030	0.037	16 100	-8.5 %
	1102	522	580	$F_{2014} \times 1.2$	0.080	0.036	0.044	15 800	-10.2 %

Weights in tonnes.

Low recruitment in recent years and

SSB expected to remain below B_{pa} in 2016, even with no catch in 2015

➔ Precautionary approach: lowest possible catch

Megrim (*Lepidorhombus spp.*) Divisions IVa and VIa

Advice for 2015, MSY:

Advice in 2013 was biennial: for 2014 and 2015

New data (catch, surveys) available do not change stock perception.

Therefore, advice for 2015 is the same as given for 2014:

Catch < 7 000 t

→ Landings < 5 950 t, assuming discard rates stay at last 3-year average

- Assessment based on biomass dynamics model (no age or length data used)
- F below F_{MSY} , Biomass above MSY $B_{trigger}$
- Discards ~ 15% of catch in recent years

Cod in Division VIb (Rockall)

Advice for 2015, DLS: Catch < 70 t

- Advice issued in 2012 was biennial (for 2013 and 2014)
- Same catch is also applicable to 2015

- Stock category: 6
- Only data are official landings
- Doubts on accuracy of landings data: vessels operate in VIa and VIb

- Precautionary buffer (20% reduction) applied in the advice issued in 2012 and catches are marginal → same catch advice also considered valid for 2015

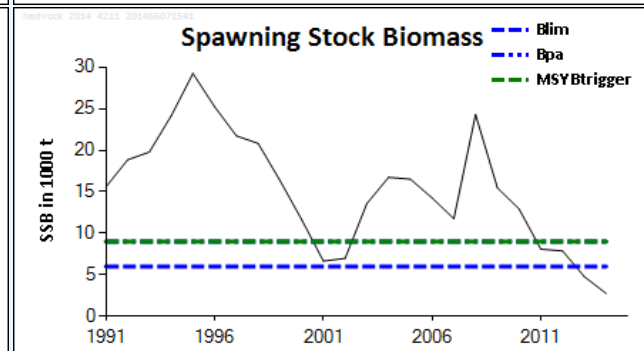
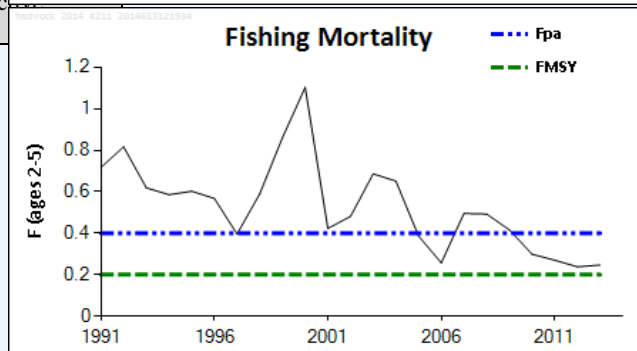
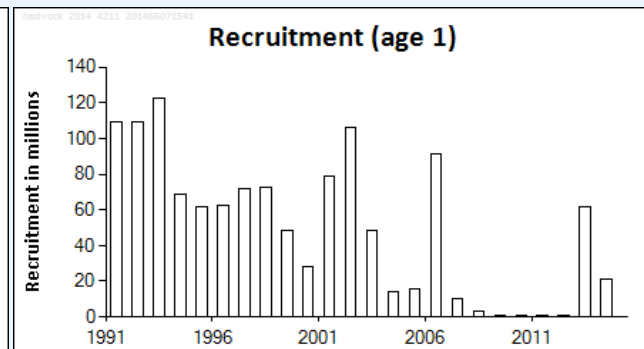
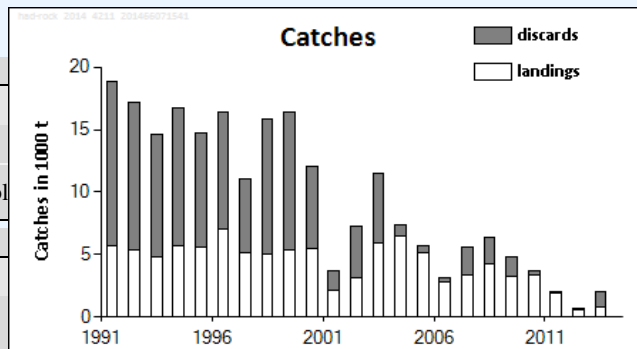
Haddock in Division VIb (Rockall)

Advice for 2015, MSY: Catch < 4 310 t

➔ Landings < 2 930 t, assuming discard rates as in last 8-year average

Further management measures to reduce discards, catches of small haddock, and to protect 2013 recruitment

		Fishing pressure		
		2011	2012	2013
MSY (F_{MSY})		✗	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})		✓	✓	✓ Harvest sustainable
		Stock size		
		2012	2013	2014
MSY ($B_{trigger}$)		✗	✗	✗ Below trigger
Precautionary approach (B_{pa}, B_{lim})		○	✗	✗ Reduced reproductive capacity



* F_{MSY} revised to 0.2

* Fishing mortality has declined; still above F_{MSY}

* Very low recruitment during 2007 – 2012; higher in 2013

* SSB in 2013 and 2014 below B_{lim} ; SSB predicted to increase in 2015

* MP (not yet adopted): target $F=0.2$ above B_{pa} ; evaluated and found precautionary

Haddock in Division VIb (Rockall)

Catch 2013 ~ 1 970 t (discards: 58%)

$F(2014) = \text{TAC constraint} = 0.18$; $\text{SSB}(2015) = 15 \text{ kt} > \text{MSY } B_{\text{trigger}} (9 \text{ kt})$

$F_{\text{MSY}}=0.2$

Rationale	Catch (2015)	Landings (2015)	Discards (2015)	Basis	F total (2015)	F landing s (2015)	F discard s (2015)	SSB (2016)	%SSB change	%TAC change
MSY approach	4.31	2.93	1.38	F_{MSY}	0.20	0.13	0.07	19.2	+28%	+142%
Precautionary approach	7.73	5.24	2.49	$F_{\text{pa}} = 0.4$	0.40	0.26	0.14	15.1	+1%	+332%
Proposed management plan	3.80	2.58	1.22	$F_{\text{HCR}} = 0.2$ and $\text{TAC}_{2015} = \text{TAC}_{F=0.2} + 0.2 \times (\text{TAC}_{2014} - \text{TAC}_{F=0.2})$	0.18	0.11	0.06	19.8	+32%	+114%
Zero catch	0	0	0	$F = 0$	0.00	0.00	0.00	24.4	+63%	-100%
Other options	5.24	3.56	1.68	average $F_{2011-2013}$	0.25	0.16	0.09	18.1	+21%	+193%
	1.49	1.02	0.48	-15% TAC	0.07	0.05	0.02	22.6	+51%	-15%
	1.78	1.21	0.57	0% TAC	0.08	0.05	0.03	22.3	+48%	+0%
	2.04	1.39	0.65	+15% TAC	0.10	0.06	0.04	21.9	+46%	+15%

Weights in '000 tonnes.

Forecast strongly dependent on estimate of 2013 recruitment

Discards expected to remain high in 2014 (related to 2013 recruitment)

➔ technical measures should be considered

Whiting in Division VIb (Rockall)

Advice for 2015, DLS: Catch < 11 t

- Advice issued in 2012 was biennial (for 2013 and 2014)
- Same catch is also applicable to 2015

- Stock category: 6
- Only data are official landings
- Doubts on accuracy of landings data: vessels operate in VIa and VIb

- Precautionary buffer (20% reduction) applied in the advice issued in 2012 and catches are marginal → same catch advice also considered valid for 2015

Celtic Sea & West, Southwest Ireland

- Cod (VIIe-k)
- Haddock (VIIb-k)
- Whiting (VIIe-k)
- Sole (CS; VIIh-k; VIIbc)
- Plaice (CS; VIIh-k; VIIbc)
- Anglerfish (VIIb-k, VIIIabd)
- Megrin (VIIb-k, VIIIabd)
- Pollack (VI, VII)
- Northern hake
- Sea bass (IVbc, VIIa, VIId-h; VIa, VIIb, VIIj)
- *Nephrops* (FUs 16-17-20-22) in autumn

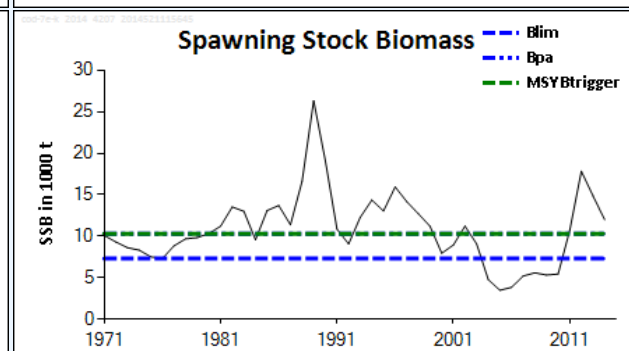
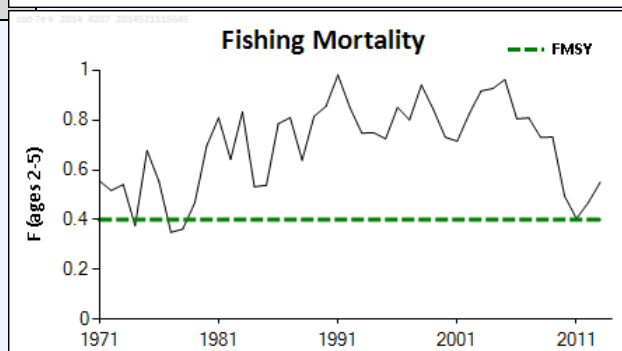
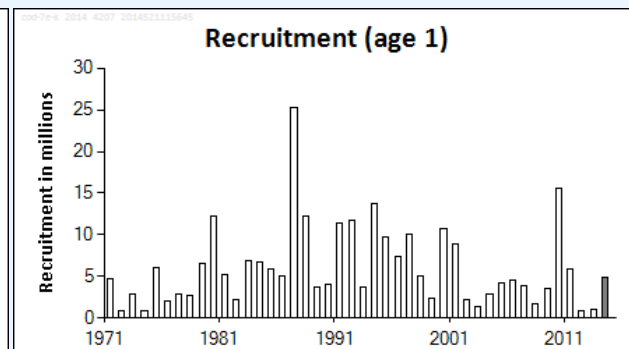
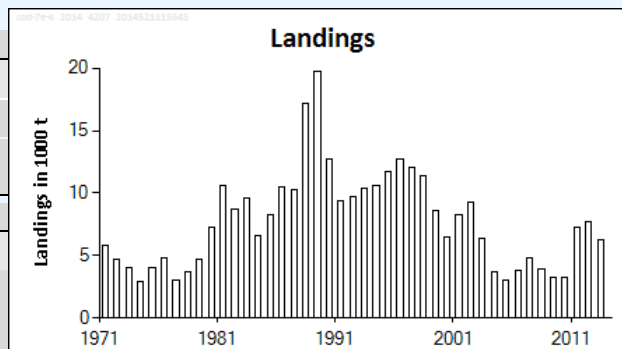


Cod in Divisions VIIe–k (Celtic Sea cod)

Advice for 2015, MSY: Landings < 3 544 t

- total catch can not be quantified

Fishing pressure			
	2011	2012	2013
MSY (F_{MSY})	✓	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})	?	?	? Undefined
Stock size			
	2012	2013	2014
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa}, B_{lim})	✓	✓	✓ Full reproductive capacity



* Fishing mortality declined to F_{MSY} in 2011, then increased in last 2 years

* Recruitment highly variable: 2009 yc very strong, 2011 and 2012 yc very weak

* Strong SSB increase, now decreasing

Cod in Divisions VIIe–k (Celtic Sea cod)

Landings 2013 ~ 6 300 t (discards not fully quantified, about 10%)

$F(2013) = F(2010-12) = 0.47$; $SSB(2015) = 9.5 \text{ kt} < MSY B_{trigger}$ (10.3 kt) $F_{MSY} = 0.4$

Rationale	Landings (2015)	Basis	F landings (2015)	SSB (2016)	%SSB change	% TAC change
MSY approach	3544	$F_{MSY} \times SSB_{2015} / MSY B_{trigger}$	0.37	10723	+13%	-48%
Zero catch	0	$F = 0$	0.00	15103	+59%	-100%
Other options	4274	F_{MSY}	0.40	10418	+10%	-38%
	4934	F_{2014}	0.48	9714	+3%	-28%
	5828	$TAC - 15\% (F_{2014} \times 0.80)$	0.59	8600	-9%	-15%
	6854	Stable TAC	0.73	5962	-37%	0%
	7879	$TAC + 15\% (F_{2014} \times 1.15)$	0.89	5962	-37%	+15%
Haddock in Celtic Sea MSY	2471	$F_{2014} \times 0.45$	0.21	12371	+31%	-64%
Whiting in Celtic Sea MSY	5808	$F_{2014} \times 1.23$	0.58	8639	-9%	-15%

Weights in tonnes

- Options corresponding to the F-multipliers of haddock and whiting also in table
- Main uncertainty in forecast is the magnitude of 2013 yc

Information available so far suggests 2014 recruitment is strong; forecast uses long-term average

Groundfish surveys in November will provide more information

- Irish landings from southern part of Division VIIa allocated to this stock

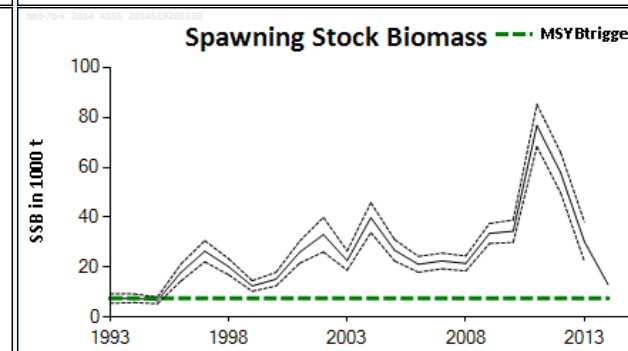
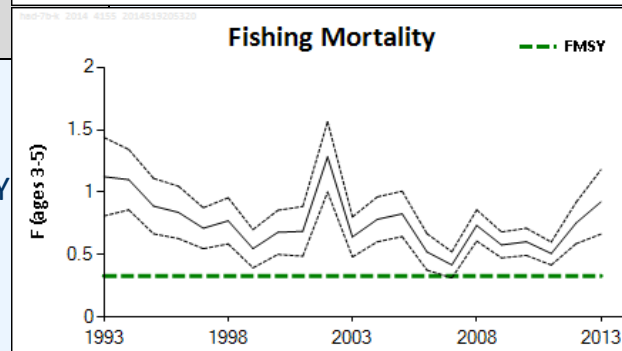
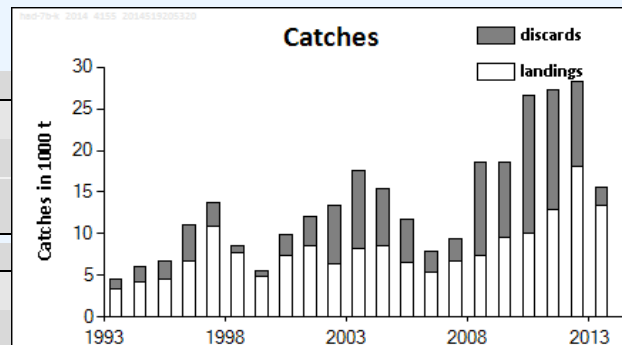
Haddock in Divisions VIIb-k

Advice for 2015, MSY: Catch < 10 434 t

➔ Landings < 5 605 t, assuming discard rates as average of 1993-2013

Heavy discarding of strong 2013 cohort expected in 2014 and 2015, unless additional measures taken

	Fishing pressure			2013
	2011	2012	2013	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa}, F_{lim})	?	?	?	Undefined
Stock size				
	2012	2013	2014	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa}, B_{lim})	?	?	?	Undefined



* Fishing mortality above F_{MSY}

* Rec:

exceptionally strong in 2009, low during 2010-2012, high in 2013

* SSB increased until 2011, followed by decrease; increase expected in 2015

* increased highgrading during 2011-2013 (over quota)

➔ catch options based on discard rates of full time-series

Haddock in Divisions VIIb–k

Catch 2013 ~ 15 300 t (discards 12%) ; estimated historic discards uncertain

$F(2013) = F(2011-2013) = 0.73$; $SSB(2015) = 32.9 \text{ kt} > MSY B_{\text{trigger}} (7.5 \text{ t})$ $F_{MSY}=0.33$

Rationale	Catch (2015)	Land. (2015)	Disc. (2015)	Basis	F catch (2015)	F land ¹⁾ (2015)	F disc. ¹⁾ (2015)	SSB (2016)	%SSB change ²⁾	%TAC change ³⁾
MSY approach	10.434	5.605	4.829	F_{MSY}	0.33	0.30	0.03	37.251	+13%	-41%
Zero catch	0	0	0	$F = 0$	0	0	0	48.736	+48%	-100%
Other options	14.478	7.743	6.735	Stable SSB	0.49	0.44	0.05	32.9	0%	-18%
	15.074	8.057	7.017	-15% TAC	0.51	0.46	0.05	32.3	-2%	-15%
	17.796	9.479	8.317	Stable TAC	0.63	0.57	0.06	29.4	-11%	0%
	20.542	10.901	9.641	+15% TAC	0.76	0.69	0.07	26.5	-19%	+15%
Cod in Celtic Sea MSY	16.460	8.782	7.678	$F_{2014} \times 0.78$	0.57	0.52	0.05	30.793	-6%	-7%
Whiting in Celtic Sea MSY	23.031	12.177	10.854	$F_{2014} \times 1.23$	0.90	0.81	0.08	23.956	-27%	+28%

Weights in '000 tonnes.

Further technical measures to reduce bycatch discarding of 2013 yc (e.g. increase mesh size in square mesh panels or in gadoid fisheries catching haddock)

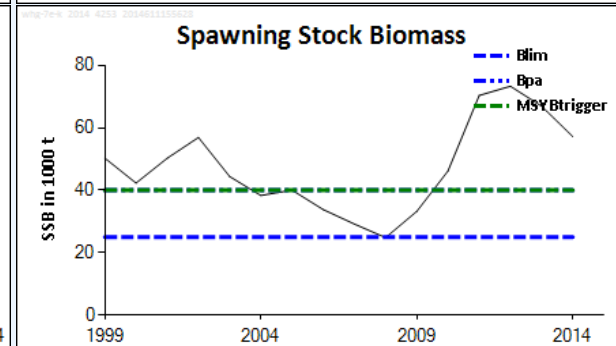
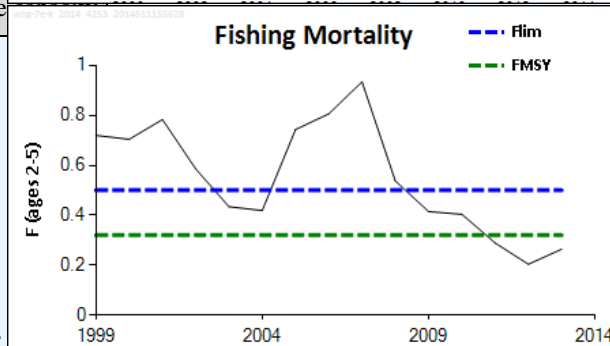
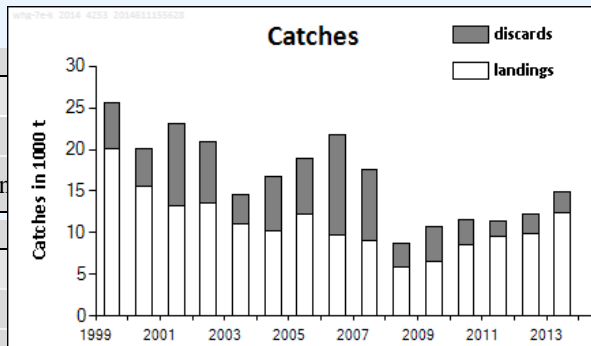
Management should focus on improving selection pattern of haddock in mixed fishery and deter highgrading due to restrictive quotas

Whiting in Divisions VII bc,e-k

Advice for 2015, MSY: Catch < 18 501 t

➔ Landings < 14 230 t, assuming discard rates stay at last 3-year average

	Fishing pressure		
	2011	2012	2013
MSY (F_{MSY})	✓	✓	✓ Appropriate
Precautionary approach (F_{pa}, F_{lim})	✓	✓	✓ Harvested sustain
	Stock size		
	2012	2013	2014
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa}, B_{lim})	✓	✓	✓ Full reproductive



Benchmarked in 2014

* Discards incorporated in assessment:
now shorter assessment series

* Same stock trends but different levels (higher Recruitment level)

* New/revised: $F_{MSY} = 0.32$, $F_{lim} = 0.5$, $B_{lim} = 25\ 000\ t$, $B_{pa} = MSY\ B_{trigger} = 40\ 000\ t$

* 2013 yc high

* Mixed fisheries (cod, haddock, whiting); high discards, low market value

Whiting in Divisions VII bc,e-k

Catch 2013 ~ 14 300 t (discards: 17%);

estimated historic discards uncertain

$F(2014) = F(2011-2013) = 0.25$; $SSB(2015) = 80 \text{ kt} > MSY B_{\text{trigger}} (40 \text{ kt})$

$F_{MSY} = 0.32$

Rationale	Total catch (2015)	Landings (2015)	Discards (2015)	Basis	F catch (2015)	F land. (2015)	F discards (2015)	SSB (2016)	% SSB change ¹
MSY approach	18.501	14.230	4.271	F_{MSY}	0.32	0.26	0.06	77.208	-4%
Zero catch	0	0	0	$F = 0$	0.00	0.00	0.00	93.930	+17%
Other options	12.329	9.571	2.758	$F_{2014} \times 0.80$	0.20	0.17	0.04	82.756	+3%
	13.710	10.622	3.088	$F_{2014} \times 0.90$	0.23	0.19	0.04	81.512	+2%
	15.059	11.644	3.415	$F_{2014} \times 1.00$	0.25	0.21	0.04	80.298	0%
	16.375	12.637	3.738	$F_{2014} \times 1.10$	0.28	0.23	0.05	79.114	-1%
	17.663	13.604	4.059	$F_{2014} \times 1.20$	0.30	0.25	0.05	77.959	-3%
Cod in Celtic Sea MSY	12.073	9.375	2.698	$F_{2014} \times 0.78$	0.20	0.16	0.03	82.988	+4%
Haddock in Celtic Sea MSY	7.269	5.681	1.587	$F_{2014} \times 0.45$	0.11	0.09	0.02	87.329	+9%

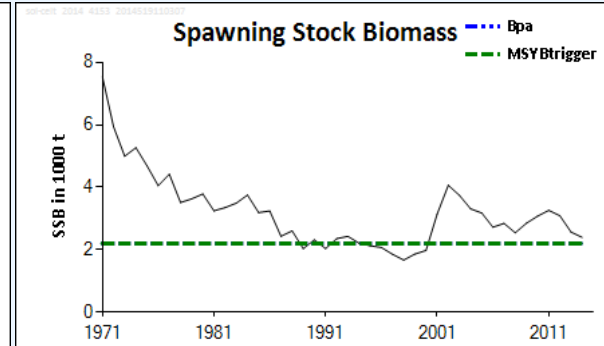
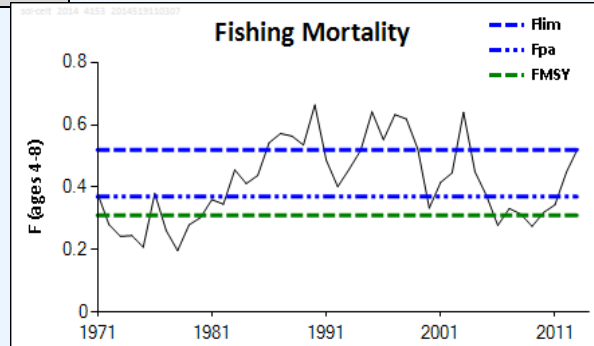
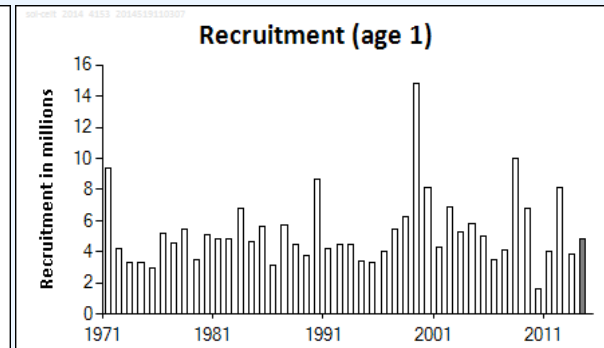
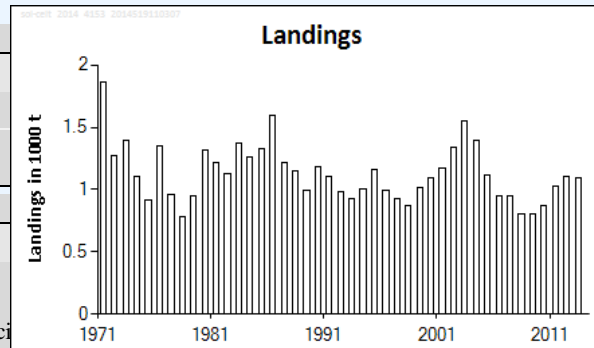
Weights in '000 tonnes

- Options corresponding to the F-multipliers of haddock and cod also in table
- Square mesh panels introduced in 2012 to reduce haddock and whiting discards in Celtic Seas. Expected to reduce whiting discards, but no specific monitoring. Further technical measures under consideration in 2014

Sole in Celtic Sea (VII f,g)

Advice for 2015, MSY: Catch < 652 t. All catches assumed to be landed

		Fishing pressure			
		2011	2012	2013	
MSY (F_{MSY})		✗	✗	✗	Above target
Precautionary approach (F_{pa}, F_{lim})		✓	⊙	✗	Harvest unsustainable
		Stock size			
		2012	2013	2014	
MSY ($B_{trigger}$)		✓	✓	✓	Above trigger
Precautionary approach (B_{pa}, B_{lim})		✓	✓	✓	Full reproductive capacity



Benchmarked in 2014

* several corrections to historical data

* some changes to stock perception in last decade: lower SSB and higher F

- F around F_{MSY} during 2006-2010; increased in last 3 years, now at F_{lim}
- Recruitment fluctuates
- SSB above MSY $B_{trigger}$, but declining

Sole in Celtic Sea (VII f,g)

* Landings (2013) ~ 1 100 t (mainly beam trawlers; discards considered negligible ~ 3%)

Discards not included in assessment (considered negligible)

$F(2014) = F(2011-2013) = 0.52$; $SSB(2015) = 2\,230\text{ t} > MSY\ B_{trigger} (2\,200\text{ t})$

$F_{MSY} = 0.31$

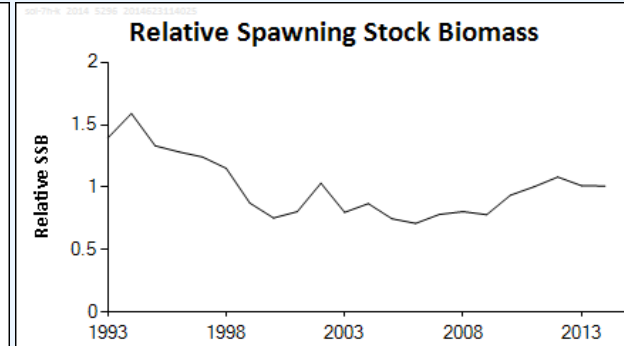
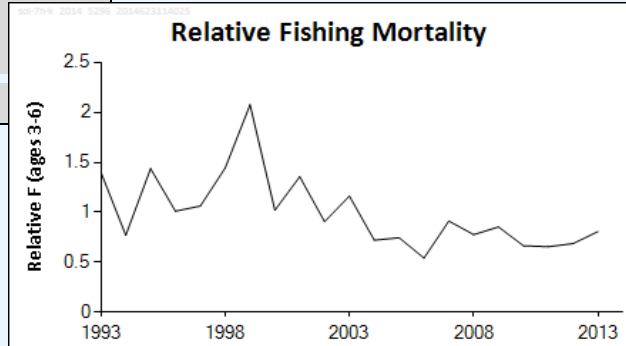
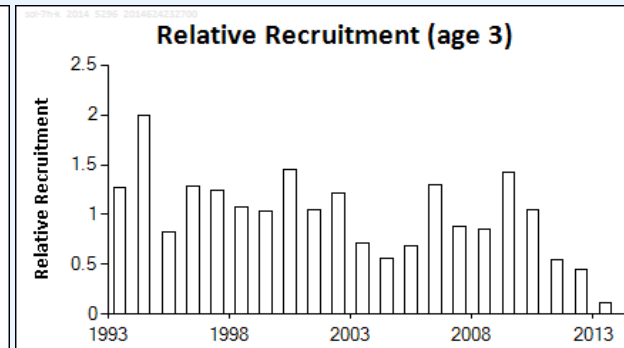
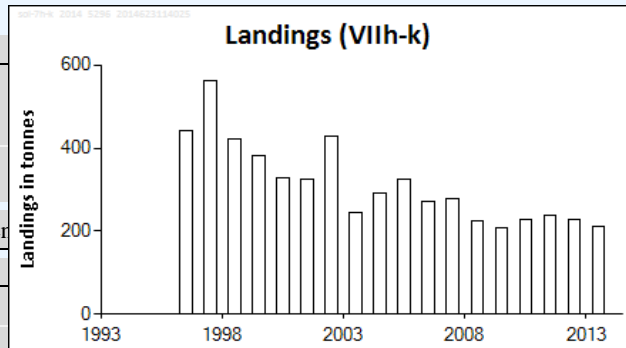
Rationale	Catches (2015)	Basis	F (2015)	SSB (2016)	%SSB change	% TAC change
MSY approach	652	F_{MSY}	0.31	2352	+6%	-35%
Precautionary approach	760	F_{pa}	0.37	2250	+1%	-24%
Zero catch	0	$F = 0$	0.00	2978	+34%	-100%
Other options	851	TAC - 15% ($F_{2014} \times 0.81$)	0.42	2163	-3%	-15%
	1013	F_{2014}	0.52	2010	-10	+1%
	1001	Stable TAC ($F_{2014} \times 0.99$)	0.52	2021	-9%	0%
	1151	TAC + 15% ($F_{2014} \times 1.78$)	0.62	1880	-16%	+15%

Weights in tonnes

Sole in Divisions VIIh-k (Southwest of Ireland)

Advice for 2015, DLS: Catch < 225 t. All catches assumed to be landed.

Fishing pressure		
		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	✓	Below poss. referer
Stock size		
		2010–2014
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	→	Stable



* Biological link between Div VIIh and VIIjk unclear

* New assessment (gives trends) based on commercial data from Div VII jk (no VII h)

DLS (category 3): SSB trend, from assessment, in last 5 years: 0% change

1. Uncertainty cap: 0% change
2. Precautionary buffer: no, F has decreased, exploitation not detrimental

→ last 3-year average catch

Result applied to the catch from Div VII h-k: Catch < 225 t

Sole in Divisions VIIbc (West of Ireland)

Advice for 2015, DLS: Catch < 30 t

- Advice issued in 2012 was biennial, valid for 2013 and 2014
- Same catch is also applicable to 2015

- Stock category: 6
- Only data are official landings
- Catches too low to support collection of necessary information for stock assessment

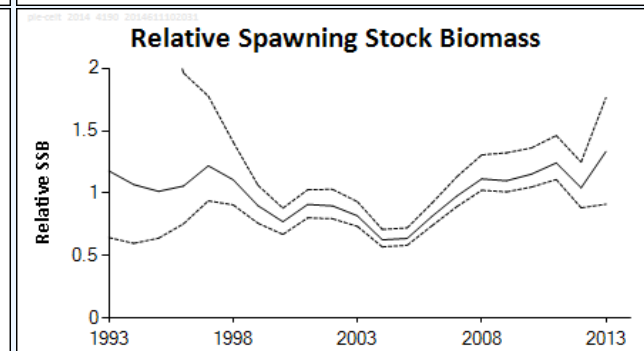
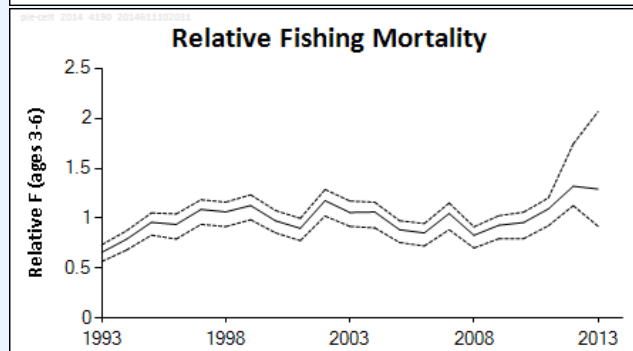
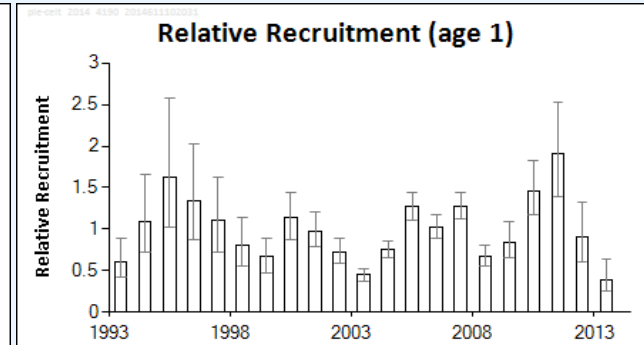
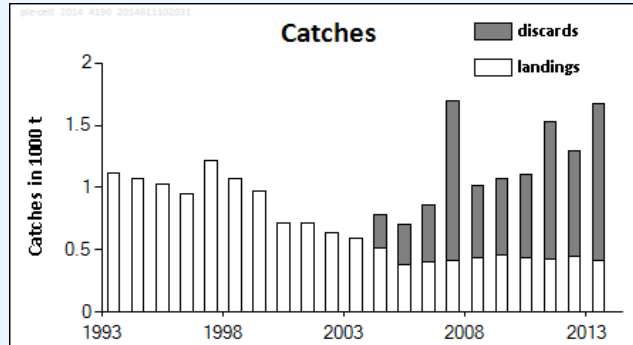
- Precautionary buffer (20% reduction) applied in the advice issued in 2012 and catches are marginal → same catch advice also considered valid for 2015

Plaice Celtic Sea (VIIf,g)

Advice for 2015, DLS: Catch < 1 500 t

- ➔ Landings < 420 t, assuming discard rates stay at last 3-year average
- Management measures to reduce discards in the mixed fishery

Fishing pressure	
MSY (F_{MSY})	1995–2013 ? Unknown
Precautionary approach (F_{pa}, F_{lim})	? Unknown
Qualitative evaluation	➔ Stable over the time series
Stock size	
MSY ($B_{trigger}$)	2008–2013 ? Unknown
Precautionary approach (B_{pa}, B_{lim})	? Unknown
Qualitative evaluation	➔ Stable



* Very high discards

* Catch (2013) ~ 1 670 t
(76% discards)

* F stable over time series

* Category 3:

advice based on SSB trend from assessment,
taking uncertainty into account: SSB stable since 2008

Plaice Celtic Sea (VII f,g)

DLS (category 3):

SSB trend in last 5 years: stable within uncertainty range → 0% change

1. Uncertainty cap: 0% change

2. Precautionary buffer: no, effort of main fleets decreasing since 2000 and currently at lowest recorded level

→ Catch = last 3 year average

Result: Catch < 1 500 t

If discard rates stay at last 3-year average: Landings < 420 t

- Use of larger-mesh gear and spatial/temporal measures to avoid small plaice should be encouraged in this fishery where mixed fisheries issues allow for it

Plaice in Divisions VIIh-k (Southwest of Ireland)

Advice for 2015, DLS:

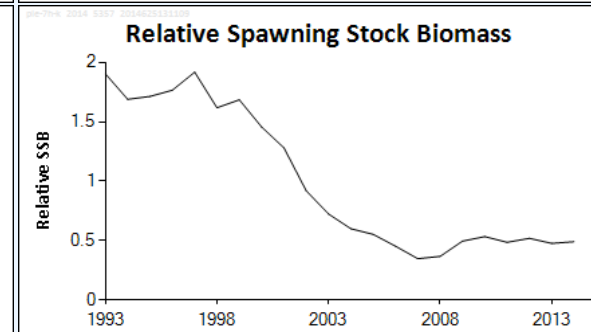
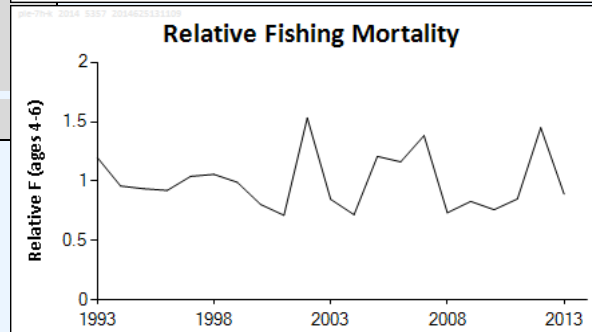
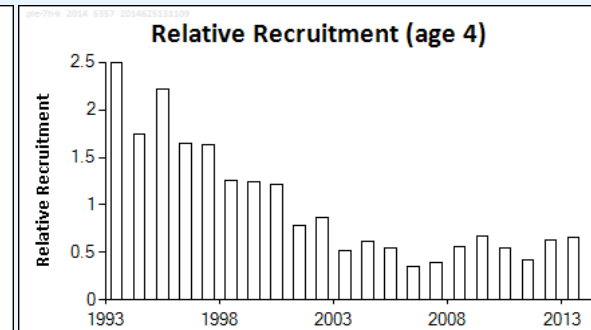
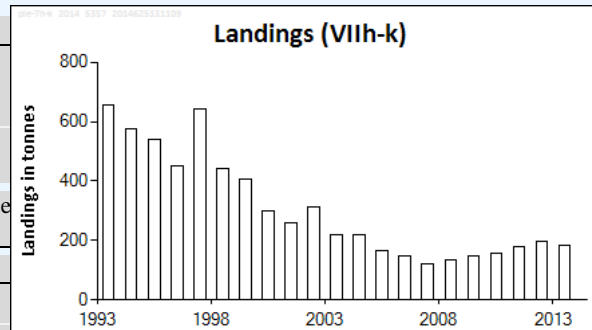
New data do not change stock perception. Last year's advice also applicable to 2015:

Landings < 135 t

Discards exist but cannot be quantified → total catch can not be calculated

- Plaice in VIIj overexploited and heavily discarded
→ management measures to reduce discards in mixed fishery

Fishing pressure		
		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	⊗	Above possible reference points
Stock size		
		2005–2014
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	→	Stable



* Biological link between plaice in Div VIIh and VIIjk unclear

* Data from Div VIIh scarce; exploratory assessment based on data from VIIjk

* Data from VIIjk indicate high discards (~ 30% in weight; 39% in 2013)

Plaice in Divisions VIIh-k (Southwest of Ireland)

- Management should take into account that plaice is caught in a mixed fishery
- Plaice caught in spatially distinct areas: restricting effort in those areas may be more effective than limiting landings
- Discards should be reduced. Use of larger-mesh gear could improve selection, but will also affect catches of marketable fish

Plaice in Divisions VIIbc (West of Ireland)

Advice for 2015, DLS:

Landings < 30 t

Discards exist but cannot be quantified → total catch can not be calculated

- Advice issued in 2012 was biennial (for 2013 and 2014)
- Same advice also applicable to 2015 (now quantified as landings)

- Stock category: 6
- Only data are official landings
- Catches too low to support collection of necessary information for stock assessment

- Precautionary buffer (20% reduction) applied in the advice issued in 2012 and catches are marginal → same catch advice also considered valid for 2015

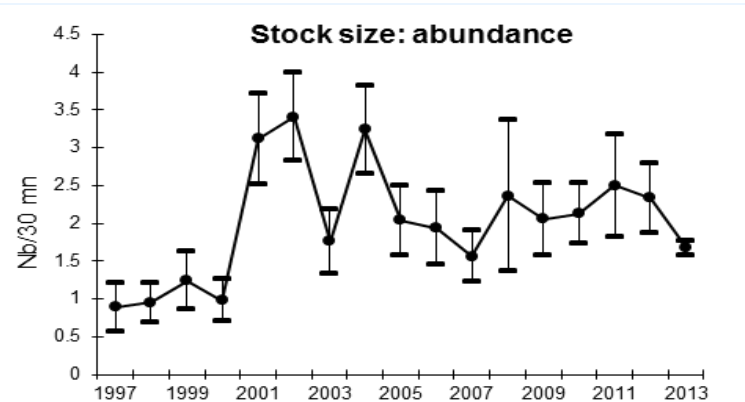
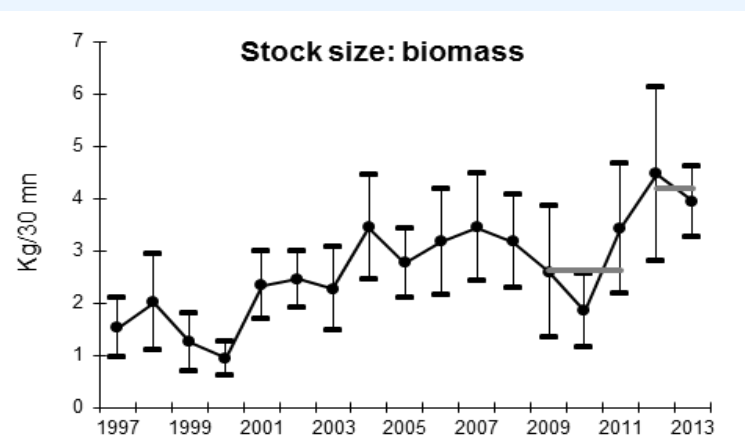
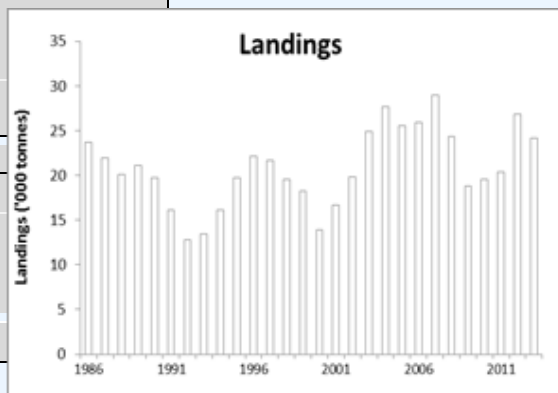
Anglerfish (*Lophius piscatorius*) Div VIIb–k and VIIIa,b,d

Advice for 2015, DLS: Landings < 26 691 t ; total catch can not be quantified

- Management of 2 anglefirsh species under a combined TAC prevents effective control of single-species exploitation rates and could potentially lead to overexploitation of either species.

If catch advice for the two species is summed: Landings(2 species) < 37 450 t (SALY)

Fishing pressure	
MSY (F_{MSY})	2011–2013 Unknown
Precautionary approach (F_{pa}, F_{lim})	Unknown
Stock size	
MSY ($B_{trigger}$)	2011–2013 Unknown
Precautionary approach (B_{pa}, B_{lim})	Unknown
Qualitative evaluation	Increasing



- * Biomass has increased; 60% in last 5 years
- * Medium recruitment in recent years
- * Landings *L. piscatorius* (2013) ~ 24 200 t
- * Indications that discarding of small fish increased in recent years, but no reliable discard estimates

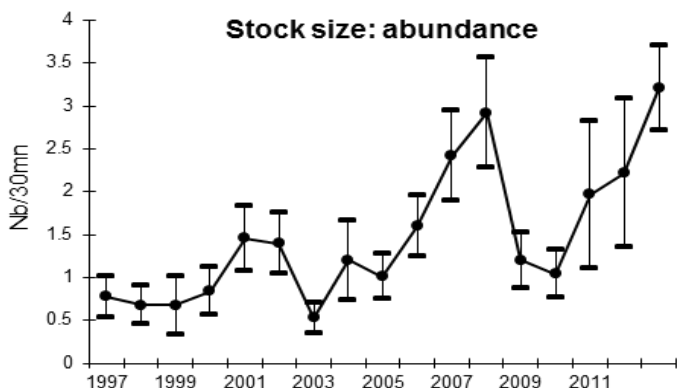
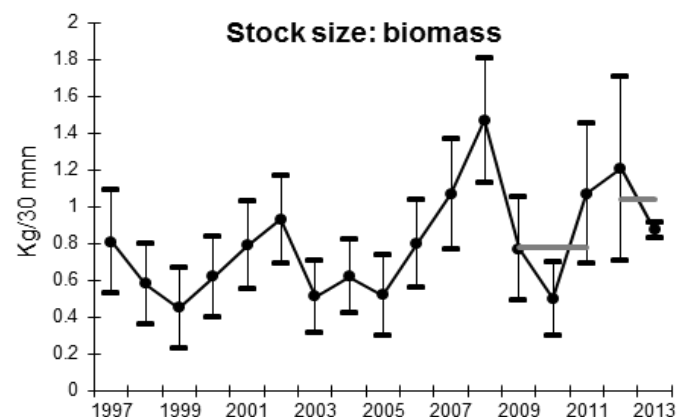
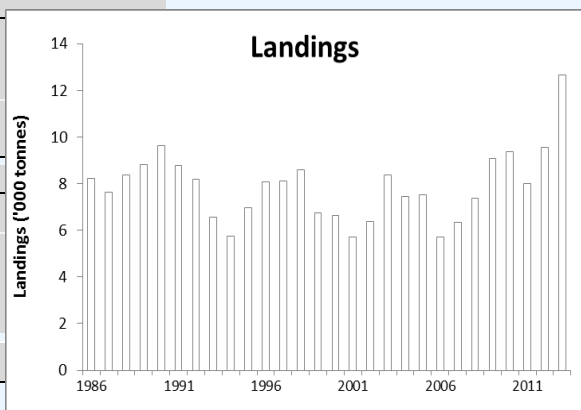
Anglerfish (*Lophius budegassa*) Div VIIb–k and VIIIa,b,d

Advice for 2015, DLS: Landings < 10 757 t ; total catch can not be quantified

- Management of 2 anglefirsh species under a combined TAC prevents effective control of single-species exploitation rates and could potentially lead to overexploitation of either species.

If catch advice for the two species is summed: Landings(2 species) < 37 450 t (SALY)

Fishing pressure		
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Stock size		
		2011–2013
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing



* Biomass has fluctuated; 33% increase in last 5 years

* Strong recruitment in last 3 years

* Landings *L. budegassa* (2013) ~ 12 700 t

* Indications that discarding of small fish increased in recent years, but no reliable discard estimates

DLS (category 3)

L. piscatorius: Biomass index increased by 60% in last 5 years.

20% increase in catch was advised last year; advising an additional increase this year runs risk that catches increase faster than stock biomass

→ same catch advice given last year is repeated for 2015:

Landings (*L. piscatorius*) < 26 691 t ; total catch can not be quantified

L. budegassa: Biomass index increased by 33% in last 5 years.

20% increase in catch was advised last year; advising an additional increase this year runs risk that catches increase faster than stock biomass

→ same catch advice given last year is repeated for 2015:

Landings (*L. budegassa*) < 10 757 t ; total catch can not be quantified

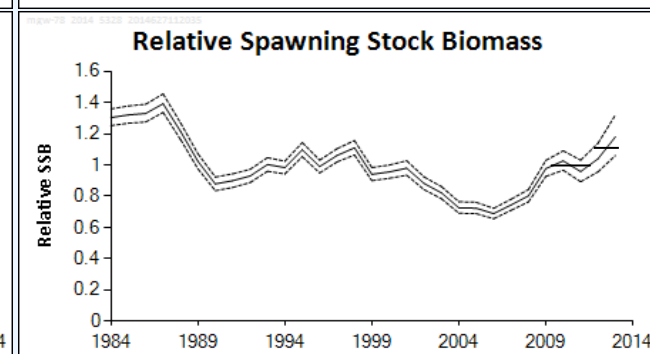
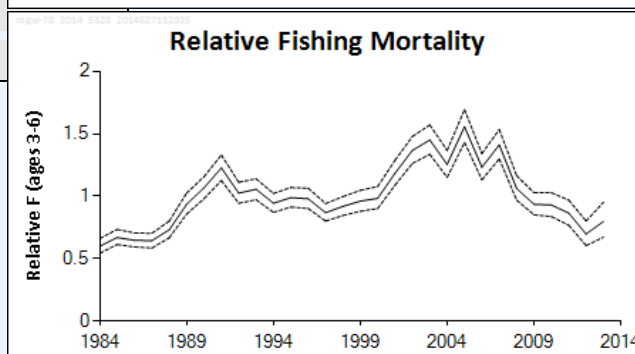
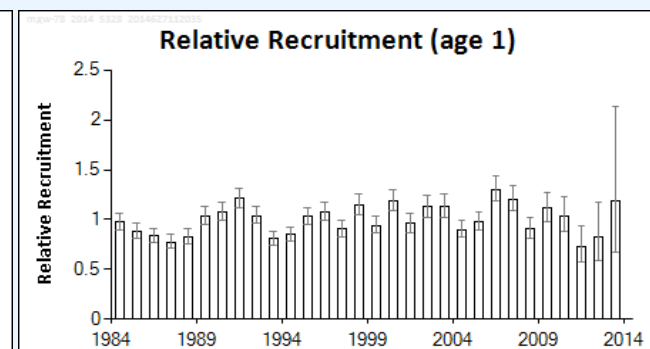
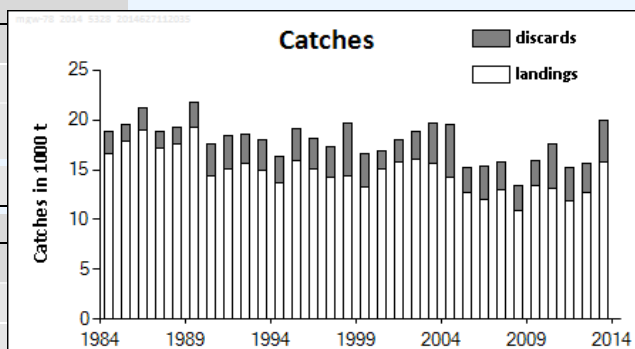
Sum of the advice for the 2 species: Landings(2 species) < 37 450 t (SALY)

Management measures for both anglerfish species should be considered together with other species caught in same fisheries (sole, cod, rays, megrim, *Nephrops*, hake)

Megrim (*Lepidorhombus whiffiagonis*) Divisions VIIb–k and VIIIa,b,d

Advice for 2015, DLS: Landings < 15 180 t ; total catch can not be quantified

Fishing pressure	
	2011-2013
MSY (F_{MSY})	⊙ ? Not available
Precautionary approach (F_{pa}, F_{lim})	⊙ ? Not available
Qualitative evaluation	⬇ Decreasing
Stock size	
	2009-2013
MSY ($B_{trigger}$)	⊙ ? Not available
Precautionary approach (B_{pa}, B_{lim})	⊙ ? Not available
Qualitative evaluation	⬆ Increasing



Discarding substantial, even above MLS

Discard data partial

Assessment model attempts to deal with heterogeneous and missing discard data

Used only as indicative of trends (category 3).

- SSB trend in last 5 years: 13% increase
- No precautionary buffer (progressive decrease in main fisheries effort and in F)
 - ➔ 13% increase (applied to last 3-year average landings)

Pollack in Subareas VI and VII

Advice for 2015, DLS:

Commercial landings < 4 200 t ; total catch can not be quantified

- Advice issued in 2012 was biennial, valid for 2013 and 2014
- New landings data available do not change stock perception
- ➔ Same advice also applicable to 2015 (now quantified as commercial landings)

* Stock category: 4

* Advice based on official landings (almost all landings from Subarea VII)

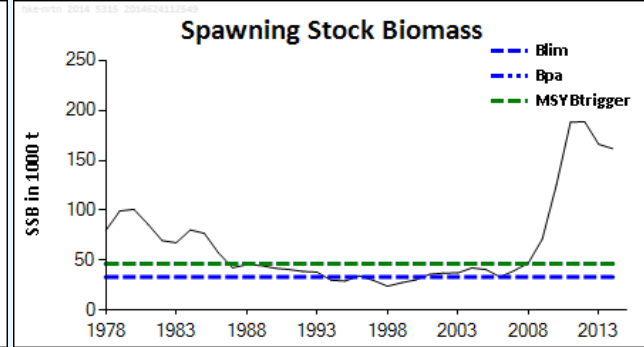
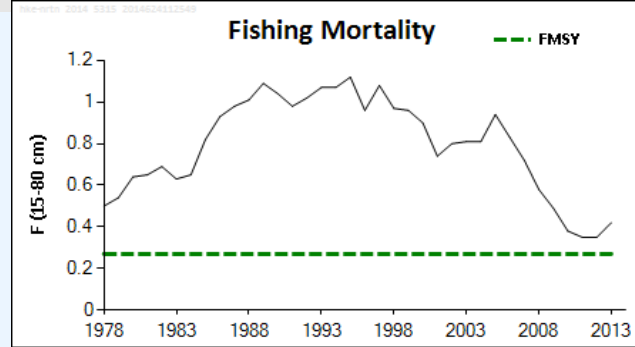
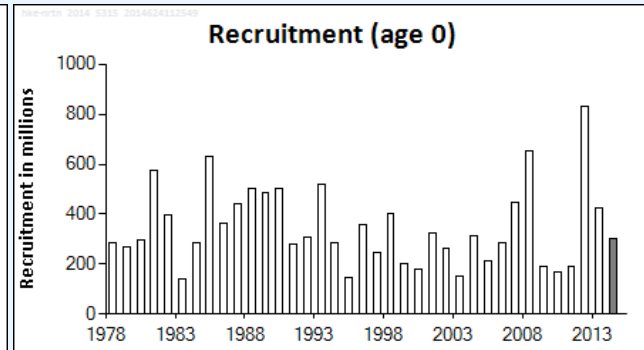
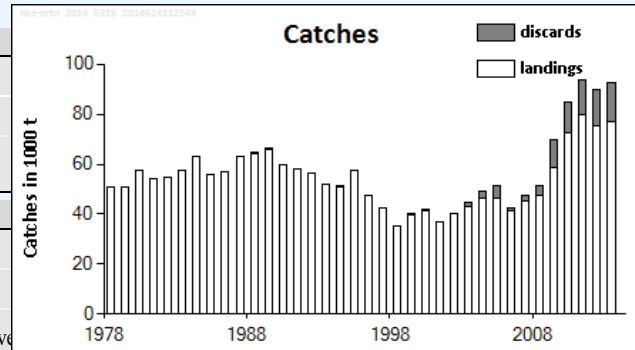
* DCAC (method that estimates a sustainable catch) applied to Subareas VI and VII separately (in 2012)

* More information would be needed to develop an assessment:
stock identity, detail of fisheries,
biological information, recreational fisheries

Hake – Northern stock (IIIa, IV, VI, VII, VIIIabd)

Advice for 2015, MSY: Landings < 78 457 t ; total catch can not be quantified (only partial discards included in assessment)

	Fishing pressure		
	2011	2012	2013
MSY (F_{MSY})	✗	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})	?	?	? Undefined
	Stock size		
	2012	2013	2014
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa}, B_{lim})	✓	✓	✓ Full reproductive



Benchmark in 2014:

Worked on selectivity and discarding patterns of fleets

Included discard estimates from northern fleets (IIIa, IV, VI)

➔ led to revision of last year assessment for recent period: estimated increase in SSB and decrease in F now not as large as estimated before

New: $F_{MSY} = 0.27$, $B_{lim} = 33\ 000\ t$, $B_{pa} = MSY\ B_{trigger} = 46\ 200\ t$

* Recent years: increased discards; increase in catch in northern areas

Hake – Northern stock

Landings 2013 ~ 77 kt (discards 16 kt, underestimated; partial discards in assessment)

$F(2014) = F(2011-13) = 0.38$; $SSB(2015) = 225$ kt > MSY Btrigger

Weights in '000 tonnes

$F_{MSY} = 0.27$

Rationale	Landings (2015)	Basis	F Total (2015)	F Land (2015)	F Disc (2015)	Disc (2015)	Catch Total (2015)	SSB (2016)	%SSB change	%TAC change
MSY approach	78.457	$F_{MSY} (F_{sq} * 0.72)$	0.27	0.2	0.07	16.791	95.248	277	23%	-4%
Recovery plan	73.477	$F_{recovery-plan} (F_{sq} * 0.66)$	0.25	0.17	0.07	15.687	89.164	283	26%	-9%
Zero catch	0	$F = 0$	0	0	0	0	0	371	65%	-100%
Other options	12.494	$F_{sq} * 0.1$	0.04	0.03	0.01	2.597	15.091	357	58%	-85%
	35.855	$F_{sq} * 0.3$	0.11	0.08	0.03	7.525	43.38	328	46%	-56%
	57.204	$F_{sq} * 0.5$	0.19	0.14	0.05	12.119	69.323	303	34%	-30%
	69.559	-15% TAC ($F_{sq} * 0.62$)	0.23	0.17	0.07	14.823	84.382	288	28%	-15%
	76.711	$F_{sq} * 0.7$	0.26	0.19	0.07	16.404	93.114	279	24%	-6%
	81.848	Equal TAC ($F_{sq} * 0.76$)	0.28	0.21	0.08	17.547	99.395	273	21%	0%
	94.112	+15% TAC ($F_{sq} * 0.9$)	0.34	0.24	0.09	20.304	114.416	258	14%	15%
	94.534	$F_{sq} * 0.9$	0.34	0.24	0.09	20.399	114.933	257	14%	16%
	102.859	$F_{sq} * 1$	0.38	0.27	0.1	22.296	125.155	247	10%	26%
118.422	$F_{sq} * 1.2$	0.45	0.33	0.13	25.896	144.318	228	1%	45%	

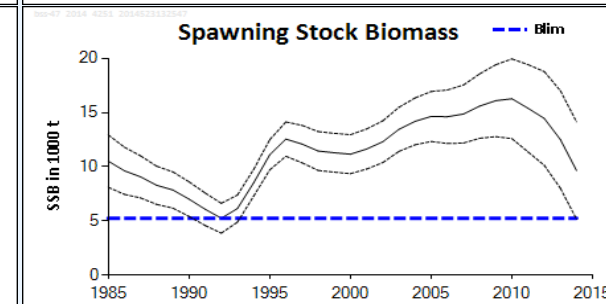
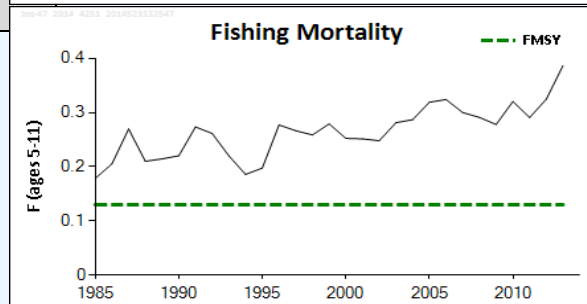
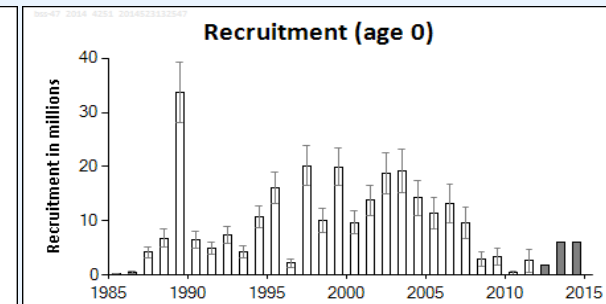
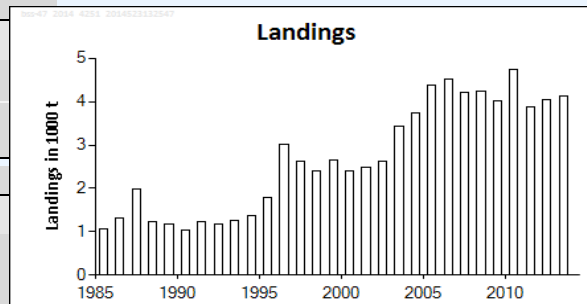
Short-term projection influenced by high 2012 Rec estimate (consistently observed in 2 surveys) ; Discards of juvenile hake substantial in some areas and fleets

Sea bass in IVbc, VIIa and VIId-h

Advice for 2015, MSY: Total landings (commercial + recreational) < 1 155 t ; total catch can not be quantified

- ICES has no basis for advising on the allocation of the advised landings to commercial and recreational fisheries. The commercial landings corresponding to the advice will depend on the recreational landings and vice versa.
- A management plan urgently needed, to develop and implement measures to substantially reduce fishing mortality throughout the range of the stock.

		Fishing pressure		
		2011	2012	2013
MSY (F_{MSY})		✘	✘	✘ Above target
Precautionary approach (F_{pa}, F_{lim})		?	?	Undefined
		Stock size		
		2012	2013	2014
MSY ($B_{trigger}$)		?	?	Undefined
Precautionary approach (B_{pa}, B_{lim})		?	?	Above B_{lim}



Benchmark in 2014:

Model and input data improved

Now Categ 1 and ref points

incorporates an F for recreational fisheries based on (few!) available estimates

* F increasing and $> F_{MSY}$; low recruitment and decreasing SSB

Sea bass in IVbc, VIIa and VIId-h

Slow growth, late maturation, spawning aggregation, site fidelity

→ increased vulnerability to overexploitation and local depletion

Stock structure unclear

Commercial landings 2013 ~ 4 100 t (discards not fully quantified ~ 5% in weight).

Recreational catch substantial, not fully quantified (surveys indicate annual removals ~ 1 500 t in recent years)

$F(2014) = F(2011-13) = 0.33$ (0.24 comm + 0.09 recreat); $SSB(2015) = 7\,600$ t

Weights in tonnes

$F_{MSY} = 0.13$

Rationale	Landings comm+recreat (2015)	Basis	F Total	SSB (2016)	%SSB change
MSY approach	1155	$F_{MSY} = 0.13$	0.13	7241	-5%
Zero catch	0	$F_{total} = 0$	0	8285	+9%
Other options	2685	F_{2014}	0.33	5869	-23%
	2219	$0.8 \times F_{2014}$	0.27	6286	-17%
	1720	$0.6 \times F_{2014}$	0.20	6733	-11%
	1185	$0.4 \times F_{2014}$	0.13	7214	-5%
	613	$0.2 \times F_{2014}$	0.07	7730	+2%

Management plan needed.

F should be reduced; stock likely to decline further due to recent low recruitment.

Improvement of fishery selection pattern needed (to allow more fish to spawn before capture) → would require changes to gear design and spatial management

Sea bass in VIa, VIIb and VIIj (West of Scotland and Ireland)

Advice for 2015, DLS:

- Landings data have been revised downwards;
stock perception does not change, but reapplication of last year's method with the revised data revises the advice to
Commercial landings < 5 t ; total catch can not be quantified
- Not clear whether this should constitute a separate management unit
ICES does not necessarily advocate the introduction of a TAC for sea bass in this area
- Only official landings available;
no information on discards and recreational catch unknown
- Important recreational species (data needed)
- Not clear that it constitutes a different stock
- Stock category: 6
- In the absence of representative data for assessment: advice based on 20% precautionary reduction over recent (2009-2011) average commercial landings

Channel (Divisions VII d and e)



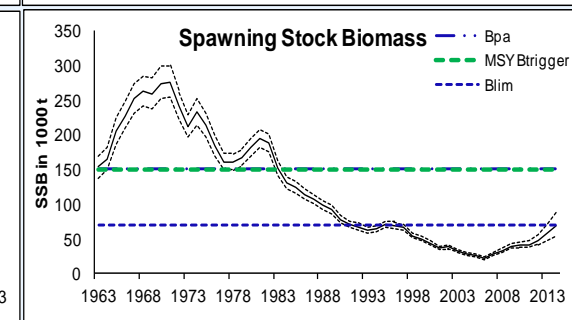
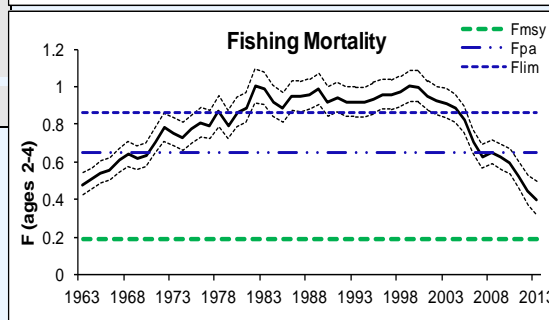
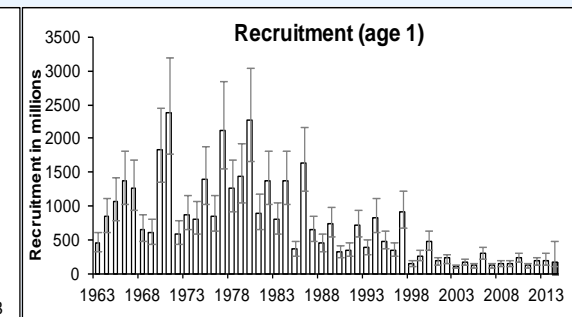
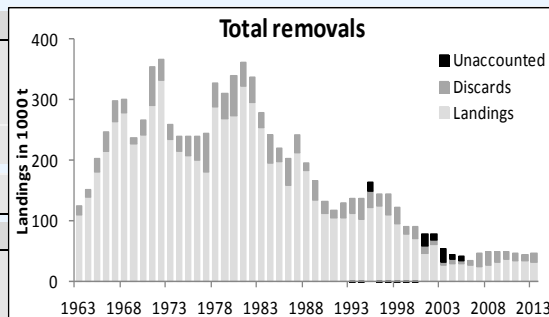
- Cod (IV, VIId, Skagerrak)
- Plaice (VIId)
- Plaice (VIIe)
- Sole (VIId)
- Sole (VIIe)

Cod in Subarea IV and Divisions VIId and IIIa West

Advice for 2015, EU/Norway MP: Catch < 35 486 t

→ Landings < 26 713 t, assuming discard rates as in 2013

Fishing pressure			
	2011	2012	2013
MSY (F_{MSY})	✗	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})	✓	✓	✓ Harvested sustainably
Management plan (F_{MP})	✗	✗	✗ Above target
Stock size			
	2012	2013	2014
MSY ($B_{trigger}$)	✗	✗	✗ Below trigger
Precautionary approach (B_{pa}, B_{lim})	✗	✗	✗ Reduced reproductive capacity
Management plan (SSB_{MP})	✗	✗	✗ Below trigger



* Gradual SSB increase in last years, SSB now around B_{lim}

* F declining since 2000, now between F_{pa} and F_{MSY}

* Rec poor for over a decade

* Discard rates declined from highest on record (in 2007; 49% in weight) to 21-28% in 2010 - 2013

* Catch data quality improved since 2006; unaccounted removals not estimated from 2006

Benchmark in 2015

Cod in Subarea IV and Divisions VIIId and IIIa West

$F(2014)=F(2013)=0.40$; $SSB(2015) = 81$ kt (between B_{lim} and B_{pa})

$F_{MSY}=0.19$

Rationale	Catch (2015)	Landings (2015)	Discards (2015)	Basis	F_{total} (2015)	F_{land} (2015)	F_{disc} (2015)	SSB (2016)	%SSB Change	%TAC Change
Management plan	35.486	26.713	8.773	Long-term phase	0.22	0.15	0.07	109.1	+35%	-20%
MSY approach	17.220	12.986	4.234	$F_{MSY} \times SSB_{2015}/B_{trigger}$	0.10	0.07	0.03	124.7	+55%	-61%
Zero catch	0	0	0	$F = 0$	0	0	0	139.7	+73%	-100%
<i>Other options</i>	30.710	23.117	7.593	F_{MSY}	0.19	0.13	0.06	113.1	+40%	-31%
	35.486	26.713	8.773	$TAC_{2014} - 20\%$	0.22	0.15	0.07	109.1	+35%	-20%
	44.433	33.391	11.042	Constant TAC	0.29	0.20	0.09	101.7	+26%	0%
	46.651	35.061	11.590	$TAC_{2014} + 5\%$	0.31	0.21	0.10	100.0	+24%	+5%
	48.898	36.730	12.168	$TAC_{2014} + 10\%$	0.32	0.22	0.10	98.2	+22%	+10%
	51.183	38.400	12.783	$TAC_{2014} + 15\%$	0.34	0.24	0.10	96.2	+19%	+15%
	53.444	40.069	13.375	$TAC_{2014} + 20\%$	0.36	0.25	0.11	94.3	+17%	+20%
	58.502	43.804	14.698	F_{2014}	0.40	0.28	0.12	90.2	+12%	+31%
<i>Mixed fisheries options – minor differences with calculation above can occur because of the different methodology used (ICES, 2014c).</i>										
<i>Maximum</i>	117.656	91.087	26.569	A	1.14	-	-	39.170	-51%	+174%
<i>Minimum</i>	27.910	22.267	5.643	B	0.18	-	-	109.603	+36%	-32%
<i>Cod MP</i>	33.528	26.713	6.815	C	0.22	-	-	104.855	+30%	-19%
<i>SQ effort</i>	57.698	45.681	12.017	D	0.41	-	-	84.826	+5%	+39%
<i>Effort_Mgt</i>	34.647	27.597	7.050	E	0.23	-	-	103.913	+29%	-16%

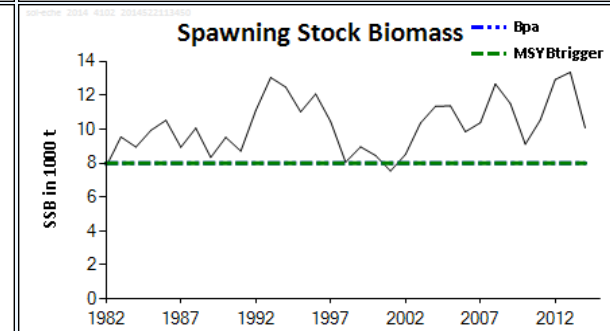
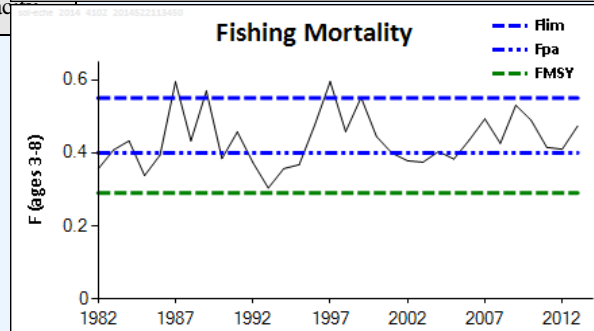
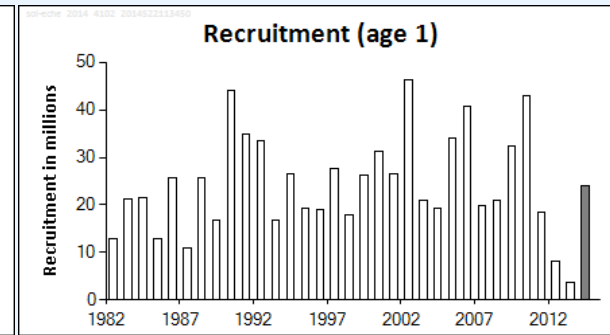
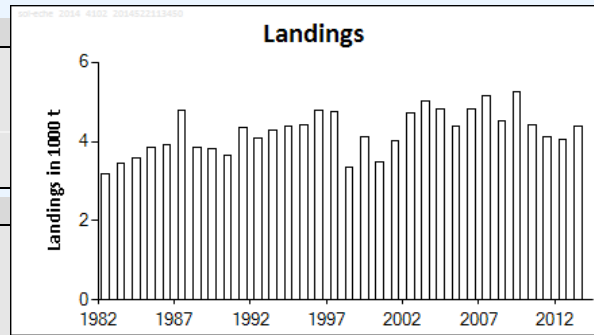
Mixed fisheries analysis: Cod is a main limiting species in North Sea in 2015.

“Maximum” scenario leads to F for cod above F_{pa} (0.65): not precautionary

Sole VIId – Eastern Channel

Advice for 2015, MSY: Landings < 1 931 t ; total catch can not be quantified

		Fishing pressure		
		2011	2012	2013
MSY (F_{MSY})		✘	✘	✘ Above target
Precautionary approach (F_{pa}, F_{lim})		○	○	○ Increased risk
		Stock size		
		2012	2013	2014
MSY ($B_{trigger}$)		✔	✔	✔ Above trigger
Precautionary approach (B_{pa}, B_{lim})		✔	✔	✔ Full reproductive capacity



* SSB fluctuating above MSY $B_{trigger}$

* F above F_{MSY} and F_{pa}

* Recruitment in 2012 and 2013 are lowest in time series

* Landings (2013) ~ 4 400 t (preliminary info indicates discards ~ 10%)
High discards of plaice below MLS

* Recruitment was overestimated in last 2 years ;
continuation of UK component of Young Fish Survey (ended in 2007)
would improve estimation of incoming recruitment and catch forecast

Sole in Division VIId (Eastern Channel)

$F(2014) = F(2011-13) = 0.43$; $SSB(2015) = 7\,400\text{ t} < MSY B_{trigger} (8\,000\text{ t})$

$F_{MSY}=0.29$

Weights in tonnes

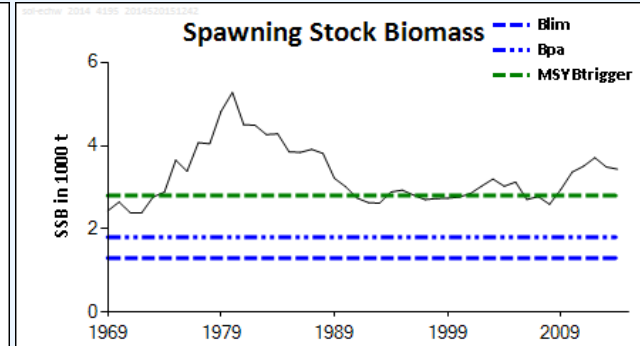
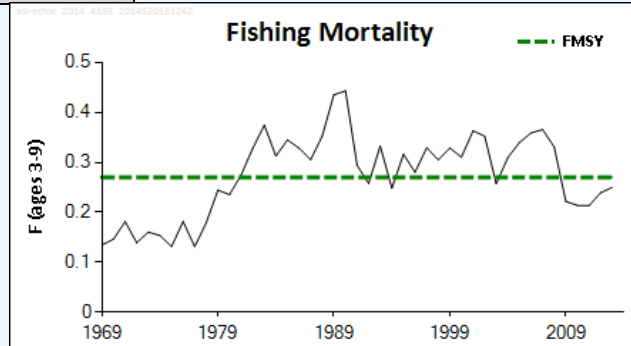
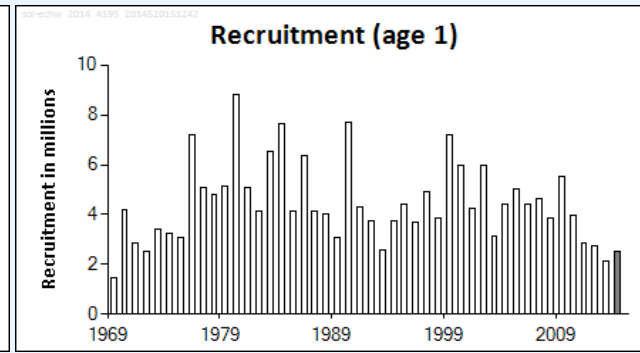
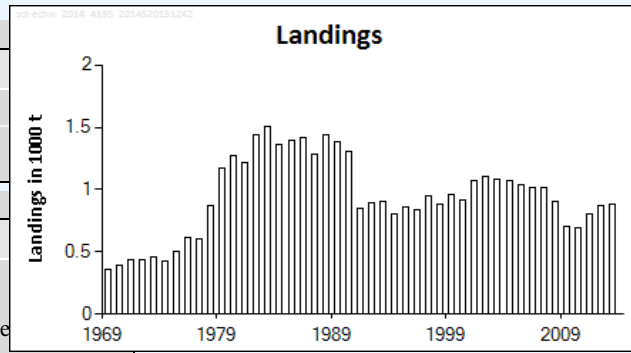
Rationale	Landings (2015)	Basis	F Landings (2015)	SSB(2016)	%SSB change	%TAC Change
MSY approach	1 931	$F_{MSY}*(SSB_{2015}/MSY B_{trigger})$	0.27	9 065	23%	-60%
Precautionary approach	2 706	F_{pa}	0.40	8 229	11%	-44%
Zero catch	0	$F=0$	0.00	11 157	51%	-100%
Other options	2 057	F_{MSY}	0.29	8 930	21%	-57%
	2 180	$F_{2014}*0.72$	0.31	8 797	19%	-55%
	2 889	F_{2014}	0.43	8 032	9%	-40%
	2 919	$MSY B_{trigger}$	0.44	8 000	8%	-40%
	4 112	TAC -15% ($F_{2014}*1.58$)	0.68	6 720	-9%	-15%
	4 838	Stable TAC ($F_{2014}*1.99$)	0.86	5 945	-20%	0%
	5 564	TAC +15% ($F_{2014}*2.29$)	0.99	5 163	-30%	15%
<i>Mixed fisheries options – minor differences with calculation above can occur due to different methodology used (ICES, 2014c)</i>						
Maximum	4 323	A	0.77	6 215	-16%	-11%
Minimum	1 606	B	0.23	9 136	24%	-67%
Cod_MP	1 790	C	0.26	8 936	21%	-63%
SQ effort	3 008	D	0.47	7 624	3%	-38%
Effort_Mgt	2 758	E	0.43	7 893	7%	-43%

- Mixed fisheries: “Maximum”, “Status-quo effort” and “Effort management” scenarios lead to F for sole above F_{pa} (0.4): not precautionary

Sole VIIe – Western Channel

Advice for 2015, MSY: Catch < 851 t ; all catch assumed landed

Fishing pressure				
	2011	2012	2013	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa}, F_{lim})	?	?	?	Undefined
Stock size				
	2012	2013	2014	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa}, B_{lim})	✓	✓	✓	Full reproductive



* No trends in recruitment ; 2010 - 2012 yc below average

* SSB stable for about 2 decades, above MSY $B_{trigger}$

* F below F_{MSY} since 2009

Interbenchmark in 2015 (?)

Landings (2013) ~ 882 t (discards negligible)

Sole in Division VIIe (Western Channel)

$F(2014) = F(2011-13)$ scaled to $F(2013) = 0.25$; $SSB(2015) = 3\,100\text{ t} > MSY B_{\text{trigger}} (2\,800\text{ t})$

$F_{MSY} = 0.27$

Rationale	Catches (2015)	Basis	F Catch (2015)	SSB (2016)	%SSB Change	%TAC Change
MSY approach	851	F_{MSY}	0.27	2798	-11%	+2%
Management plan	851	$F_{MP\text{ target}}$	0.27	2798	-11%	+2%
Zero catch	0	$F = 0$	0	3639	16%	-100%
Other options	502	$F_{2014} \times 0.6$	0.15	3142	0%	-40%
	653	$F_{2014} \times 0.8$	0.20	2993	-4%	-22%
	707	$TAC_{2014} - 15\%$	0.22	2939	-6%	-15%
	796	$F_{2014} \times 1.0$	0.25	2852	-9%	-4%
	832	Stable TAC	0.26	2816	-10%	0%
	931	$F_{2014} \times 1.2$	0.30	2719	-13%	+12%
	957	$TAC_{2014} + 15\%$	0.31	2694	-14%	15%
	1060	$F_{2014} \times 1.4$	0.35	2592	-17%	+27%

Weights in tonnes

* Management plan has target $F = 0.27$ with 15% TAC constraint
ICES has not evaluated management plan

Plaice in Division VIIId (Eastern Channel)

Advice for 2015, DLS:

Division VIIId stock: Landings < 2 657 t ; total catch can not be quantified

- Assuming same proportion of Division VIIe and Subarea IV plaice stocks is taken in Division VIIId as during the last decade:

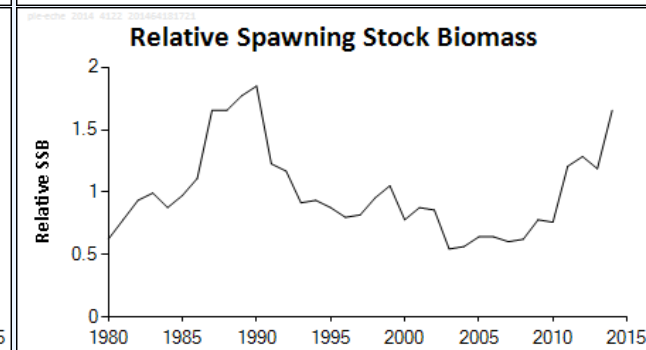
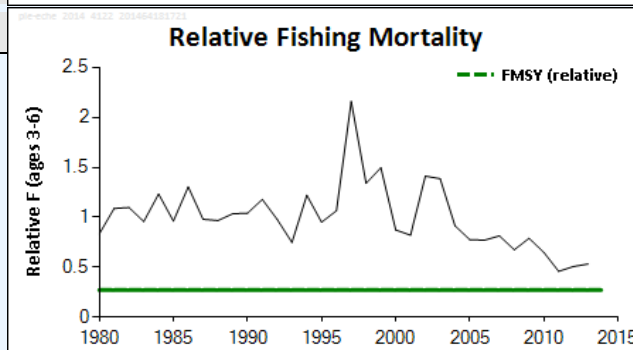
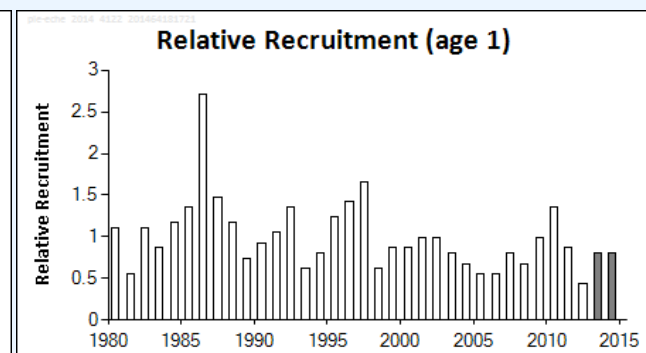
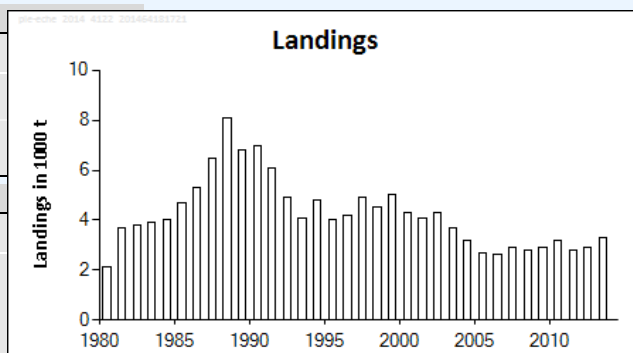
Total landings of plaice in Div VIIId < 3 279 t

Plaice catches in Div VIIId in Quarter 1 from various stocks:

35% from VIIId; 15% from VIIe; 50% from N Sea

Assessment is for stock

	Fishing pressure			
	2011	2012	2013	
MSY (F_{MSY})	✘	✘	✘	Above target
Precautionary approach (F_{pa}, F_{lim})	?	?	?	Unknown
	Stock size			
	2012	2013	2014	
MSY ($B_{trigger}$)	?	?	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	?	?	Unknown
Qualitative evaluation	↗	↘	↗	Increasing



Stock category 2
No discards in assessment

Benchmark in 2015

Plaice in Division VIIId (Eastern Channel)

* Large number of undersized plaice discarded

Landings in VIIId, 2013 ~ 4 200 t (discards ~ 30-40% in weight)

Time series of discards will be compiled for benchmark

For category 2, advice based on a short-term projection at F_{MSY} proxy. Uncertainty cap ($\pm 20\%$ change limit) applied to the result.

Relative $F(2014) = F(2014 \text{ TAC \& prop in VIIId}) = 0.44$;

Relative $F_{MSY} = 0.27$

Rationale	Landings Div. VIIId plaice stock (2015)	Landings plaice in Div. VIIId (2015)	Basis	Relative F landings (2015)	%SSB change	% Landings change plaice VIIId stock (w.r.t. Land 2013)	% Landings change plaice in VIIId (w.r.t. Land 2013)
DLS approach	2657	3279	Uncertainty cap 20% landing reduction	0.33	22	-20	-20
F_{MSY}	2192	2705	F_{MSY}	0.27	27	-34	-34
<i>Mixed fisheries options – minor differences with calculation above can occur due to different methodology used (ICES, 2014c)</i>							
Maximum	5433	-	A	0.75	0	-	104%
Minimum	1542	-	B	0.18	38	-	-42%
Cod_MP	1819	-	C	0.21	35	-	-32%
SQ effort	3145	-	D	0.38	22	-	18%
Effort_Mgt	2555	-	E	0.31	28	-	-4%

Mixed fisheries: “Maximum” and “SQ effort” scenarios exceed intended F

Plaice in Division VIIe (Western Channel)

Advice for 2015, MSY:

Division VIIe stock: Catch < 1 885 t ; at recent discard rates: Landings < 1 546 t

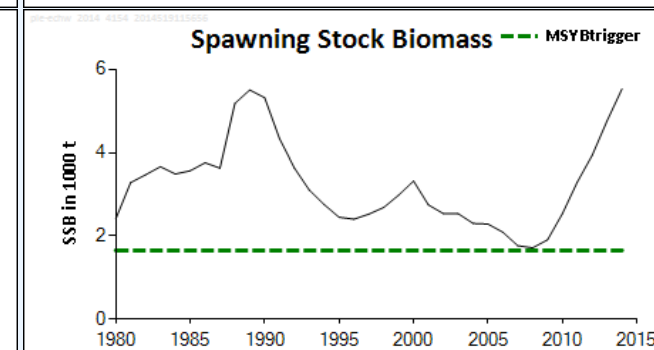
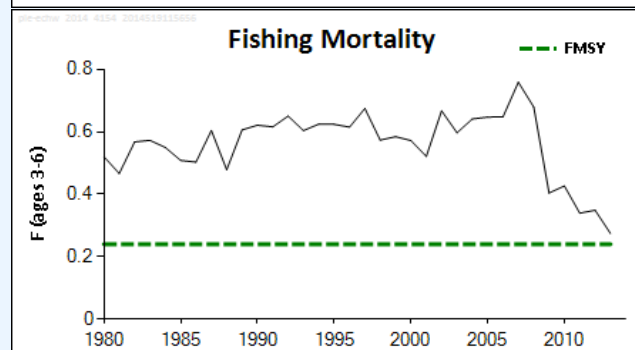
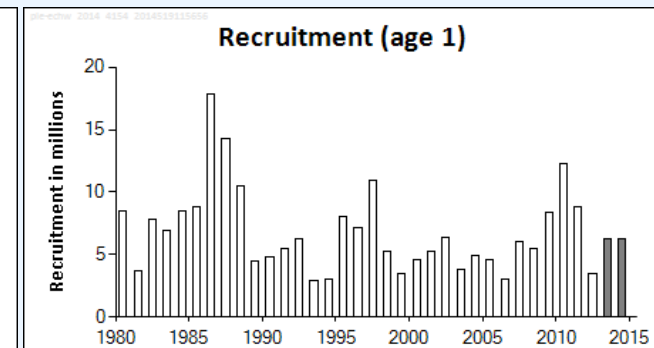
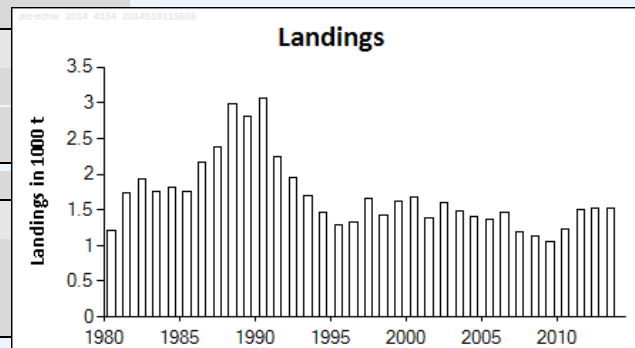
- Assuming same proportion of Div VIIe stock is taken in Div VIId as during last decade:

Catch of plaice in Div VIIe < 1 607 t ; at recent discard rates: Landings < 1 318 t

Plaice catches in Div VIId in Quarter 1 from various stocks:
35% from VIId; **15% from VIIe**; 50% from N Sea

Assessment is for stock

		Fishing pressure			
		2011	2012	2013	
MSY (F_{MSY})		✘	✘	✘	Above target
Precautionary approach (F_{pa}, F_{lim})		?	?	?	Undefined
		Stock size			
		2012	2013	2014	
MSY ($B_{trigger}$)		✔	✔	✔	Above trigger
Precautionary approach (B_{pa}, B_{lim})		?	?	?	Undefined



Discards not in assessment, but lower than for other plaice stocks (~ 20% in weight, available for 2012 onwards)

Plaice in Division VIIe (Western Channel)

Landings in VIIe, 2013 ~ 1 350 t (discards ~ 17% in weight ; only available from 2012)

$F(2014) = F(2013) = 0.27$; $SSB(2015) = 5\,600\text{ t} > MSY\text{ Btrigger} (1\,650\text{ t})$

$F_{MSY} = 0.24$

Weights in tonnes

Rationale	Catches plaice in VIIe area (2015)	Landings plaice in VIIe area (2015)	Catches VIIe plaice stock (2015)	Landings VIIe plaice stock (2015)	Basis	F landings (2015)	SSB (2016)	%SSB change
MSY approach	1607	1318	1885	1546	$F_{MSY} (F_{2014} \times 0.88)$	0.24	5863	+4%
Zero catch	0	0	0	0	$F = 0$	0.00	7404	+32%
Other options	972	797	1140	935	$F_{2014} \times 0.5$	0.14	6470	+15%
	1148	941	1346	1104	$F_{2014} \times 0.6$	0.16	6302	+12%
	1320	1082	1548	1269	$F_{2014} \times 0.7$	0.19	6138	+9%
	1484	1217	1741	1428	$F_{2014} \times 0.8$	0.22	5980	+6%
	1646	1350	1930	1583	$F_{2014} \times 0.9$	0.25	5827	+4%
	1801	1477	2113	1733	$F_{2014} \times 1.0$	0.27	5679	+1%
	1954	1602	2291	1879	$F_{2014} \times 1.1$	0.30	5535	-2%

Catch options obtained from landings forecast, applying 18% discard rate (2012-2013 average)

TAC is for VII d,e

Interbenchmark in 2015 (?)

Management measures required to control F in both stocks

Irish Sea (VIIa)



- Cod
- Haddock
- Whiting
- Plaice
- Sole

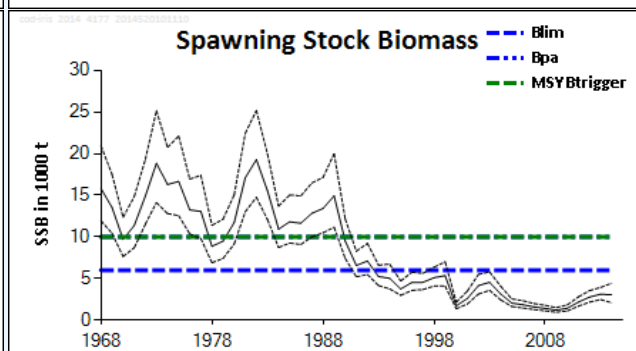
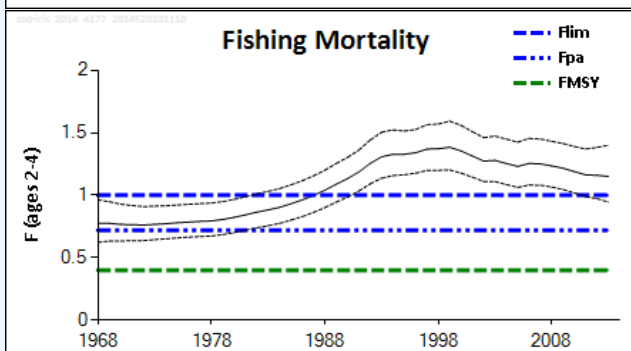
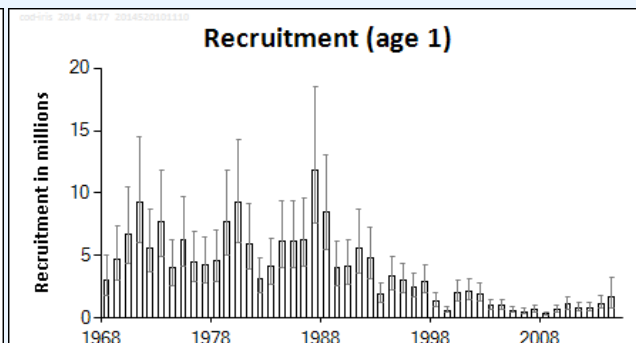
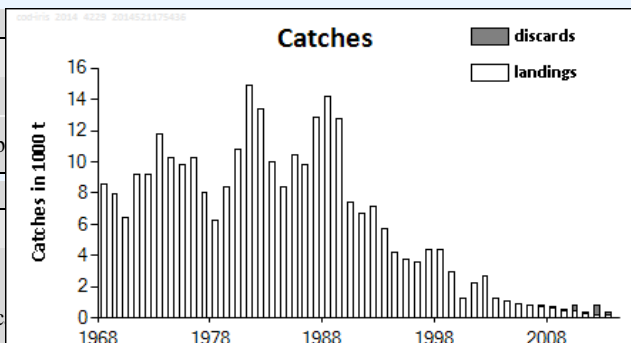
- *Nephrops* (FUs 14-15-19)
in autumn

Cod in Division VIIa (Irish Sea)

Advice for 2015 and 2016, MSY & PA:

- Advice issued in 2012 was biennial (for 2013 and 2014)
- New data do not change stock perception → same advice for 2015 and 2016
No directed fisheries; bycatch and discards minimised

		Fishing pressure		
		2011	2012	2013
MSY (F_{MSY})		✗	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})		✗	✗	✗ Harvested unsustainab
		Stock size		
		2012	2013	2014
MSY ($B_{trigger}$)		✗	✗	✗ Below trigger
Precautionary approach (B_{pa}, B_{lim})		✗	✗	✗ Reduce reproductive c



F declining, above F_{lim}

SSB increased recently, but well below B_{lim}

Recruitment continues low

Cod in Division VIIa (Irish Sea)

- At present, cod mainly bycatch in *Nephrops* fishery; selectivity devices introduced in recent years to reduce cod bycatch
- Discard estimates not integrated in assessment due to the short time-series
- Model estimates removals much larger than reported landings, despite more accurate catch reporting

Causes for discrepancy unclear

- Alternative assessment based on available discard data and without estimating total removals shows a substantial reduction in F , but still very low SSB and Recruitment

Haddock in Division VIIa (Irish Sea)

Advice for 2015, DLS: Catch < 893 t

- ➔ Landings < 425 t, assuming discard rates stay at last 3-year average
- further technical measures to reduce discards

Fishing pressure		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Stock size		2012–2014
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

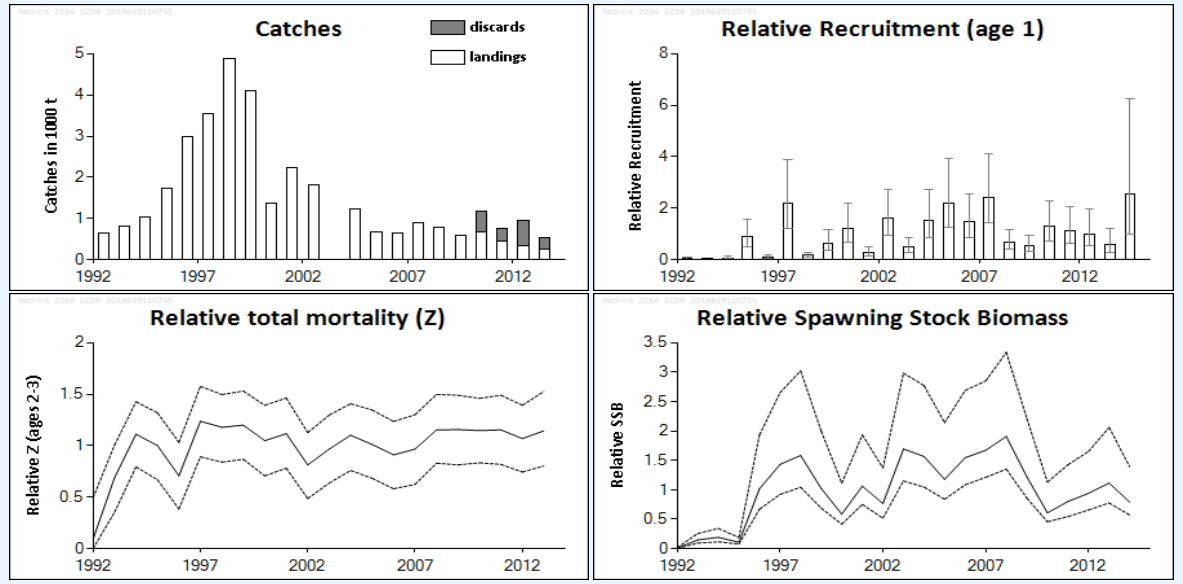
Assessment: survey-based, only indicative of trends

Strong 2013 yc ; suggests increase in stock abundance in near future

Catch (2013) = 537 (discards: 53% in weight)

Selective devices mandatory since 2012

Further technical measures should be introduced to reduce discards; increase in mesh size beneficial to the stock and could increase future yield (discarding at younger ages serious problem for this stock)



Haddock in Division VIIa (Irish Sea)

- * Stock category: 3.
- * Trend in last 5 years: 22% increase
 1. Uncertainty cap: 20% increase
 2. Precautionary buffer: No, because effort reduction in main fisheries

➔ Advised catch : no more than 20% increase over last 3-year average

ICES landings taken or reported in southern rectangles of Div VIIa (33E2-3) allocated to the haddock VIIb-k stock (~ 420 t on average, since 2011).

May need to be taken into account in TAC setting.

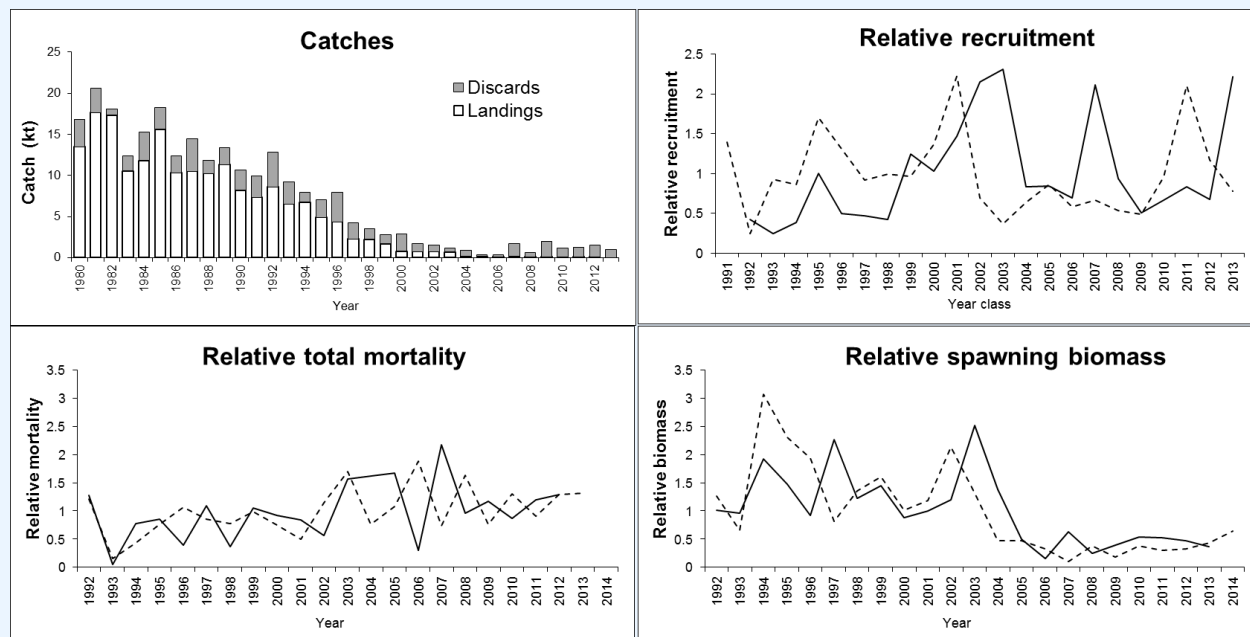
Whiting in Division VIIa (Irish Sea)

Advice for 2015, precautionary considerations:

- Advice issued in 2012 was biennial (for 2013 and 2014):
- New data do not change stock perception → same advice for 2015
lowest possible catch; technical measures to reduce discards

Assessment method:
survey-based, only
indicative of trends

Data indicate high total
mortality and low stock size



- Discard estimates since 2007 show annual discards 1 000 – 2 000 t (mostly in *Nephrops* trawls), with landings < 100 t

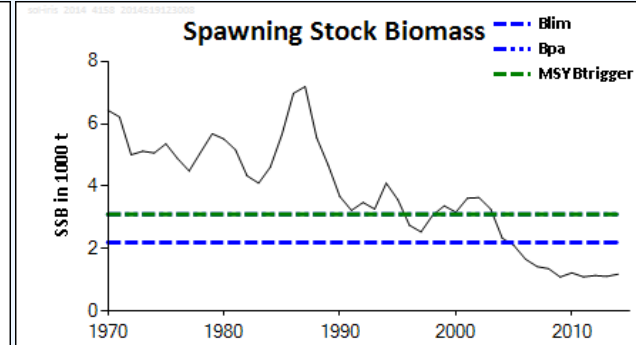
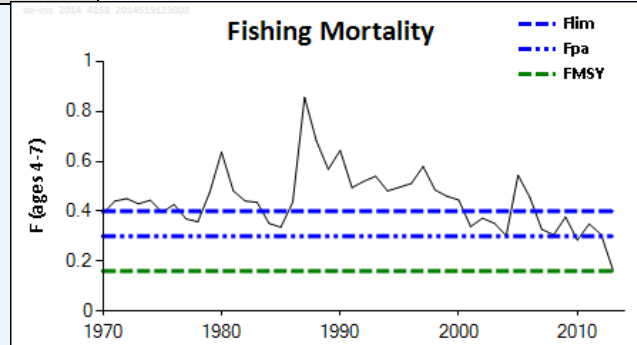
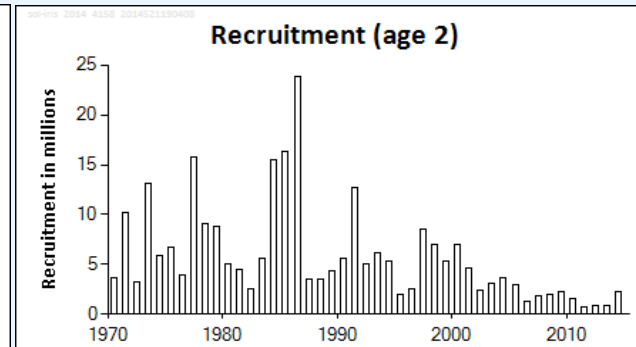
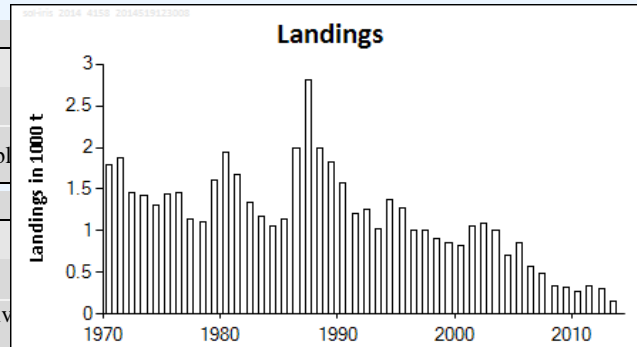
Majority of catch below MLS

Whiting could become a major choke species for *Nephrops* fisheries in VIIa

Sole in Division VIIa (Irish Sea)

Advice for 2015, PA: No directed fisheries; bycatch and discards should be minimised

	Fishing pressure			
	2011	2012	2013	
MSY (F_{MSY})	✗	✗	✗	Just above target
Precautionary approach (F_{pa}, F_{lim})	○	○	✓	Harvested sustainably
	Stock size			
	2012	2013	2014	
MSY ($B_{trigger}$)	✗	✗	✗	Below trigger
Precautionary approach (B_{pa}, B_{lim})	✗	✗	✗	Reduced reproductive capacity



* SSB declined continuously and below B_{lim} in last decade

* F : overall declining trend since late 1980s, just above F_{MSY} in 2013

* Recent recruitment lower than earlier in time

Sole in Division VIIa (Irish Sea)

* Catch 2013 ~ 157 t (discards ~ 6%)

* Discards not included in assessment (not considered problematic)

$F(2014)=0.09$ (TAC constraint); $SSB(2015) = 1\,360\text{ t} < B_{lim}$ (2 200 t)

$F_{MSY} = 0.16$

Weights in tonnes

Rationale	Catches (2015)	Landings (2015)	Basis	F Landings (2015)	SSB (2016)	%SSB change	%TAC Change
Precautionary approach	0	0	$F = 0$	0.000	1670	+23%	-100%
MSY approach	95	90	$F_{MSY} \times SSB_{(2015)} / MSY B_{trigger}$	0.070	1582	+17%	-5%
Other options	75	71	TAC - 25% ($F_{2014} \times 0.61$)	0.055	1600	+18%	-25%
	85	81	TAC - 15% ($F_{2014} \times 0.69$)	0.063	1591	+17%	-15%
	100	95	Stable TAC ($F_{2014} \times 0.82$)	0.074	1577	+16%	0%
	115	109	TAC + 15% ($F_{2014} \times 0.94$)	0.085	1564	+15%	+15%
	122	116	F_{2014}	0.090	1557	+15%	+22%

Catch options obtained from landings forecast, applying 5% discard rate (2011-2013 average)

Even with no catch in 2015, the stock will remain below B_{lim} in 2016

Given low SSB and Rec in last decade → catch advice = 0

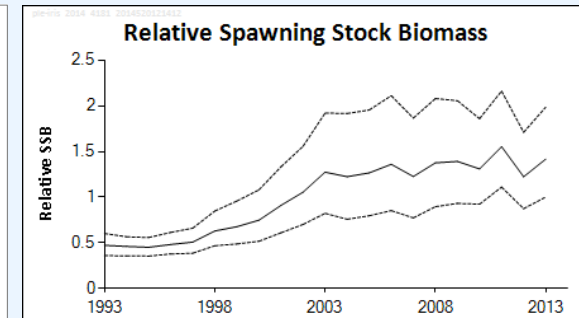
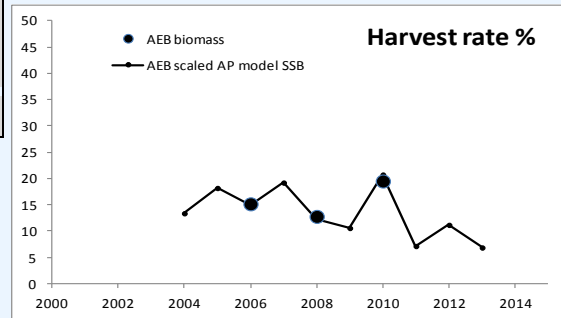
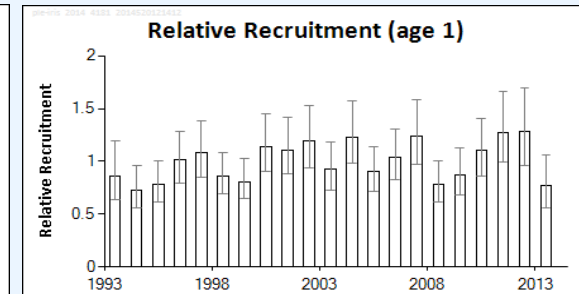
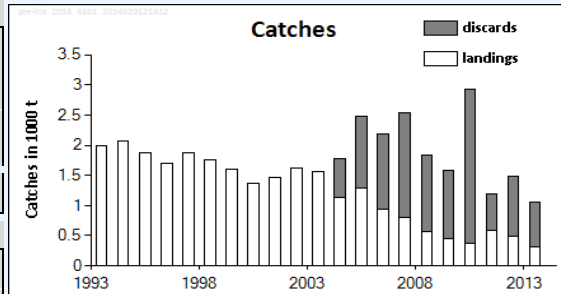
Plaice in Division VIIa (Irish Sea)

Advice for 2015, DLS: Catch < 1 244 t

➔ Landings < 394 t, assuming discard rates stay at last 2-year average

- Management measures needed to reduce discards in mixed fishery

Fishing pressure		
		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	✓	Below poss. reference points
Stock size		
		2012–2014
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	➔	Stable



High discarding particularly fish below MLS in TR2 and BT2 fisheries:

spatiotemporal measures may help (avoid areas/periods with high small plaice bycatch)

Assessment indicative of trends

Category 3. Advice based on SSB trend, taking uncertainty into account : stable SSB

No Precautionary buffer (recent F likely very low, Catch/SSB ~ 15%)

➔ Advice: average catch of last 3 years

Deep-sea stocks

Greater silver smelt in I, II, IV, VI, VII, VIII, IX, X, XII, XIV, IIIa, Vb

Combination of isolated fishing grounds. Stock definition unclear

Advice for 2015, DLS:

Advice in 2012 was biennial (for 2013 and 2014):

New data do not change stock perception → same advice for 2015

Catch < 31 300 t

- Improvements that would be beneficial for assessment:

biological sampling in EU fisheries, improved biological sampling in Norwegian fisheries, acoustic time-series in Norwegian waters, deeper stations in Faroese surveys

- Most catch in Norway and Faroes (where discarding insignificant)

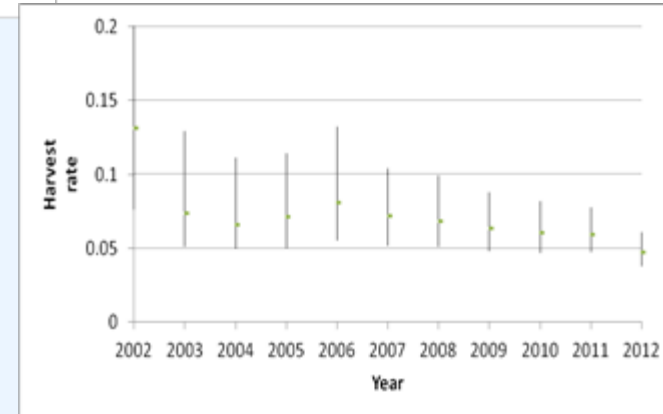
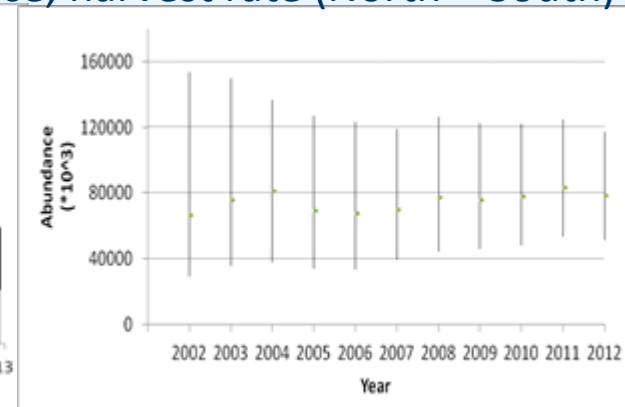
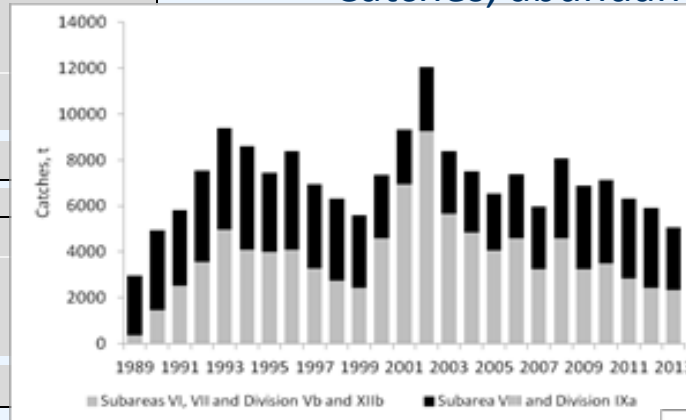
Discarding could be substantial in other areas (EU waters), but overall discards negligible

Black scabbardfish in Northeast Atlantic

Advice for 2015 and 2016, DLS: Annual catch should not exceed:
 2 802 t in VI, VII, Vb and XIIb ; 2 726 t in VIII and IXa ; 366 t in adjacent areas

Fishing pressure	
MSY (F_{MSY})	2011–2013 Unknown
Precautionary approach (F_{pa}, F_{lim})	Unknown
Qualitative evaluation	Declining
Stock size	
MSY ($B_{trigger}$)	2012–2014 Unknown
Precautionary approach (B_{pa}, B_{lim})	Unknown
Qualitative evaluation	Stable

Catches, abundance, harvest rate (North + South)



Single stock, migrates through NE Atlantic:
 fish in southern part bigger than in north

Benchmarked in 2014: Assessment estimates abundance trends for North and South separately

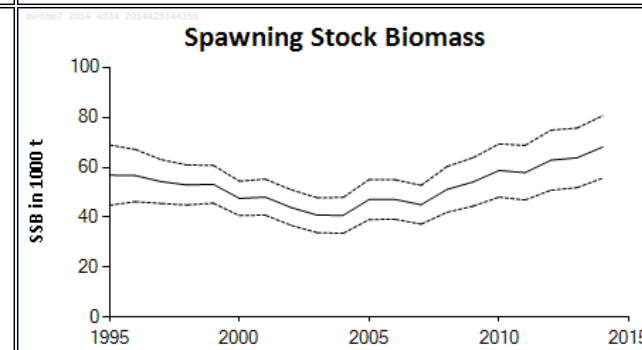
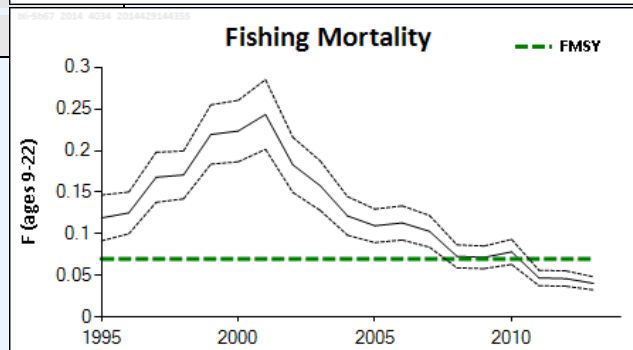
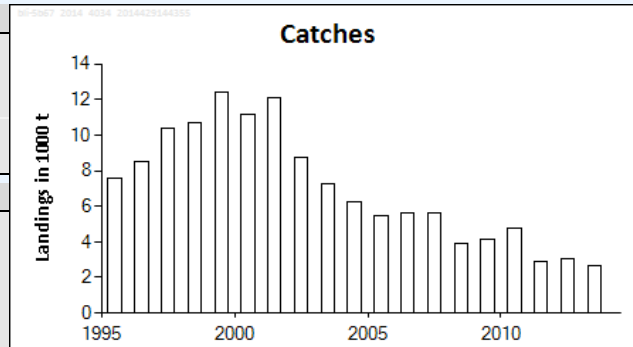
Category 3.

- Advice takes into account trends in both areas (separately), with an increase advised only if abundance increasing in both areas (to avoid local depletion).
- Both areas stable. No Precautionary buffer because HR decreasing and low
 → Advice = recent catch (discards negligible)

Blue ling in Div Vb and Subareas VI and VII

Advice for 2015 and 2016, MSY: Annual catch < 5 046 t ; all catch assumed landed

Fishing pressure			
	2011	2012	2013
MSY (F_{MSY})	✓	✓	✓ Below target
Precautionary approach (F_{pa}, F_{lim})	?	?	? Not defined
Stock size			
	2012	2013	2014
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa}, B_{lim})	?	?	? Undefined
Qualitative evaluation	↗	↗	↗ Increasing



Benchmarked in 2014 :
Now Category 1 assessment
and F_{MSY}

F decreasing and below F_{MSY} ; SSB increasing ; Recruitment stable

Main fisheries: Faroese trawlers in Vb and French trawlers in Subarea VI (mixed fishery with roundnose grenadier and black scabbardfish)

Blue ling in Div Vb and Subareas VI and VII

* Catch 2013 ~ 2 700 t (discards < 1%)

F(2014)=F(2013)=0.04; Catch(2014)= 2.9 kt; SSB(2015) = 74.2 kt

$F_{MSY} = 0.07$

Weights in '000 tonnes

Rationale	Catches (2015)	Basis	F (2015)	SSB (2016)	%SSB change	% Catch change (w.r.t assumed Catch in 2014)
MSY approach	5.05	F_{MSY}	0.07	74.6	+0.6%	+29%
zero catch	0	F=0	0.00	79.8	+7%	-100%
Other options	2.9	F_{2014}	0.04	76.8	+4%	0%
	8.45	$F_{0.1}$	0.12	71.2	-4%	+116%

- Blue ling susceptible to sequential depletion of spawning aggregations

Maintaining current closed areas will provide protection for spawning aggregations ;

may not be needed if current TAC management regime effectively limits F and if highly aggregated fisheries in these areas do not cause local depletion.

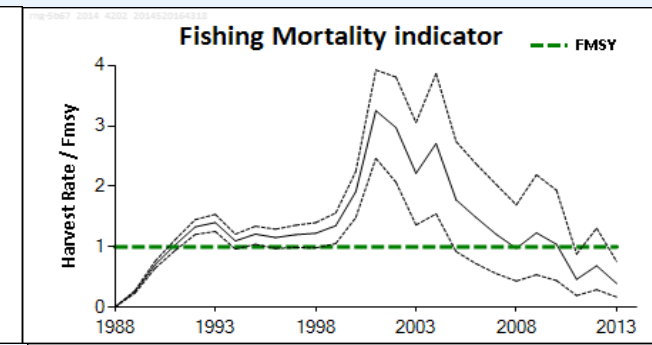
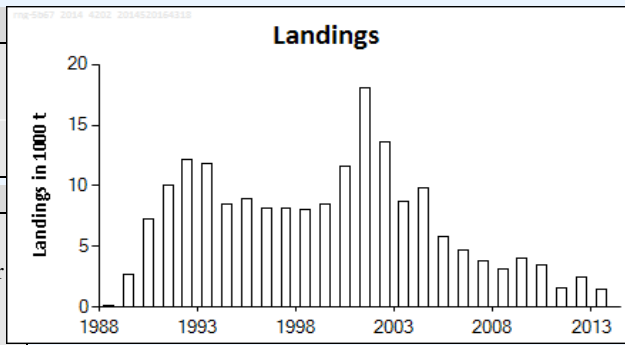
- Catches from Division XIIb likely to come from same stock, but not used in assessment as not considered reliable

Roundnose grenadier in Subareas VI and VII, and Div Vb and XIIb

Advice for 2015 and 2016:

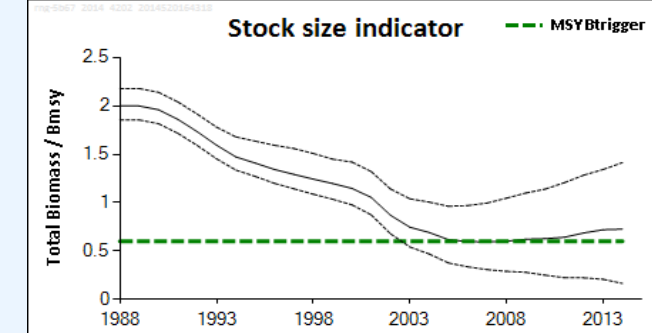
- VI, VII, Vb, MSY: Catch < 4 595 t in 2015, 4 673 t in 2016
 ➔ Landings (if discard rates at last 3-yr average) < 3 952 in 2015, 4 019 in 2016
- XIIb, PA: Catch < 838 t annually ➔ Landings (if unchanged discard rates) < 796 t

	Fishing pressure		
	2011	2012	2013
MSY (F_{MSY})	✓	✓	✓ Below target
Precautionary approach (F_{pa}, F_{lim})	?	?	? Not defined
	Stock size		
	2012	2013	2014
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa}, B_{lim})	?	?	? Not defined



HR decreasing and below F_{MSY} ;
 Biomass around MSY $B_{trigger}$ since mid 2000s

Slow growing, live > 50 years



Caught in mixed fisheries with black scabbardfish and blue ling

Catch from XIIb (approx 30% of total catch) considered uncertain (issues with species reporting and area misreporting) and **not used in assessment**. Improved fishery monitoring needed.

Roundnose grenadier in Subareas VI and VII, and Div Vb and XIIb

* Catch 2013 ~ 3 800 t (discards ~ 15% French fleet, 5% Spanish fleet, rest unknown)

* Discards not included in assessment ; discards were higher in the past

$F(2014)=F(\text{TAC constraint})=0.06$; $B(2015) > \text{MSY Btrigger}$

$F_{\text{MSY}} = 0.08$

Advice for VI, VII, Vb:

Weights in tonnes

Rationale	Landings (2015)	Total biomass (at the end of the year)		Harvest rate		% biomass change	% TAC change
		(2015)	(2016)	(2015)	(2016)		
MSY approach	3952 (2015) 4019 (2016)	51 114	52 037	0.08	0.08	+2%	-7%
Precautionary approach	4297	50 827	51 420	0.08	0.08	+1%	0%
Zero catch	0	55 124	60 165	0	0	+10%	-100%
Other options	1000	54 124	58 133	0.02	0.02	+8%	-330%
	2000	53 124	56 100	0.04	0.04	+6%	-115%
	3000	52 124	54 064	0.06	0.06	+4%	-43%
	4000	51 124	52 025	0.08	0.08	+2%	-7%
	5000	50 124	49 985	0.10	0.10	0%	+14%
	6000	49 124	47 942	0.12	0.13	-2%	+28%
	7000	48 124	45 897	0.15	0.15	-4%	+39%
8000	47 124	43 850	0.17	0.18	-6%	+46%	

Catch advice: raise landings to catch assuming 14% (2011-2013 average) discard rate

Division XIIb not part of assessment:

➔ Advice: Annual landings should not exceed those in 2013 (796 t)

Catch advice: raise landings to catch assuming 5% (recent) discard rate

Ling in Div IIIa, IVa, and Subareas VI, VII, VIII, IX, XII, XIV

Grouping of areas with a lack of data

Advice for 2015, DLS:

Advice in 2012 was biennial (for 2013 and 2014):

- New data do not change stock perception → same advice for 2015
Catch < 10 800 t

Combination of directed fisheries (Norwegian longline) and bycatches in other fisheries

Stock category 3. Advice based on commercial cpue indices.

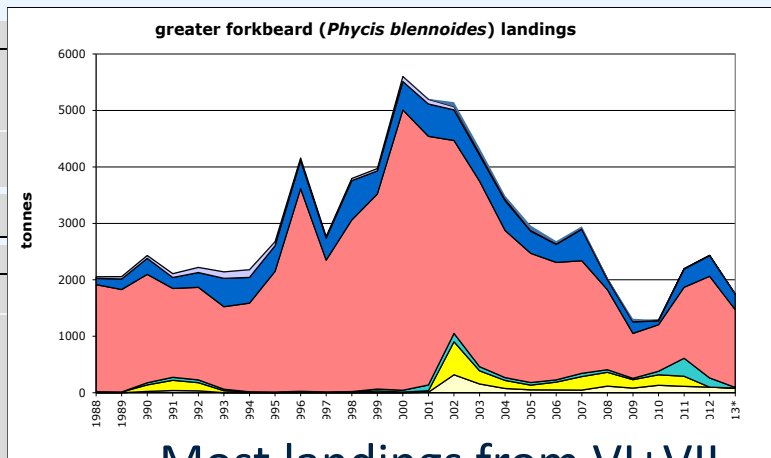
Precautionary buffer applied in 2012 (unknown exploitation level)

Discards estimated to be < 1%

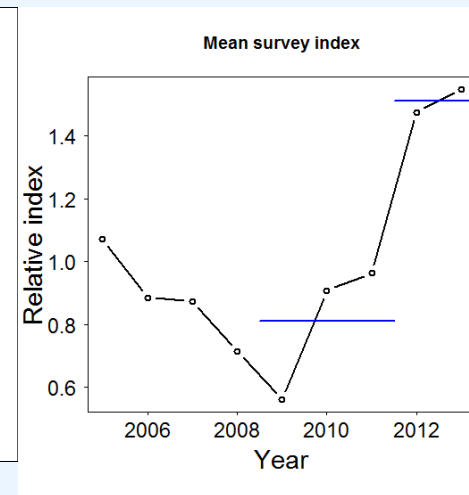
Greater forkbeard in Northeast Atlantic

Advice for 2015 and 2016, DLS: Annual landings < 2 628 t ; total catch cannot be quantified

Fishing pressure		
		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	?	Unknown
Stock size		
		2009–2013
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing



Most landings from VI+VII



Landings are mainly bycatch in fisheries targeting hake, megrim, monkfish, ling, deep-water species ; around 78% of landings from VI and VII

Discards substantial but only quantified for part of fisheries

Should be managed in mixed-fisheries context

Category 3. Biomass index based on 4 surveys

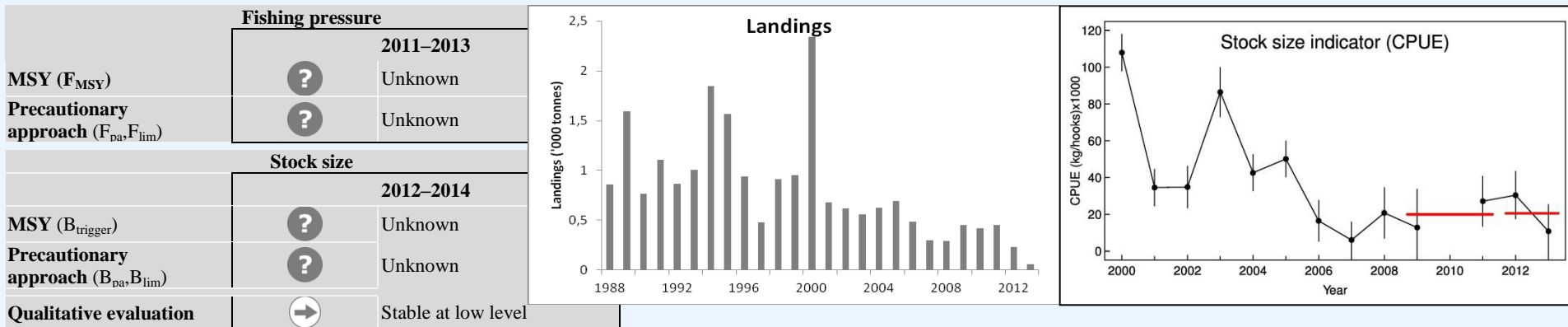
Trend in last 5 years: 86% increase → Uncertainty cap: 20% increase

No precautionary buffer (large increase in index)

→ Advised landings : no more than 20% increase over last 3 yr average

Tusk in Division VIb (Rockall)

Advice for 2015 and 2016, DLS: Annual catch < 350 t (same advice as last time)



Bycatch in trawl, GN, LL fisheries ; traditionally Norway takes largest catch

Discards information not available, but all catch likely to be landed

Category 3. Precautionary buffer applied in the 2012 advice

The new data do not change stock perception

→ same advice as last time

Tusk in Div IIIa, Vb, VIa, XIIb, and Subareas IV, VII, VIII, IX

Combination of isolated fishing grounds ; grouping of areas with a lack of data

Advice for 2015, DLS:

Advice in 2012 was biennial (for 2013 and 2014):

New data do not change stock perception → same advice for 2015

Catch < 8 500 t

Bycatch in trawl, GN, LL fisheries ; Norway and Faroes take most catches

Discards reported by Spain. All catches of Norway and Faroes assumed to be landed.

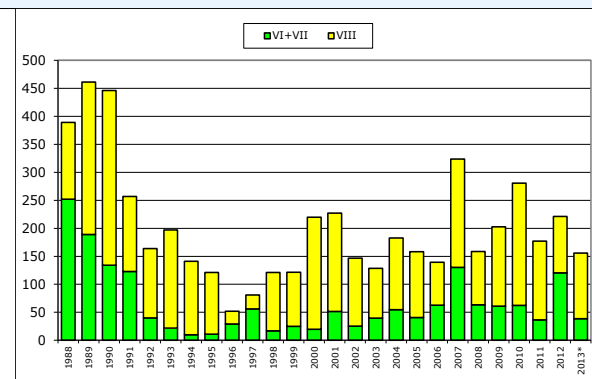
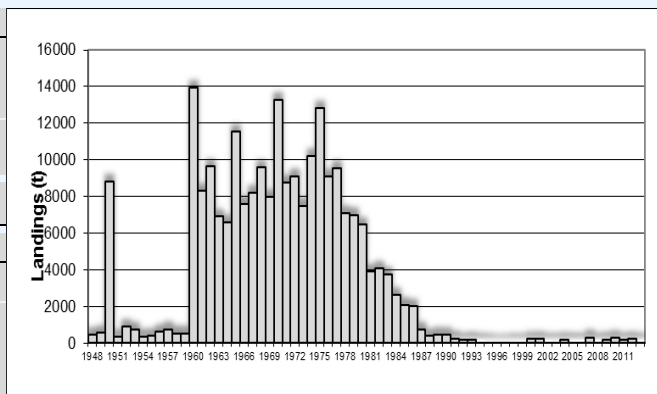
Category 3. Trends based on commercial cpue and Faroese bottom-trawl surveys

Red seabream in Subareas VI, VII, VIII

Advice for 2015 and 2016, Precautionary considerations:

- No directed fishery and minimise bycatch
- ICES recommends establishment of a recovery plan

		Fishing pressure
		2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	?	Unknown
		Stock size
		2011–2013
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	✗	likely to be below $B_{trigger}$ and B_{lim}



Landings in VI, VII, VIII

Current catches at 1-2% of historical level during 1960s – 1970s

Depleted with no indication of recovery

Red seabream change sex (from males to female) as they age ; measures to ensure balanced exploitation between younger and older fish essential.

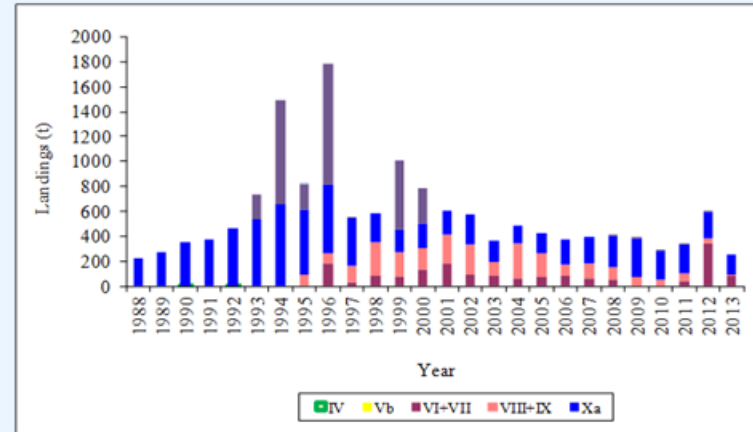
Bycatch in trawl, GN, LL fisheries from Spanish, French and UK fleets; discards negligible

Recreational fisheries exist, but no data on catch levels

Alfonsinos (*Beryx spp.*) in Northeast Atlantic

Advice for 2015 and 2016, DLS: Annual catch < 280 t ; all catches assumed to be landed

Fishing pressure		
	?	2011–2013
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	?	Unknown
Stock size		
	?	2011–2013
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	?	Unknown



Two *Beryx* species ; Most catch in Azorean EEZ and in Mid-Atlantic Ridge

Landings not indicative of stock abundance (aggregative behaviour of species)

The new data do not change stock perception → same advice given previously.

Alfonsinos associated with seamounts, aggregative behaviour, possibly long-lived: can only sustain low exploitation rates.

Exploitation of new seamounts should not be allowed.

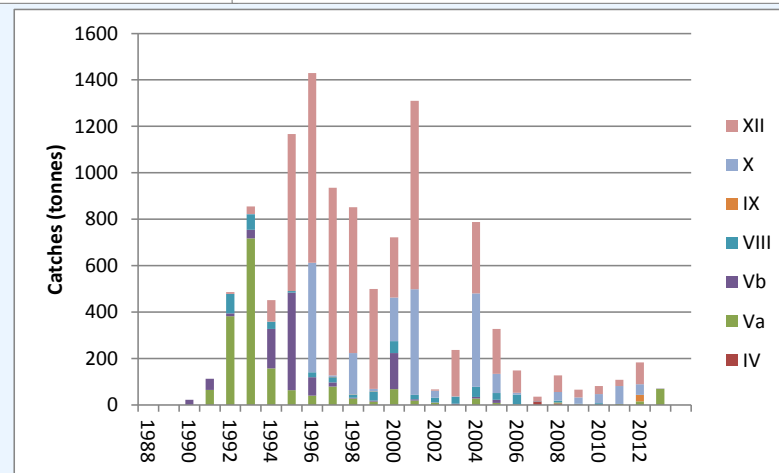
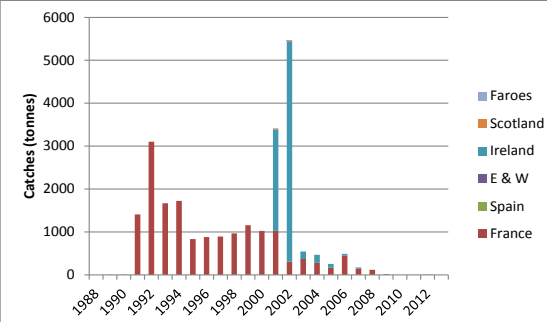
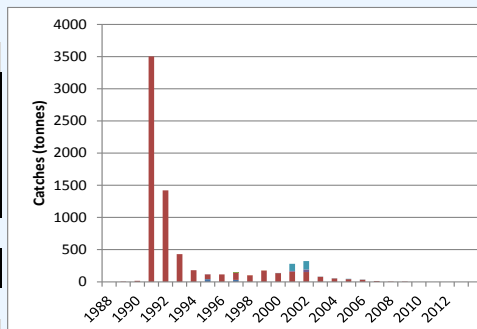
Orange roughly in Northeast Atlantic

Advice for 2015 and 2016, Precautionary considerations:

No directed fishery and minimise bycatch.

- Due to its very low productivity, it can only sustain very low exploitation rates
- Based on current information: not possible to manage a sustainable fishery for this species.

Fishing pressure		
MSY (F_{MSY})	?	2006–2013 Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	↘	Decreasing
Stock size		
MSY ($B_{trigger}$)	?	2011–2013 Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	⊗	Below possible reference points



Catches have decreased in all areas
All EU fisheries closed

Thank you!

Comments/Questions ?