

“EU Science and Fisheries: overview in the Mediterranean basin”

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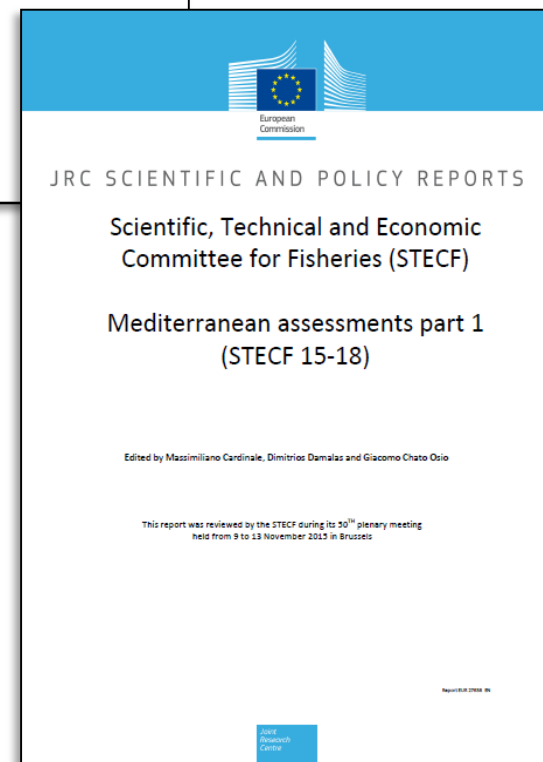
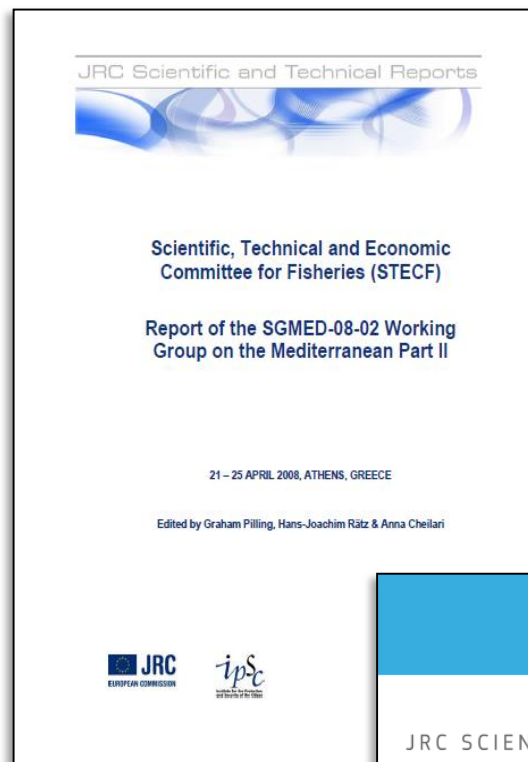


STECF:

Scientific Technical and Economic Committee for Fisheries

- European Commissions advisory committee on fisheries
- Multi-disciplinary (Bio/Eco/Tech/Social)
- Tri-annual advice – Baltic, North Sea, North and South Western Waters, Mediterranean Black Sea and external fisheries
- ~24 Expert Groups (EWG) per year
- Significant Mediterranean focus

- **23** STECF EWG on “Assessment of Mediterranean Sea stocks” since 2008
- Assessments for **31** species and **69** stocks



- Evaluation MAPs for conformity with 1380/2013
- 28 National MAPs adopted with 13 in advanced preparation

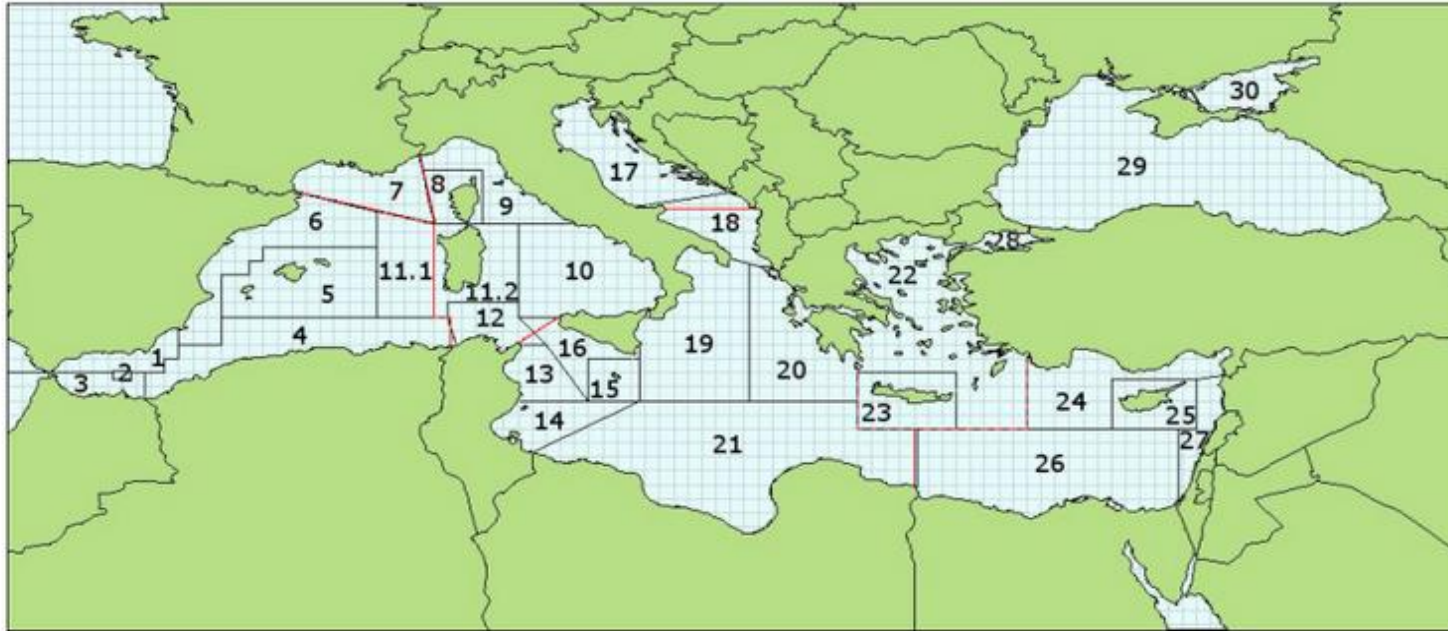
	Country	Fishing gear	Region	Year of adoption	Language
1	Croatia	Trawler	Territorial waters	2014	EN
2	Cyprus	Trawler	Territorial waters	2012	EN
3	Greece	Trawler	Territorial waters	2014	EN
4	Greece	Purse seiner	Territorial waters	2013	EN
5	France	Trawler	Territorial waters	2013	FR
6	Italy	Pelagic - Trawlers and purse seiners	GSA 09	2011 *	IT
7	Italy	Pelagic - Trawlers and purse seiners	GSA 10	2011 *	IT
8	Italy	Pelagic - Trawlers and purse seiners	GSA 16	2011 *	IT
9	Italy	Pelagic - Trawlers and purse seiners	GSA 17 and GSA 18	2011 *	IT
10	Italy	Demersal trawler	GSA 09	2011 *	IT
11	Italy	Demersal trawler	GSA 10	2011 *	IT
12	Italy	Demersal trawler	GSA 11	2011 *	IT
13	Italy	Demersal trawler	GSA 17	2011 *	IT
14	Italy	Demersal trawler	GSA 18	2011 *	IT
15	Italy	Demersal trawler	GSA 19	2011 *	IT
16	Italy	Demersal trawler	> 18 m	2011 *	IT
17	Italy	Demersal trawler	< 18 m	2011 *	IT
18	Italy	Boat seine	Liguria-Tuscany	2011 *	IT
19	Malta	Trawler	Territorial waters	2013	EN
20	Malta	Purse seiner	Territorial waters	2013	EN
21	Malta	Purse seiner	Territorial waters	2013	EN
22	Slovenia	Trawler			
23	Slovenia	Purse seiner			
24	Spain	Trawler			
25	Spain	Purse seiner			
26	Spain	Boat seine			
27	Spain	Boat seine			
28	Spain	Boat seine			

	Country	Fishing gear	Region	Language
1	Croatia	Purse seiner	Territorial waters	EN
2	Croatia	Coastal fisheries	Territorial waters	EN
3	France	Purse seiner	Territorial waters	EN
4	France	Mechanised dredges	Territorial waters	EN
5	France	Gangui	Provence-Alpes-Côte d'Azur	EN
6	France	Shore seines	Languedoc-Roussillon & Provence-Alpes-Côte	EN
7	Greece	Boat seines	Territorial waters	EN
8	Italy	Dredges	Adriatic coast	IT
9	Italy	Boat seines	Gulf of Manfredonia	IT
10	Spain	Mechanised dredges	Valencia	EN
11	Spain	Mechanised dredges	Andalusia	EN
12	Spain	Mechanised dredges	Catalonia	ES
13	Spain	Boat dredges	Catalonia	ES

Assessment Advice

Mediterranean and Black Sea areas and assessment unit

FAO GFCM sub-areas (GSA's)



— FAO Statistical Divisions (red) — GFCM Geographical Sub-Areas (black)

01 - Northern Alboran Sea	07 - Gulf of Lions	13 - Gulf of Hammamet	19 - Western Ionian Sea	25 - Cyprus Island
02 - Alboran Island	08 - Corsica Island	14 - Gulf of Gabes	20 - Eastern Ionian Sea	26 - South Levant
03 - Southern Alboran Sea	09 - Ligurian and North Tyrrhenian Sea	15 - Malta Island	21 - Southern Ionian Sea	27 - Levant
04 - Algeria	10 - South and Central Tyrrhenian Sea	16 - South of Sicily	22 - Aegean Sea	28 - Marmara Sea
05 - Balearic Island	11.1 - Sardinia (west) 11.2 - Sardinia (east)	17 - Northern Adriatic	23 - Crete Island	29 - Black Sea
06 - Northern Spain	12 - Northern Tunisia	18 - Southern Adriatic Sea	24 - North Levant	30 - Azov Sea

For each stock: A Summary Advice Sheet

5 ASSESS TRENDS IN HISTORIC AND RECENT STOCK PARAMETERS

5.1 SUMMARY SHEETS

5.1.1 SUMMARY SHEET OF HAKE IN GSA 1

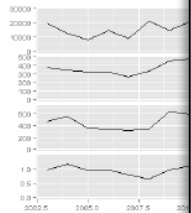
Species common name: European Hake
Species scientific name: *Merluccius merluccius*
Geographical Sub-area(s) GSA(s): 1

5.1.1.1 Stock development over time

State of the adult abundance and biomass
SSB is decreasing in the last years, from a maximum of 4000 tonnes in 2014.

State of the juveniles (recruits)
Recruitment has a fluctuating trend with a mean recruits recruitment of the last year (2014) is the maximum of the series.

State of exploitation
The current F (1.20) is larger than F_{MSY} (0.21), which indicates fished above F_{MSY} .



Hake in GSA 1. XSA summary results. SSB and catch are in tonnes.

5.1.1.2 Stock advice
STECF EWG 15-11 advises the relevant fleets' catches a mortality is below or at the proposed F_{MSY} level (0.21) productivity and landings. This should be achieved by me

taking into account mixed-fisheries considerations. Catches of European hake in GSA 1 in 2016 consistent with F_{MSY} should not exceed 160 t.

5.1.1.3 Basis of the assessment
The state of exploitation was assessed for the period 2003-2014 applying the Extended Survivor Analysis (XSA) method calibrated with fishery independent survey abundance indices (MEDITS). In addition, a yield-per-recruit (Y/R) analysis was carried out. Both methods were performed from the size composition of trawl, gillnet and longline catches, transforming length data into ages by slicing (LZAGE program).
Input data on landings, discards and size structure by gear were taken from DCF. Natural mortality (vector) was estimated using PRODBIOM. Von Bertalanffy growth parameters used in the assessment correspond to fast growth ($L_{\infty} = 110.0$ cm; $k = 0.178$).

5.1.1.4 Catch options
Catch options are summarized in the following table 5.1.1.4.1.

Table 5.1.1.4.1. Short term forecast in different F scenarios computed for the mean $F_{2003-2014} = 1.20$; $R(2015) =$ geometric mean of the recruitment thousands; $SSB(2014) = 220$ t, Catch (2014) = 313 t.

Rationale	Ffactor	Fbar	Catch 2015	Catch 2016	Catch 2017	SSB 2016	SSB 2017	SSB 2018
Zero catch	0	0	726	0	0	367	1158	
High long term yield (F_{MSY})	0.18	0.21	726	180	281	367	888	
Status quo	1	1.20	726	530	439	367	279	
Different Scenarios	0.1	0.12	726	96	185	367	991	
	0.2	0.24	726	180	307	367	830	
	0.3	0.36	726	271	385	367	730	
	0.4	0.48	726	314	433	367	628	
	0.5	0.60	726	367	439	367	542	
	0.6	0.72	726	414	472	367	470	
	0.7	0.84	726	455	476	367	408	
	0.8	0.96	726	491	474	367	355	
	0.9	1.08	726	522	466	367	311	
	1.1	1.32	726	574	430	367	240	
	1.2	1.44	726	596	440	367	213	
1.3	1.56	726	613	430	367	189		
1.4	1.68	726	632	420	367	169		
1.5	1.80	726	647	411	367	152		
1.6	1.92	726	660	402	367	137		
1.7	2.04	726	673	394	367	124		
1.8	2.16	726	684	387	367	113		
1.9	2.28	726	694	380	367	104		
2	2.40	726	709	373	367	96		

5.1.1.5 Reference points

Table 5.1.1.5.1. Hake in GSA 1. Reference points, values and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY F_{MSY}	0.21	F_{MSY} estimated with YPR	Present assessment
	B_{MSY}	220 t	B_{MSY}	Present assessment
Precautionary approach	F_{PA}			
	$F_{0.95}$			
	$F_{0.9}$			
EU-GFCM management strategy	SSB_{lim}			
	F_{lim}	0.54	Empirical relationship	Present assessment
	$F_{0.95}$	0.29	Empirical relationship	Present assessment

5.1.1.6 Quality of the assessment

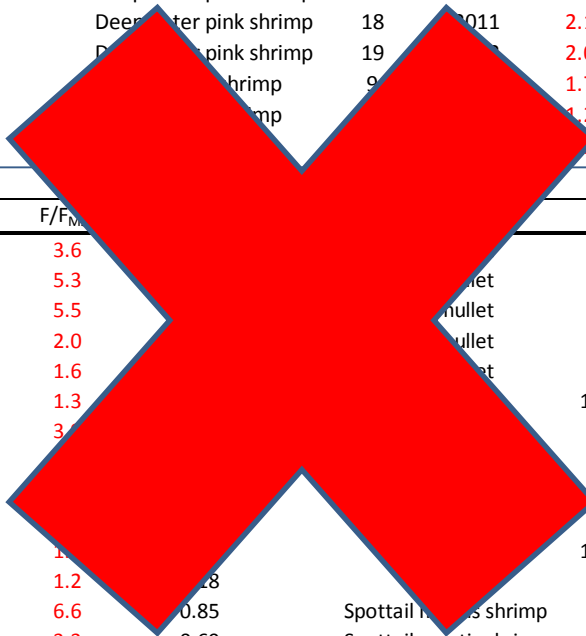
The detailed assessment can be found in section 5.2.1.

Stock status in the last assessment year compared to

F_{MSY}

STECF assessments

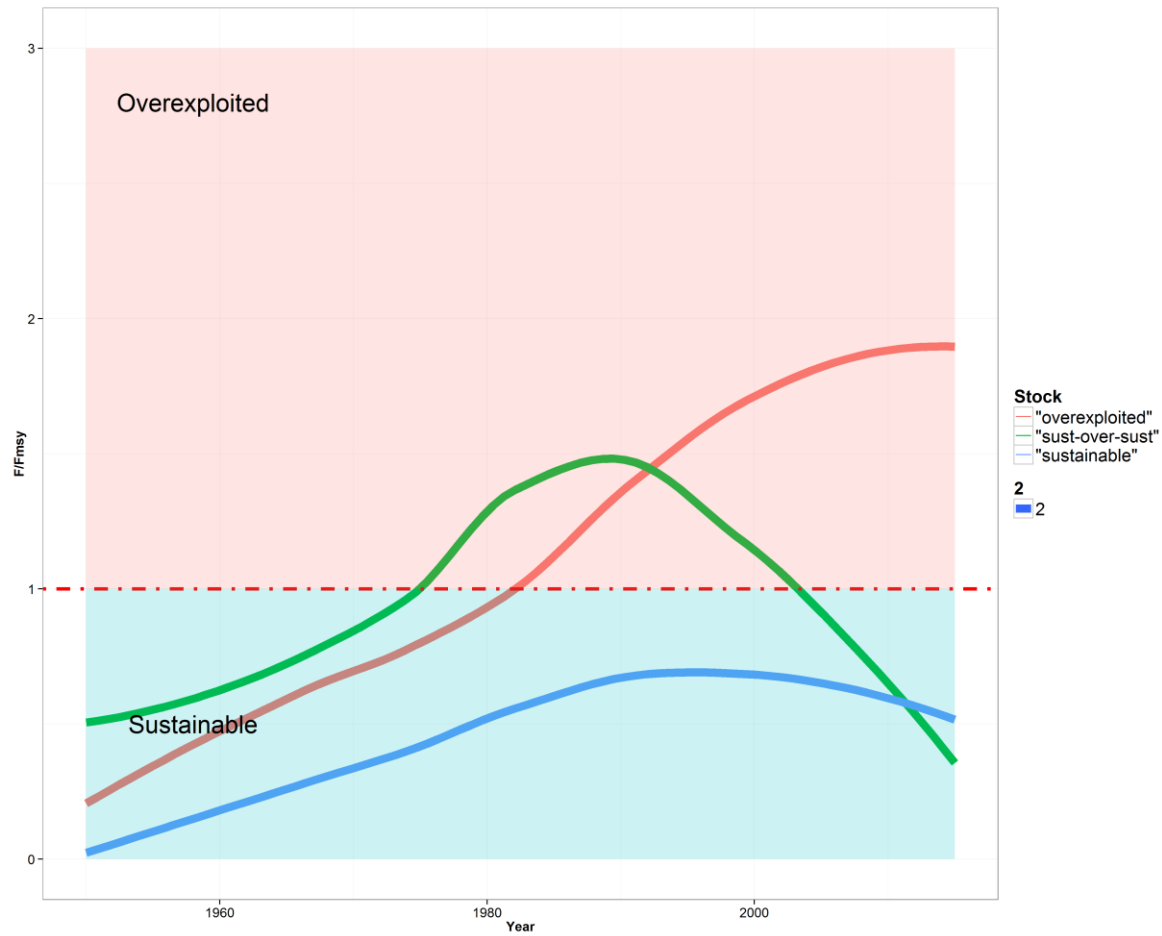
Species	GSA	Year	F/F _{MSY}	Effort reduction	Species	GSA	Year	F/F _{MSY}	Effort reduction
Anchovy	16	2011	1.5	0.31	Deepwater pink shrimp	5	2012	1.2	0.19
Anchovy	17	2012	2.1	0.52	Deepwater pink shrimp	6	2012	5.5	0.82
Anchovy	29	2013	1.4	0.29	Deepwater pink shrimp	10	2012	1.3	0.25
Anchovy	17_18	2013	2.1	0.52	Deepwater pink shrimp	11	2011	1.4	0.29
Black-bellied anglerfish	5	2011	6.3	0.84	Deepwater pink shrimp	18	2011	2.1	0.53
Black-bellied anglerfish	6	2011	4.8	0.79	Deepwater pink shrimp	19	2011	2.0	0.49
Black-bellied anglerfish	7	2011	3.3	0.70	Deepwater pink shrimp	9	2011	1.7	0.42
Black-bellied anglerfish	15_16	2011	1.9	0.47	Deepwater pink shrimp	1	2011	1.2	0.17
Blue and red shrimp	6	2011	3.5	0.71	Deepwater pink shrimp	15_16	2011	1.3	0.70
Blue and red shrimp	1	2011	1.3	0.29	Hake	11	2012	9.7	0.90
Blue and red shrimp	17	2011	1.3	0.29	Hake	17	2012	2.6	0.62
Blue whiting	1	2011	1.3	0.29	Hake	18	2011	3.0	0.67
Blue whiting	17	2011	1.3	0.29	Hake	19	2011	6.5	0.85
Blue whiting	19	2012	5.5	0.69	Horse mackrel	29	2013	2.5	0.60
Common pandora	1	2011	1.3	0.29	Norway lobster	1	2011	1.6	0.60
Deepwater pink shrimp	1	2011	1.3	0.29	Norway lobster	5	2011	1.3	0.65
					Norway lobster	5	2011	1.3	0.65
					Norway lobster	6	2013	3.0	0.65
					Norway lobster	9	2013	3.0	not quantified
					Norway lobster	9	2013	>1	not quantified
					Norway lobster	18	2011	0.4	not quantified
					Norway lobster	16	2011	0.4	not quantified
					Norway lobster	17	2012	2.0	0.50
					Norway lobster	15_16	2012	2.0	0.50
					Octopus	17	2012	2.3	0.57
					Octopus	17_18	2013	2.3	0.57
					Poor cod	5	2011	1.2	0.67
					Poor cod	17	2012	3.0	0.67
					Red mullet	9	2011	1.2	0.68
					Red mullet	5	2012	6.6	0.85
					Red mullet	6	2013	3.3	0.69
					Red mullet	6	2013	3.3	0.69
					Red mullet	7	2013	3.2	0.69
					Red mullet	7	2013	3.2	0.69
					Red mullet	9	2013	1.2	0.15
					Red mullet	9	2013	1.2	0.15
					Spurdog	29	2013	9.0	0.89
					Spurdog	29	2013	9.0	0.89
					Striped red mullet	5	2012	3.0	0.66
					Striped red mullet	5	2012	3.0	0.66
					Striped red mullet	15_16	2012	4.1	0.76
					Striped red mullet	15_16	2012	4.1	0.76
					Spottail mantis shrimp	10	2011	2.6	0.62
					Spottail mantis shrimp	10	2011	2.6	0.62
					Spottail mantis shrimp	17	2011	3.3	0.70
					Spottail mantis shrimp	17	2011	3.3	0.70
					Spottail mantis shrimp	18	2011	3.9	0.74
					Spottail mantis shrimp	18	2011	3.9	0.74
					Sprat	29	2013	0.7	0.74
					Sprat	29	2013	0.7	0.74
					Turbot	29	2013	5.1	0.80
					Turbot	29	2013	5.1	0.80
					Whiting	29	2013	2.9	0.65
					Whiting	29	2013	2.9	0.65



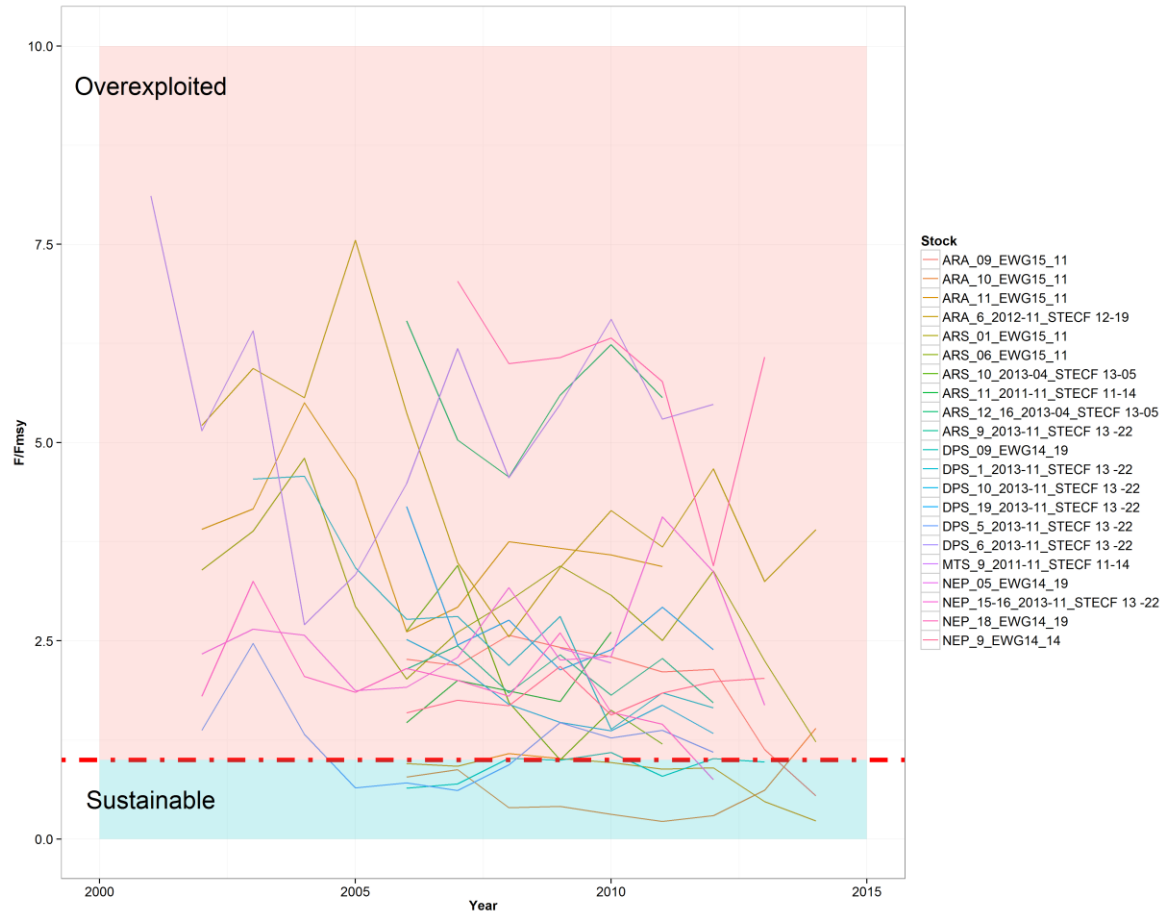
Summary by Species Groups

- Small Pelagics
- Crustaceans
- Demersal Fish
- Hake

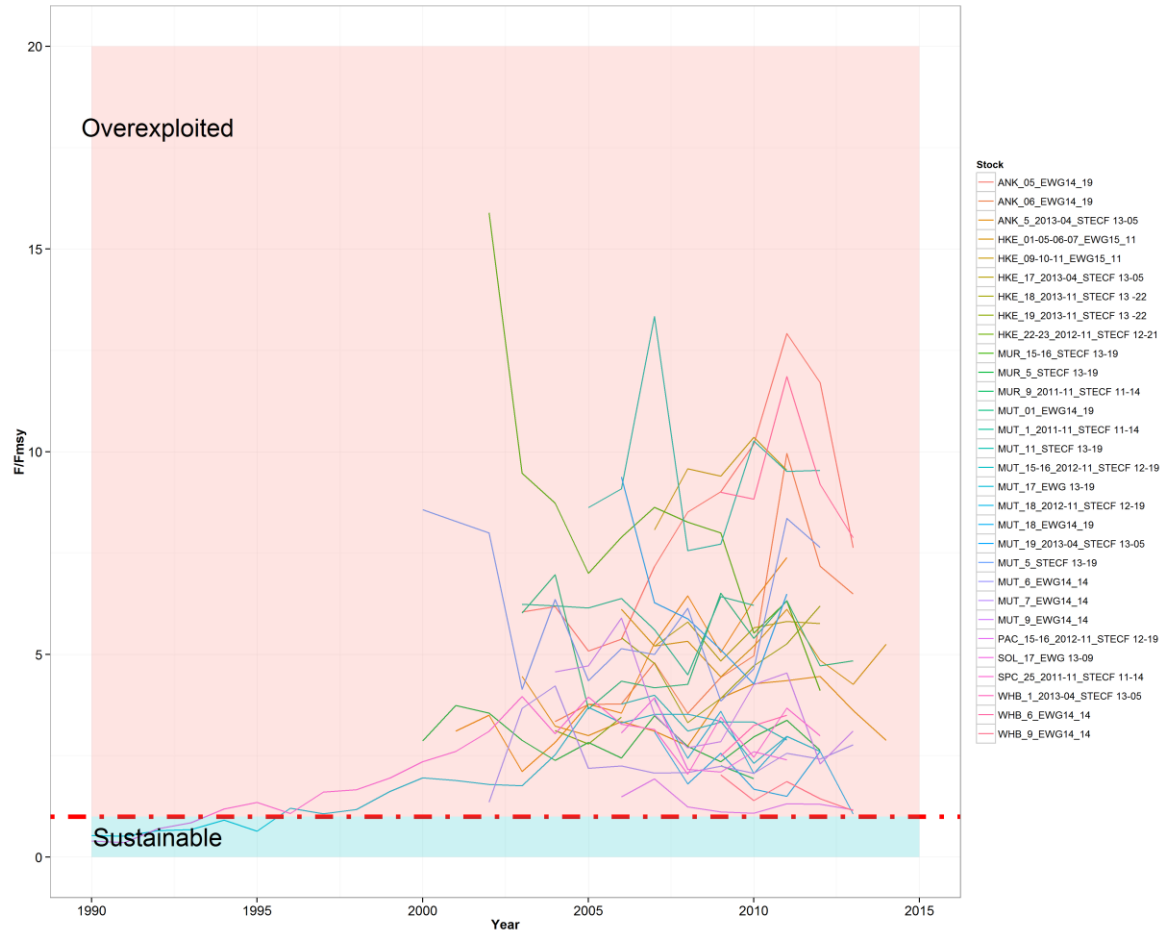
Assessment Summary



Crustaceans



Demersal fish



Hake



STECF Assessments

- 64 assessed stocks
- 61 fished above F_{MSY}
- >95% stocks fished in excess of F_{MSY} levels

Evaluation of National Management Plans

- Given high exploitation patterns – majority of stocks not compatible with CFP
- Many stocks require rebuilding plans as a matter of urgency
- Many stocks are transboundary relative to the current boundaries of National Management Plans
- Broader scale regional based management plans are more appropriate

Summary Points on National Plans

- Modifications required to conform with CFP objectives
 - i. geographic scope to an appropriate regional level;
 - ii. operational changes to improve the implementation of management plans;
 - iii. adoption of harvest control rules, limit and target reference points

Summary Points – Stock Status

- Almost all stocks are chronically over-exploited with low biomass
- Few large adult fish impairing recruitment
- For some stocks fishing mortality continues to rise
- Demersal fish stocks are most chronic compared to crustacean and pelagic stocks
- Status of hake of particular concern

Other Points for Consideration

- Current management approaches require strengthening to achieve F_{MSY}
- Effort or capacity regulation has not reduced fishing mortality for demersal fish
- Better protocols for effort estimation required e.g. kWdays
- For crustaceans there are signs of reductions in fishing mortality
- An average effort reduction between 50% and 60% is necessary to reach F_{MSY}

- Management needs should drive the science and advisory process
- Additional resources and cooperation with GFCM required to further enhance and harmonise science and advice
- Need to avoid duplication and multiple advice
- Enhanced data compilation and sharing; assessment benchmarking and multi-annual planning useful
- Stock ID remains uncertain in some cases and requires further work but:
- Sufficient evidence showing that stocks are heavily over-exploited

- Acknowledgments
 - Max Cardinale, Chair STECF EWG MED
 - Hajo Raetz, Coordination of MED Data Call
 - All the experts that attended STECF EWG from 2008 till 2015
 - STECF Secretariat
 - STECF Plenary

Thank you for your time –
any questions?