Status of Mediterranean and Black Sea fish and shellfish stocks in European Waters in 2016

Results for stocks in GSA 1-29 (Mediterranean and Black Sea)

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** STECF Secretariat, EC JRC, Ispra, Italy

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Status of Mediterranean and Black Sea stocks

Guidelines for the evaluation of stock status

Glossary

- Spawning stock biomass (SSB) is the biomass of the adult or reproducing fish

- Fishing mortality (F) is the proportion of fish in the stock that are taken by the fisheries

- F_{MSY} is the F associated to high long term yields and the long-term sustainable exploitation of the stock, here is used as proxy of $F_{0.1}$

- F/F_{MSY} indicates how far each stock is from the MSY target

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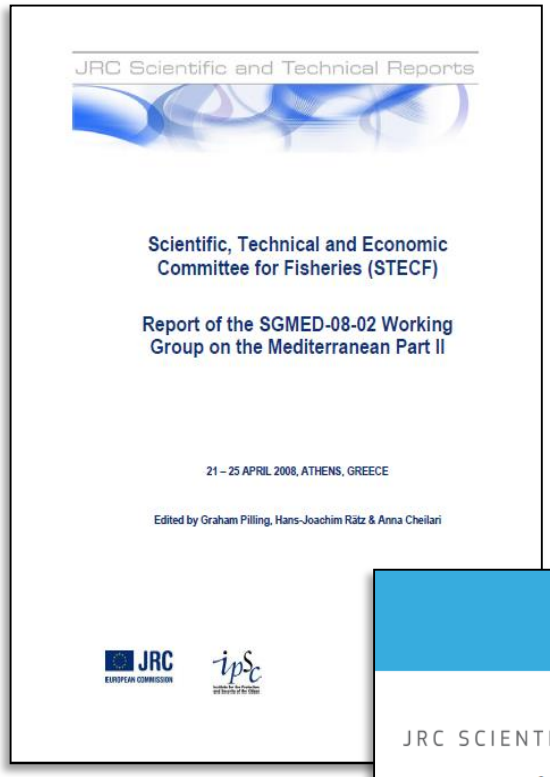
- **24** STECF EWG on "Assessment of Mediterranean Sea stocks" since 2008
- Assessments for **31** species and **69** stocks

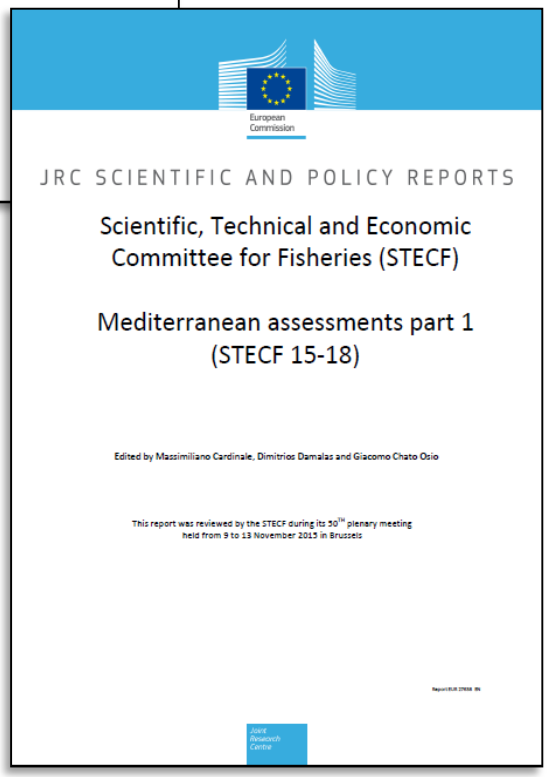

JRC Scientific and Technical Reports

Scientific, Technical and Economic Committee for Fisheries (STECF)

Report of the SGMED-08-02 Working Group on the Mediterranean Part II

21 – 25 APRIL 2008, ATHENS, GREECE

Edited by Graham Pilling, Hans-Joachim Rätz & Anna Cheilari


JRC SCIENTIFIC AND POLICY REPORTS

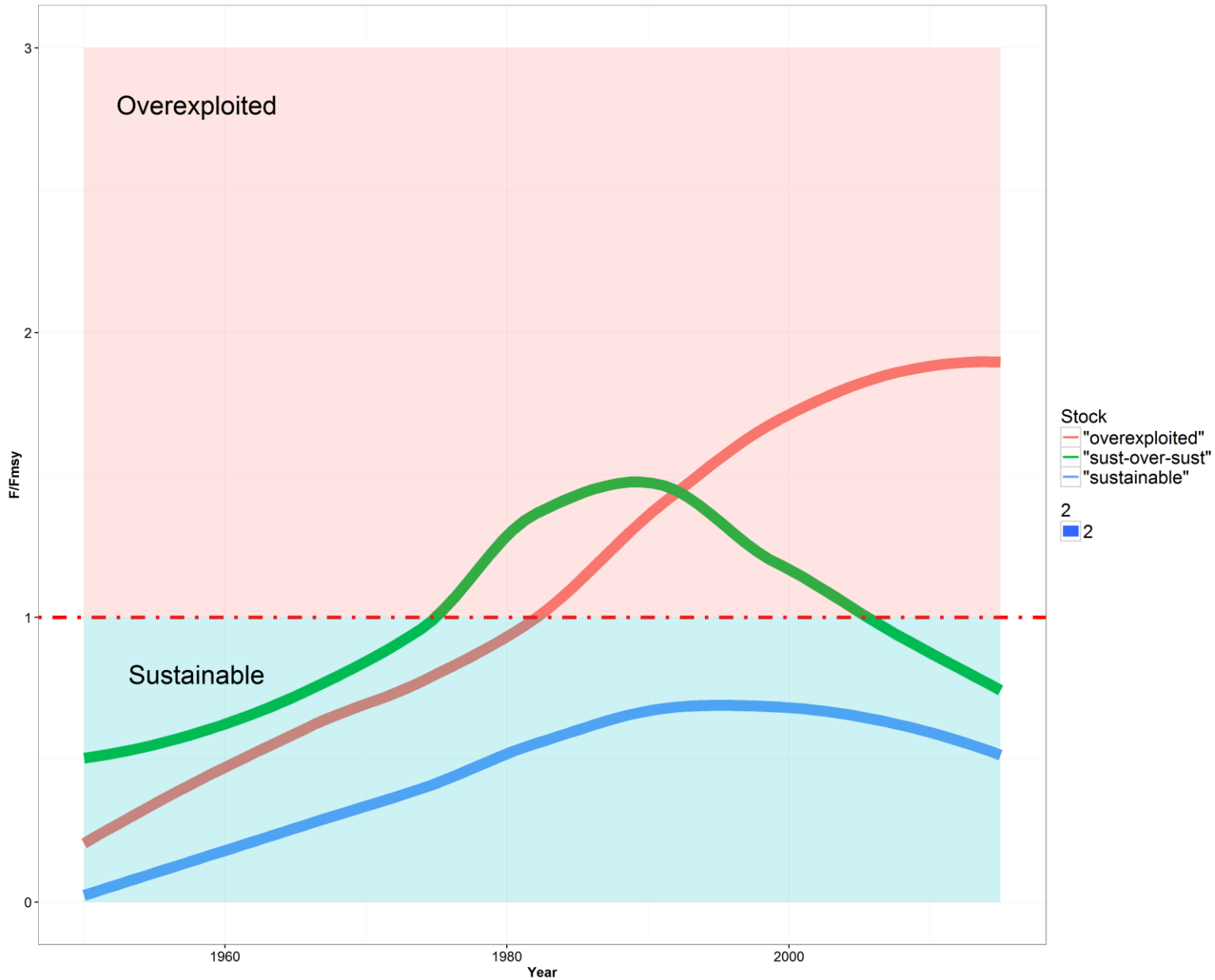
Scientific, Technical and Economic Committee for Fisheries (STECF)

Mediterranean assessments part 1 (STECF 15-18)

Edited by Massimiliano Cardinale, Dimitrios Damalas and Giacomo Chato Osio

This report was reviewed by the STECF during its 50TH plenary meeting held from 9 to 13 November 2015 in Brussels

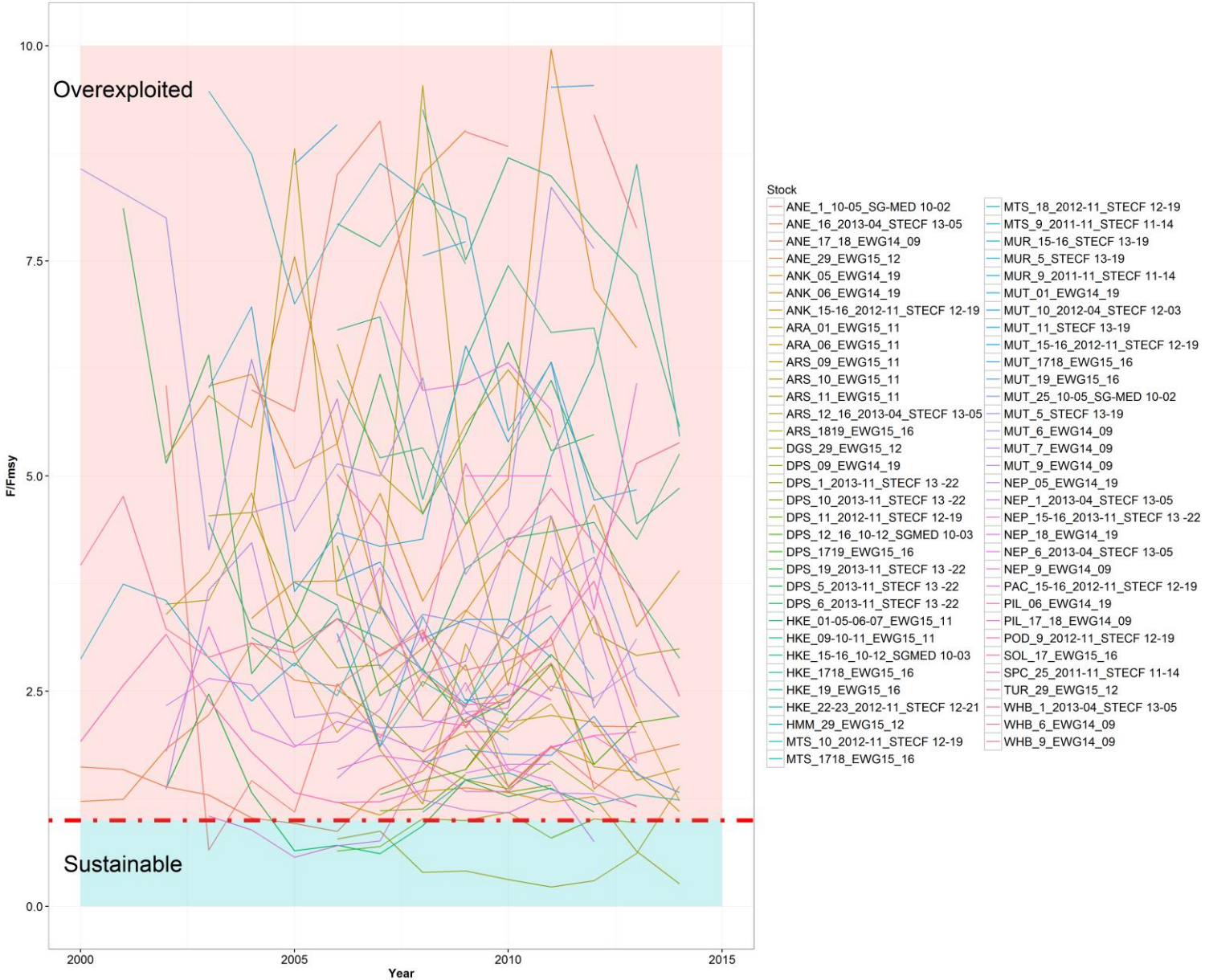
Example of stock conditions in respect to F/Fmsy



What is being presented in Time series of STECF assessments

- Only most updated assessments are presented.
- When a stock is assessed in combined GSA and single GSAs the combined is presented, This is consistent with CFP monitoring indicators protocol.
- All assessment models are included here, including data-poor methods (which are not included in the CFP monitoring report).

EU Med and Black Sea stocks



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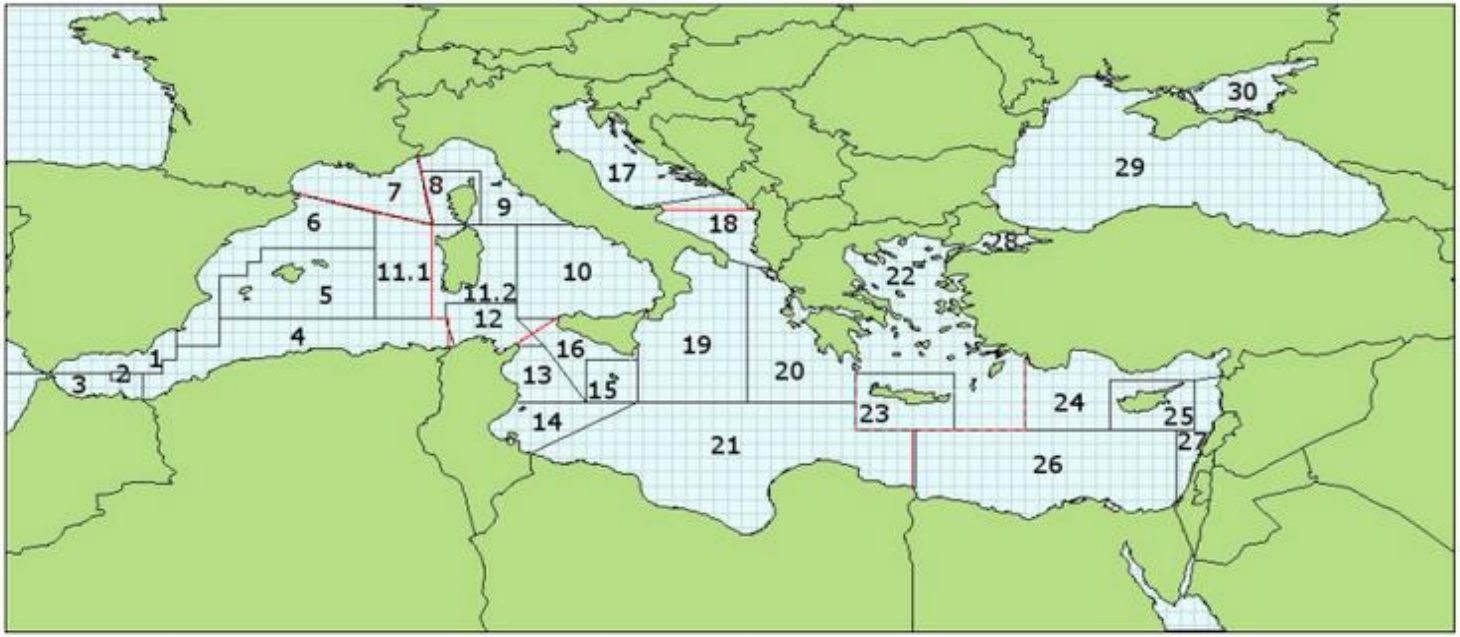
Mediterranean and Black Sea areas and assessment unit

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

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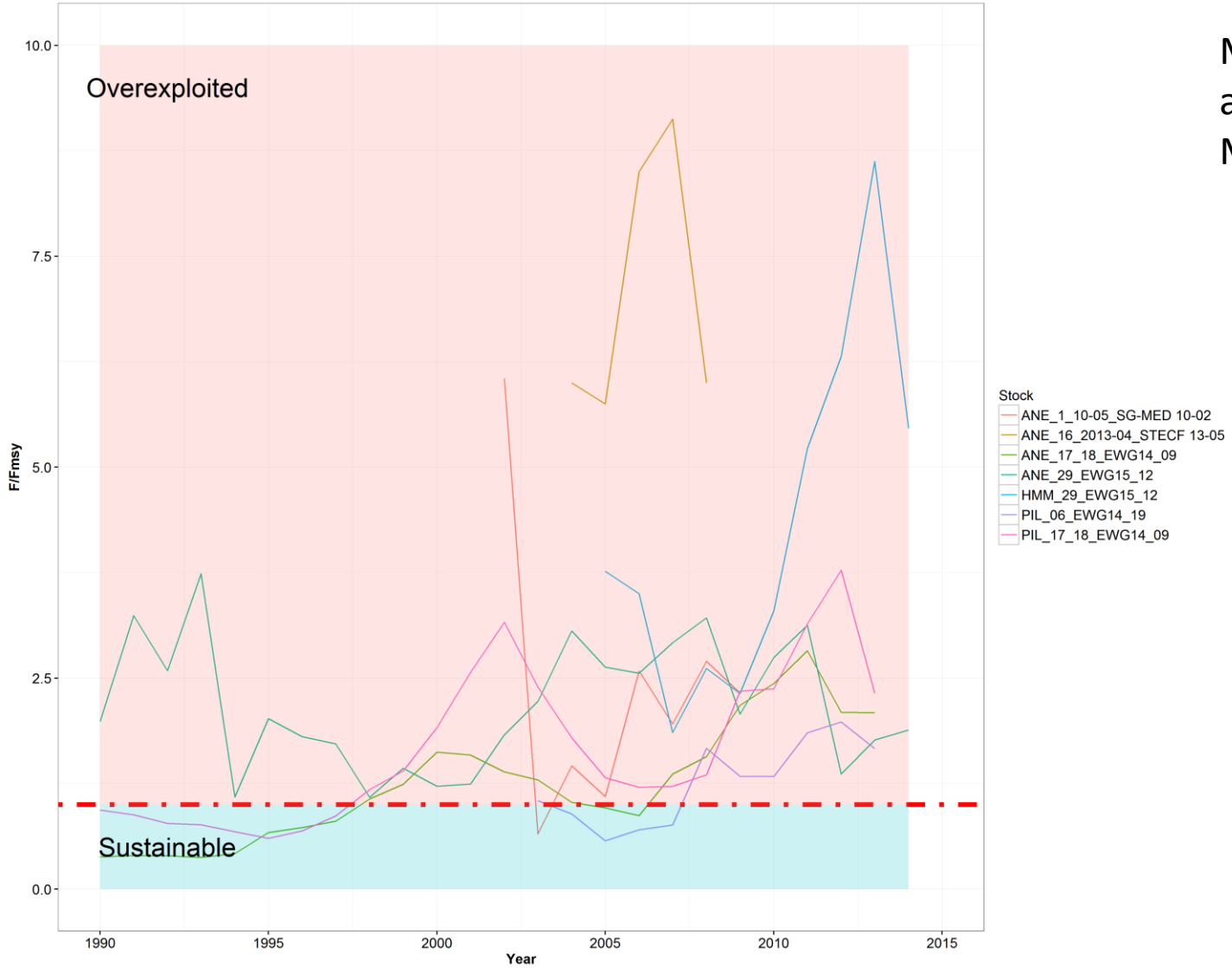
Stock status compared to F_{MSY} for small pelagics



Many assessments are not recent in the Mediterranean

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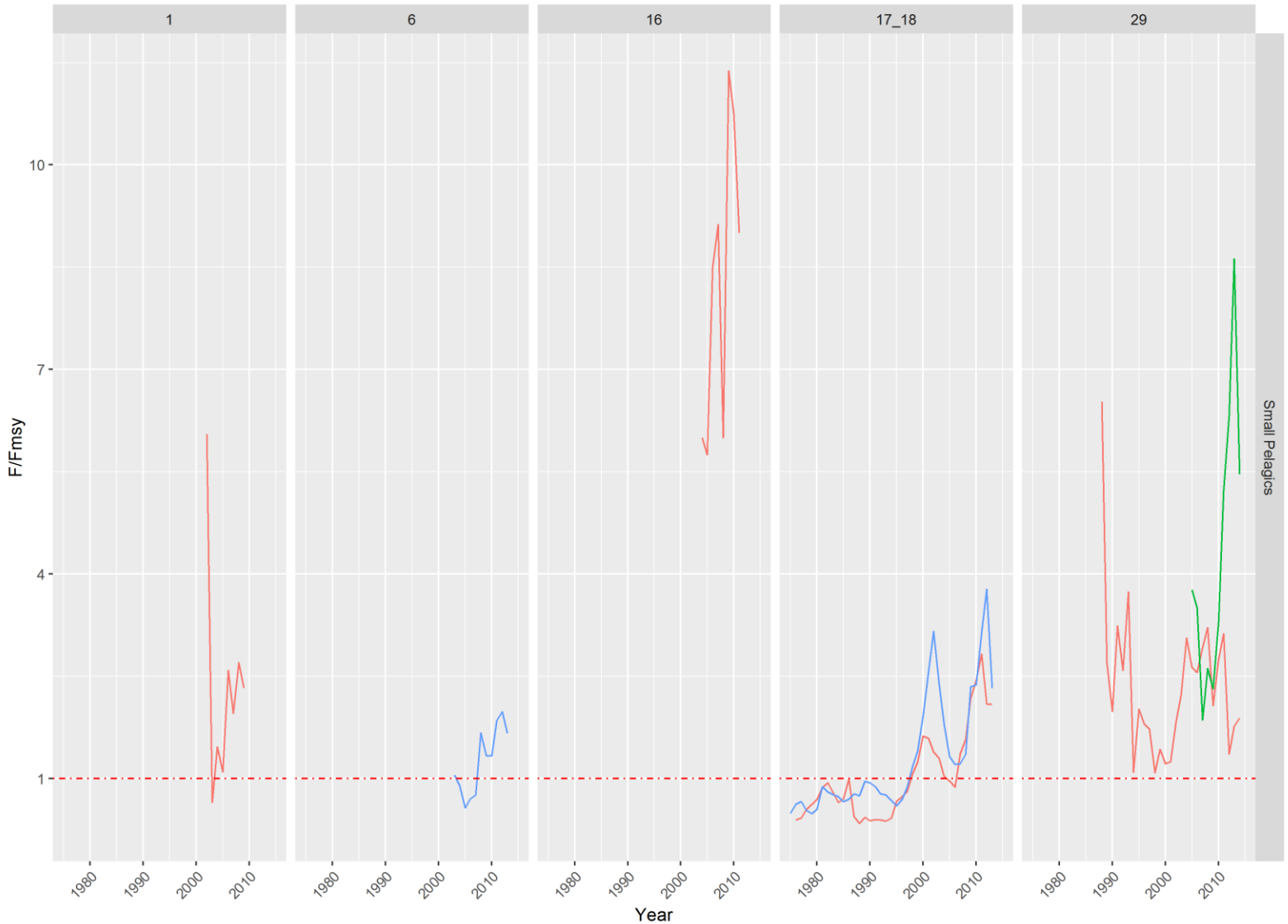
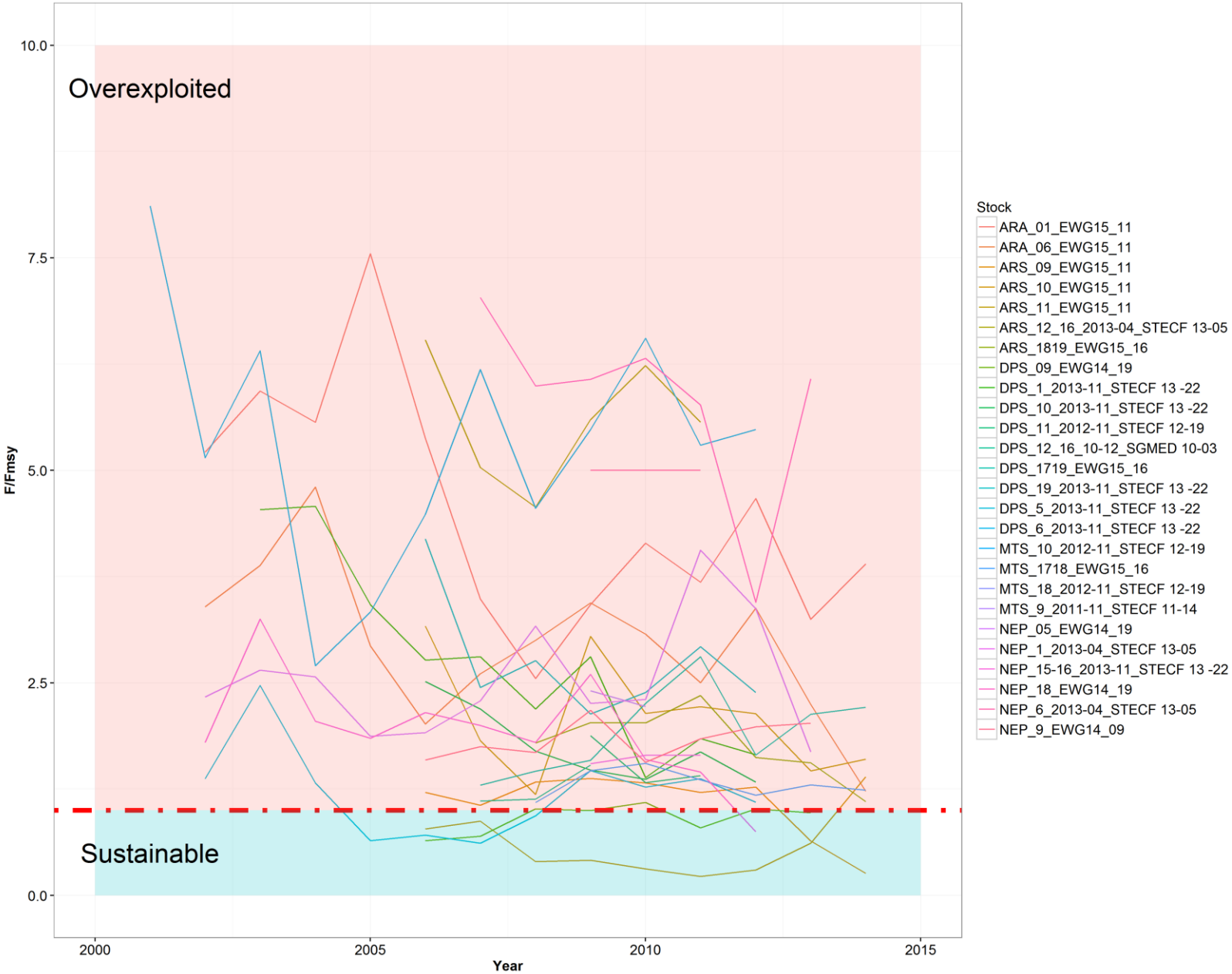
Stock status compared to F_{MSY} for small pelagics



Anchovy
H. Mackerel
Sardine

Stock status compared to F_{MSY} for crustaceans



Red shrimp

Deep-water rose shrimp

Mantis shrimp

Nephrops

Stock status compared to F_{MSY} for crustaceans

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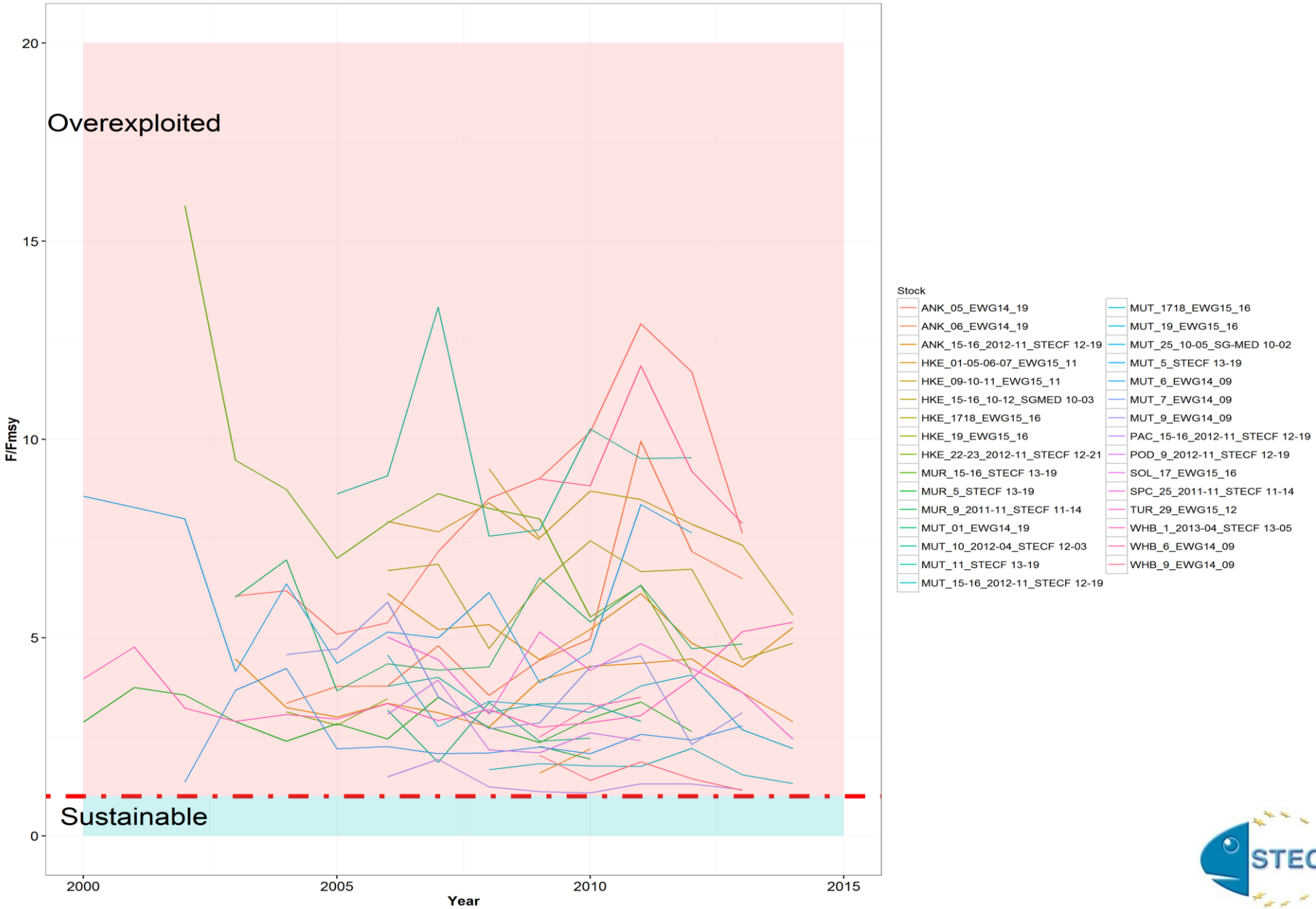
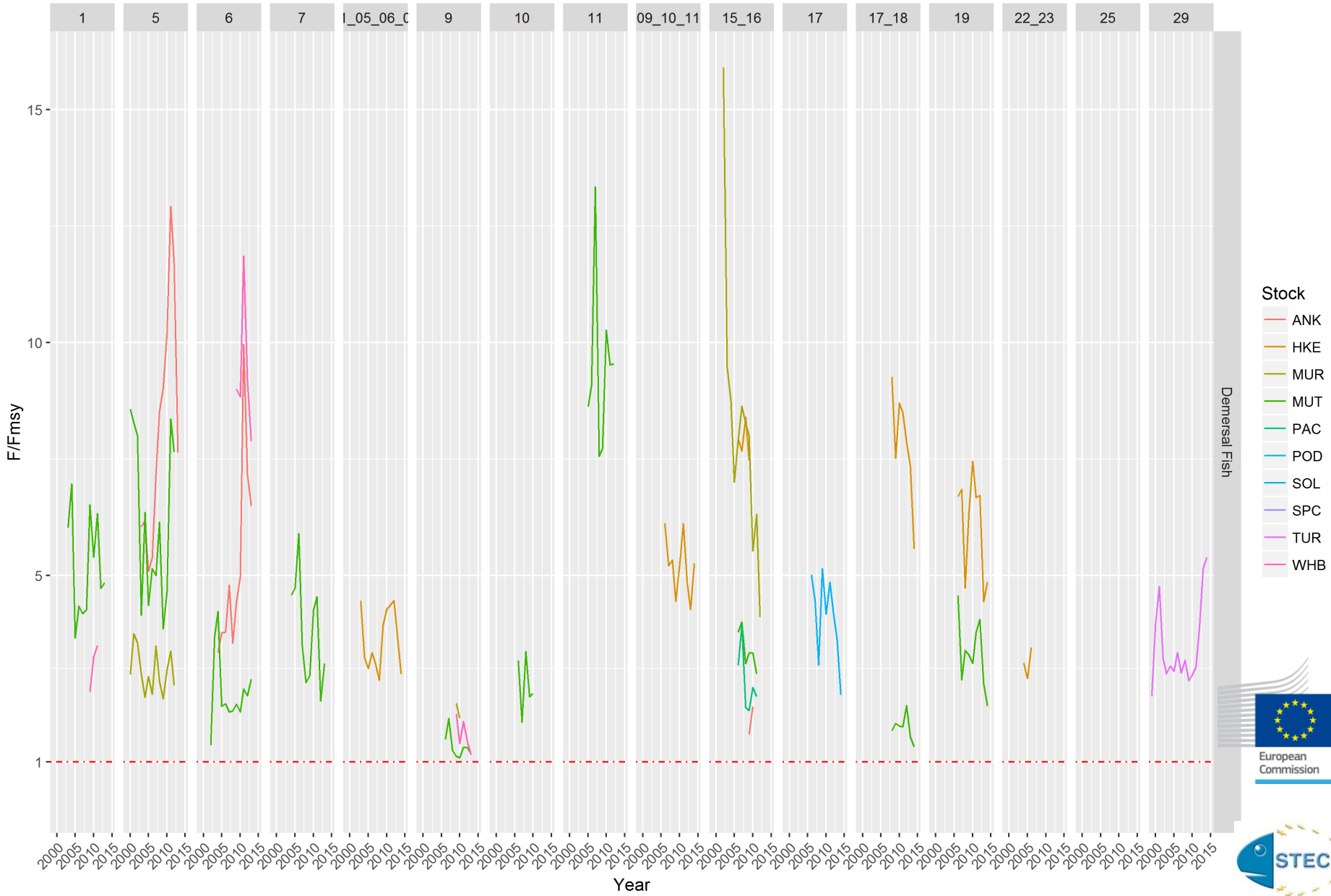
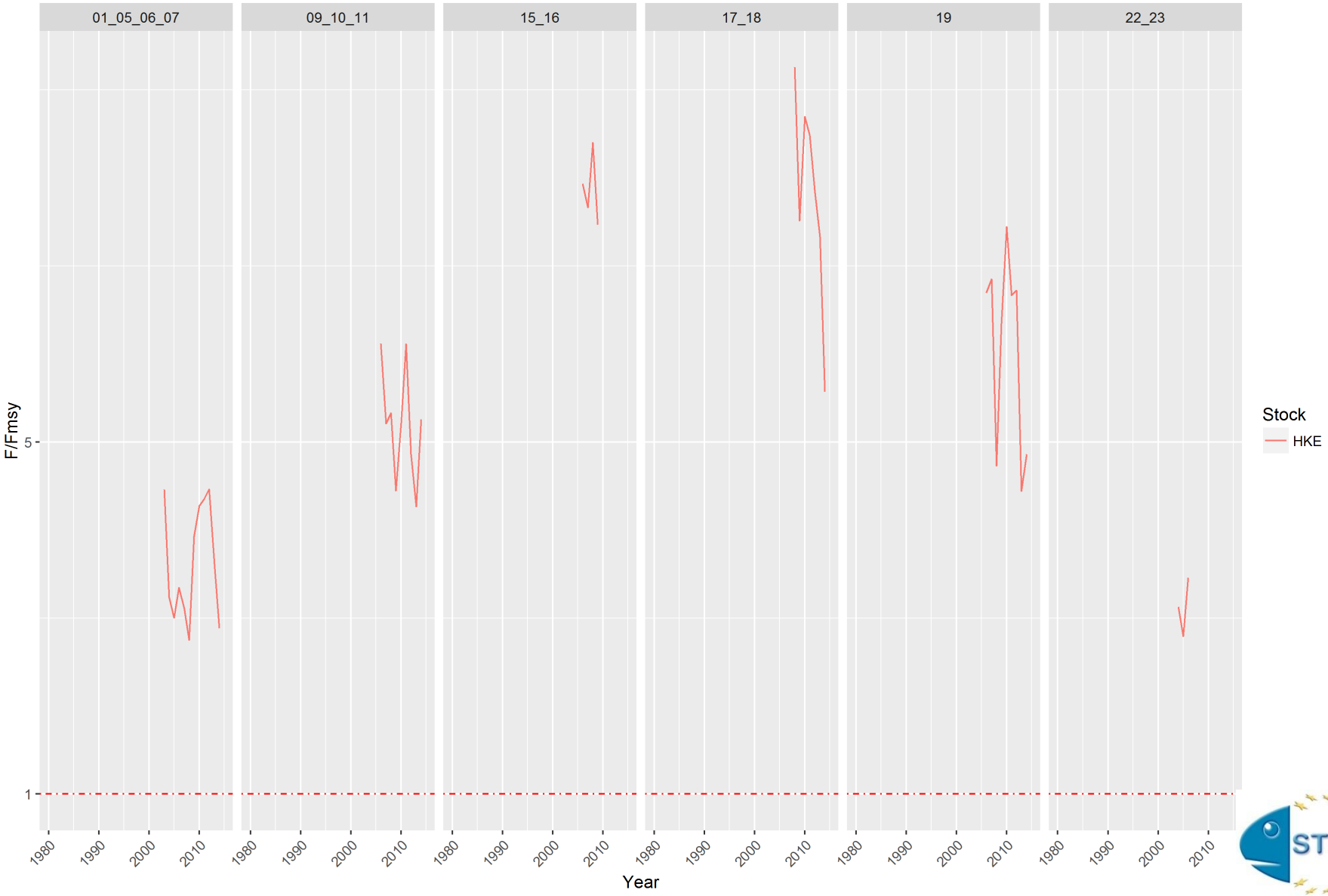
Stock status compared to F_{MSY} for demersal fish



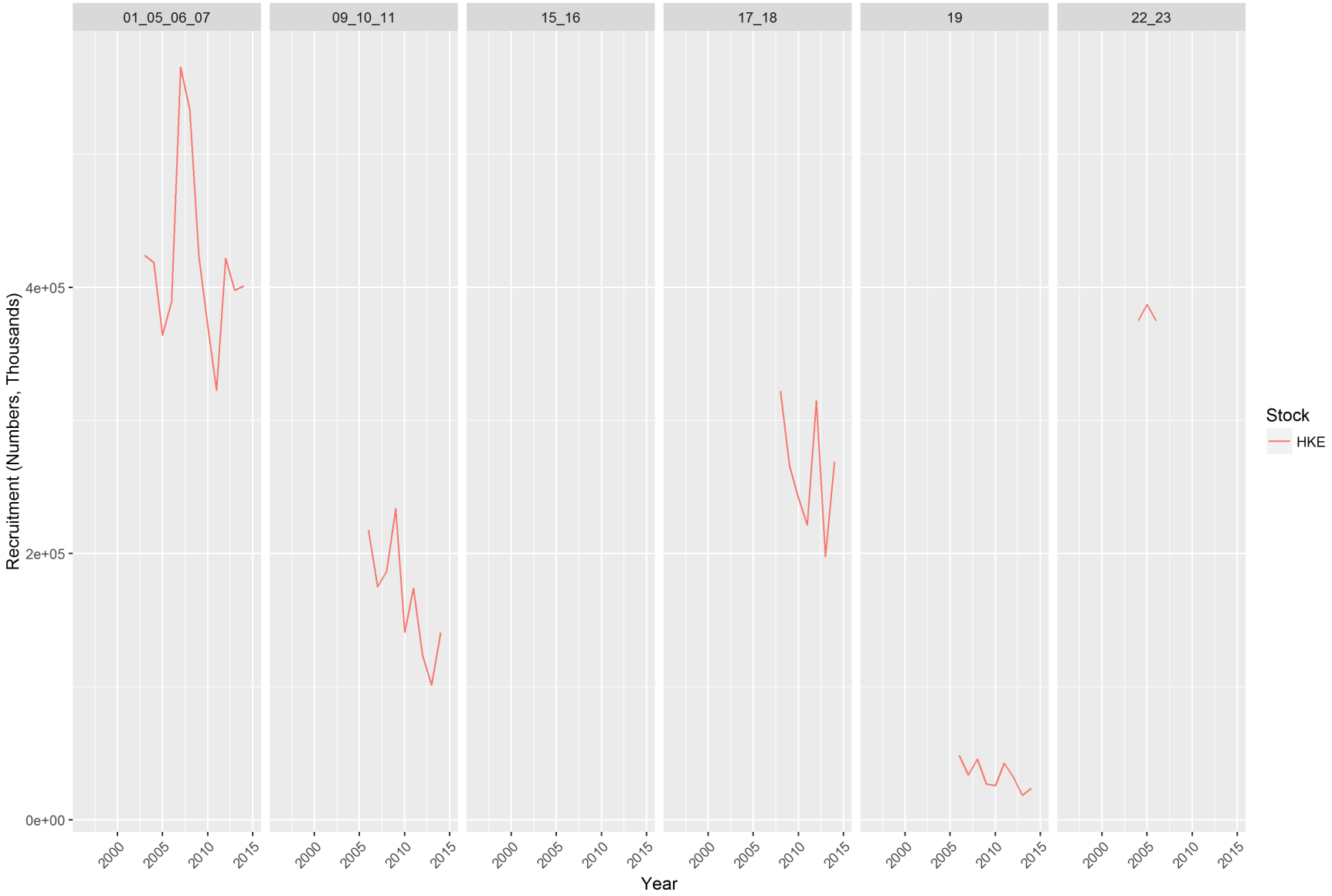
Stock status compared to F_{MSY} for demersal fish



Stock status compared to F_{MSY} for Hake

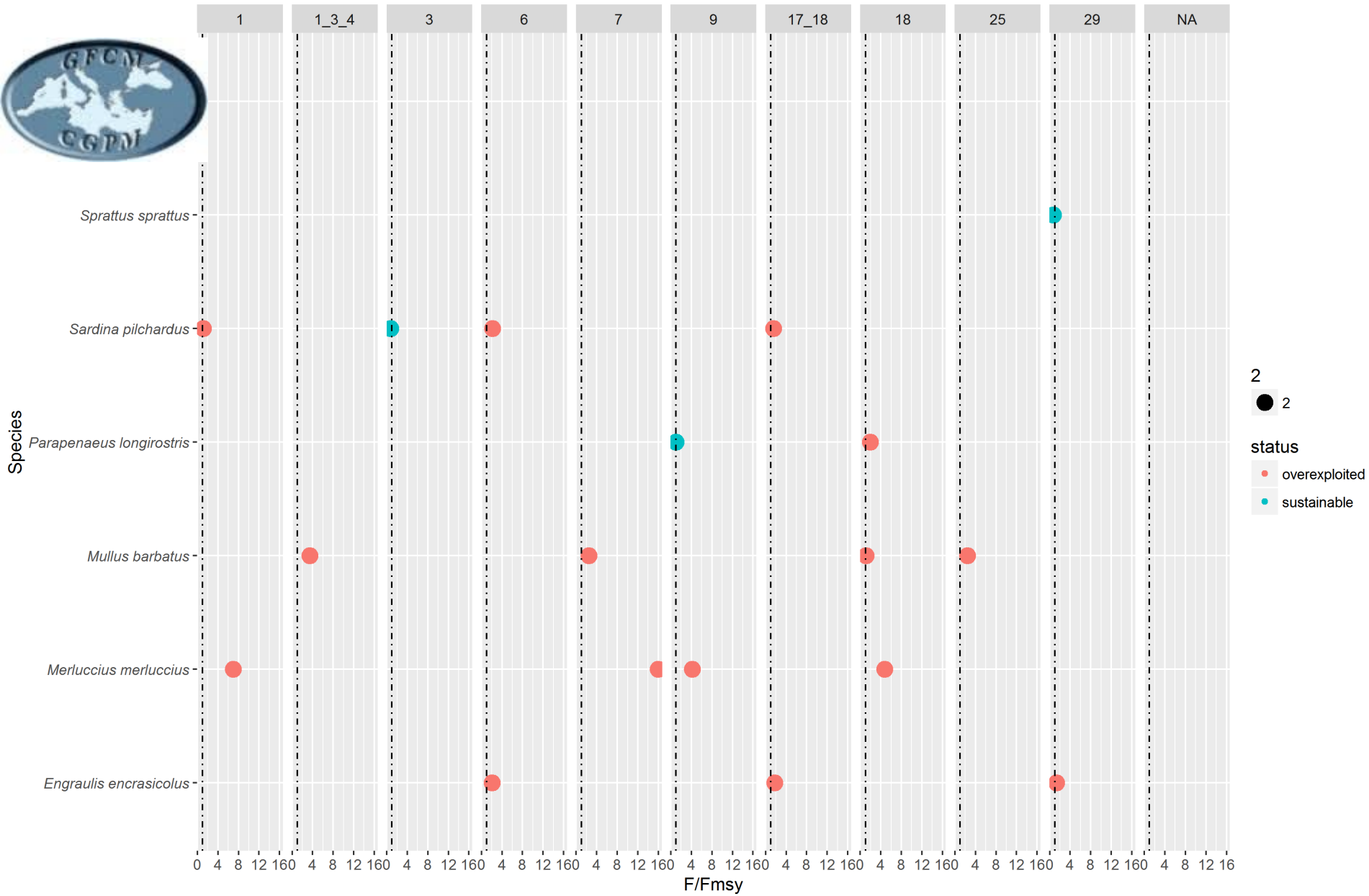


Recruitment trends for Hake



Spawning Stock Biomass trends for Hake

GFCM stock assessments 2015



Stock status in the last assessment year compared to F_{MSY}

GFCM assessments

Species	GSA	Year	F/F_{MSY}	Effort reduction
Anchovy	6	2013	1.5	0.34
Anchovy	17	2011	1.0	
Anchovy	29_30	2012	0.3	
Black-bellied anglerfish	7	2011	3.3	0.70
Black-bellied anglerfish	15_16	2011	1.9	0.47
Blackspot seabream	1_3	2011	1.7	0.42
Blue and red shrimp	1	2013	2.0	0.50
Blue and red shrimp	5	2012	4.3	0.77
Blue and red shrimp	6	2013	2.0	0.50
Brushtooth lizardfish	26	2013	2.3	0.57
Common pandora	15_16	2011	2.4	0.58
Deepwater pink shrimp	5	2012	1.2	0.17
Deepwater pink shrimp	6	2012	5.5	0.82
Deepwater pink shrimp	10	2013	1.7	0.41
Deepwater pink shrimp	18	2013	2.2	0.55
Deepwater pink shrimp	19	2012	2.4	0.58

Species	GSA	Year	F/F_{MSY}	Effort reduction
Deepwater pink shrimp	1_3_4	2011	2.4	0.58
Deepwater pink shrimp	12_13_14_15_16	2013	1.3	0.21
Deepwater pink shrimp	12_16	2012	1.8	0.44
Giant red shrimp	19	2013	2.3	0.57
Hake	1	2012	7.4	0.86
Hake	3	2013	0.6	
Hake	5	2013	7.7	0.87
Hake	6	2013	7.8	0.87
Hake	7	2013	9.8	0.90
Hake	10	2013	4.6	0.78
Hake	17	2013	2.0	0.50
Hake	18	2013	4.0	0.75
Hake	1_2_3_4	2011	2.4	0.58
Hake	12_13_14_15_16	2013	4.5	0.78
Hake	12_16	2012	5.8	0.83
Norway lobster	5	2011	3.2	0.69

Stock status in the last assessment year compared to F_{MSY}

GFCM assessments

Species	GSA	Year	F/F_{MSY}	Effort reduction
Norway lobster	15_16	2012	0.7	
Picarel	25	2012	0.6	
Red mullet	3	2013	2.3	0.57
Red mullet	5	2012	6.6	0.85
Red mullet	6	2013	1.3	0.23
Red mullet	7	2013	3.2	0.69
Red mullet	10	2013	1.0	0.00
Red mullet	17	2012	5.3	0.81
Red mullet	19	2012	3.1	0.68
Red mullet	25	2013	1.5	0.33
Red mullet	15_16	2011	2.9	0.65
Sardine	1	2012	0.7	
Sardine	3	2013	0.9	
Sardine	6	2013	0.5	
Sardine	16	2013	0.8	
Sardine	17	2011	1.3	0.23

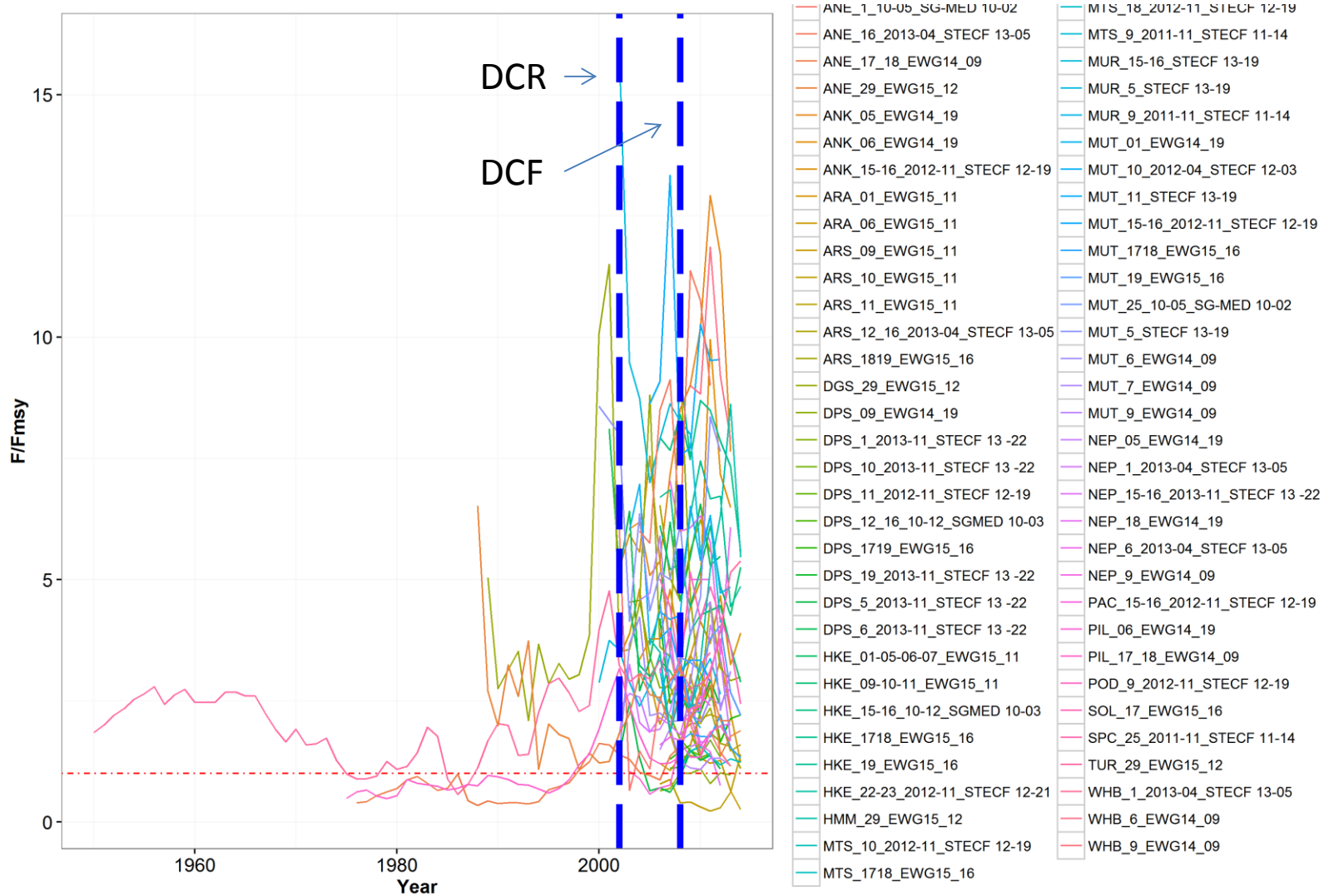
Species	GSA	Year	F/F_{MSY}	Effort reduction
Sardine	1_2_3	2011	1.1	0.07
Sole	17	2013	1.5	0.33
Spottail mantis shrimp	17	2011	1.9	0.48
Spurdog	29	2011	1.2	0.13
Striped red mullet	5	2013	3.0	0.67
Striped red mullet	26	2013	2.5	0.60
Striped red mullet	15_16	2012	4.1	0.76
Turbot	29	2012	2.1	0.52
Whiting	29	2011	1.1	0.07

Stock status in the last assessment year compared to F_{MSY}

GFCM assessments

Species	GSA	Year	F/F_{MSY}	Effort reduction
Anchovy	6	2014	2.037736	0.55
Anchovy	29	2014	1.325	0.13
Anchovy	17_18	2014	1.787004	0.436
Hake	1	2014	7	1.2
Hake	7	2014	15.90909	1.64
Hake	9	2014	4.173913	0.73
Hake	18	2014	4.722222	0.67
Red mullet	7	2014	2.428571	0.2
Red mullet	18	2014	1.142857	0.06
Red mullet	25	2014	2.454545	0.32
Red mullet	1_3_4	2014	3.423077	0.63
Deepwater pink shrimp	9	2014	1	
Deepwater pink shrimp	18	2014	1.921053	0.7
Sardine	1	2014	1.176471	0.09
Sardine	6	2014	2.142857	0.24
Sardine	3	2014	0.77451	
Sardine	17_18	2014	1.52028	0.372
Black Sea sprat	29	2014	0.711111	

Start Year of Assessments



Status of Mediterranean and Black Sea marine stocks

State of the art

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• The situation is worsening for stocks of small pelagics. The assessments of these stocks are increasingly difficult and most are not recent.

• Between functional groups, demersal fish are showing the worst stock status compared to demersal crustacean and pelagic stocks. Hake recruitment and SSB show a decreasing trend.

•There are no major differences in the status of the stocks between areas, except for hake (worst in Adriatic and Sicily).

•Fmsy cannot be achieved without significant reductions. Management over the recent years has in most cases not resulted in a decline in F for demersal fish, while for crustaceans there are signs of lowering of F

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Status of Mediterranean and Black Sea marine stocks

State of the art

- Time series of assessments are too short and in period of high exploitation.

- STECF recommends that time series of assessments data are extended as far back as possible and historical data integrated in current assessments.

- Need of a dedicated project to recover available historical data and build a database for STECF/GFCM use.

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Status of Mediterranean and Black Sea marine stocks

State of the art

- Currently to assess all Hake in the Mediterraenan there is a potential need of 25 separate stock assessments (1 for each GSA), assumption that there are no links between stocks.
- STOCKMED project showed a potentially different picture were GSAs would cluster in 5 hake stocks instead than 25. Other stocks would group in larger clusters of GSAs.
- More analyses to validate the results of STOCKMED and redifine stock units are needed .
- Data problems:
  - For small pelagics inconsistencies in age readings in many areas.
  - Lack of MEDITS survey data 1994-2002 from the Adriatic.
  - Croatian data time series start in 2013.

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Status of Mediterranean and Black Sea stocks

How to achieve MSY by 2018-2020 for all stocks?

Immediate actions:

- Reduce F for all fisheries through major reduction in catches.
- Implement a TAC system where possible (small pelagics).
- Implementation of management plans
  - Set objectives in lines with CFP
  - Define which actions are to be implemented and how they will contribute to achieving the objectives
  - Monitoring , Control and Surveillance tools

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Acknowledgments

- Max Cardinale, Hajo Raetz
- All the experts that attended STECF EWG from 2008 till 2016
- STECF Secretariat
- STECF Committee

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