Status of Mediterranean and Black Sea fish and shellfish stocks in European Waters in 2015

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

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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

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

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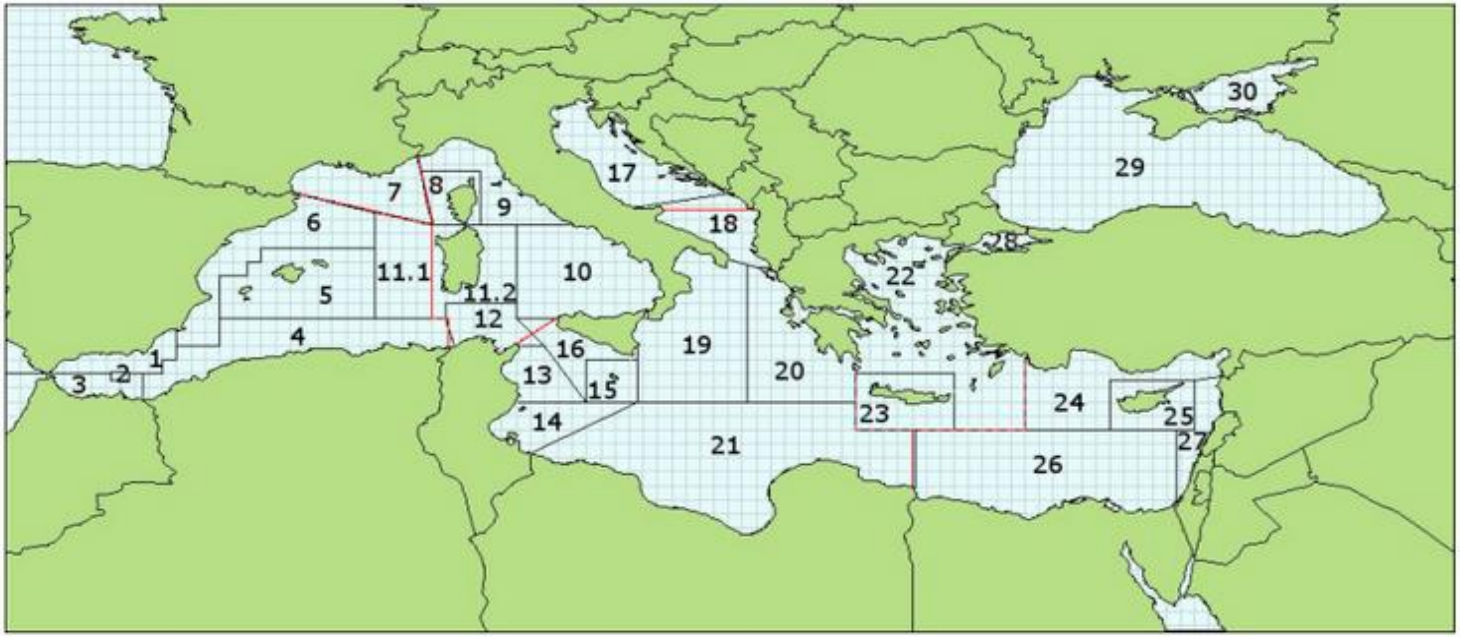
Mediterranean and Black Sea areas and assessment unit

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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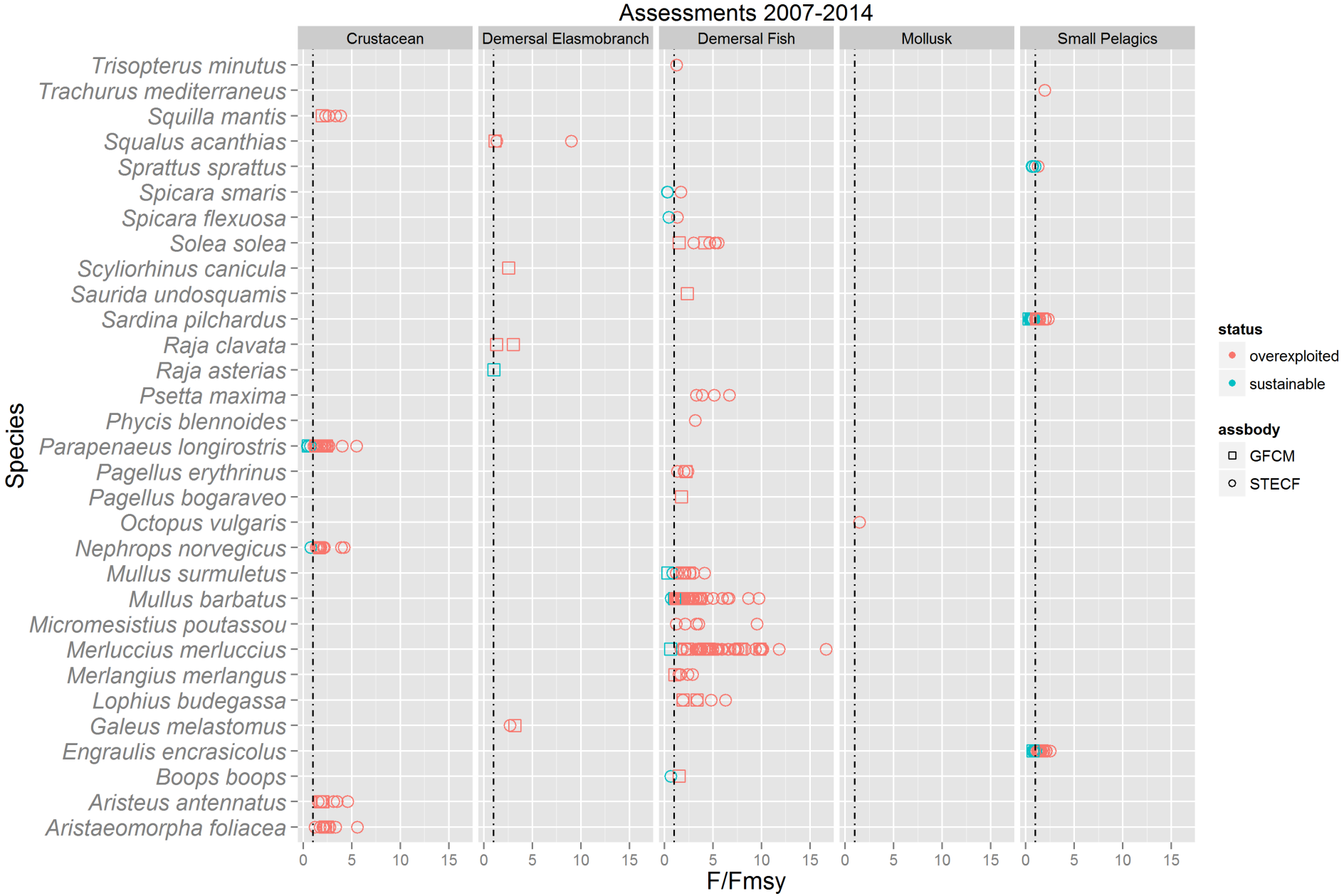
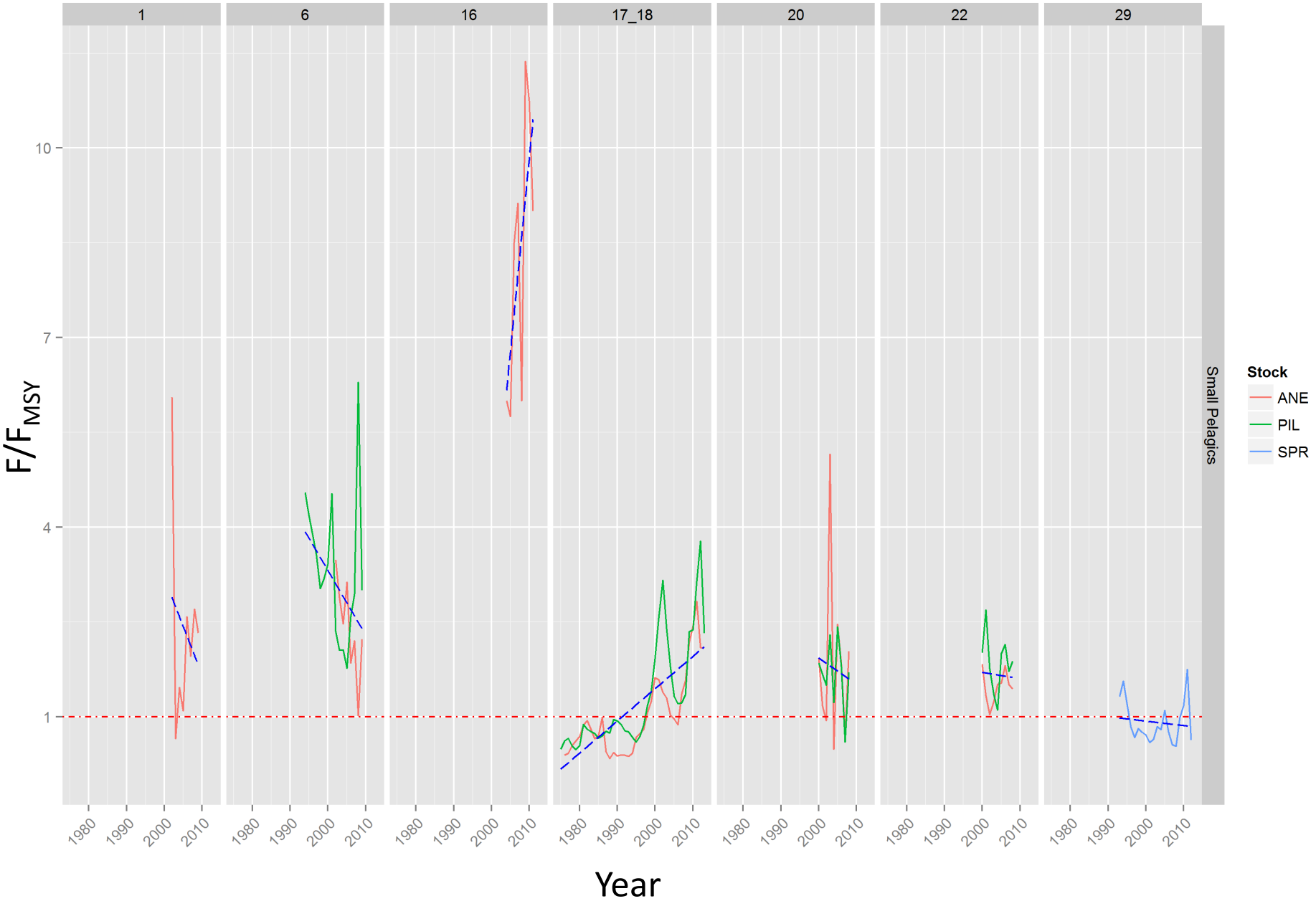
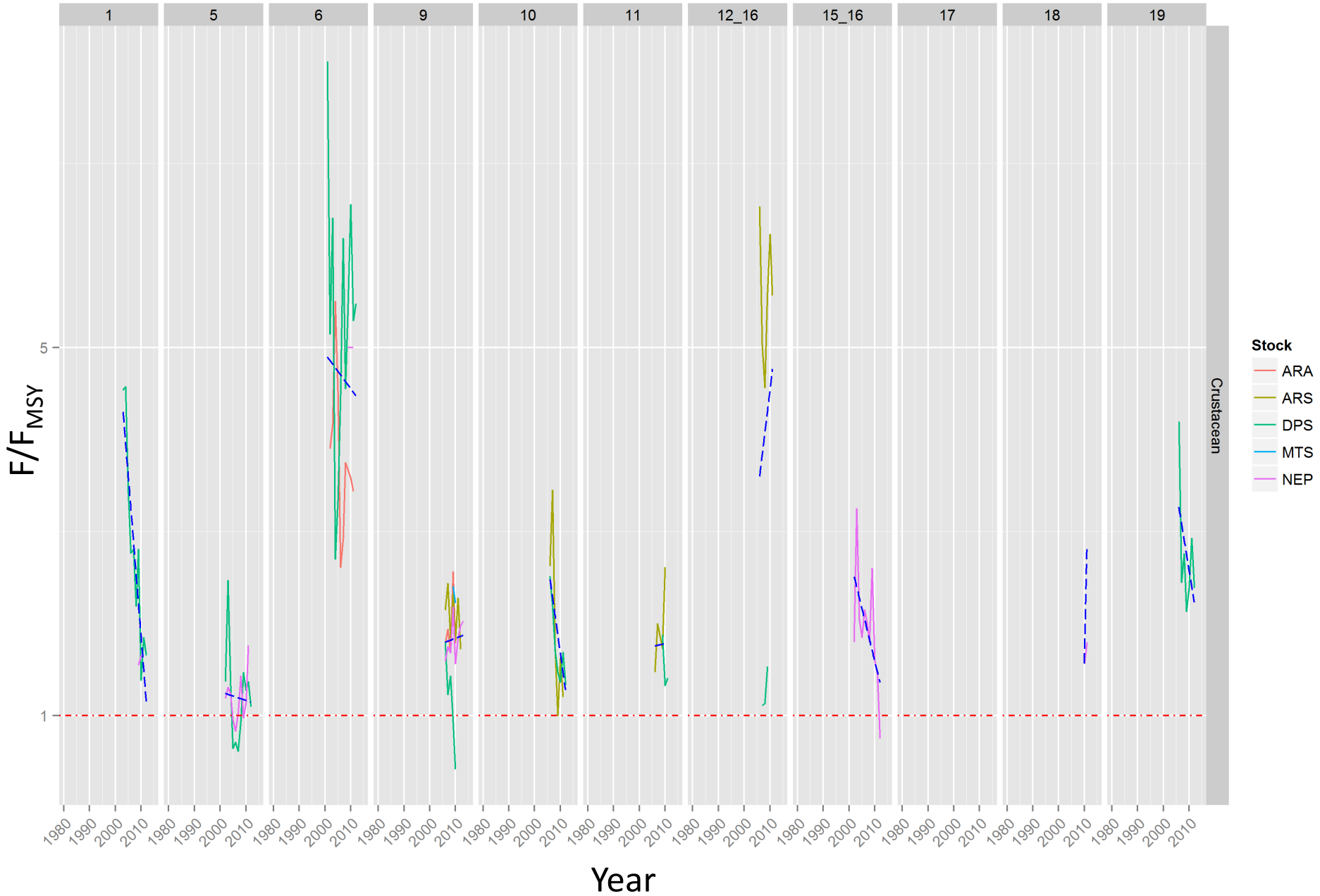
Stock status compared to F_{MSY} by species group



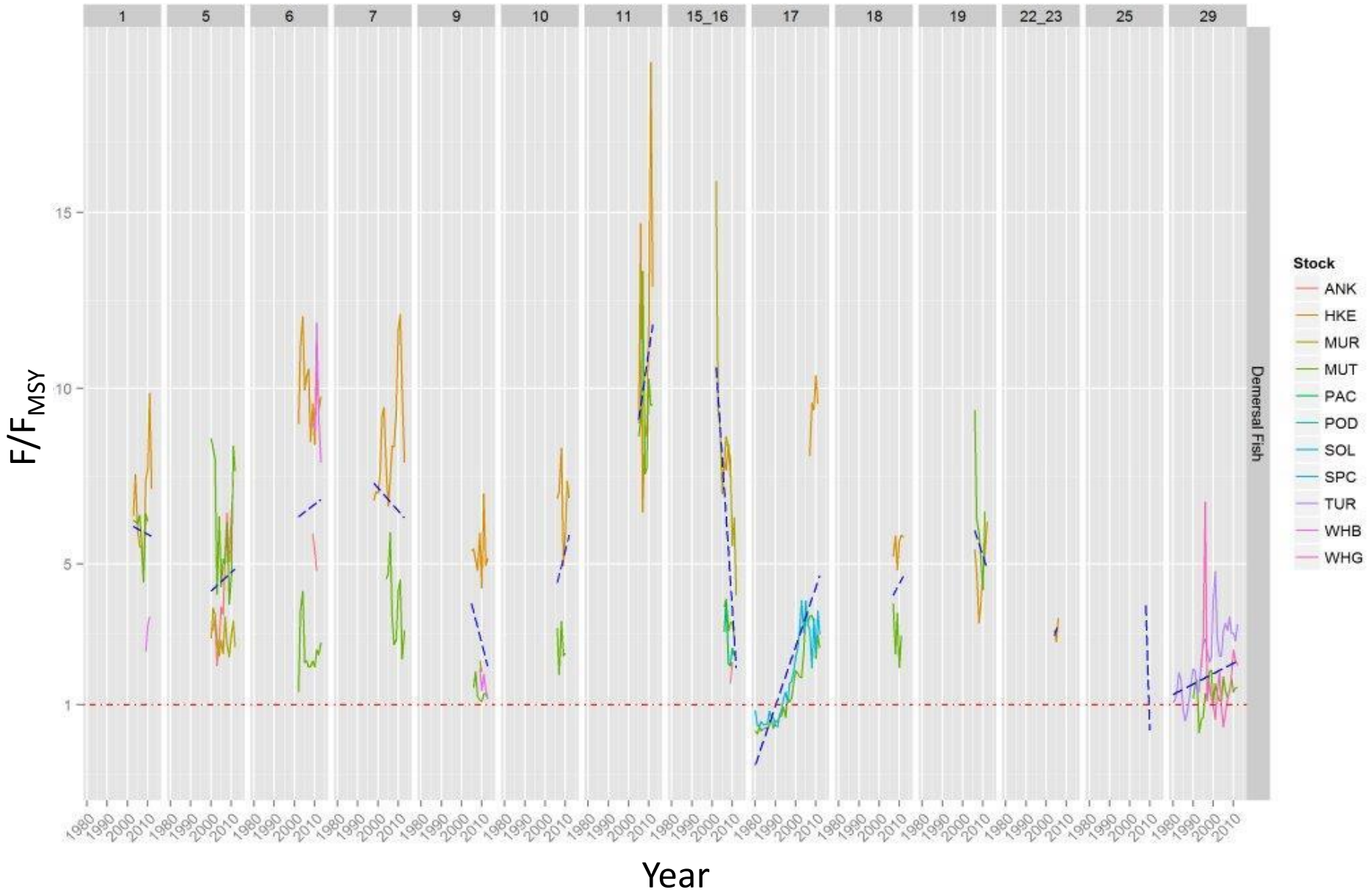
Stock status compared to F_{MSY} for small pelagics



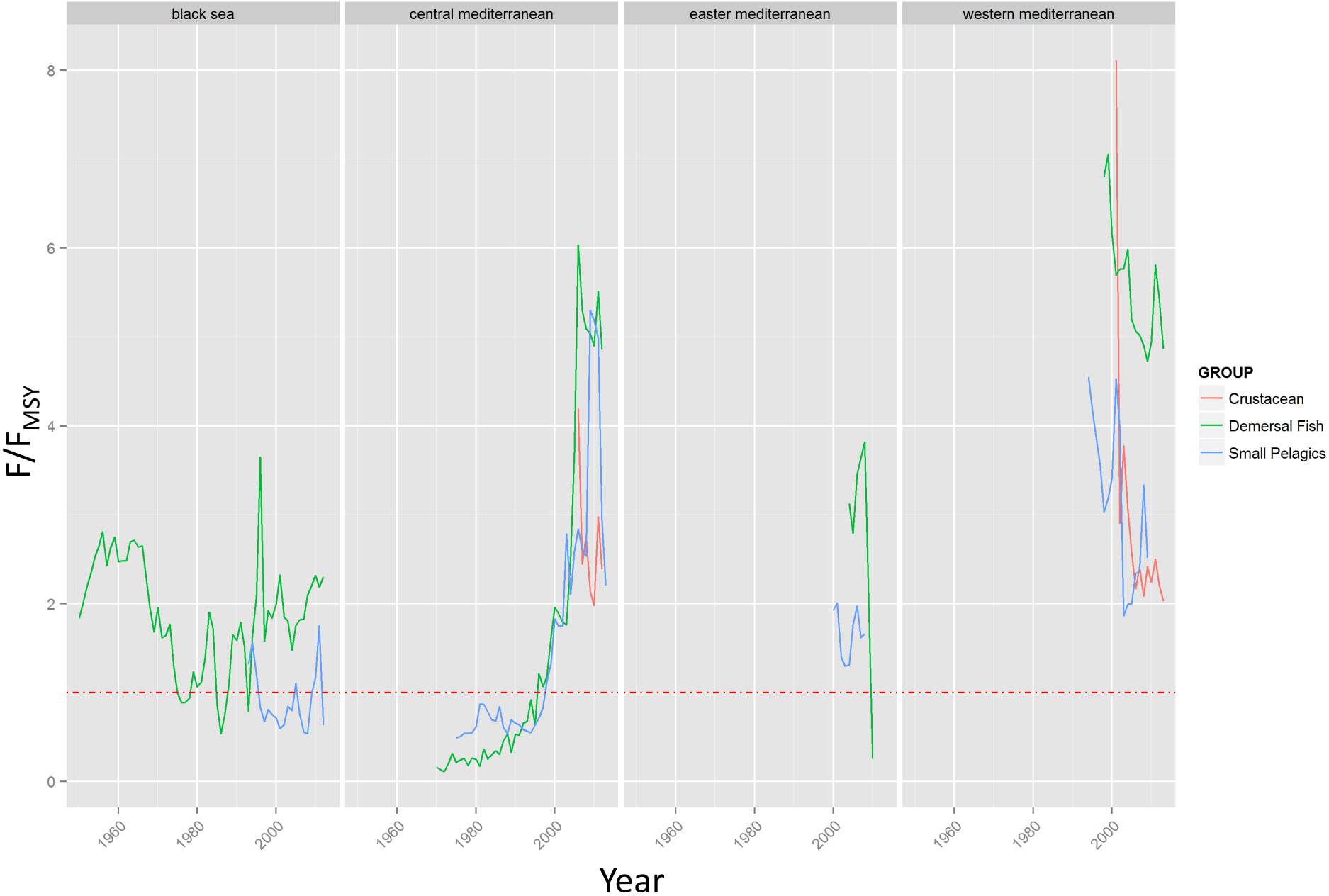
Stock status compared to F_{MSY} for crustaceans



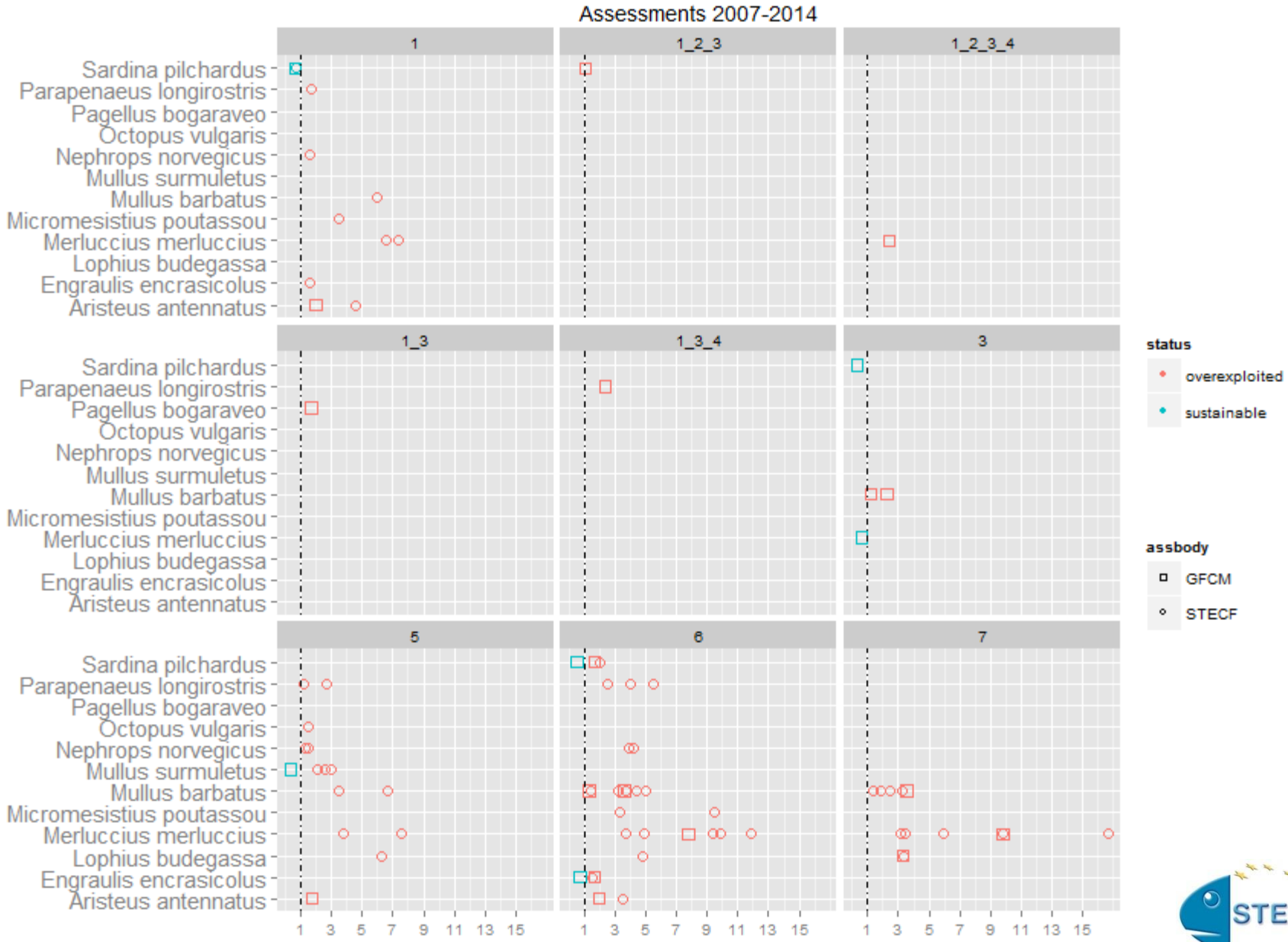
Stock status compared to F_{MSY} for demersal



Stock status compared to F_{MSY} by macro-area

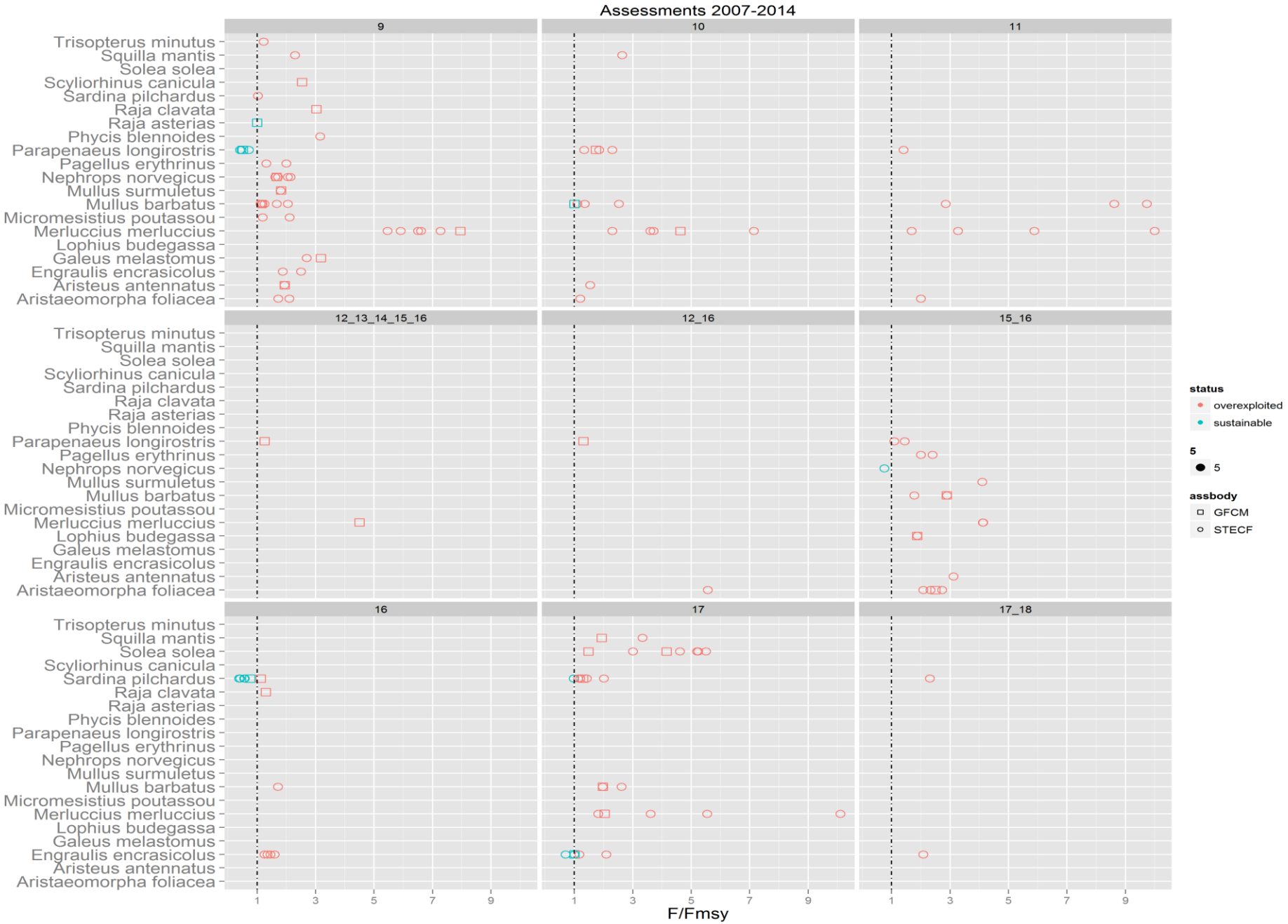


Stock status compared to F_{MSY} by GSA

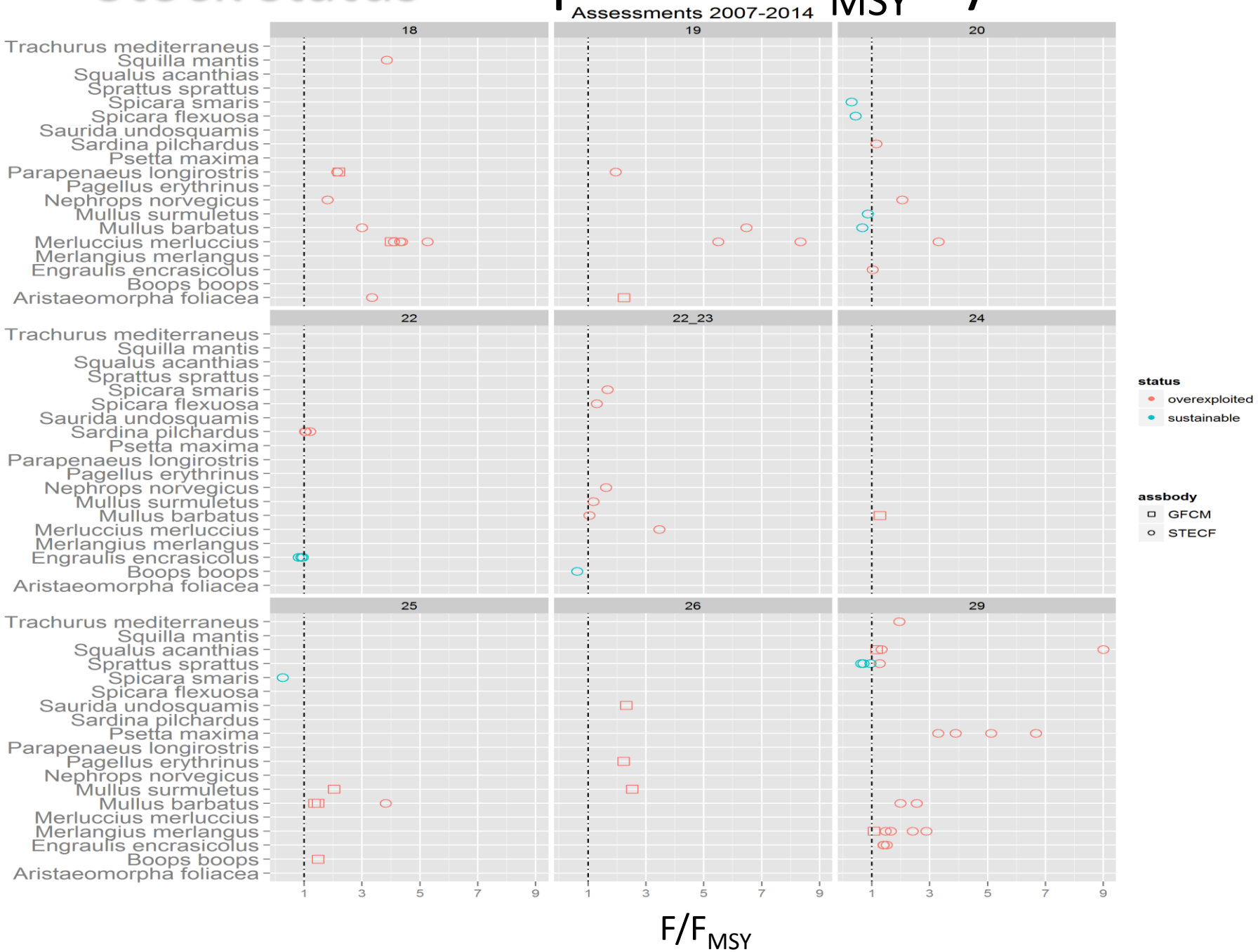


F/F_{MSY}

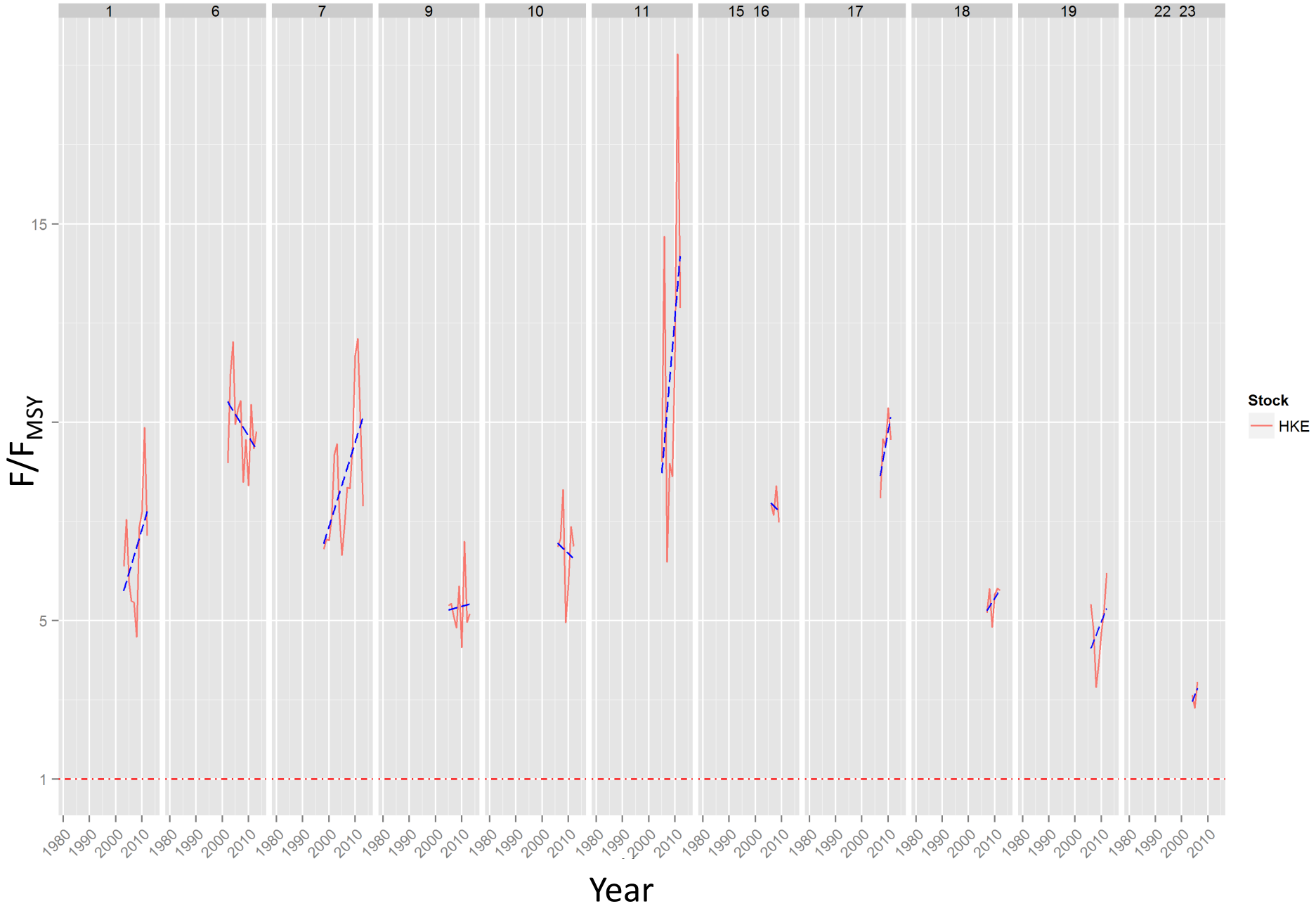
Stock status compared to F_{MSY} by GSA



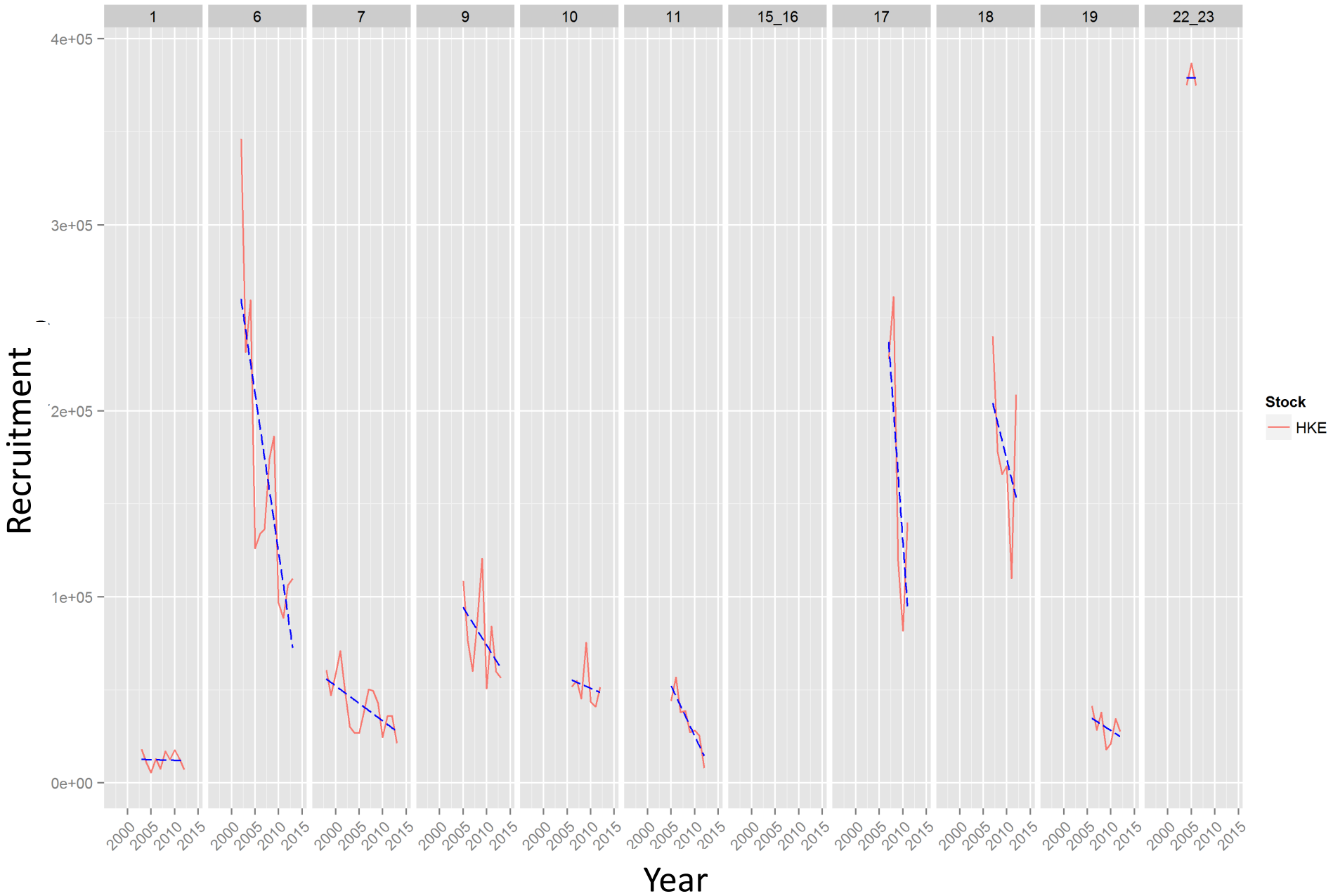
Stock status compared to F_{MSY} by GSA



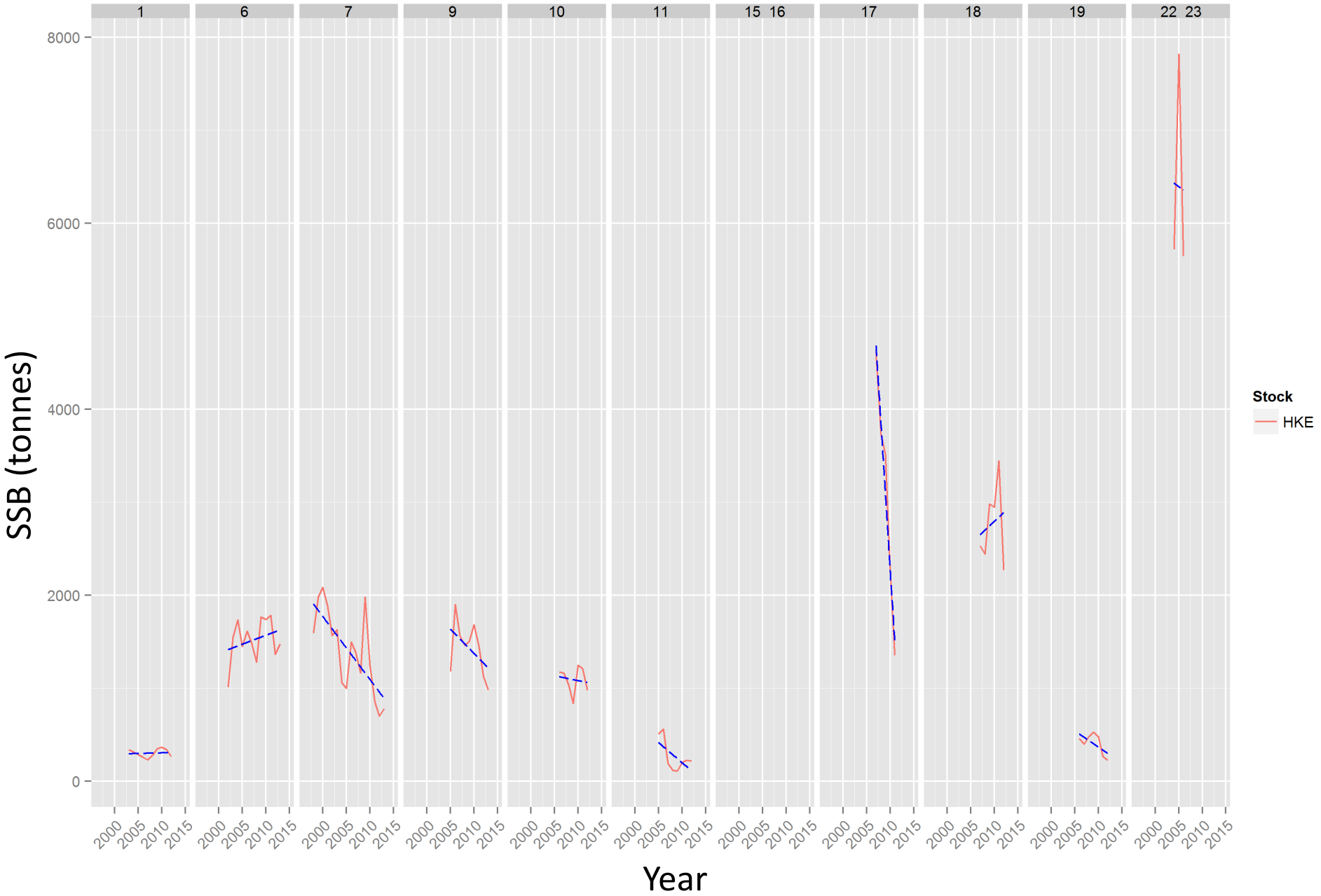
Stock status compared to F_{MSY} for hake



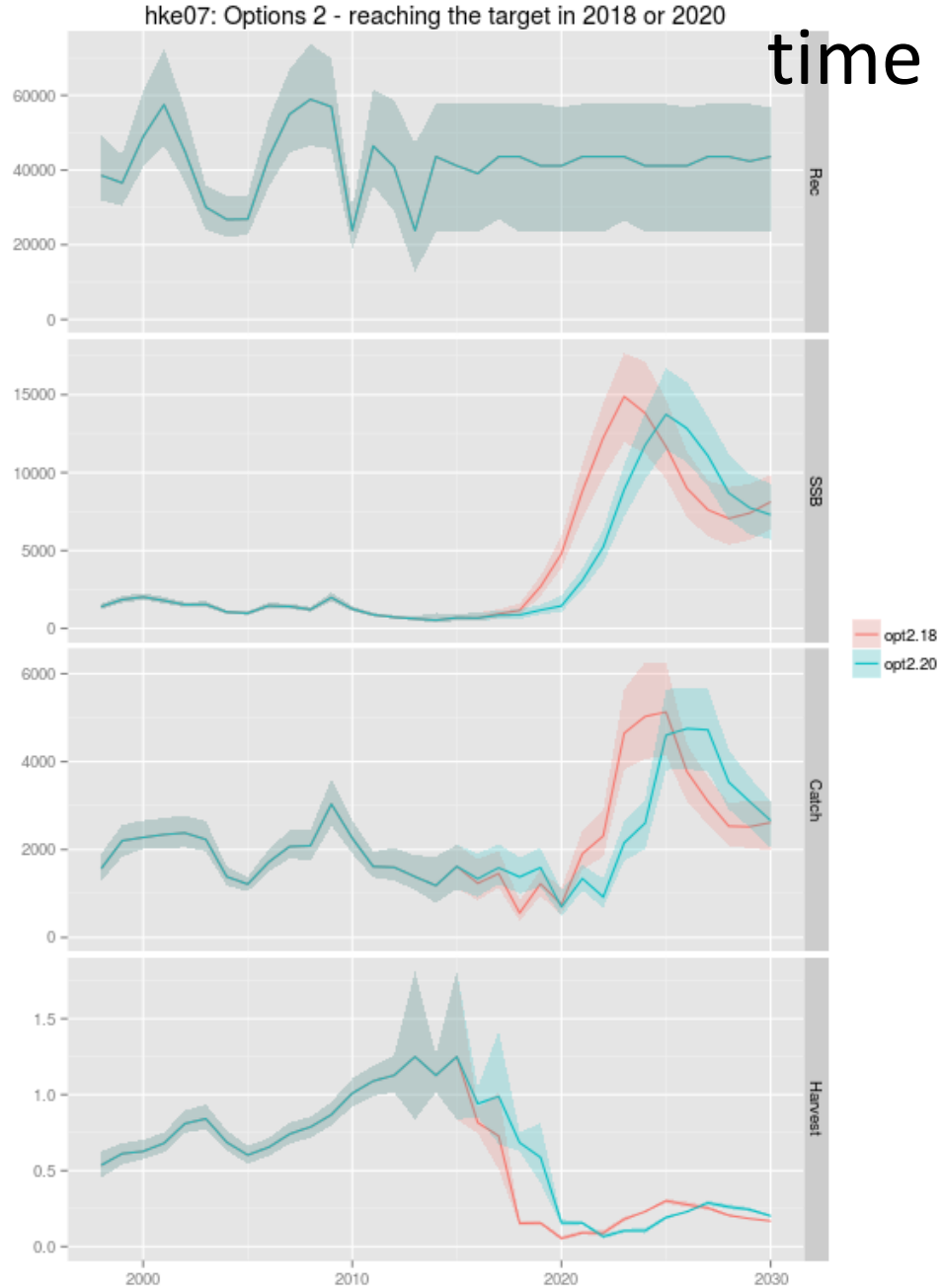
Recruitment trends for Hake

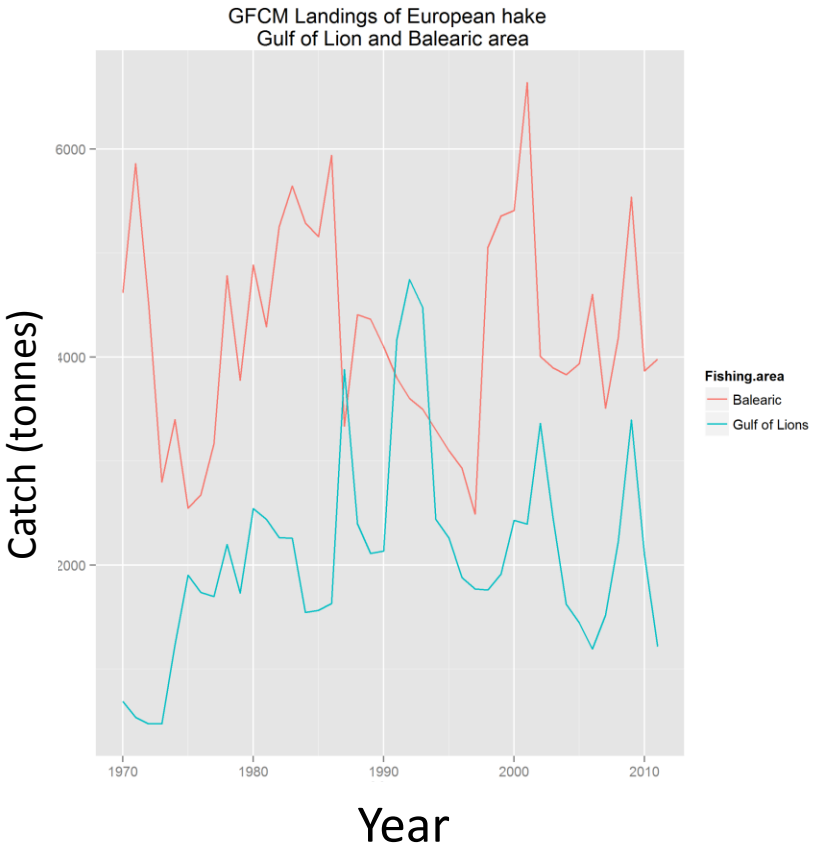


Spawning Stock Biomass trends for Hake



Management strategy evaluation and historical time series





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

STECF assessments

Species	GSA	Year	F/F_{MSY}	Effort reduction
Anchovy	16	2011	1.5	0.31
Anchovy	17	2012	2.1	0.52
Anchovy	29	2013	1.4	0.29
Anchovy	17_18	2013	2.1	0.52
Black-bellied anglerfish	5	2011	6.3	0.84
Black-bellied anglerfish	6	2011	4.8	0.79
Black-bellied anglerfish	7	2011	3.3	0.70
Black-bellied anglerfish	15_16	2011	1.9	0.47
Blue and red shrimp	6	2011	3.5	0.71
Blue and red shrimp	10	2011	1.5	0.35
Blue and red shrimp	15_16	2012	3.1	0.68
Blue whiting	1	2011	3.5	0.71
Blue whiting	6	2013	9.5	0.89
Blue whiting	9	2013	1.2	0.16
Common pandora	15_16	2011	2.4	0.58
Deepwater pink shrimp	1	2012	1.7	0.39

Species	GSA	Year	F/F_{MSY}	Effort reduction
Deepwater pink shrimp	5	2012	1.2	0.19
Deepwater pink shrimp	6	2012	5.5	0.82
Deepwater pink shrimp	10	2012	1.3	0.25
Deepwater pink shrimp	11	2011	1.4	0.29
Deepwater pink shrimp	18	2011	2.1	0.53
Deepwater pink shrimp	19	2012	2.0	0.49
Giant red shrimp	9	2012	1.7	0.42
Giant red shrimp	10	2011	1.2	0.17
Giant red shrimp	18	2011	3.3	0.70
Greater forkbeard	9	2011	3.2	0.68
Hake	1	2012	7.3	0.86
Hake	6	2013	9.9	0.90
Hake	7	2013	9.8	0.90
Hake	9	2013	5.9	0.83
Hake	10	2012	7.1	0.86
Hake	11	2011	10.0	0.90

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

STECF assessments

Species	GSA	Year	F/F_{MSY}	Effort reduction
Hake	17	2013	3.6	0.72
Hake	18	2012	5.3	0.81
Hake	19	2012	5.5	0.82
Horse mackrel	29	2013	2.0	0.49
Norway lobster	1	2011	1.6	0.38
Norway lobster	5	2011	1.3	0.24
Norway lobster	6	2013	3.9	0.75
Norway lobster	9	2013	2.1	0.51
Norway lobster	18	2011	1.8	0.44
Norway lobster	15_16	2012	0.8	
Octopus	5	2011	1.5	0.32
Poor cod	9	2011	1.2	0.18
Red mullet	5	2012	6.6	0.85
Red mullet	6	2013	3.3	0.69
Red mullet	7	2013	3.2	0.69
Red mullet	9	2013	1.2	0.15
Spurdog	29	2013	9.0	0.89
Striped red mullet	5	2012	3.0	0.66
Striped red mullet	15_16	2012	4.1	0.76

Species	GSA	Year	F/F_{MSY}	Effort reduction
Red mullet	11	2012	9.7	0.90
Red mullet	17	2012	2.6	0.62
Red mullet	18	2011	3.0	0.67
Red mullet	19	2011	6.5	0.85
Red mullet	29	2013	2.5	0.60
Red mullet	15_16	2011	2.9	0.65
Sardine	1	2012	< 1	
Sardine	9	2012	> 1	not quantified
Sardine	16	2011	0.4	
Sardine	17	2012	2.0	0.50
Sardine	17_18	2013	2.3	0.57
Sole	17	2012	3.0	0.67
Spottail mantis shrimp	10	2011	2.6	0.62
Spottail mantis shrimp	17	2011	3.3	0.70
Spottail mantis shrimp	18	2011	3.9	0.74
Sprat	29	2013	0.7	
Turbot	29	2013	5.1	0.80
Whiting	29	2013	2.9	0.65

Around 93% of analysed Mediterranean stocks by STECF are estimated to be exploited not in accordance with F_{MSY} in 2011-2013

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

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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

Around 86 % of analysed Mediterranean stocks by GFCM are estimated to be exploited not in accordance with F_{MSY} in 2011-2013

Status of Mediterranean and Black Sea marine stocks

State of the art

- There are no major differences in the status of the stocks between areas

- For many demersal fish in several GSA's F/F_{MSY} is still increasing over time

- Between functional groups, demersal fish are showing the worse stock status compared to demersal crustacean and pelagic stocks

- Recruitment and SSB of several stocks are showing a decreasing trend during the last years

- Effort reduction have been, so far, insufficient to reduce F; observed reduction in nominal effort did not result in a decline in F for demersal fish, while for crustaceans there are signs of lowering F

- An average effort reduction between 50% and 60% is necessary to reach F_{MSY}

- Recovering potential of Mediterranean stock is still very high

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 Mediterranean 25 separate stock assessments (1 for each GSA) are needed, which assume that there are no links between hake 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 are needed to validate the results of STOCKMED and redefine stock units

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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 reduction in effort or/and catches
- Implement a TAC system, via escapement strategy, for small pelagics
- Implement management plans based on robust scientific basis and tested with a Management Strategy Evaluation
- Reduce F for all hake stocks as a matter of urgency
- Collate historical time series to be used in stock assessment

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