European Commission

JRC SCIENTIFIC AND POLICY REPORTS

Scientific, Technical and Economic Committee for Fisheries (STECF)

Evaluation/scoping of Management plans

Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007)

(STECF-14-04)

Edited by Ernesto Jardim & Arina Motova

This report was reviewed by the STECF during its' 45th plenary meeting held from 24 to 28 March 2014 in Brussels, Belgium

Report EUR 26613 EN

Joint Research Centre

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JRC 89793

EUR 26613 EN

ISBN 978-92-79-37845-4

ISSN 1831-9424

doi10.2788/60247

Luxembourg: Publications Office of the European Union, 2014

How to cite this report:

Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation/scoping of Management plans - Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007)(STECF-14-04). 2014. Publications Office of the European Union, Luxembourg, EUR 26613 EN, JRC 89793, 50 pp.

Printed in Italy

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Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007) (STECF-14-04)

THIS REPORT WAS REVIEWED DURING THE PLENARY MEETING HELD IN BRUSSELS, BELGIUM, 24-28 MARCH 2014

Background

Article 6 of the Common Fisheries Policy basic regulation introduces the concept of multi-annual / long term management plans for stocks within safe biological limits. These plans have to be regularly assessed against their objectives with regard to their effectiveness, utility, efficiency (cost-effectiveness) and sustainability taking account of all biological, fisheries, ecological, economic and social impact.

Article 11 of the Western Channel sole plan provides for the Commission to seek scientific advice from STECF on the rate of progress towards the targets of the management plan in the third year of its application and each third successive year thereafter. The first evaluation of the Western Channel sole plan started in 2009 via an evaluation report (Annex, item 1) which was followed by an Impact Assessment in 2010 (Annex, items 3 and 4).

During this process, STECF's 33rd Plenary (Annex, item 2) had noted that the short data series (especially economic ones) prevented the development of any comprehensive analysis: 'The timing of the review, at around 3 years after the plans were implemented, meant that only very limited analysis was possible. STECF notes that a period 48 months after implementation would be required for 3 years of biological data and 60 months for 3 years of economic data to be available'.

Now that seven years have elapsed since the inception of this plan, the Commission wishes to carry out again the evaluation process to assess the performance of the management of this fishery. The following step would normally be to assess options for improving it where the evaluation signals areas of weakness. However, the Commission is also considering the need to evolve towards mixed fisheries or multi-species management plans in line with the new basic regulation.

It is therefore suitable at this time to examine the feasibility of a mixed-fisheries or multi-species fishery plan for the Western Channel. To this end, it seems necessary to assess if the state of knowledge and the data available is sufficient to proceed. If not, it would be necessary to identify the needs in terms of data and/or research that must be covered for the required assessment of management options to take place.

Request to the STECF

STECF is requested to review the three reports of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

Observations of the STECF

STECF notes that since the introduction of the plan, a reduction in fishing mortality (F is currently less than F_{MSY}) and an increase in SSB to sustainable levels (SSB>SSBtrigger) have been observed, in line with the objectives of the plan.

STECF notes that the majority of fishing effort (expressed as kW days fishing) deployed in the Western Channel is effort that is not being regulated by the Management plan for sole. The two regulated gear groups, beam trawls and the static nets, account for only a relatively small proportion (about 15%) of the overall deployed effort.

STECF further notes that effort prescribed under the plan has not been restrictive for any fleets, indicating that there may be the potential to increase fishing mortality above current rates if the TAC does not restrict catches. Although the likely effects of a reduction in the effort ceiling to levels that would restrict fishing effort are difficult to predict, it is possible that vessels will return inshore where fuel costs are lower and sole abundance is higher. If this were to occur, catches of undersize plaice may also increase due to increased effort in nursery areas.

Effort in kWdays as well as vessel numbers has been reduced in most of the fleets fishing in VIIe. The UK beam trawl fleet which targets sole, has been reduced through decommissioning. However, for the other fleets operating in VIIe, it is unlikely that the observed reduction in kW days and vessel numbers has been in response to the plan as they have continued to fish with unrestricted effort. Furthermore, they have only low dependence on VIIe sole and exploit resources in adjacent sea areas. For the French fleet, the decrease in kW days is mainly due to a decrease in the number of bottom trawlers fishing in VIIe.

STECF notes that the fleets exploiting sole have only been affected marginally in terms of income, either because their dependence on sole is low (trawlers, netters) or because they have been able to consolidate quota on to a smaller number of vessels and change their spatial pattern of exploitation to utilize other resources available in the area (beam trawlers).

Prices for sole and other species exploited by the fisheries have improved. Increases in prices have been important in a number of stocks. For example cuttlefish prices are now higher than previously, with landings having declined due to a decrease in stock biomass, coincident with the implementation of the sole management plan. In contrast scallops have become more abundant in the area and now represent an important component of the catches. Lastly, angler fish have decreased in abundance as assessed by fisheries independent surveys, but landings and LPUE have increased due to a spatial shift in the beam trawl fleet.

Catch stability (15% TAC constraint) has been invoked occasionally in setting the TAC for VIIe sole, however the differences between the TACs with or without any constraint were minimal. Nevertheless the constraint has increased stability in fishing opportunities by its mere presence in the plan, and may have simplified investment decisions and credit applications, ensuring continued investment and employment in the UK beam trawl fleet at least.

Conclusions of the STECF

The EWG addressed the terms of reference to the extent possible with the available resources, data and information. Nevertheless, the findings presented in the report provide the best evaluation possible at this time. STECF endorses the findings presented in the report and draws the following conclusions:

- There is little doubt that the fishery for sole has been exploited at a rate less than F_{MSY} since 2009 with biomass having been restored to a level exceeding MSY $_{Btrigger}$ prior to the formal implementation of the plan in 2006.
- The TAC restriction is the major management measure currently restricting catches of sole in the area and hence is the only effective element of the plan.
- The TAC has been consistently overshot since 2004 and although compliance regarding area misreporting of catches recently has improved, there still remains scope for further improvement regarding quota overshooting.
- More highly-disaggregated economic data are required to assess the socio-economic consequences of the management plan appropriately. A major problem is that the DCF data are aggregated by national fleets and supra-regions. It thus aggregates vessels fishing for sole in VIIe with vessels not fishing for sole (or fishing for other sole stocks) but belonging to the same DCF fleet category.
- Given the multispecies nature of all the fisheries in the area, STECF considers that efficient management of the fisheries would best be achieved through the development and implementation of a regional multi-annual fishery management plan.
- As the TACs prescribed by the plan appear to have resulted in fishing mortalities in line with the plan's objectives (F<=0.27), there appears to be no need to revise the provisions for calculating TACs.
- Given that the overall effort ceilings prescribed by the plan have not been restrictive, managers may wish to consider whether such provisions need to be retained or revised.
- Management according to the plan is entirely reliant on the availability of a suitable stock assessment to set appropriate quotas. Although currently such an assessment exists, this has not always been the case. STECF suggests that managers consider whether some form of procedure to set TAC in the absence of an acceptable assessment should be included in the plan.

REPORT TO THE STECF

EXPERT WORKING GROUP ON
Evaluation/scoping of Management plans
Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007)
(EWG-14-03)

Varese, Italy, 10-14March 2014

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

1 EXECUTIVE SUMMARY

STECF was asked to carry out the evaluation of the management plan of Western Channel sole and explore the potential for implementing a multispecies of mixed fisheries management plan.

The EWG addressed the terms of reference to the extent possible with the available resources, data and information. Nevertheless, the findings presented in the report provide the best evaluation possible at this time.

The evaluation was carried out following the protocol laid out by SGMOS-10-06a as much as possible. Quantitative analysis were updated from previous evaluations and new analysis were included whenever needed to clarify or support the evaluation.

The first evaluation of the Western Channel sole plan started in 2009 via an evaluation report (STECF, 2009) which was followed by an Impact Assessment in 2010 (STECF, 2010a). During this process, STECF's 33rd Plenary (STECF, 2010b) had noted that the short data series (especially economic ones) prevented the development of any comprehensive analysis: 'The timing of the review, at around 3 years after the plans were implemented, meant that only very limited analysis was possible.

At the moment the knowledge based is larger and a more thorough analysis could be performed.

No formal comparison between the management plan and no-management plan scenarios were carried out in this evaluation. As such, the evaluation of the added value of the plan was mostly qualitatively. The EWG considered that:

- Fishing mortality on sole has been reduced considerably through TAC reductions from 2006 to 2010.
- The recovery phase of the plan provided the opportunity to decommission 8 vessels from the UK fleet with the express intent to improve the economic performance of the remaining vessel.
- Price stability and constraint variation of sole quota from one year to another have significantly improved the investment opportunities in the fleets exploiting sole.
- The management plan development focused greater international effort in the biological understanding and assessment procedure at the heart of the management plan improving our ability to manage the stock, with the added benefit of increasing the cooperation and trust between science and industry.
- The spatial shift of the UK beam trawl fleet has improved the selectivity pattern for sole and plaice and the gear improvements supported by the UK government have reduced by catch of other species in the fishery.

Additionally the EWG concluded that:

- The fishery for sole has been exploited to MSY criteria since 2009 ($F < F_{MSY}$), with biomass having been restored to precautionary levels (based on $MSY_{Btrigger}$) prior to the formal implementation of the plan in 2006.
- TAC restrictions in conjunction with better compliance were the management measures that currently restrict catches of sole in the area.
- Higher disaggregation levels for the economic data are necessary in order to assess the socio-

economic consequences of the management plan appropriately.

- There are currently no other plans in operation in the area.But due to the multispecies nature of the fisheries having amultispecies or mixed fisheries plan would make management more efficient and avoid problems of TAC unbalance.
- There is currently no need to revise the plan as the plan is achieving the desired objectives, however a decision on whether to retain the complex procedure in maintaining effort restrictions that appear to be unnecessary / unrestrictive for all fleets could be reconsidered.
- Finally, management according to the plan is entirely reliant on the availability of a suitable stock assessment to set appropriate quotas. Some form of procedure to set TAC in the absence of an assessment should be formally included in the plan.

2 INTRODUCTION

Article 6 of the Common Fisheries Policy basic regulation introduces the concept of multi-annual / long term management plans for stocks within safe biological limits. These plans have to be regularly assessed against their objectives with regard to their effectiveness, utility, efficiency (cost-effectiveness) and sustainability taking account of all biological, fisheries, ecological, economic and social impact.

Article 11 of the Western Channel sole plan provides for the Commission to seek scientific advice from STECF on the rate of progress towards the targets of the management plan in the third year of its application and each third successive year thereafter. The first evaluation of the Western Channel sole plan started in 2009 via an evaluation report (Annex, item 1) which was followed by an Impact Assessment in 2010 (Annex, items 3 and 4). During this process, STECF's 33rd Plenary (Annex, item 2) had noted that the short data series (especially economic ones) prevented the development of any comprehensive analysis: 'The timing of the review, at around 3 years after the plans were implemented, meant that only very limited analysis was possible. STECF notes that a period 48 months after implementation would be required for 3 years of biological data and 60 months for 3 years of economic data to be available'.

Now that seven years have elapsed since the inception of this plan, the Commission wishes to carry out again the evaluation process to assess the performance of the management of this fishery. The following step would normally be to assess options for improving it where the evaluation signals areas of weakness. However, the Commission is also considering the need to evolve towards mixed fisheries or multi-species management plans in line with the new basic regulation.

It is therefore suitable at this time to examine the feasibility of a mixed-fisheries or multi-species fishery plan for the Western Channel. To this end, it seems necessary to assess if the state of knowledge and the data available is sufficient to proceed. If not, it would be necessary to identify the needs in terms of data and/or research that must be covered for the required assessment of management options to take place.

2.1 Terms of Reference for EWG-14-03

1 - Ex-post evaluation of the plan. Evaluate the multi-annual plan for the sustainable exploitation of the stock of sole in the Western Channel (Council Regulation n° 509/2007) according to the procedure described by SGMOS 10-01 (Annex item 5, see Appendix I, pages 30-33) and adopted by PLEN-10-

01 (Annex item 2).

2 - Current scientific knowledge. Filling data or research gaps for a possible future mixed-fisheries or multi-species plan

- Provide an overview of the current scientific knowledge and data availability regarding mixed-fisheries or multi-species management for the fisheries/stocks concerned by the present request. To this end, the STECF is in particular requested to:

- Identify the metiers (or higher aggregation level if metiers information is not available) exploiting the Western Channel sole;
- Identify the catch composition of each metier. Discards figures should be taken into account in this analysis;
- Identify the economic dependence of the metiers on the species caught in this mixed fishery.
- Identify possible data or research gaps that must be filled in order to proceed with an assessment of options for a possible future mixed-fisheries or multi-species management plan. This is to assist the Commission in deciding whether or not to move on the Impact Assessment phase for this plan.

3- Ex-ante overview for a possible mixed fisheries or multispecies plan. In case STECF considers that there is sufficient scientific basis to proceed with work towards a mixed-fisheries or a multi-species plan, STECF is requested to provide an initial overview based on available science and data on the following aspects:

- The stocks potentially concerned
- The suitable geographical scope for the possible management plan taking into account plans currently envisaged or developed
- What could be the driver/choke species for a future plan
- Identify the metiers (or fleets segments if not possible) possibly concerned
- Management measures that should be considered

2.2 Addressing the terms of reference

The evaluation was carried out following the protocol layed out by SGMOS-10-06a as much as possible. Quantitative analysis were updated from previous evaluations (REF) and new analysis were included whenever needed to clarify or support the evaluation.

3 DESIGN ISSUES

The WC-sole management plan was designed to reduce fishing mortality to sustainable levels and increase the biomass to levels where the fluctuations caused by variability in recruitment would prevent SSB falling below levels where stock dynamics were unknown. The reasons for this were that the stock structure and the recruitment dynamics were unknown and no convincing link between stock size and subsequent recruitment could be established. Fitting of various stock recruitment models was carried out but temporal auto correlation in recruitment likely caused by environmental fluctuations

precluded the elucidation of a tangible link between stock size and recruitment. Consequently, investigations focused on simulating SSB at various levels of F_{max} using geometric mean recruitment taken over various temporal phases to see if such levels of fishing mortality would take the SSB out of the region of known stock dynamics (below historically low levels of SSB from which subsequent recoveries had been documented.

In addition it is acknowledged that this fishery is very much a multispecies fishery relying heavily on the catches of other species to remain economically viable. At the time of plan development plaice was seen as the major choke species in the fishery and in fact the plan was developed as a sole and plaice combined plan, ensuring that the reduction of fishing mortality recommended was in line with the sustainable exploitation of plaice. The conclusions were that plaice, as assessed at the time, were slightly less susceptible to fishing effort and would require higher effort to sustain maximal yields. The recommended fishing mortality for sole (F_{MSY} = 0.27) was determined on the basis of choosing the lowest fishing mortality that would sustainably attain 90% of the maximum yield for both species.

Having determined the appropriate target levels of F, various scenarios of F reductions were investigated to determine the likely impact on yields as well as the risk of further reducing SSB in light of the poor state of the stock estimated by the 2007 stock assessment. It was concluded that a one step reduction in F to the target level would seriously affect the viability of the fleet, but that smaller stepped reduction in F held over a 3-year period each time would allow the fleet to adapt while the resultant increases in SSB would ameliorate the effects on landings during future reductions in F, without significantly increasing the risk to the stock.

The following management plan was adopted for sole, and although the decision on target Fs included considerations on plaice these were never formally adopted in the legislative plan.

The management measures implemented were mainly the TAC, but effort regulation was added to the plan to avoid an expansion of the fishery as a precautionary measure as it was assessed that the stock was exploited above sustainable levels. Various exemptions from the effort control were argued for by national governments leaving only the static gear fleet (mainly the French gillnetters) and the beam trawl fleet (mainly UK) with effort restrictions.

3.1 Specific Issues

Effort regulation in this plan seems to have been implemented mainly as a defacto attempt at instigating effort restrictions in the area, as opposed to attempting to attain a specific plan objective. It is clear from the data to date (Table 1) that effort control has been ineffective in reducing fishing mortality since no regulated fleet is restricted by the current effort allocation and because effort regulation only constraints static gears and beam-trawlers. The otter trawl fleets (mainly French and some UK otter trawlers) are currently not restricted by effort regulation because sole is considered a by-catch species making up less than 2% of the income of the boats. Yet according to STECF data the fleets do contribute around 30% of the landings due to the large number of vessels operating in the area. However, of the more than 500 French otter trawlers fishing in VIIe only 50 vessels caught more than one tone of VII e annually, averaged over 2009-2011.

The success in achieving the plan objectives is attributed to the TAC restrictions in conjunction with an improved enforcement regime by the UK authorities.It is suggested that the current effort regulation represents an additional burden on member states as well as additional costs to individual boats some

of which have had to purchase days at sea from boats only marginally involved in the fishery. Furthermore the specifics of the UK fishery are such that days at sea if restrictive would encourage vessels to return to areas of higher sole concentrations, increase plaice discarding and reduce the overall income of the fleet because of reduced catches of other lower pressure stocks.

The management plan is reliant on an accurate stock assessment. Since the introduction of the management plan there has been a period where the assessment has been considered unrepresentative of stock dynamics by ICES. The management plan currently contains no method to proceed in the absence of an accurate assessment. Furthermore although the current assessment is suitable to assess the status of the stock a small but persistent retrospective bias (Figure 1) significantly affects the forecast procedure which in conjunction with ICES interpretation of MSY reference points as limit reference points has led to a persistent under exploitation of the stock ($F_{09\text{-}12}$) by 10 to 15% despite overshooting the TAC.

Awarding of an additional 5% quota by the commission in return for experimenting with fully documented fisheries (2012-2013) without considering the effects on the management plan has the potential to undermine the effectiveness of the plan. Discard rates have been consistently shown to be well below the 5% level by STECF so that this has the potential to increase fishing mortality. This has not been a major effect on F in the plan because the uptake has been small in the UK fleet and because the methodology for setting the TAC is sufficiently inaccurate to compensate for the small up-take. However, future decisions with regards to changing selectivity and changes to fishing mortality should be explicitly examined in relation to the effect on the management plan.

The direct effect of the catch quota system to be implemented in 2016 for demersal species on sole is likely to minimal since discarding in sole is low. However given that all fisheries exploiting sole are actually part of multi-species fisheries it is much more difficult to assess the by-catch component of other species which may have the potential to alter fleet patterns in order to maximize profits so there may be some indirect effects that are currently difficult to predict.

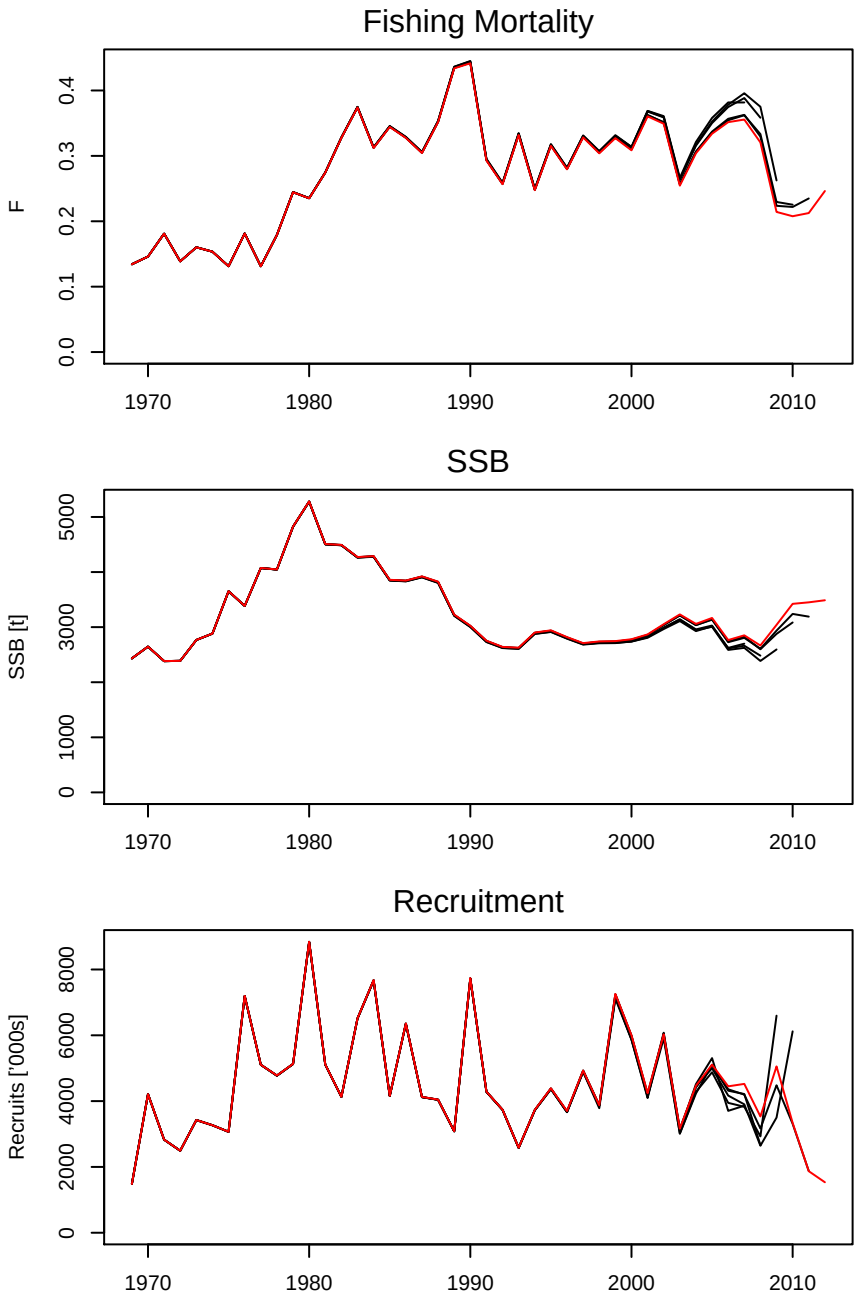

Figure 1. Retrospective analysis from the 2013 assessment indicating that despite the new assessment methodology a retrospective bias remains apparent in the assessment. This is small, but causes significant difficulties in the forecast projections used to manage the fishery.

4 ENFORCEMENT AND COMPLIANCE

Enforcement and compliance have been problematic in this fishery historically. Prior to 2005 the significant divergence between the TAC and the best estimate of landings calculated by the ICES working group arose largely from area misreporting by the UK beam trawl fleet. In 2005 these catches were formally included in the assessment and lead to a revised assessment on the basis of which it was possible to set more reasonable TAC for the stock resulting in a better science and a consequential increase in compliance (Figure 2). Area misreporting continued in the period 2005 to 2008 but due to increased enforcement at significantly lower levels.

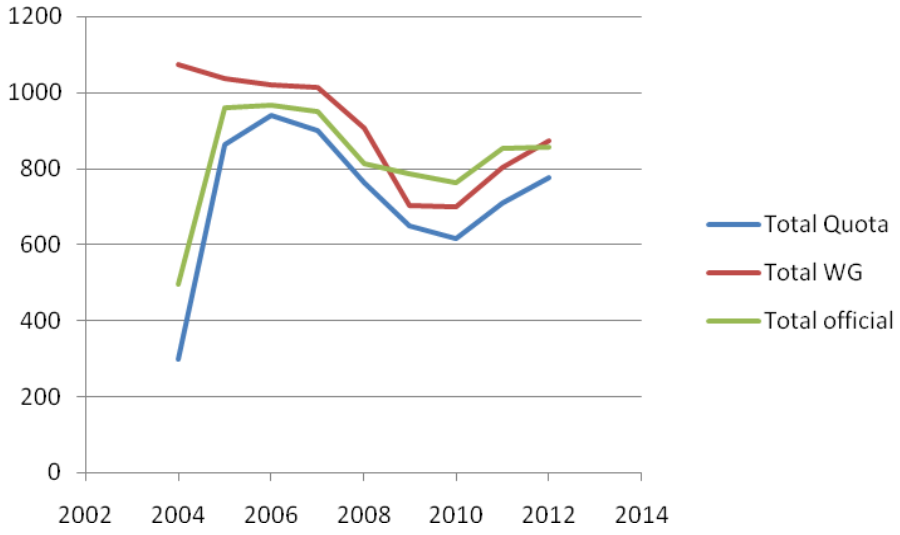

Figure 2. TAC, ICES WG best estimates of landings and official landings statistics.

Since the implementation of the single area license scheme by the UK (operational for the entire year from 2009 onwards) landings of WC-sole by UK beam trawlers have been reduced in line with quota allocations (see also 4.1). Without the ability to area misreport the pressure to under report has increased and a number of cases have been brought to court. The total amount of illegal landings by the UK sector however is small, suggesting overall compliance in the UK fleet is now thought to be very good.

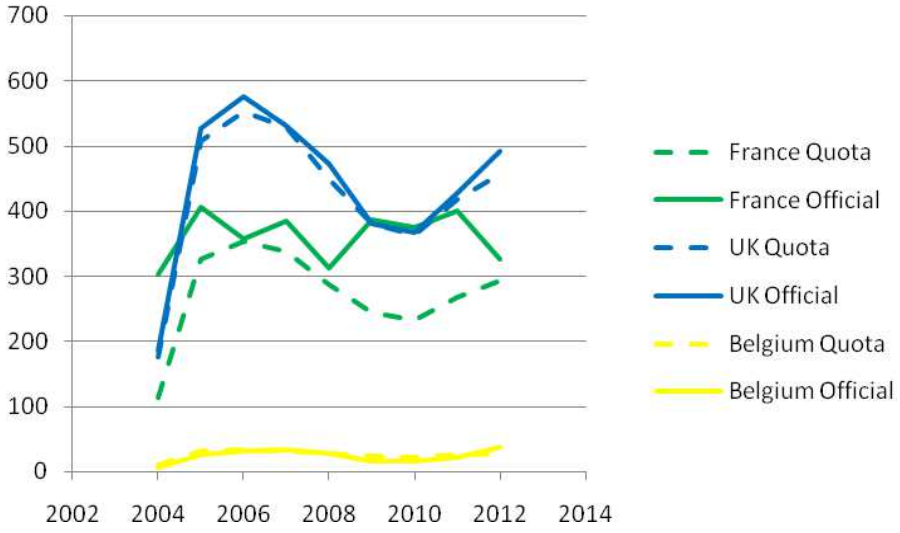

Figure 3. Official landing statistics and initial quota allocation by country

Despite a greater enforcement and monitoring of quotas since 2008 in France with an increasing role of POs in the monitoring, official landing statistics indicate that France has overshot the national quota of sole in VIIe particularly after 2008 (Figure 3), equaling the UK landings in 09-11. WG estimates of landings are lower than the sum of all official landing statistics, suggesting the issue is not quite as serious as indicated here. However the issue must be addressed. Belgian landings have been largely unaffected by the management plan since the inter-annual variability in landings appears to be larger

than the decline in TAC. It is not possible to assess the compliance of Belgian and Irish fleets, because their TACs are sufficiently small that it would not be possible to differentiate divergence from the official TAC from quota swaps and the latter information is not available to this group.

As well as the TAC restrictions the management plan includes a clause to restrict effort in days at sea at the national level, leaving it up to the member state to decide on how to implement this at the level of the vessel. Effort data from the STECF effort meeting indicates that the effort regulation is not restrictive for any of the regulated gears at the national level (Table 1).

Table 1. Effort in sea days by gear type and percentage used for regulated gears 3a (beam trawlers) and 3b (static netters).

REG AREA COD	REG GEAR COD	SPECON	COUNTRY		2004	2005	2006	2007	2008	2009	2010	2011	2012
7e	3a	none	BEL	Vessel	57	67	58	55	49	44	31	33	37
				max-days		16080	12528	10560	9408	8448	5084	5412	6068
				days-used			670	810	542	174	342	521	534
				% used			0.05	0.08	0.06	0.02	0.07	0.10	0.09
7e	3a	none	ENG	Vessel	62	53	51	53	47	43	38	44	43
				max-days		12720	11016	10176	9024	8256	6232	9064*	7052
				days-used	6026	5960	6065	6167	6175	4769	5070	5687	6675
				% used		0.47	0.55	0.61	0.68	0.58	0.81	0.63*	0.95
7e	3a	none	FRA	Vessel	12	13	20	15	11	10	13	8	6
				max-days							2132	1312	984
				days-used							1271	914	606
				% used							0.60	0.70	0.62
7e	3a	none	GBJ	Vessel	4	2							
				max-days		480							
				days-used	333	174							
				% used		0.36							
7e	**3a Total**	**none**		**Vessel**	**135**	**135**	**129**	**123**	**107**	**97**	**82**	**85**	**86**
				max-days	**0**	**29280**	**23544**	**20736**	**18432**	**16704**	**13448**	**15788**	**14104**
				days-used	**6359**	**6134**	**6735**	**6977**	**6717**	**4943**	**6683**	**7122**	**7815**
				% used							**0.50**	**0.45**	**0.55**
7e	3b	none	ENG	Vessel	21	17	17	14	12	13	12	12	11
				max-days		4080	3672	2688	2304	2496	1968	1968	1804
				days-used	1211	1047	844	584	566	646	618	752	721
				% used		0.26	0.23	0.22	0.25	0.26	0.31	0.38	0.40
7e	3b	none	FRA	Vessel	68	62	77	48	34	34	22	22	25
				max-days							3608	3608	4100
				days-used							1830	1780	1951
				% used							0.51	0.49	0.48
7e	**3b Total**	**none**		**Vessel**	**89**	**79**	**94**	**62**	**46**	**47**	**34**	**34**	**36**
				max-days	**0**	**4080**	**3672**	**2688**	**2304**	**2496**	**5576**	**5576**	**5904**
				days-used	**1211**	**1047**	**844**	**584**	**566**	**646**	**2448**	**2532**	**2672**
				% used							0.44	0.45	0.45
7e	none	none	BEL	Vessel	3	6	7	6	12	28	23	20	22
				days-used						20			
7e	none	none	DEU	Vessel	4	3	3		2	1	3	1	2
				days-used						4	34	12	46
7e	none	none	DNK	Vessel	1	4	8	1	1	1	1		1
				days-used	2	40	123	32	27	6	30		24
7e	none	none	ENG	Vessel	178	162	170	175	174	156	154	158	158
				days-used	19227	19410	18298	18693	16610	17383	17797	18402	17213
7e	none	none	ESP	Vessel									5
				days-used									135
7e	none	none	FRA	Vessel	837	943	1114	1259	868	1022	688	654	642
				days-used							52225	54427	51683
7e	none	none	GBG	Vessel	1	2	4	5	4	3	3	2	3
				days-used	226	172	152	245	100	121	277	180	229
7e	none	none	GBJ	Vessel	1	1	1	1	1	1	2	3	1
				days-used	2	27	88	139	117	140	173	191	62
7e	none	none	IOM	Vessel			1	1	2				1
				days-used			53	3	4				56
7e	none	none	IRL	Vessel	13	5	1	3	2	2	1	2	3
				days-used									
7e	none	none	LTU	Vessel						1		1	
				days-used									
7e	none	none	NIR	Vessel	1						1		
				days-used	7						1		
7e	none	none	NLD	Vessel	15	13	13	19	15	18	16	17	15
				days-used								468	433
7e	none	none	SCO	Vessel	23	14	21	16	15	18	18	19	18
				days-used									
7e	**none Total**	**none**		**Vessel**	**1077**	**1153**	**1343**	**1486**	**1096**	**1251**	**910**	**877**	**871**
				days-used	**19464**	**19649**	**18714**	**19112**	**16858**	**17674**	**70537**	**73680**	**69881**
				Vessel	**1301**	**1367**	**1566**	**1671**	**1249**	**1395**	**1026**	**996**	**993**
7e	**Grand Total**	**none**		**days-used**	**27034**	**26830**	**26293**	**26673**	**24141**	**23263**	**79668**	**83334**	**80368**

UK beam trawlers, at a utilization level of 95%, appear to be closest to being restricted in terms of effort. However the effort meeting did not take account of the additional days at sea requested by the UK as compensation for decommissioning in 2009, 2010 and 2012. This represents an additional 34 days per vessel so that the effort on the national level is definitely not restrictive. However, at the boat level in the UK days at sea transfers were required occasionally, leading to costs and an additional bureaucratic burden without effect on fishing mortality.

Netting gears have utilizations of less than 50% nationally and there are no indications that the available days have been restrictive at the vessel level. In addition netting gears are notoriously poorly regulated by days at sea, since the effective fishing mortality is more closely linked to the soak time and the amount of gear deployed which for small coastal vessels are only poorly linked to days at sea.

Unregulated gears, mainly French trawlers currently take around 30% of the catches of sole in the area (Table 2 and 4). For these boats this catch represents a small proportion of the income.

Table 2. Percentage of sole taken by the major fleets in the fishery over time taken from STECF effort meeting report.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel	2012 Rel	Avg.2010-2012
IIc	7e	SOL	3a	0.44	0.57	0.63	0.61	0.61	0.56	0.63	0.61	0.67	0.64
IIc	7e	SOL	none	0.45	0.35	0.32	0.33	0.33	0.36	0.33	0.32	0.27	0.31
IIc	7e	SOL	3b	0.11	0.08	0.05	0.06	0.06	0.08	0.04	0.07	0.06	0.06

In conclusion effort regulations as currently implemented in the plan are having no beneficial effect on the effectiveness of the plan and the TAC is the only restrictive factor and largely effective in controlling fishing mortality.

5 ENVIRONMENTAL EFFECTS OF THE PLAN

The most recent ICES stock assessment for WC-sole (ICES 2013) was used as the basis for the evaluation of the management plan in terms of its effect on sole and the success in reaching the desired goals of the management plan. Such an evaluation however must recognize that the current assessment methodology is different from that at the time of the development of the plan having been changed in 2012 (WKFLAT 2012) to include a new survey as well as splitting the time series of commercial CPUE data thought to be responsible for the very persistent retrospective pattern observed in previous assessments. However, the major stock dynamics in terms of recruitment and SSB as well as growth and selectivity remained consistent with earlier investigations so that the conclusions about the sustainability of the target F from the management plan remain unaltered as demonstrated by simulations carried out by ICES (Figure 10).

5.1 Evaluation of the effects of the management plan on the fishery

As eluded to earlier in the report, the EU métiers in VIIe do not represent homogenous entities with respect to their activity and effects on the sole management plan. This makes a detailed examination of the changes in the fishery complex and a greater level of disaggregation of fleets is necessary to properly examine the effects of the management plan. Nevertheless there is a need to interpret the information provided by the STECF- effort meeting in a useful way as it is likely that future restrictions and allocations will be based on the EU métier rather than the fleet sub-component. In addition spatial trends in the activity of the UK beam trawl fleet consistent with the EU métier have been examined and placed in the context of ecosystem approach to evaluate changes in fleet behavior. An analysis of greater detail in terms of dependency, capacity and income is presented for more appropriate sub-components in section 6.

Effort by DCF métier:

The STECF-effort meeting reported on the effects of the management plan in terms of vessel numbers, effort in kWdays, the uptake of effort and the relative dependence on WC-sole of each métier. Beam trawlers overall represent the largest component of catches and are regulated in the management plan through effort control by a days-at-sea regulation. The number of beam trawlers of all nationalities has decreased since the implementation of the management plan in 2007 with Belgian beam trawlers showing the greatest decline, however this fleet contributes a very small amount in terms of days spent

in the area and in terms of landings. The increase in the number of Belgian beam trawlers in VIIe (up to 2005) and French beam trawlers (up to 2006) while quota in wc-sole was already decreasing appears to be as a result of decreasing fishing opportunities in other areas so that the decrease in vessels cannot necessarily be linked to the management plan particularly for the Belgian fleet that contributes only a very small percentage to the total landings of sole.

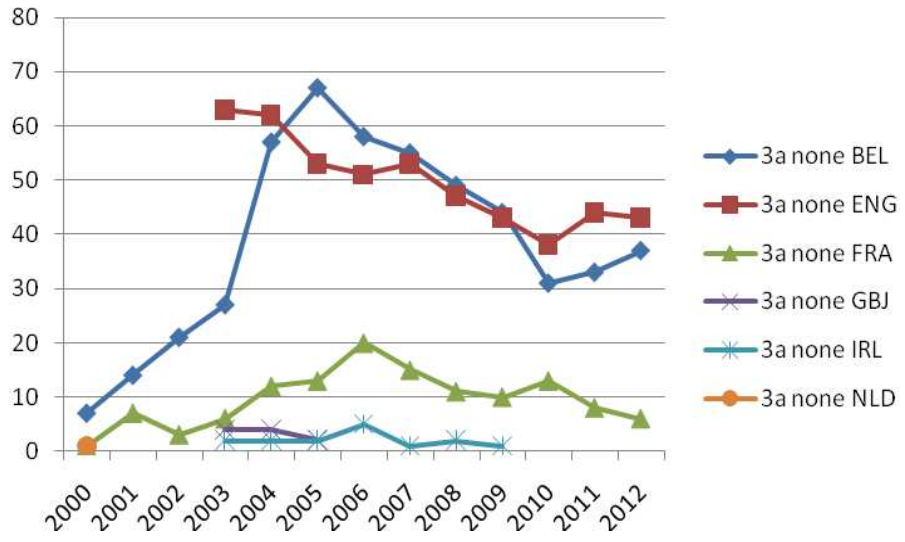

Figure 4. Time series of the number of beam trawlers by nationality active in VIIe

In contrast to the other nations the UK beam trawl fleet has reduced in number for a significantly longer period, well before the management plan. The reason for this is that in 2003 it became apparent that a large proportion of the VIIe sole catches had been misreported in to VIId. These landings have been taken account of in the stock assessment, but it meant that landings were effectively unregulated for this fleet prior to 2003. Subsequent increases in enforcement effort, regular convictions and eventually the VMS enforced single area license in 2009 resulted in a reduction in catches and a reduced economic efficiency of the fleet. Quotas were consolidated on to a smaller number of vessels leading to a decline in the number of beam trawlers. The slightly steeper decline in vessel numbers 2007-2010 were as a result of the decommissioning scheme that became possible during the recovery phase of the management plan 2007-2009. The subsequent rise in the number of vessels since then is due to the combination of the increasing quotas, the ability to utilize other resources and a move towards smaller more fuel efficient vessels.

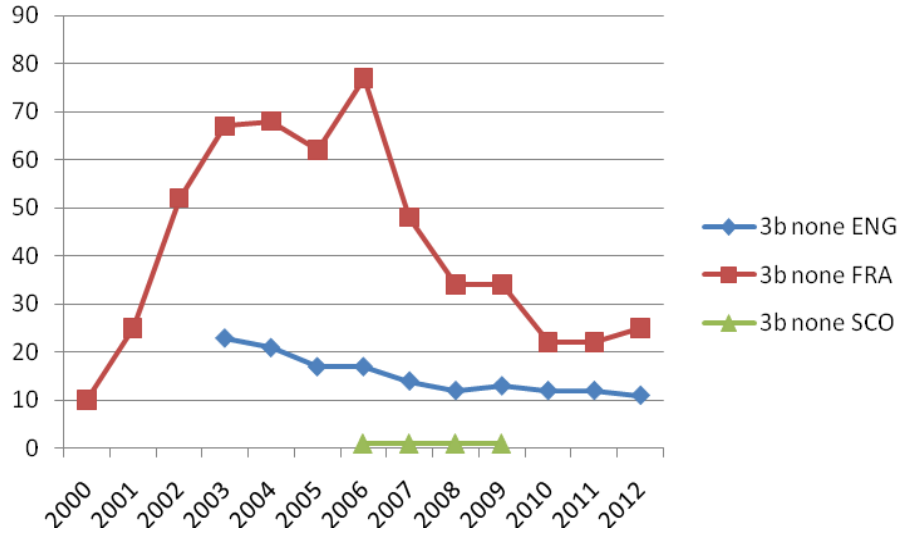

Figure 5. Time series of the number of static gear vessels by nationality active in VIIe

Static gears vessels are also regulated in the management plan and their trends in number mimic those of the beam trawlers at the national level. One exception is that there was no decommissioning made available to the English netter fleet so that no period of more rapid decline in number corresponding to the implementation of the management plan is apparent as in the beam trawlers (Figure 5).

Fleets that catch sole but are unregulated in the management plan are largely made up of otter trawlers and scallop dredges. The largest proportion of these boats by far are French otter trawlers. The size of the fleet again shows a similar pattern to other French fleets with an increase up to the management plan implementation followed by a substantial decline (Figure 6). However the dependence of the fleet on sole is much lower and in fact many of these boats catch virtually no sole so it is again difficult to link this reduction to the management plan. A closer examination of a subset of this fleet that does take significant proportion of sole landings in VIIe (~20-30%) is provided in section 5. UK otter trawler and scallop dredge numbers have varied much less over time.

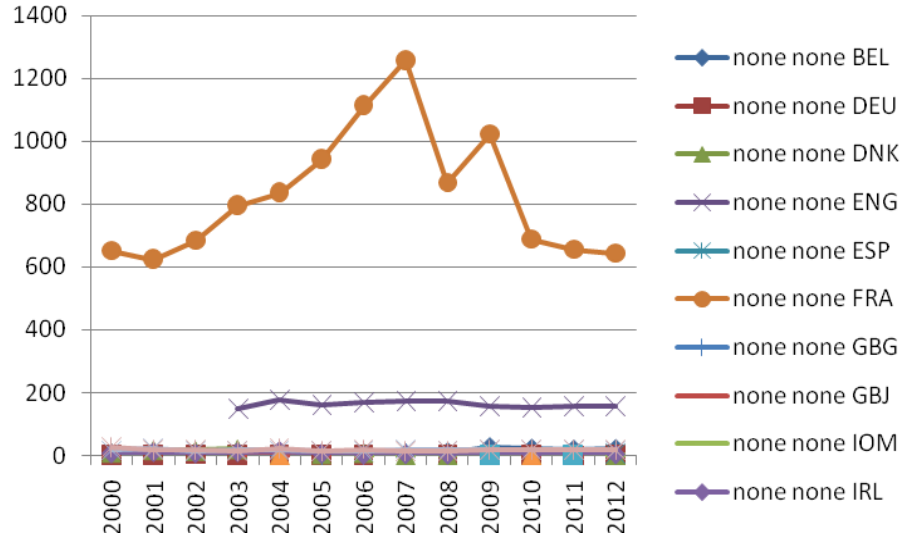

Figure 6. Time series of unregulated vessels by nationality active in VIIe

From these figures it is safe to conclude that the fleet capacity of vessels capable of taking sole has significantly decreased in the western channel. What is less clear is the degree to which this reduction in capacity is permanent, i.e. whether the boats are currently utilizing fishing opportunities elsewhere making it difficult to assess whether there is still a problem of over capacity. Furthermore vessel numbers are not generally a good proxy for effort or fishing morality. The measure chosen by STECF in their effort report is the kW day, but comparisons in terms of the contribution of each fleet to the decrease in fishing mortality apparent in the assessment since 2009 are hampered in that report by the differences in the catchability of the different gear types.

Standardizing the fleet kW day values for each fleet by the average of each fleet over the entire period makes such a comparison possible (Figure 7).

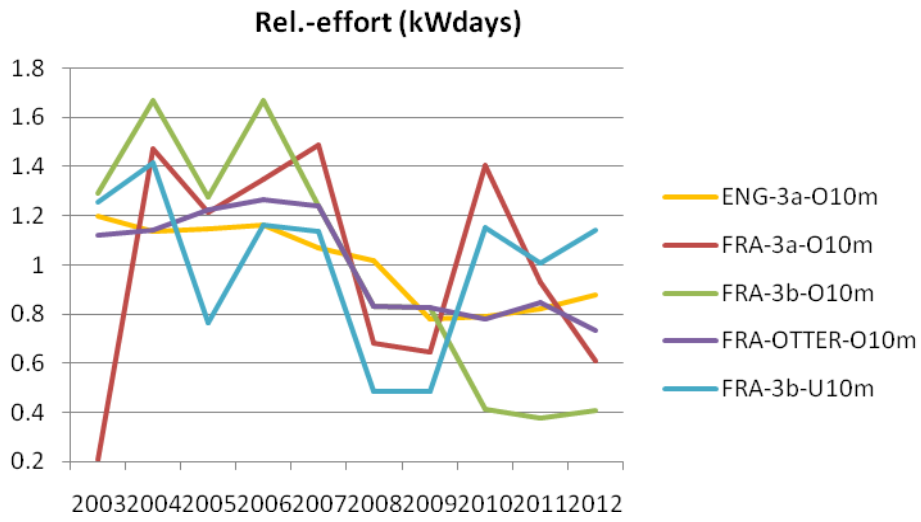

Figure 7. Means standardized effort for the fleets catching a significant portion of the sole in the VIIe

The largest decline in effort is observed in the French over 10m netting fleet having rapidly reduced over the period 2006-2010 to roughly a quarter of its former effort (Figure 7). French beam trawl and under 10m netters show more inter-annual variability than other gears though both indicate a sharp decline during the first two years of the management plan. The two fleets taking the lion's share of wc-sole (UK beam trawls and French over 10m otter trawls) have decreased their effort by around 40% between 2007 and 2009. Given the high catchability of sole in the UK beam trawl fleet and the large numbers of French otter trawlers it is likely that these two fleets have contributed most significantly to the reduction in F in this stock.

Although this attention had resulted in a decrease in the misreporting it was unable to eliminate the practice. In response a days at sea regulation was introduced limiting the beam trawl and gillnet effort as part of the management plan in order to be able to reduce effort commensurate with catches.

During the first three year period of the management plan (recovery plan phase) a UK decommissioning scheme was introduced to remove a number of beam trawlers from the fleet with the express intent to improve the economic viability of the remaining beamer fleet rather than specifically to reduce effort. In return the UK fleet was awarded additional days at sea in the plan which in conjunction with the fact that the western beam trawl fleet (Newlyn - Pensanze beamers) were also awarded days despite the fact that they had very low WC-sole quota and hence unable to use the majority of their days in VIIe so that the UK fleet as a whole was not limited, though individual boats

may have had to acquire days. In general then, days at sea in the western channel have been ineffective since only other fleet restricted is the gillnet fleet which is not effectively managed by days at sea.

During the latter part of 2008 a single area license regulation was introduced by the UK government to completely eliminate the practice. Although this unilateral measure strictly speaking was not part of the management plan it is undoubtedly a direct response to the measures implemented in the plan aimed at resolving the compliance issue, reducing enforcement costs and deemed preferable to further restrictions in days at sea as this allows the fleet more flexibility to exploit other resources available in the area.

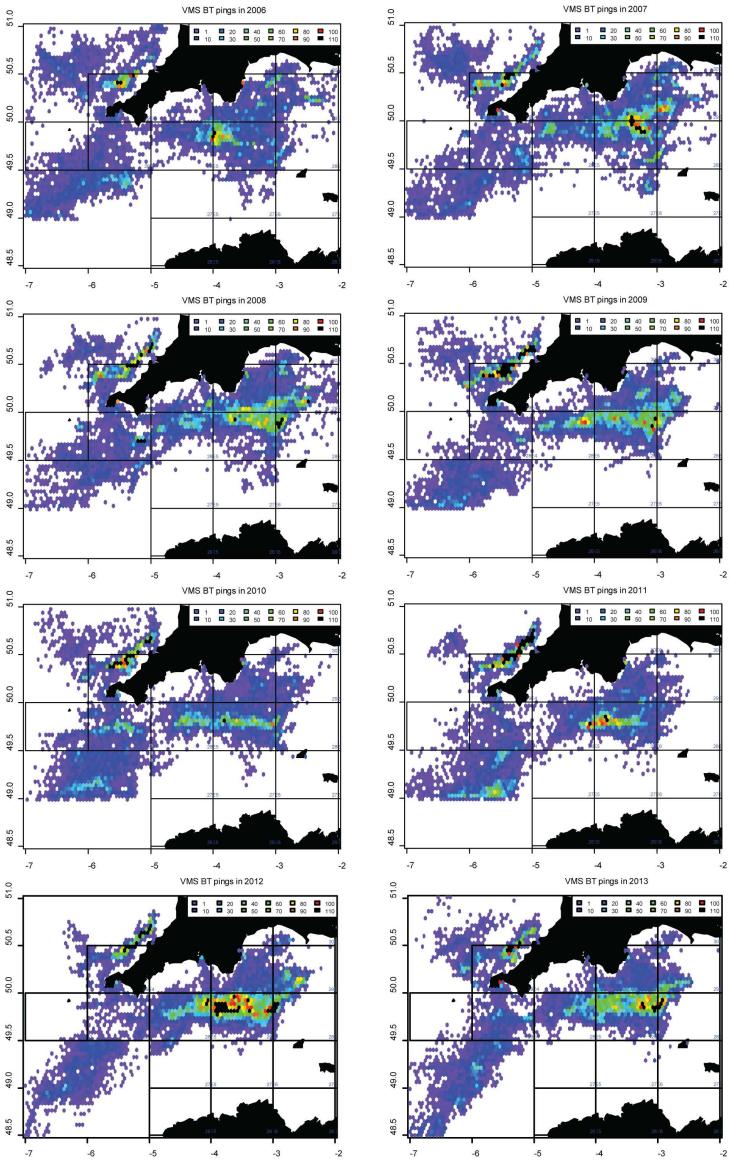

Figure 8. VMS activity for the UK beam trawl fleet in the Celtic Sea 2006-2013 indicating a south wards movement of the centre of activity in the western channel (Updated from WKFLAT 2012).

The UK fleet takes the majority of catches from this stock and the vast majority of the UK landings come from the beam trawl fleet from the ports of Brixham and Plymouth. The spatial distribution of effort of these boats has been shown to have moved southwards since the implementation of the single area license scheme (Figure 8).

Figure 9 shows a summary of the fleet activity spatially aggregated over the period 2005-2012. Landings of all species are assigned to 1 mile edge length hexagons based on the number of VMS contacts observed during each activity, summed over each hexagon and divided by the number of contacts observed over the period. The species composition is then submitted to a cluster analysis to indicate the type of community being exploited. Aggregation of the landings over the clusters provides a good indication of the economic resources available in each community and allows prediction of the effect of fleet movement on landings composition. The VMS data suggests an increase in the activity further south predicts a decrease in the catches of sole and plaice and an increase in the landings of cuttle fish, angler fish and scallops thought the latter is hard to perceive due to the low total landings weight of this high value species. These predictions are largely confirmed in section 5 where a more detailed analysis of the trends in landings is presented for a subset of the UK beam trawl fleet, but this information confirms that the trends are applicable to the entire DCF métier.

The decrease in the sole landings should leads to a lower economic return from sole, because distances to port are greater and catch rates are lower. However, the sole taken are larger and of greater value. In addition a significant resource of lower pressure higher value stocks are available in the area in addition to the ones mentioned previously such as red mullet, brill, turbot making up for the increased costs and reduced landings of sole.

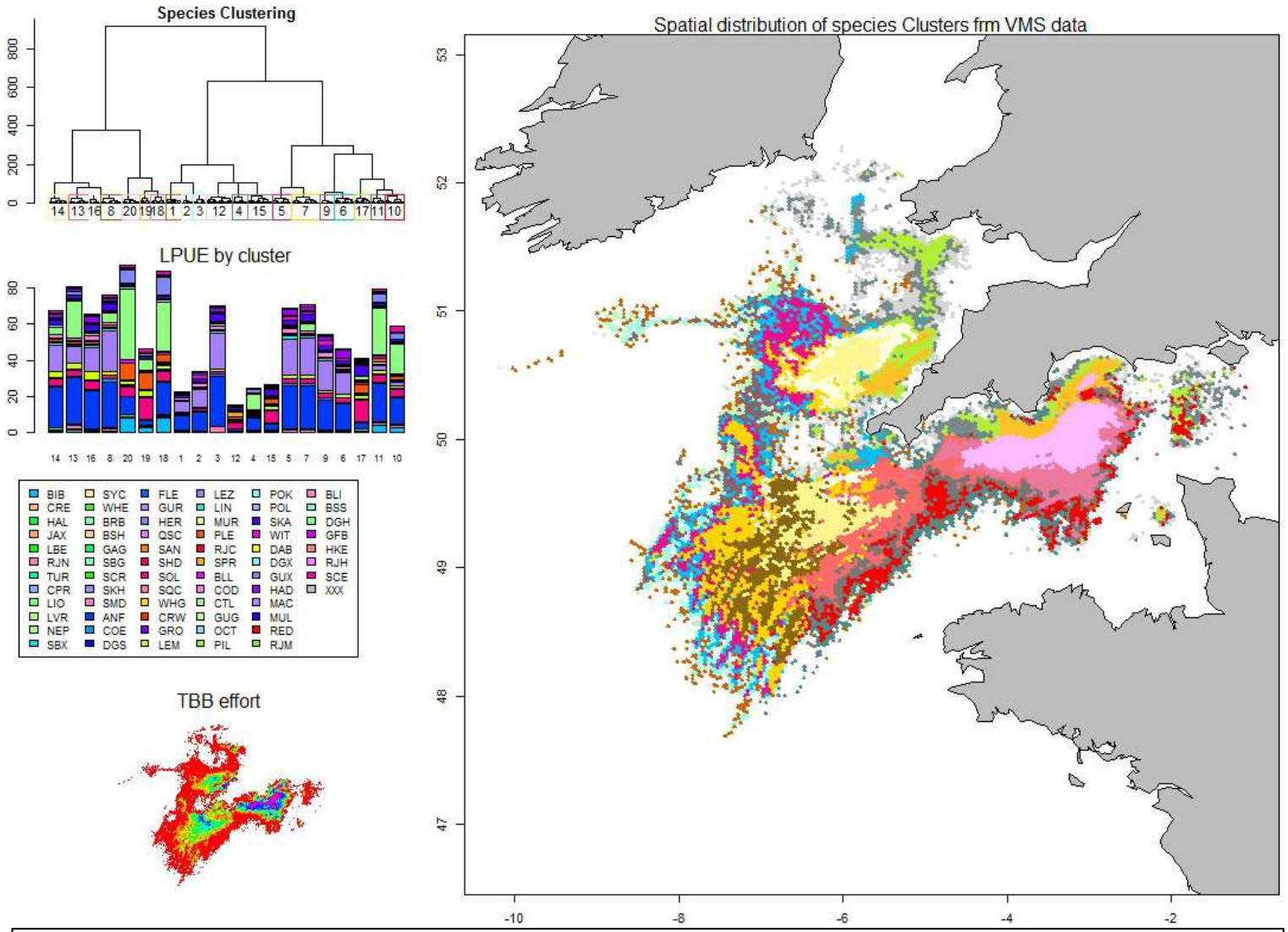

Figure 9: Clusters of spatially disaggregated landings composition of UK beam trawlers as inferred by use of VMS data aggregated over the period 2005 to 2012. In the eastern part of the channel highest sole (SOL) and plaice (PLE) LPUEs are associated with the orange cluster near shore, whereas light pink and dark pink clusters represent successively smaller LPUE for sole and plaice and higher LPUEs for angler fish (ANF) and cuttle fish (CTL). Total effort aggregated over the time series is shown bottom left, indicating that the highest densities of beam trawl effort are found east of 5 degrees west in the channel and inshore off the north Cornish coast.

5.2 Evaluation of the effects of the management plan on the stock

Figure 9 and Table 3 present the outcome of the most recent assessment carried out by ICES (ICES: WGCSE 2013). It shows that the stock dynamics have improved considerably since the implementation of the management plan in 2007 with the majority of the change occurring after the introduction of the UK single area license effective from 2009 onwards. Since then F has been significantly below the target value of 0.27 despite landings exceeding the quota. SSB has been generally increasing since the early 1990's but indicated a short term decline 2007-2009, but has been increasing since then commensurate with the significant decline in F. Base recruitment has been stable since the mid1970s, although since 1989 the very large recruitment peaks seen prior to this time appear to be less pronounced.

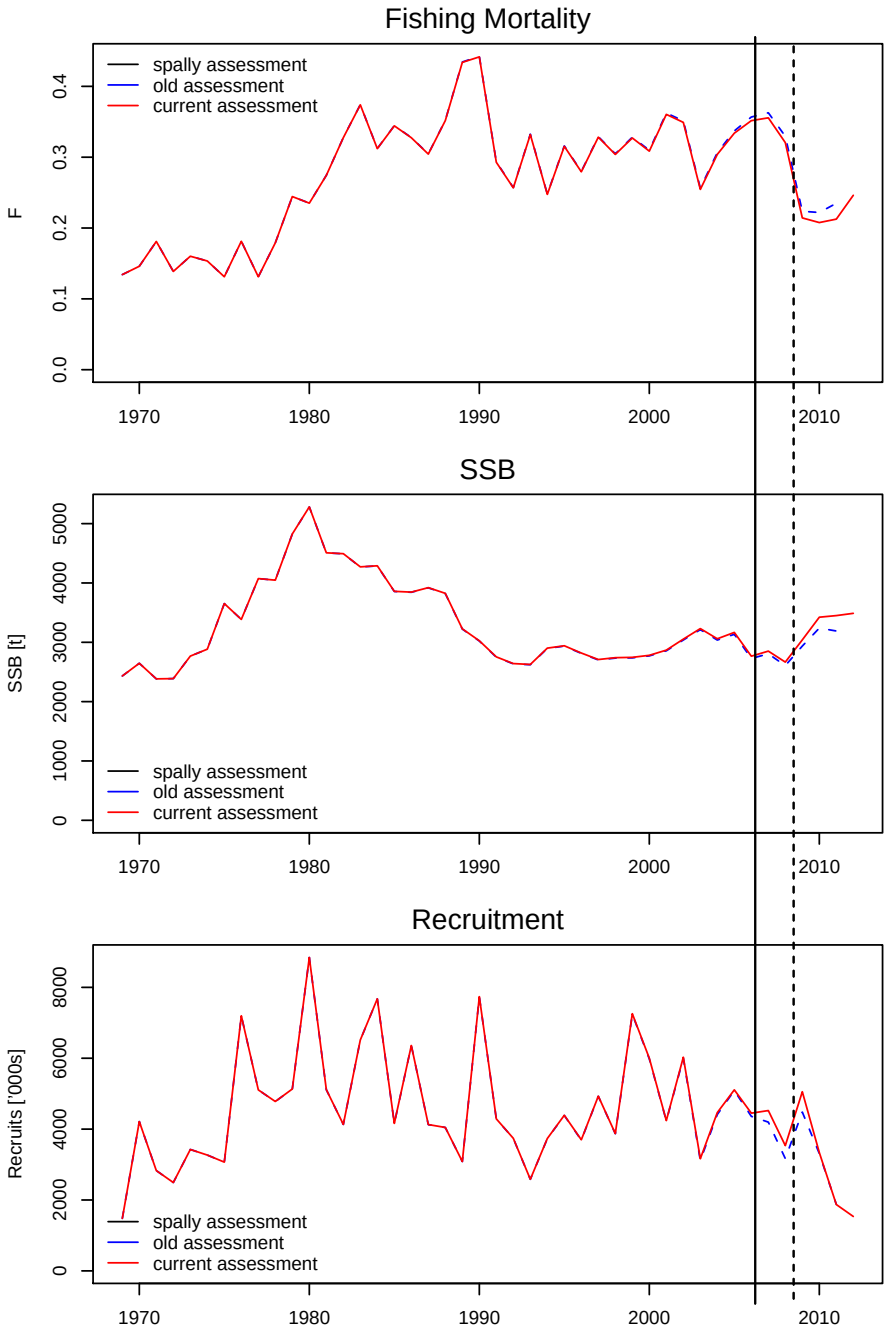

Figure 10. Stock summary plots showing the development of stock dynamics from the ICES 2013 assessment, solid line indicates the start of the management plan implementation and the dashed line the initiation of the UK single area license scheme.

Table 3. Assessment Summary table from WGCSE 2013

Year	Recruits[000']	TSB[t]	SSB[t]	Landings[t]	Yield//SSB	FBar3-9
1969	1480	2980	2432	352.72	0.15	0.134
1970	4212	3206	2646	389.61	0.15	0.146
1971	2829	2915	2383	431.92	0.18	0.181
1972	2493	3218	2388	436.55	0.18	0.139
1973	3425	3373	2767	458.25	0.17	0.16
1974	3267	3628	2883	426.52	0.15	0.153
1975	3068	4627	3652	500.63	0.14	0.131
1976	7197	4765	3385	614.25	0.18	0.181
1977	5106	5746	4074	604.58	0.15	0.131
1978	4779	5822	4047	868.31	0.21	0.179
1979	5132	6290	4825	1170.17	0.24	0.244
1980	8843	6777	5282	1268.1	0.24	0.235
1981	5114	6066	4508	1217.81	0.27	0.274
1982	4132	5972	4493	1437.95	0.32	0.328
1983	6515	5513	4271	1503.84	0.35	0.374
1984	7676	5546	4289	1362.66	0.32	0.312
1985	4161	5797	3858	1400.09	0.36	0.344
1986	6359	5535	3845	1418.02	0.37	0.327
1987	4128	5347	3921	1279.28	0.33	0.304
1988	4046	5078	3825	1443.13	0.38	0.352
1989	3086	4327	3227	1389.36	0.43	0.434
1990	7737	4934	3025	1306.25	0.43	0.442
1991	4289	4236	2754	852.2	0.31	0.293
1992	3739	3964	2641	895.68	0.34	0.257
1993	2584	3393	2626	903.83	0.34	0.332
1994	3734	3971	2901	800.26	0.28	0.248
1995	4390	4188	2941	855.85	0.29	0.315
1996	3699	4428	2819	833.38	0.3	0.279
1997	4929	3623	2709	949.66	0.35	0.328
1998	3874	3783	2740	880.05	0.32	0.304
1999	7256	4816	2746	955.93	0.35	0.327
2000	6000	4875	2780	911.73	0.33	0.309
2001	4240	4484	2867	1068.62	0.37	0.36
2002	6028	4798	3053	1105.32	0.36	0.349
2003	3164	4553	3231	1078.12	0.33	0.255
2004	4466	4413	3059	1073.92	0.35	0.304
2005	5107	4529	3166	1036.77	0.33	0.334
2006	4449	4071	2765	1015.53	0.37	0.352
2007	4523	4268	2851	1014.65	0.36	0.356
2008	3534	4213	2666	908.12	0.34	0.321
2009	5054	4174	3041	700.48	0.23	0.214
2010	3337	4329	3422	698.15	0.2	0.208
2011	1871	4495	3450	801.28	0.23	0.213
2012	4345	4041	3488	871.97	0.25	0.246

5.2.1 *Evaluating the stock response to the changes in the fisheries resulting from the plan - is the plan delivering its own internal objectives with respect to the stock?*

The conclusions from the analysis are that the major reduction in fishing mortality in response to the plan is caused by the reduction in catches of sole by the UK beam trawl fleet as a consequence of a reduction in effort in conjunction with a spatial change in the distribution to areas of lower sole catches. However the analysis by STECF (STECF, 2013**Error! Reference source not found.**) also indicates that potential effects between effort and partial F exist for other fleets though some of the contrast in effort of the fleets may have been in response to external factors since the dependence of these fleets on sole is low.

There is however the danger that increased reliance of effort as a measure to decrease F may result in undesirable consequences in terms of fleet profitability because it may preclude the exploitation of other less pressured stocks such as cuttle fish, scallops and angler fish as well as increase the pressure on plaice.

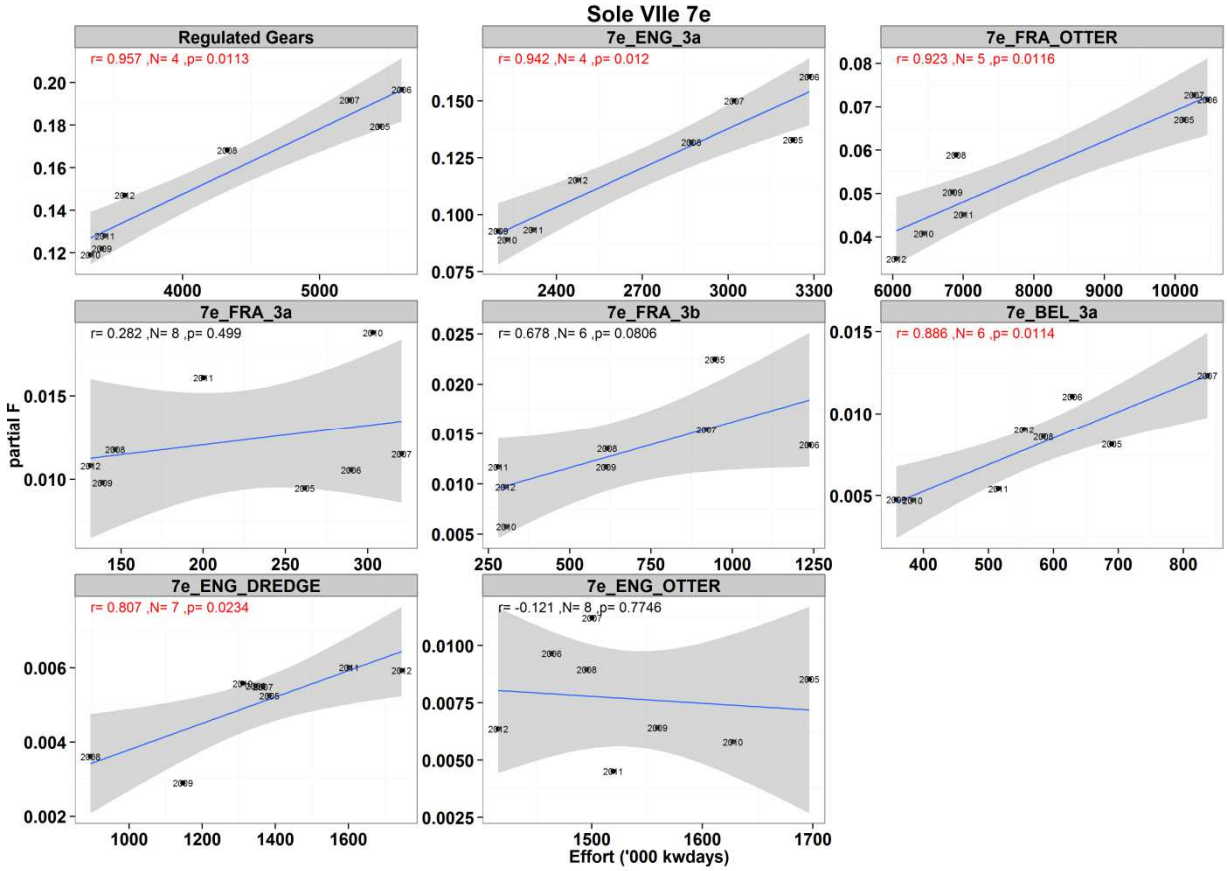

Figure 11. Western Channel sole. Partial fishing mortality (based on harvest rate estimates) over effort (kW*days) of the major fisheries, 2005-2012.

5.2.2 *Evaluating whether the values of target and other reference points referred to in the plan are consistent with current knowledge and the objective of achieving MSY by 2015.*

The latest assessment formulation for western channel sole conducted by ICES (WKFLAT 2012) suggests that the changes in the fleet since the implementation of the management plan and the improved understanding of the stock dynamics have not materially altered the suitability of the management plan reference points (FMSY = 0.27, BMSY-trigger) suggesting that changes to the management plan are not necessary. The assessment was conducted on the basis of the simulation

framework developed for SG-MOS 1006 also are consistent with the previous impact assessment of the management plan in 2010 (Figure 12.).

There are no indications from the commission that different objectives are thought from the management plan.

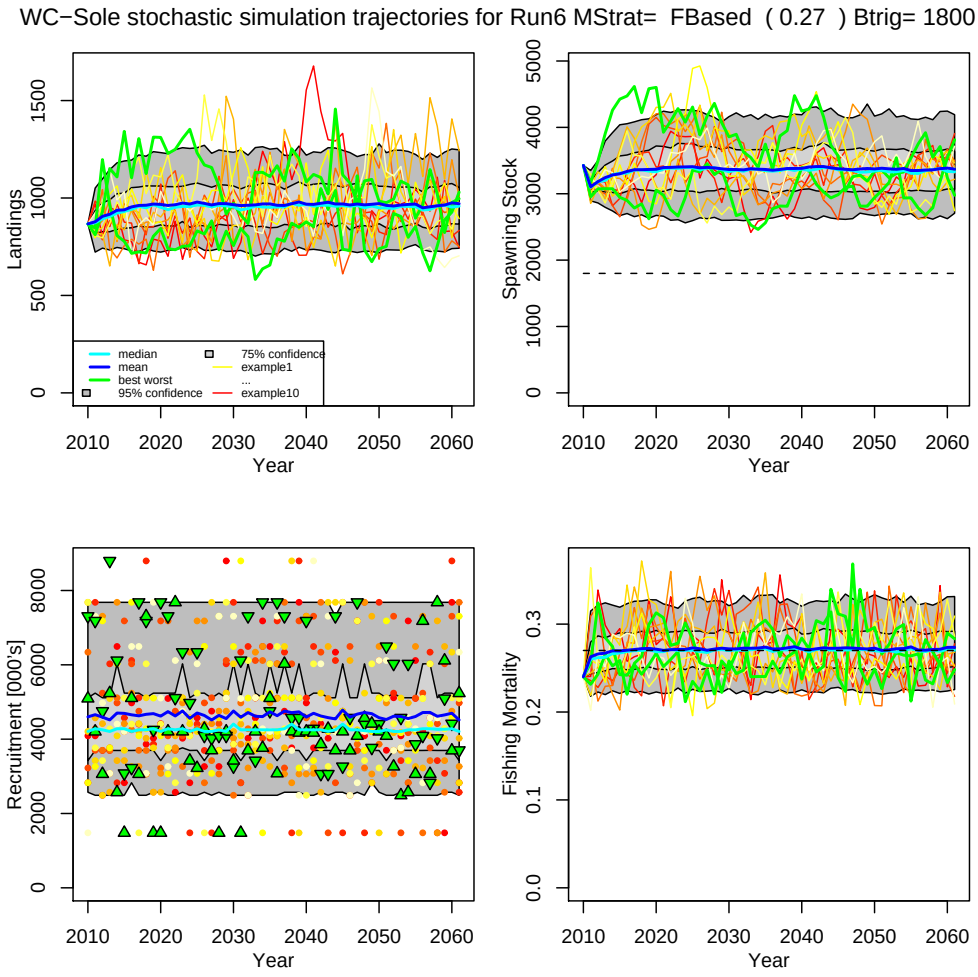

Figure 12. Output from 500 50-year management simulations assuming the best guess estimates of assessment bias and variance as well as the most likely management implementation error usign R-code developed for STECF (SG-MOS 1006a) based on estimates of selection and recruitment from the new assessment methodology.

The results suggest that the more realistic approach taken in these simulations with respect to the likely stock recruitment relationship means that SSB is at F=0.27 unlikely to increase in the long-term to much more than 3500t not far from the current SSB estimate. Consequently, it seems unlikely that yields will increase substantially in the long term, though some short term gains may be possible if F is increased to F_{MSY} or when strong recruitment are present.

5.3 Evaluation of the effects of the management plan on the ecosystem.

The fleets taking the majority of the catches of sole are mobile gears. STECF indicates a reduction in effort of these mobile gears (otter and beam trawlers) in the area which is likely to have a positive impact on the ecosystem due to reduced abrasion. Beam trawlers are generally considered as the most destructive method of fishing, despite the fact that the area of seabed affected per kW hour is much less than that for otter trawlers. However, the majority of this impact is considered to occur when

operating on grounds not previously exploited, while further degradation of previously impacted sites appears to be small and productivity in terms of fish at least continues to be high in such areas.

The change in the UK beam trawl fleet distribution in response to the plan shown in section 4.1 indicates that no new areas have been impacted, but merely that the relative proportions of effort have moved south and are spread over a wider area. Consequently the more sensitive inshore areas in Lyme Bay are likely to be less impacted, while the areas of greater natural disturbance offshore have been impacted more. From a habitat perspective it is difficult to judge what the sum of these impacts is for the ecosystem as a whole. From a species centric fish or epifauna perspective it means that discarding of plaice and juveniles of other inshore benthic species working further offshore and using the improved gears means that there is a positive benefit to these ecosystem components which are much less abundant offshore. However by-catch of small monk fish is likely to have increased because these are found further offshore.

6 SOCIAL AND ECONOMIC EFFECTS IF THE PLAN

6.1 Data and Calculation of Indicators

The plan do no explicitly include socio-economic objective. The evaluation thus should be against the general socio-economic objectives as stated in the CFP and provide tendency on number of vessels in the fishery, employment, value of landings, gross value added or profit.

6.1.1 Data sources used and selection of main fleets segment involved in sole VIIe fishery

For the selection of the fleets fishing sole in the area VIIe, DCF data set from 2013 economic data call has been used. The selection has been done based on the same methodology as for the 2013 Annual Economic Report on the EU Fishing Fleet (STECF 13-15) chapter Economic trends for fleets under long term management plans. Taking in to account the availability of the data from France in 2008 and 2012 data sets significance and dependence of fleets, fishing sole in VIIe, have been evaluated based on 2009-2011 landings data.

However for the purpose of the evaluation of the management plan, DCF data appeared to be aggregated at inappropriate level to be able to perform economic analyses (see AER, 2013).Fleets aggregate all the vessels of the segment and thus include vessels fishing for sole VIIe with other vessels of the same fishing technique and vessel length class fishing for other species. That is why dependency on the stock of sole in VIIe is underestimated for those fleets. Despite that, it seems that those fleets, except beam trawlers, are not very dependent on the sole in VIIe, making evaluation of changes of economic performance of these fleets irrelevant for the evaluation of the management plan.

Table 4 shows the DCF fleets fishing for sole in VIIe. The main 5 fleets, fishing sole in the area have landed 66% of sole in terms of weight and 60% in terms of value in 2009-2011. These fleets are using beam trawls and demersal trawls. All of them belong to UK. Their dependency on the sole stock varies from 3 to 22 percent. The French fleets are represented by demersal trawlers and netters (<12m). Belgium and French beam trawlers only accounts for 2% of the total landings of sole in VIIe.

Those further analysis is concentrated on the additional data sources.

Table 4. Number of vessels and landings data (average 2009-2011) for the 15 first segments landing sole from VIIe

Segment	Number of vessels	Significance (value)		Sole landings		Total landings		Dependence
		% of total	Cumulative %	Weight (tons)	Value (keuros)	Weight (tons)	Value (keuros)	sole 7e (in value)
GBRTBBVL1824	16	18%	18%	212	2 169	3 031	9 848	22%
GBRTBBVL2440	32	17%	35%	198	2 051	6 436	19 075	11%
GBRDTSVL1218	7	11%	46%	292	1 341	22 066	49 765	3%
GBRDTSVL1012	115	9%	55%	255	1 159	4 656	10 867	11%
GBRDTSVL0010	276	5%	60%	136	593	5 187	13 414	4%
FRADTSVL1218	170	3%	63%	54	607	13 585	48 425	1%
FRADTSVL1824	159	3%	67%	116	603	34 117	83 662	0%
FRADFNVL0010	349	3%	70%	76	592	4 001	17 647	2%
GBRDRBVL2440	26	3%	73%	38	394	13 200	23 933	2%
FRADTSVL1012	158	3%	76%	49	576	5 868	18 677	2%
FRADTSVL2440	61	3%	79%	90	515	20 199	43 304	1%
FRATBBVL1218	7	2%	81%	34	367	451	1 638	15%
FRADFNVL1012	188	2%	83%	30	332	6 417	29 719	1%
BELTBBVL2440	34	2%	85%	23	217	12 832	50 292	0%
GBRDTSVL1824	208	1%	86%	32	181	48 813	103 658	0%
Others		14%	100%	174	1 708	263 052	544 445	0%

Source: DCF 2013 Fleet Economic data call (MARE/A3/AC(2013), STECF AER 2013

Based on the information provided during the meeting by South Western Fish Producers Organization, around 85% of UK sole quota in VIIe are shared between beam trawlers, 63% of it used by vessels, belonging to the organization. Those further analyses of UK fleet are based on the individual information, provided by PO.

Table 5. Selection of French vessels landing at least 1 ton of sole caught in VIIe by year (average 2009-2011)

	vessels fishing for sole VIIe		vessels in the DCF segment		
Segment	Number of vessels	Dependence sole 7e (in value)	Number of vessels	Dependence sole 7e (in value)	% of vessels of the DCF segment fishing for sole in VIIe
FRADTSVL1012	23	11%	158	2%	15%
FRADTSVL1218	14	7%	170	1%	8%
FRATBBVL1218	3	29%	7	15%	43%
FRADFNVL0010	9	26%	349	2%	3%
FRADFNVL1012	6	13%	188	1%	3%
FRADTSVL2440	8	2%	61	1%	13%
FRADTSVL1824	5	1%	159	0%	3%

Complementary selection of French vessels fishing for sole VIIe by fleet segment shows that they were only representing 3 to 43 % of the total number of vessels in the DCF segment (

Table 5.). IFREMER/Fisheries Information System and DPMA data base has been used to select vessels landing at least 1 ton of sole caught in VIIe by year in 2000 – 2012 (around 100 vessels in 2012). A large number of vessels also catch small quantities of sole in VIIe. In 2012 there were around 450 vessels thus fished less than one ton of sole in VIIe and contributed to around 25% of the

French total landings of sole in VIIe with mean dependency of 2% of the value of landings. Only demersal otter trawlers (DTS) and netters (DFN) landing at least one ton of sole by year are taking into account in analyses below, so that can explain that there are some discrepancies with official data.

Due to the level of aggregation of DCF fleet segment, DCF economic data by DCF fleet segment were thus inappropriate to perform the socio-economic evaluation of the plan.

To provide some insight on the socio-economic effects of the plan on value of landings, fleet size, composition of landing, employment and economic behavior other data sources been used:

- Data from the South Western Fish Producer Organization to describe the impacts on the UK beam-trawler fleets. Data from IFREMER/Fisheries Information System and DPMA to describe the impacts on the French fleets.
- Following sections describe the trends in value of landings, fleet size, composition of landing, employment and economic behavior for French main fleets of bottom trawlers and netters and the UK fleet of beam trawlers.

6.1.2 Evolution of some economic indicators for French fleets

Figure 13 shows the evolution of the total value of landings (as a proxy of the income) for the two main French fleets fishing for sole in VIIe. It highlights that there were annual variations for the bottom trawler fleet segment linked in particular to the punctual increase in monkfish catches due to high abundance of this targeted stock in the years observed (see also figure 18). Evolution does not highlight any significant changes between the period before and after the management plan.

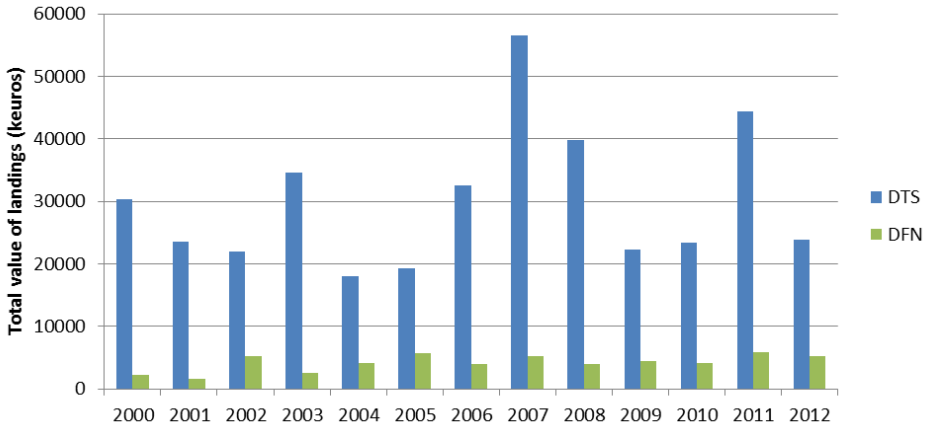

Figure 13. Evolution of the total value of landings for French demersal trawlers and netters fleets from 2000 to 2012

Source: DPMA/Ifremer-FIS

For the French bottom trawlers, the average value of landings by vessel (Figure 14) shows the same annual variations as total value while for the netters, there has not been any significant trend since the implementation of the management plan in 2007.

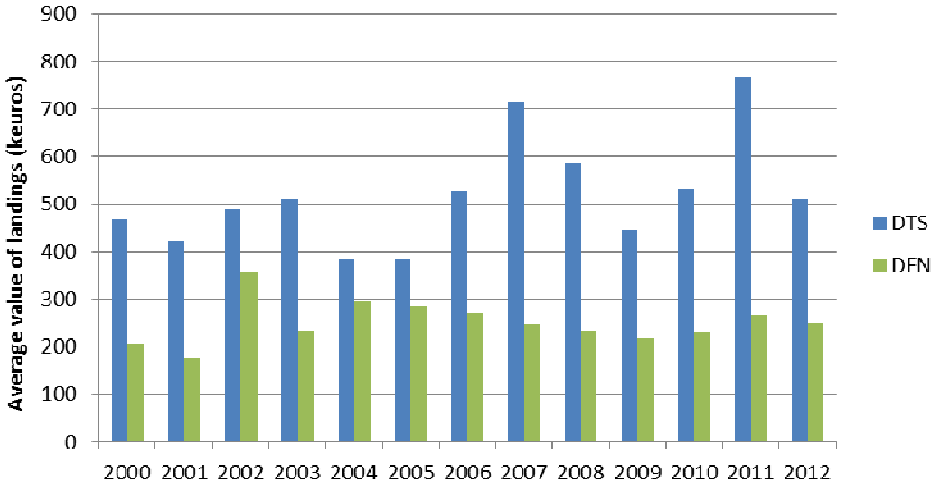

Figure 14. Evolution of the average value of landings for French demersal trawlers and netters fleets from 2000 to 2012

Source: DPMA/Ifremer-FIS

French demersal otter trawlers (DTS)

The number of vessels in the French demersal trawler fleet varied from 45 to 80 trawlers with some annual variations linked with the entry or exit from the fishery of bottom trawlers according to opportunities (Figure 15). The number of fishermen on those vessels followed the same variations between 150 and 300.

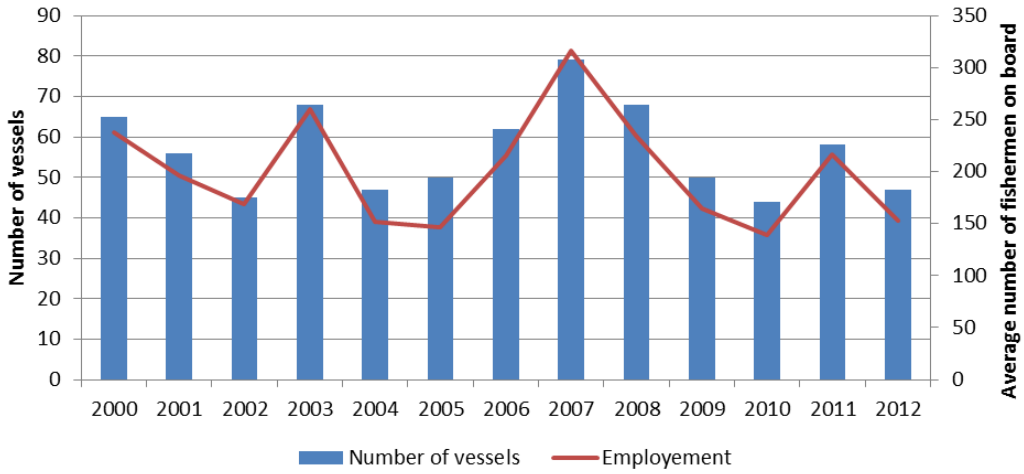

Figure 15. Evolution of the number of vessels and fishermen involved in the sole VIIe fishery on French bottom trawlers from 2000 to 2012

Source: DPMA/Ifremer-FIS

Dependence to sole in the VIIe of demersal otter trawlers have remained below 10% during all the period and does not appear to have changed after the implementation if the management plan.

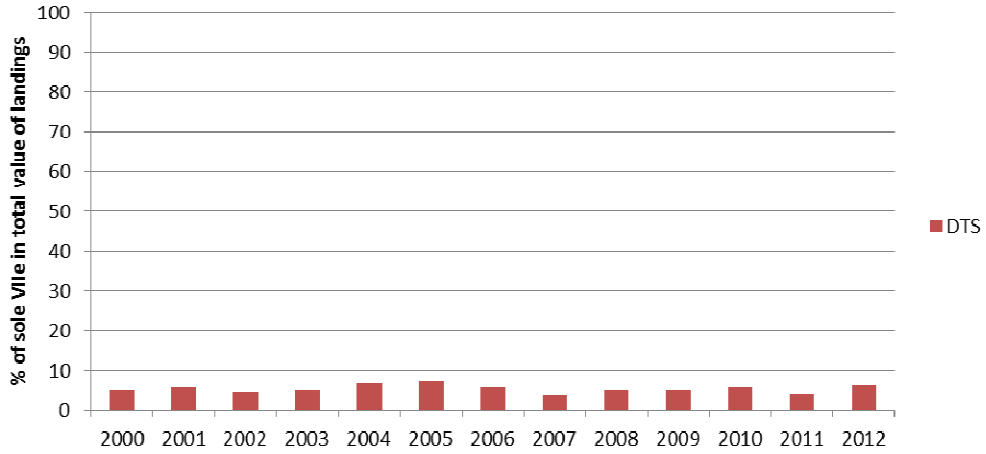

Figure 16. Evolution of the dependency of French bottom trawlers to sole VIIe from 2000 to 2012

Source: DPMA/Ifremer-FIS

Value of landings for sole remained stable from 2000 to 2012 while the price for sole increased from 9€ to 13€ during the period analyzed (current price). French bottom trawlers are opportunistic with catches of squid and also of cuttlefish that have largely increased since 2008.

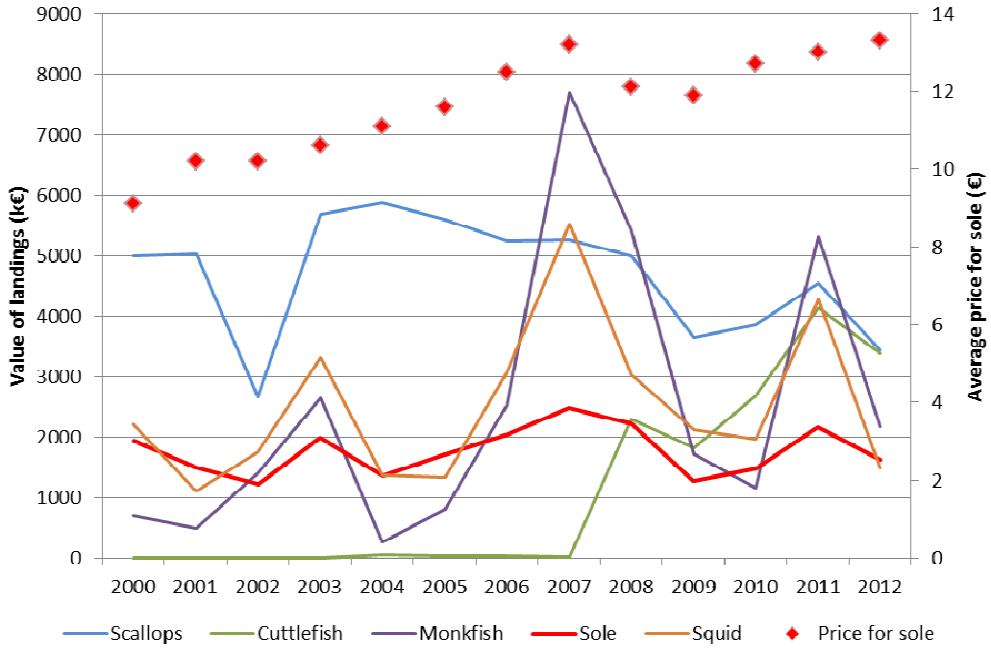

Figure 17. Evolution of the value of landings of main species and price for sole for the French bottom trawlers fishing for sole in VIIe

Source: DPMA/Ifremer-FIS

French netters (DFN)

The number of vessels in the French netter fleet increased from around 10 in 2000 to 20 in 2012. The number of fishermen followed the same trend.

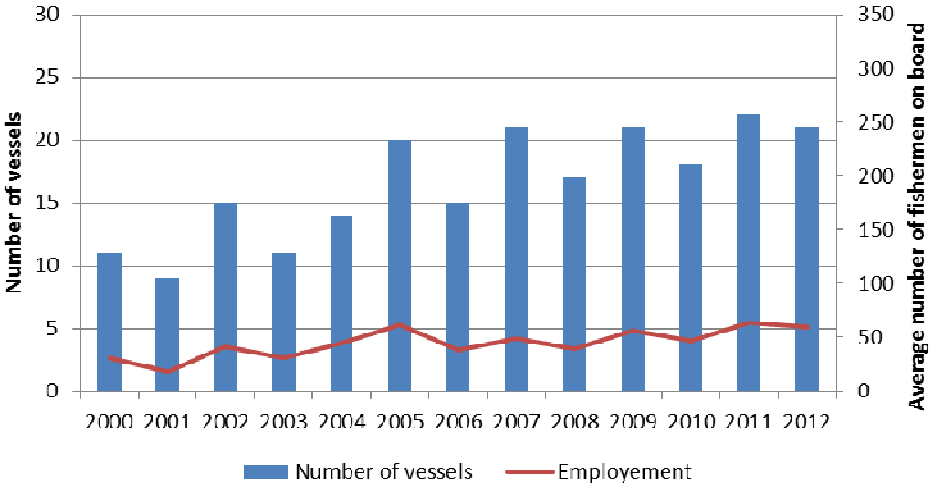

Figure 18. Evolution of the number of vessels and fishermen involved in the sole VIIe fishery on French netters from 2000 to 2012

Source: DPMA/Ifremer-FIS

Dependency of French netters to sole VIIe varied from 9% to 18% between 2000 and 2012 without showing any significant trend since the implementation of the management plan.

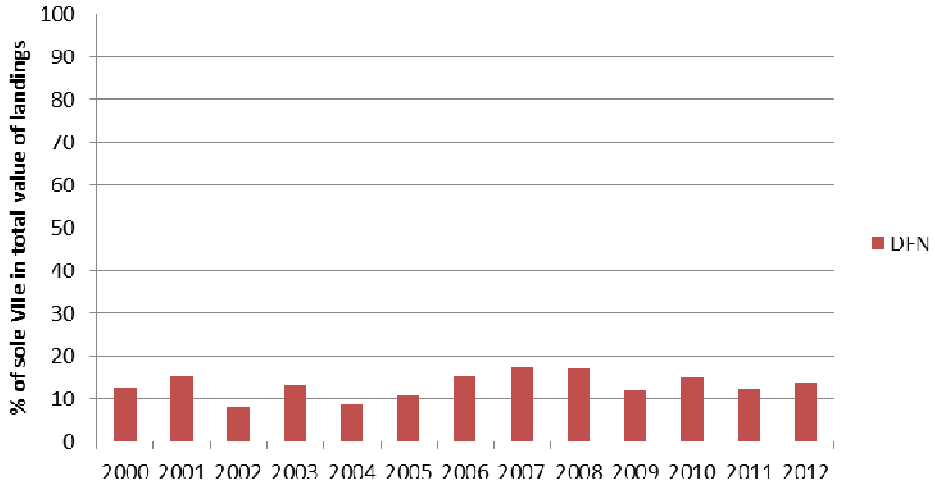

Figure 19. Evolution of the dependency of French netters to sole VIIe from 2000 to 2012

Source: DPMA/Ifremer-FIS

Value of landings and price of sole globally increased from 2000 to 2012 (current price). They also show annual variations with strong increases in the value of landings and decrease for the price in 2002, 2005 and 2009 due to in particular volume of landings multiplied by 3 during 2002 and 2005 years.

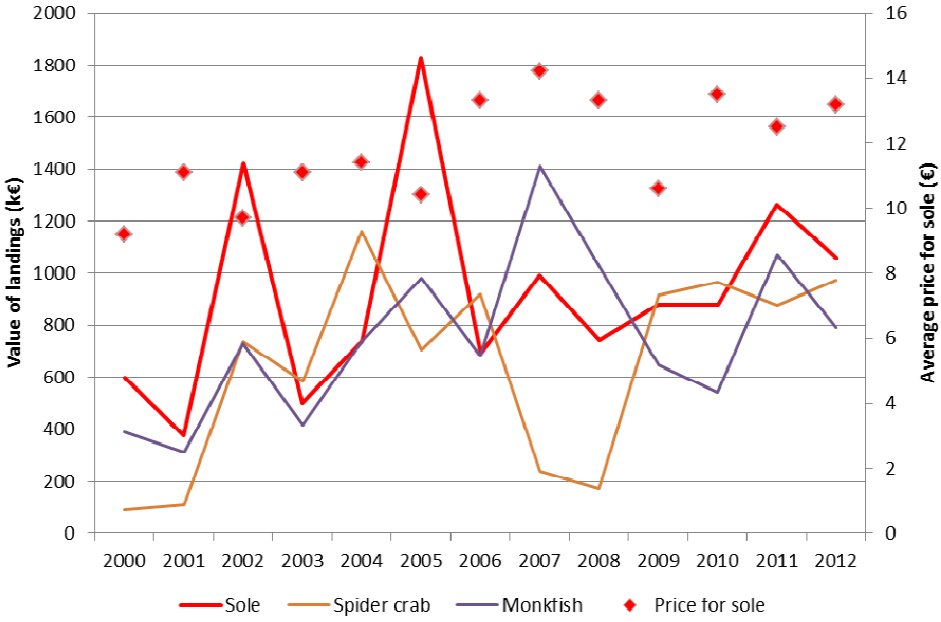

Figure 20. Evolution of the value of landings of main species and price for sole for the French netters fishing for sole in VIIe.

Source: DPMA/Ifremer-FIS

Economic evolution of the fleets exploiting the stock concerned in terms of Gross Cash flow, Gross Profit or Gross Value added were not available in the absence of a specific data call on disaggregated fleet segments.

6.1.3 Evolution of some economic indicators for UK beam trawlers

As it has been mentioned above, the following analysis is based on the selection of beam trawlers, belonging to South Western Fish PO and has to be considered representative for the evaluation of the economic behavior of UK fleets affected by sole management plan in the Western Channel (overall TAC, belonging to selected vessels counts for more than 50% of overall UK quota and 63% of quota, attributed to the beam trawling fleet).

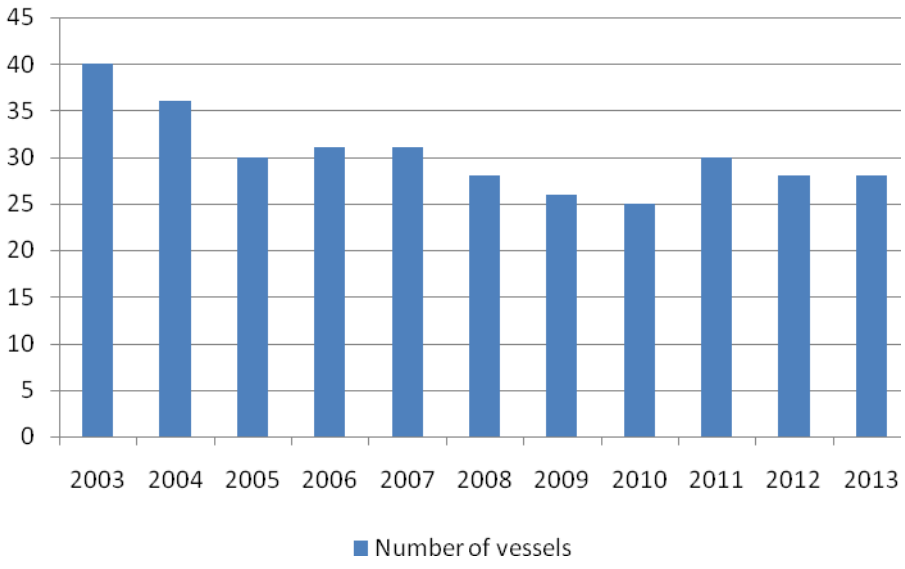

Figure 21. Evolution of capacity of the UK beam trawlers in 2003-2013.

The number of vessels, involved in the sole fishing in the Western Channel decreased in 2003-2005 before the implementation of the management plan at the time, when the sole quota in VIIe was on the lowest level over the analyzed period. The scraping scheme, implemented in 2008-2009, seems to be effective in reduction of fishing capacity in the area. According to the data set analyzed, the number of vessels reduced by 6 in 2007-2010, while the overall capacity of beam trawlers in the WC reduced by 12 in 2008-2010[1], most of them (8 vessels) been scrapped.

At the same time the UK beam trawlers seem to be able to increase overall landings in 2008-2012 (see Figure 22).

Figure 22. Evolution of the total value of landings for UK beam trawlers 2003-2013

Source: South Western Fish Producer Organization provided data

The landings statistics, obtained from the official data sources is showing quite big increase of the sole landings in 2005, which was driven by the increase of quota of sole in VIIe after prove of misreporting of catches in the area in 2004. Before 2005 most of the catches been reported as North Sea sole catches.

The overall landings of sole from VIIe in 2006-2009 was continuously decreasing (Figure 23) due to the decrease of overall sole quota, how ether after introduction of the management plan and with the improvement of the stock status and available quota the weight of landings increased in 2010-2013.

[1]SEAFISH data for South West beamers.

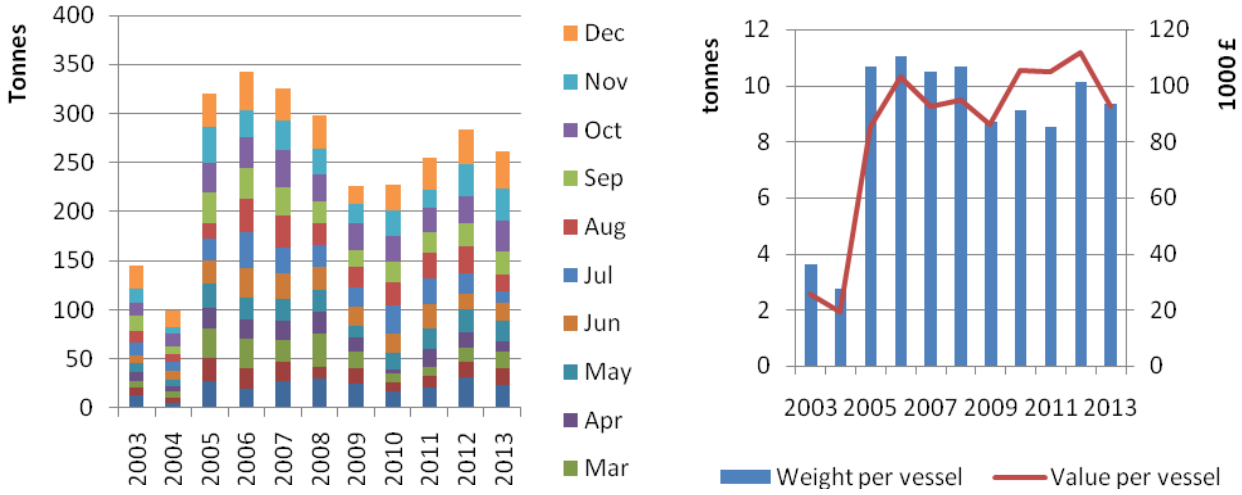

Figure 23. Landings of sole in VIIe by UK beam trawlers and average weight and value per vessel in 2003-2013.

Source: South Western Fish Producer Organization provided data

The average weight of landings of sole from VIIe per vessel, decreased by around 10-15% in 2009-2011, compared with 2008, however increase of sole price, compensated the decrease in weight of landings during the same period. At the average fleet revenues from the sole fishery in VIIe in real prices has been stable in 2005-2013.

The analysis of the economic behavior of beam trawlers, fishing sole in VIIe, is showing the shift from the sole fishery to other species, e.g. scalps or cuttlefish fishery (see Figure 24).

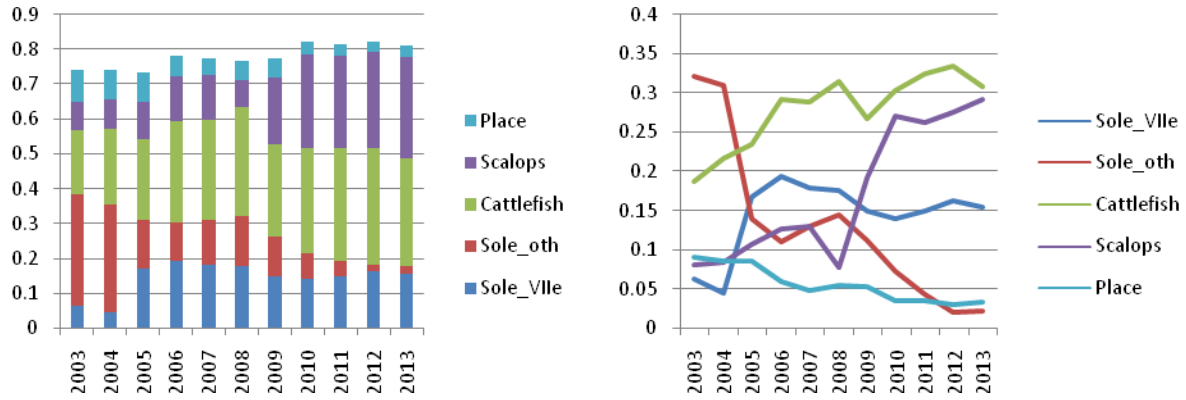

Figure 24. The economic dependency[2] to the major species of UK beam trawlers in 2003-2013

Dependency on sole, reported as coming from other regions, was continuously decreasing over entire period, while dependency on sole from VIIe remained more or less stable since 2005 when the problem of misreporting was eliminated.

The change to scallops fishery is considered as quite important economic decision of fisherman as for this change additional investment in the new gear is need. This is why the individual data been used to

[2] Estimated as the value of landings of targeted specie, divided by the total value of landings of fleet.

assess this kind of change in economic behavior of UK beam trawlers in 2003-2013. The Figure 25 is showing the changes in the individual dependency to scallops and sole fishery in the Western Channel beam trawling fleet. As we could see the number of vessels, scalloping at certain part of the year was continuously increasing since 2005.

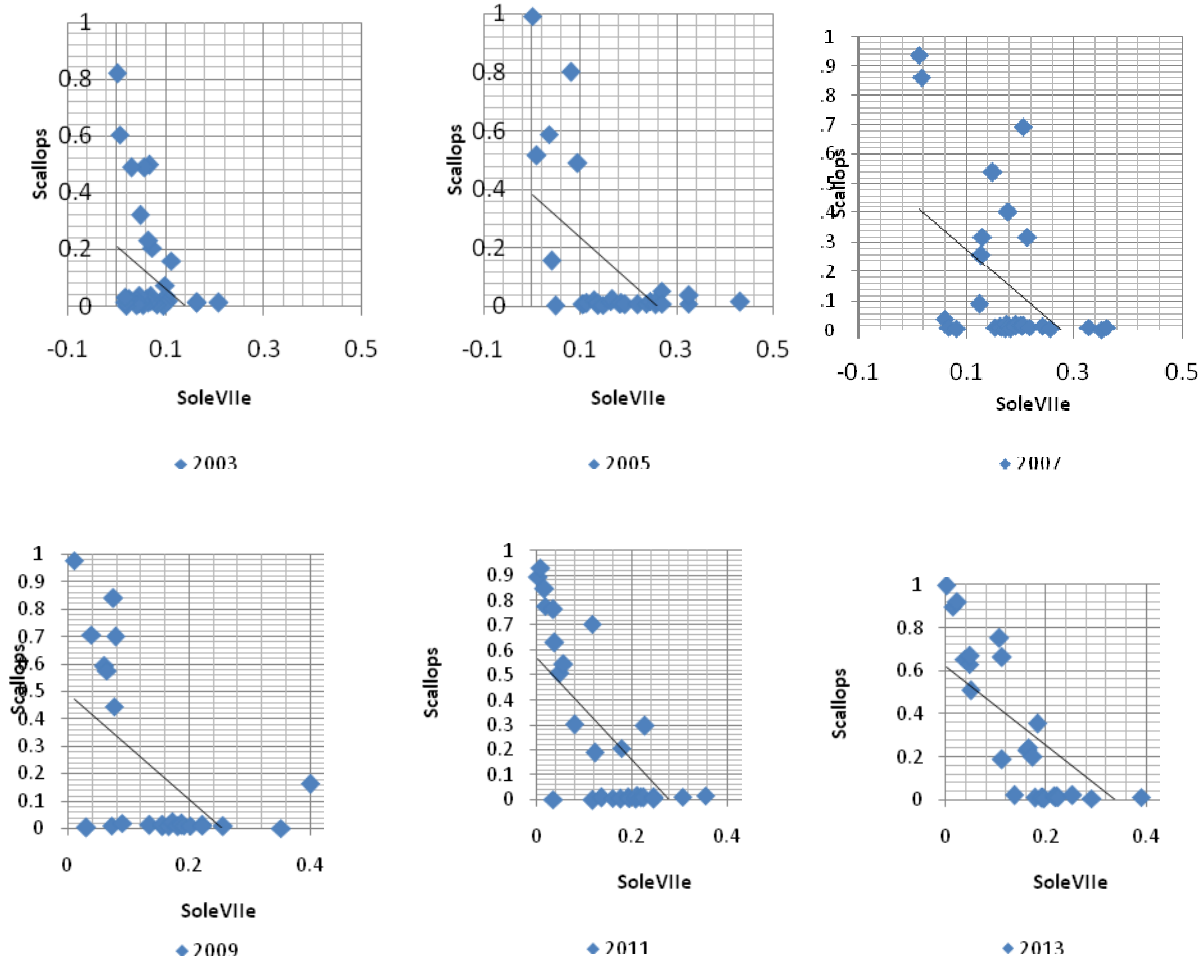

Figure 25. Change in the behavior of vessels during the year in terms of dependency to sole in VIIe and scallops fishing.

Source: South Western Fish Producer Organization provided data

Some of the vessels changed their behavior and started targeting scallops.

7 WHAT HAS BEEN THE ADDED VALUE OF THE MANAGEMENT PLAN

No formal comparison between the management plan and non management plan scenarios were carried out in this evaluation. The main reason is that the management plan other than its legal status does not differ from the management measures implemented for stock not under a management plan at the time. The only difference would have been that the reductions in F would have been stepped and held for three years allowing for a less dramatic reduction in landings but rebuilding the stock more slowly. However, due to the combination of poor compliance at the time and a lacking assessment to manage by the reduction in F was implemented as a single step in line with stocks not under a management plan.

This is not to say that the management plan has had no added value, but that these can only be described qualitatively:

- Fishing mortality on sole has been reduced considerably through greater compliance in the UK beam trawl fleet and TAC reduction from 2006 to 2010.
- The recovery phase of the plan provided the opportunity to decommission 8 vessels from the UK fleet with the express intent to improve the economic performance of the remaining vessel.
- Price stability and constraint variation of sole quota from one year to another have significantly improved the investment opportunities in the fleets exploiting sole.
- The management plan development focused greater international effort in the biological understanding and assessment procedure at the heart of the management plan improving our ability to manage the stock, with the added benefit of increasing the cooperation and trust between science and industry.
- The spatial shift of the UK beam trawl fleet has improved the selectivity pattern for sole and plaice and the gear improvements supported by the UK government have reduced by catch of other species in the fishery.

8 PERFORMANCE EVALUATION OF THE PLAN

The plan clearly has reached its objectives in terms of reducing F (2009) and increasing SSB (2006) to sustainable levels. However, current methods used to determine the appropriate TAC based on the assessment appear to lead to consistent under exploitation of the stock by around 10-15%.

The fleets exploiting sole have only been affected marginally in terms of income, either because their dependence on sole is low (trawlers, netters) or because they have been able to consolidate quota on to a smaller number of vessels and change their spatial pattern of exploitation to utilize other resources available in the area (beam trawlers). Increases in the biomass of the stock have not yet reached levels where the increase compensates for the lower level of F now exerted on the stock.

Effort has not been restrictive, suggesting that a mismatch between capacity and F remains, however all fisheries in the area are truly multispecies fisheries and the risk in decreasing effort or capacity further is that it precludes the exploitation of other lower pressure stocks and hence reducing the economic efficiency of the fleets. Paradoxically for the beam trawl fleet the plan has decreased the efficiency in exploitation of sole through an offshore movement of the fleet into areas of lower sole abundance. These boats will return inshore where fuel costs are lower and sole abundance is higher if effort or capacity were to be reduced further. In addition to the decrease in economic performance this would also increase the discarding of plaice due to the exploitation of plaice nursery areas.

Effort in kWdays as well as vessel numbers has been reduced in most of the fleets, but apart from the beam trawl fleet which had decommissioning, it is difficult to assess whether this is a response to the plan because of the low dependence on VIIe sole and resources exploitable in adjacent areas. In the French fleets, the decrease is mainly due to a decrease in the number of bottom trawlers in VIIe which might have shifted towards other fisheries.

Prices for sole and other species exploited by the fisheries have hardened up since the illegal landings have been significantly reduced stabilizing the legal supply and demand chain. This has been important in a number of stocks, but cannot always be associated with the management plan. For example cuttlefish prices are now higher than previously with quantities of landings having declined since the implementation of the management plan through a decrease in stock biomass. In contrast scallops have become more abundant in the area and now represent an important component of the catches. Lastly, angler fish have decreased in abundance as assessed by fisheries independent surveys, but landings and LPUE have increased due to a spatial shift in the beam trawl fleet.

There are currently no other management plans affecting the fisheries exploiting sole in the western channel, although a management plan has been suggested for VIIek cod. Such a plan if consistent with other cod management plans would likely only affect the otter trawl fleet. Although its dependence on sole is low they still make up around 30% of catches due to the sheer number of vessels indicating that there could be some interactions between plans.

Catch stability (15% TAC constraint) has been invoked occasionally in setting the TAC, however the differences between the actual and constrained TAC changes were minimal. Nevertheless the constraint has increased the certainty by its mere presence in the plan simplifying investment decisions and credit applications ensuring continued investment and employment in the UK beam trawl fleet at least.

9 CONCLUSIONS

- There is little doubt that the fishery for sole has been exploited to MSY criteria since 2009 ($F < F_{MSY}$) with biomass having been restored to precautionary levels (based on MSY $_{Btrigger}$) prior to the formal implementation of the plan in 2006.
- The TAC restrictions in conjunction with better compliance is the only management measure that is currently restricting catches of sole in the area. As such it is considered the only element of the plan that is having an effect. Some further measures may be necessary to improve compliance.
- Higher disaggregation levels for the economic data are necessary in order to assess the socio-economic consequences of the management plan appropriately. The problem is that the DCF data are aggregated by country fleets and supra-regions. It thus aggregates vessels fishing for sole in VIIe with vessels not fishing for sole (or fishing for other sole stocks) but belonging to the same DCF fleet
- There are currently no other plans in operation in the area, although a plan for Celtic Sea cod has been proposed several times. However such a plan would have little overlap with the plan for sole, as catches of cod in VIIe are minimal even for those vessels employing gears that would be more efficient at taking the species since the abundance of that stock is low in the area. Development of plans for other species caught by the fleets catching VIIe sole are difficult to link with this plan formally since the management units for most of the other stocks are spread across a much wider area (plaice, angler fish) or are none quota species (scallops, cuttlefish). In addition the multispecies nature of all the fisheries in the area precludes efficient management by linked plans and would challenge relative stability due to the national differences in fleets exploiting the multispecies resources.
- There is currently no need to revise the plan as the plan is achieving the desired objectives,

however a decision on whether to retain the complex procedure in maintaining effort restrictions that appear to be unnecessary / unrestrictive for all fleets could be reconsidered.

- Finally, management according to the plan is entirely reliant on the availability of a suitable stock assessment to set appropriate quotas. Despite the slight retrospective pattern currently such an assessment exists, but this has not always been the case so some form of procedure to set TAC in the absence of such an assessment should be formally included in the plan. The current method used to calculate the TAC is leading to persistent under exploitation of the stock with regards to the current F targets of the plan.

10 REFERENCES

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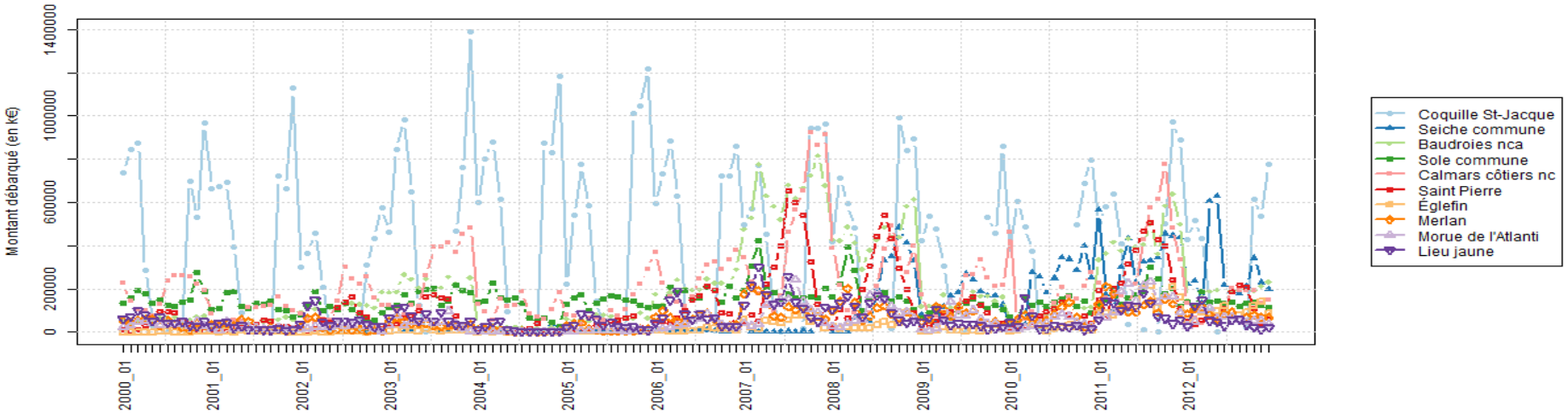
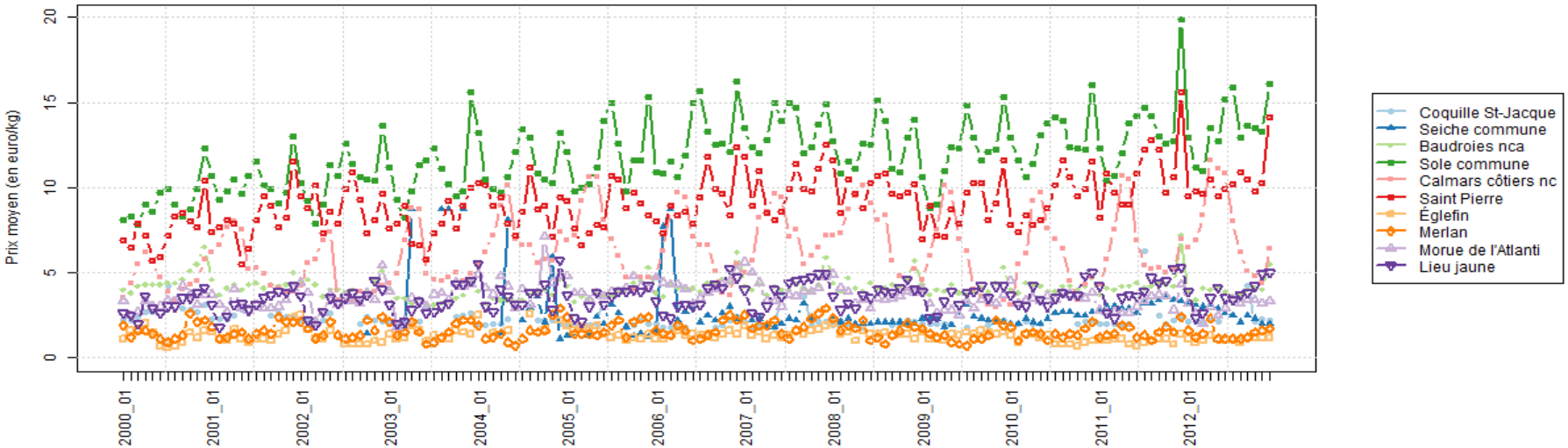
Annex

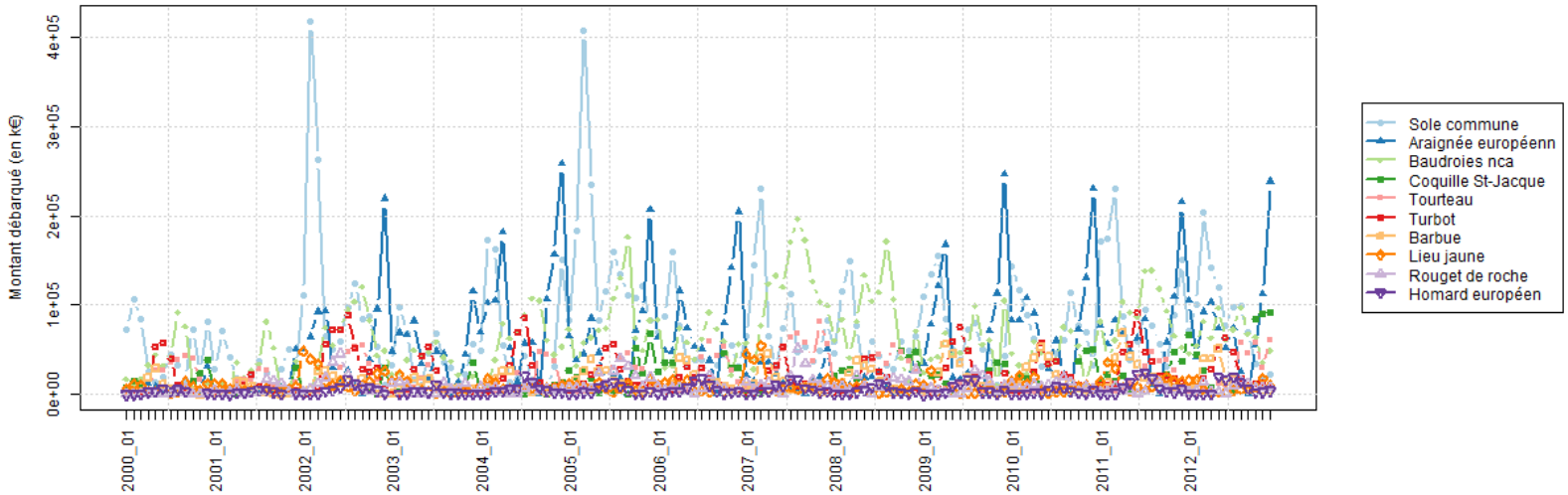
DTS: Value of landings (k€) for sole VIIe.



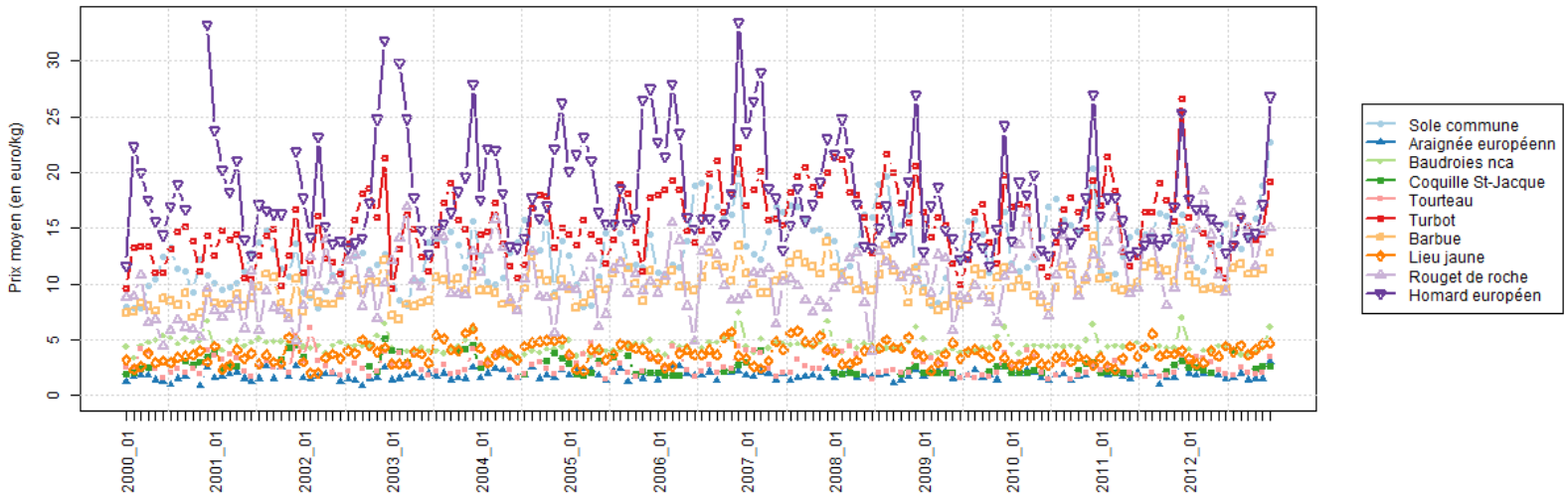
Prices(€/Kg)



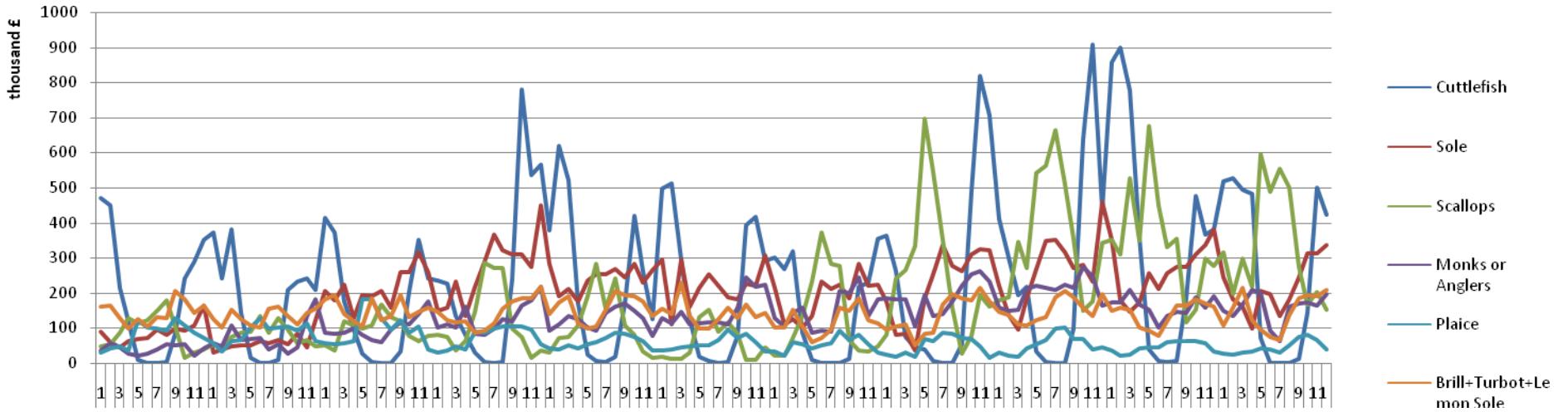
DFN: Value of landings (k€) for sole VIIe.



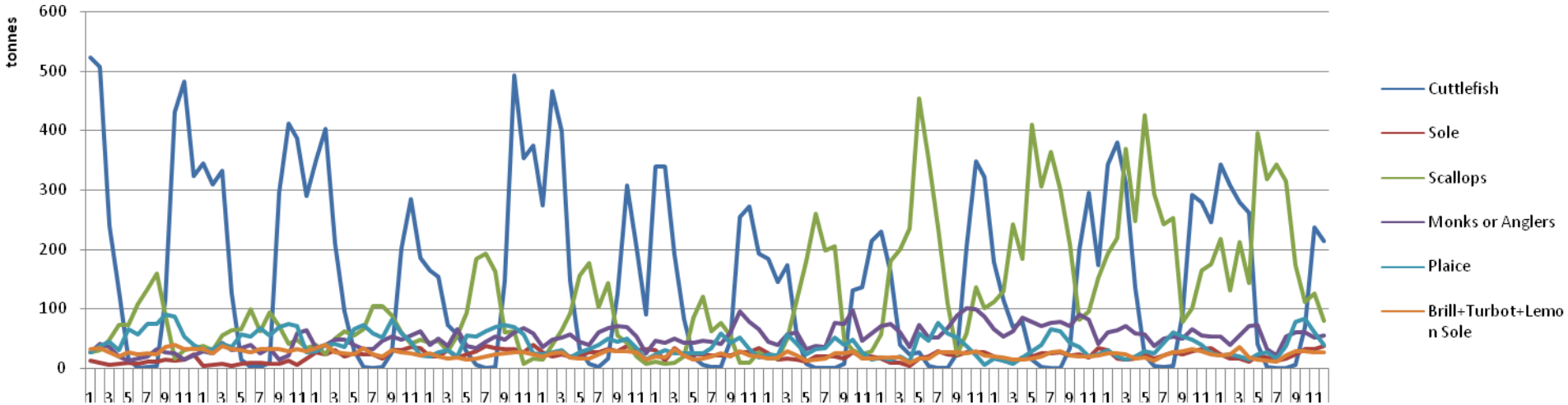
Prices (€/Kg)



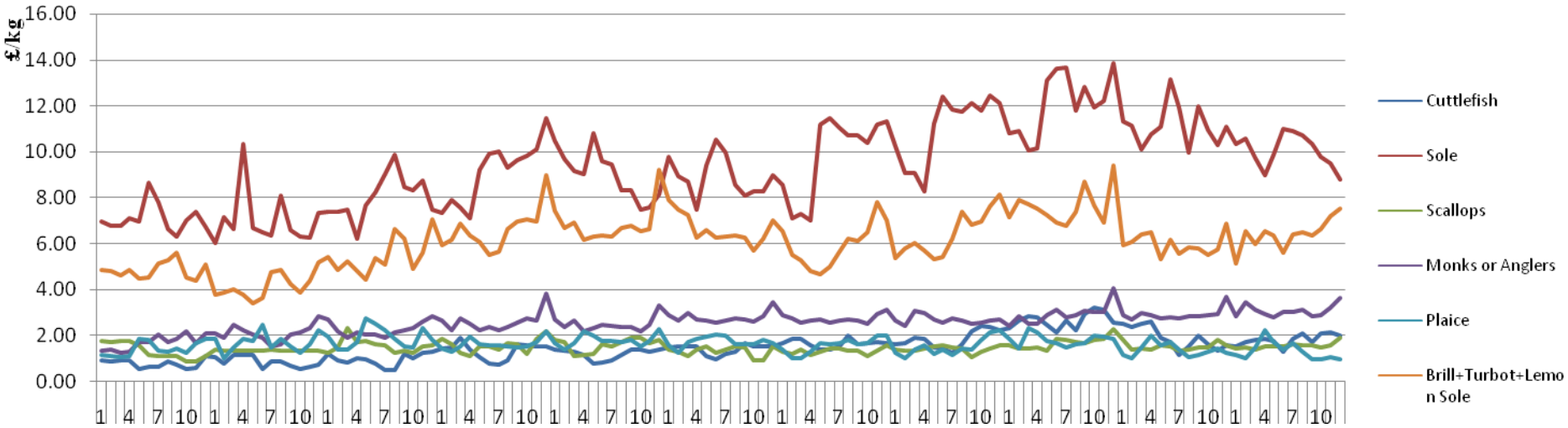
Value of landings of main species: UK trawls, targeting sole in VIIe



Weight of landings of main species: UK beam trawlers, targeting sole in VIIe



Price by main species: UK beam trawlers, targeting sole in VIIe



11 CONTACT DETAILS OF STECF MEMBERS AND EWG-14-03 LIST OF PARTICIPANTS

1 - Information on STECF members and invited experts' affiliations is displayed for information only. In some instances the details given below for STECF members may differ from that provided in Commission COMMISSION DECISION of 27 October 2010 on the appointment of members of the STECF (2010/C 292/04) as some members' employment details may have changed or have been subject to organisational changes in their main place of employment. In any case, as outlined in Article 13 of the Commission Decision (2005/629/EU and 2010/74/EU) on STECF, Members of the STECF, invited experts, and JRC experts shall act independently of Member States or stakeholders. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and invited experts make declarations of commitment (yearly for STECF members) to act independently in the public interest of the European Union. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: http://stecf.jrc.ec.europa.eu/adm-declarations

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12 LIST OF BACKGROUND DOCUMENTS

Background documents are published on the meeting's web site on:
http://stecf.jrc.ec.europa.eu/web/stecf/ewg1403

List of background documents:

1. EWG-14-03 - Doc 1 - Declarations of invited and JRC experts (see also section 09 of this report – List of participants)

European Commission

EUR 26613 EN – Joint Research Centre – Institute for the Protection and Security of the Citizen

Title: Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation/scoping of Management plans - Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007)(STECF-14-04). 2014. Publications Office of the European Union, Luxembourg, EUR 26613 EN, JRC 89793, 50 pp.

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Luxembourg: Publications Office of the European Union

2014 – 50 pp. – 21 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424 (online), ISSN 1018-5593 (print)

ISBN 978-92-79-37845-4

doi:10.2788/60247

Abstract

The Expert Working Group meeting of the Scientific, Technical and Economic Committee for Fisheries EWG-14-03 on Evaluation/scoping of Management plans. Evaluation of the multi-annual plan for the management of Western Channel sole (Regulation EC 509/2007) was held from 10-14 March 2014 in Varese, Italy. The report was reviewed and endorsed by the STECF during its plenary meeting held from 24 to 28 March 2014 in Brussels (Belgium).

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LB-NA-26613-EN-N

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

Publications Office

ISBN 978-92-79-37845-4
doi:10.2788/60247