JRC Scientific and Technical Reports

Scientific, Technical and Economic Committee for Fisheries (STECF)

Scoping meeting for Evaluation and Impact Assessments

PREPARED IN DRAFT BY THE

SG-MOS 10-06A COPENHAGEN 7-11 JUNE 2010,

FINALISED IN STECF PLENARY 12-16 JULY 2010,

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EUR xxxxx EN -

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JRC [PUBSY request]

EUR XXXXX LL
ISBN X-XXXX-XXXX-X
ISSN 1018-5593
DOI XXXXX

Luxembourg: Office for Official Publications of the European Communities

Printed in Country

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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF)

SCOPING MEETING FOR EVALUATION AND IMPACT ASSESSMENTS

The report of the SG-MOS 10-06a WG presents an agreed way forward to undertake assessments or evaluations of 5 separate multi-annual management plans. It represents the output of a scoping meeting between scientists, stakeholders and policy managers and as it represents a work in progress with no direct scientific opinion or advice on policy, the report need not be formally adopted by the STECF. Nevertheless STECF will formally review the outcomes of the subsequent meetings scheduled for October 2010 and 2011 and give its endorsement accordingly.

Five multi-annual plans were taken into account by the SG-MOS 10-06a participants, two for a future evaluation: the Baltic Sea cod management plan and the Southern hake and *Nephrops* management plan; and three for assessment: the North Sea sole and plaice multi-annual plan, the Western Channel sole multi-annual plan and the Bay of Biscay sole multi-annual plan. STECF members, JRC and invited experts, RAC representatives, national administration representatives and DG Mare desk officers attended the meeting.

Discussions were held on suitable methodologies and modelling approaches to be used or developed, data needed to carry out the evaluations and assessments, possible sources of complementary information to these once made available through the Data Collection Framework and on possible tactical management options or alternatives to be assessed. STECF agreed that the approach outlined in the report was appropriate.

As foreseen in the roadmap and methodology endorsed by the STECF, the next steps will involve the evaluation or the assessment of multi-annual plans during the planned SG-MOS meetings (SG-MOS 10-06b; impact assessment for a North Sea plaice and sole multi-annual plan; impact assessment for a Western channel sole; evaluation of the Southern hake and *Nephrops;* evaluation of the Baltic Sea cod management plan management plan) or work to be included in the 2011 STECF work programme (assessment or a Bay of Biscay sole multi-annual plan).

STECF comments

The STECF notes that this scoping meeting and results made available in the SG-MOS 10-06a report appear fully in line with steps of the assessment and evaluation process already endorsed. STECF recommends the SGMOS-10-06a report to be published as reference document.

1. INTRODUCTION

2. TERMS OF REFERENCE

Hold a scoping meeting for preparation of Impact Assessments for new management plans, and historic Evaluations of existing plans taking into account of the generic ToR from STECF report SG-MOS 10-01 (see Annex attached) and annex from SG –MOS 09-02 (See annex attached). The meeting should involve Commission staff, Stakeholders Economists and Biologists and should prepare for work on the following stocks:

Scoping for historic Evaluations of existing plans:

- *Western Baltic cod, Eastern Baltic cod*
- *Hake (VIIIa IXa), Anglerfish(VIIIc IXa), Nephrops (area VIIIc, IXa - FU 25-31)*

Scoping for Impact Assessments for new plans:

- *Bay of Biscay sole*
- *Western Channel sole*
- *North Sea plaice and sole*

The meeting should to determine the workload required and to reconcile this with available resources, to arrive at an effective detailed plan of what is needed to carry out the technical work that will underpin the required Impact Assessments.

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4. EVALUATIONS

4.1. Baltic cod

The plan (R(EC) 1098/2007)was formally adopted 18 Sept 2007. Implemented Jan 2008. Control measures were applied earlier and TACs were set from 2004

For the Evaluation the period examined should be for 2005 to 2009. For comparison the periods to compare are 2000 - 2004 with 2005 –2007 and 2008- 2009/10.

For the report the description of preparation of plan should go back to 2000 including developments under IBSFC.

4.1.1. Fisheries

Data is available from STECF effort data base (data from Sweden is not yet complete but its anticipated this will be concluded soon, data from Finland is less likely to be available but is thought to represent only negligible quantities of Baltic cod). Data is also from Fish Frame (from DTU-AQUA). A preliminary investigation of location and changes in effort and catch should be done by last week September. Software for data extractions used is available from Jan Jaap Poos via John Simmonds at JRC. Evaluate if there are any changes in catch per unit effort changes in efficiency. Look at displacement of effort to other species particularly for Polish fleet.

VMS data 2002 onwards (DTUAQUA / VTI) if possible this should be compared to effort data

An evaluation of fishery and assessment to see if it is possible to see selection on cod has changed would be helpful and should be done by late September. (VTI – contact Chris Zimmermann)

A review of issues area closures would be helpful, to draw out if there is any displacement of effort to other sizes/ages (Sweden – contact required?). Temporal closures exist for the summer in east and April in west a look at the appropriateness of current timing would be helpful (VTI)

Examination of coverage of plan, a look at the influence of recreational fisheries would be helpful (VTI– contact Chris Zimmermann)

4.1.2. Stocks

ICES assessments available for both stocks

SAM western cod –

XSA eastern cod -

Stochastic medium term projections under the conditions of the plans (with any appropriate errors) need to be provided to estimate probability of being at Fmsy by 2015 and general status of stocks in 2020. (DTU-AQUA – contact?)

Survey analysis – showing distribution of stocks and any significant changes should be available using BITS Feb Oct/Nov surveys. The method used in previous evaluations was based on the statistical approaches used in EU project FISHBOAT. (John Simmonds to discuss with Morten Vintner and pass FISHBOAT software as required)

4.1.3. Multi species model

As the Baltic is a comparatively simple area for multispecies evaluation (in comparison with other EU seas) if resources are available examination of multi-species effects would be helpful.

4.1.4. Economic / Social

The evaluation of the socio-economic aspects of the Baltic cod management plan will basically follow the approach as applied in the flatfish plan evaluation (SGMOS 0902).

Data provided in the 01/10 call for socio-economic data (and pending publication in the 2009 Annual Economic Report) are a necessary input for the analysis. It would be very informative to know for how many vessels within a relevant segment the Baltic cod stocks are of major economic importance. We define a rather arbitrary lower limit of 20% share of income from cod of the total income to select relevant vessels.

The capacity data is only available in the AER at a coarse scale. For most Baltic States (except Denmark, Germany and to a smaller extent Sweden) the capacity data we have on vessels catching cod appears to cleanly identify those smaller vessels operating within the Baltic. So in allocating capacity for these fleets just to these areas errors would be small. These small errors might be improved by partitioning the few overlapping segments according to effort data in different regions on a finer scale if it was thought necessary. The problem of properly allocating capacity lies with Germany and Denmark (and to a lesser extent Sweden) which have fleets of similar classed vessels that operate in the Baltic and different vessels of the same segment that fish in the North Sea and the information in the AER database is not sufficient to separate these. For these three MS an effort key is not a good to get good capacity data so something additional data are required. For this reason it is requested to obtain capacity data for Germany, Sweden and Denmark from 2005 to 2008 in addition to all data for 2009 from all countries. The text table below indicates the data required. The cells with the yellow “X” for 2005-2008. All other data for 2005-2008 should be available through the 2010/1 AER call data set. For 2009, the table below is required for all member states in the Baltic.

2009 cost data are not going to be available by the time the evaluation meeting is scheduled. As a first approach, the cost data should be estimated on the basis of 2008 cost data, using the 2009 transversal data (capacity, effort, landings see table below) and some price indices, e.g. for fuel.

Year	Fleet segment		No. of vessels			Landings t			Income 1000 €		
			Generating >20% income from Baltic cod			Baltic cod			Baltic cod		
	TECH	VL	ICES 22-24	ICES 25-32	Total	ICES 22-24	ICES 25-32	Total	ICES 22-24	ICES 25-32	Total
2005			X	X							
2006			X	X							
2007			X	X							
2008	...	...	X	X							
2009	X	X	X	X	X	X	X	X	X	X	X

For the evaluation of the management plan it has to be born in mind that the definition of several variables has changed with the implementation of the DCF in 2008. That means values from years prior to 2008 are not necessarily comparable values from years 2008 onwards. This applies in particular to the capital value and capital cost.

This is one reason why the scope for the consideration of the economic performance is proposed to be limited to the gross cash flow and gross value added.

Some biological based effort data is available from the STECF database – which in some cases may not conform to economic fleet segmentation. Economic data is collected according to DCF economic fleet segmentation that is not suitable for some fisheries that focus on a number of smaller stocks in diverse areas. Harmonising the fleet segmentation across data sources is important in the longer term, however, for the present work should be done with the segmentation available.

Preparatory requirements:

2009 transversal data have to be collected and be filled in tables of the subsequent type, which might then directly be included in the evaluation report. In this context it has to be addressed that the fleet segmentation has been changed from 2008 onwards, basically through the introduction of two more length class thresholds at 10m and 18m. For reasons of comparability with 2005-2007, the 2008 data for the VL0010 and VL1012 length classes should be accumulated (as well as for the VL1218 and VL1824 length classes):

Spreadsheets for the required data will be provided in early Sept from JRC. These will show available data for fleets from 2004 onwards (see example below). Member States should fill in the 2009 data that is available.

yellow areas to be filled for each DCF segment; source = 01/2010 data call
orange areas to be filled for each DCF segment; source = 01/2010 data call

Segment 1	Country	XYZ
	Segment Gear	DTS
	Segment lengt	VL2440

	2004	2005	2006	2007	2008	2009	age 2004-2006	ge 2007-2009	Change, %
1000 Euro, segment total									
INCOME	1000	1001	1002	1003	1004		1001	1004	0%
COSTS	*471*	*681*	*653*	*883*	*652*	*0*	602	512	-15%
Energy (fuel) costs	160	170	180	190	200		170	195	15%
Repair costs	68	70	75	70	80		71	75	6%
Variable costs	104	170	150	120	88		141	104	-26%
Nonvariable costs	0	0	0	176	84		0	130	#DIV/0!
Cost of fishing rights	0	0	0	0	0		0	0	#DIV/0!
Crew wages including value	139	271	248	327	200		219	264	20%
Derived indicators									
Gross cash flow	529	320	349	120	352		399	236	-41%
Gross value added	668	591	597	447	552		619	500	-19%
Employment (FTE)	158	131	119	129	56		136	93	-32%
Capacity indicators									
Number of vessels	12	9	7	6	5	4	9	5	-46%
Fleet (kW)	2886	2046	1659	1448	1123	983	2197	1185	-46%
Fleet (GT)	1551	1163	956	818	597	523	1223	646	-47%
Effort indicators									
days at sea	1994	1308	840	621	318	400	1381	446	-68%
GT-days (where applicable)	247806	160544	102525	74286	33264	66666	170292	58072	-66%
kW-days (where applicable)	435044	280997	180495	134673	62709	99999	298845	99127	-67%
Cach composition, volume									
COD	754712	764285	749434	642444	536865	444444	756144	541251	-28%
2 main species, FLE	269926	289601	95248	93185	151693	180000	218258	141626	-35%
3 main species, SPR	1968428	801507	62901	257357	221327	333333	944279	270672	-71%
Total volume	3556158	2072007	1053011	1115520	941809	999999	2227059	1019109	-54%
Cach composition, value									
COD	895724	1062491	1035334	937969	789127	777777	997850	834958	-16%
2 main species, FLE	96129.58563	100649	34179	39587	64665	99999	76986	68084	-12%
3 main species, SPR	196715.5097	78924	5082	30625	29877	33333	93574	31278	-67%
Total value	1306662.083	1305679	1117148	1041801	895482	822222	1243163	919835	-26%
COD volume, %	21%	37%	71%	58%	57%	44%	43%	53%	10%
COD value, %	69%	81%	93%	90%	88%	95%	81%	91%	10%
		13%	11%	-3%	-2%	6%			
Productivity/efficiency indicators									
t/GT	2293	1782	1101	1364	1578	1912	1725	1618	-6%
t/DAYATSEA	1783	1584	1254	1796	2962	2500	1540	2419	57%
Value of COD/day at sea	449	812	1233	1510	2482	1944	831	1979	138%
Value/FTE	8270	9967	9388	8076	15991	#DIV/0!	9208	#DIV/0!	#DIV/0!
GCF/vessel	44	36	50	20	70	0	43	30	-30%
GCF/day at sea	27	24	42	19	111	0	31	43	40%

The report of SGECA10-01 February 2010 contains calculation definitions for some parameters

Cash-flow: Refers to the Gross Cash-Flow, as defined in the Concerted

Action. Income minus all operational costs, excluding capital costs: income

– (fuel cost + crew cost + repost +varicose +fixed cost)

Gross Value Added (GAVE): Contribution to gross national product (GNP), sum

Of remuneration of labour (crew) and capital (owner). Income minus all expenses except crew

Estimation of 2009 cost data should be performed using a uniform approach.

It is proposed to adjust 2008 data by the 2009/2008 ratio of the following variables:

Crew cost: value of landings ratio (as crews usually get paid by a fraction of the earnings). In case of evidence that minimum wages had been applied, this should be further accounted for the fleets concerned.

Fuel cost: Trays ratio and fuel price index ratio

Repair and other variable cost: Trays ratio

Fixed cost: GET ratio

If there is evidence that exogenous aspects (not deriving from the LTMP) interfere with the development of the cost structure, the estimation procedure should be adjusted accordingly.

Potential effects interfering with consequences of the management plan:

It is possible that the consequences of the management plan are superimposed by other effects or that the implementation of the management plan coincides with other measures, e.g. scrapping schemes. In that case any trends observed in the fleet economic data might not be a consequence of the management plan. If there is evidence for such effects, it should be taken into consideration for the evaluation. Hints for potential interferences (e.g. effects of the fish market, other legislative impacts, decommissioning schemes, lending policies) should be requested from the Baltic RAC.

4.1.5. Alternative scenario

For alternative scenarios the procedure is to use Commission policy documents (From John Simmonds) which are available 2006,7,8 (2009 /2010 to be confirmed) and for earlier years ICES precautionary advice – see Table below. FLR software (from Rob Scott and John Simmonds JRC) is available if required for the XSA assessment (Eastern Baltic). Contacts for alternative scenarios Maris Pliks (Eastern cod), Marie Storr-Paulsen (Western Cod)

Advice Year	TAC Year	Basis of TACs
2004	2005	ICES PA advice
2005	2006	ICES PA advice
2006	2007	COM 2006 499
2007	2008	COM 2007 295
2008	2009	COM 2008 331
2009	2010	COM 2009 224 (to be confirmed)
2010	2011	COM 2011 241 (to be confirmed)

4.1.6. Actions

Current estimates suggest that most the work can be done in advance of the meeting in October.

JS contact for alternative scenarios Maris Pliks (Eastern cod), Marie Storr-Paulsen (Western Cod) and supply Commission docs and FLR code.

Circulate biological results 1 month before the meeting.

JS / Follow up contacts with Baltic RAC.

Commission should provide / confirm the document numbers for plans and a brief report including the description of preparation of plan which should go back to 2000 including developments under IBSFC.

Commission should request / supply information from enforcement (CFCA) regarding effort and landings of cod from the Baltic.

4.2. Southern hake and Nephrops

The current Plan in defined in Council Reg. CE 2166/2005. The Plan considers Southern hake and Norway lobster which inhabit in ICES Div VIIIc and IXa. The objective of the plan is to rebuild the stocks concerned to within safe biological limits in 10 years. For hake this means 35 000 t of SSB by 2016. No quantitative targets for Norway lobster.

As instruments to achieve the above objectives

- For hake: set TAC according with 10 % annual reduction in F until reach F=0.27.
- For Norway lobster: apply the same relative F reduction
- +-15% bounds on TAC regarding previous year TAC
- Effort limitation: reductions of days at see equivalent to F reduction

The state of the Southern hake stock under the recovery plan can be based on the population model for hake accepted by ICES to provide advice. Where possible trends in Nephrops FUs can be evaluated.

4.2.1. Fisheries

Effort data is regarded as important for evaluation.

Following the STECF Effort Data meeting in Lisbon (SG-MOS 10-04) very preliminary evaluation suggests catch data appears to be in relatively good order and effort data from Portugal is now available though the suitability of some effort data from Spain is in uncertain.

A number of initial comments can be made regarding the importance of effort data. From the ICES assessment of Southern hake (see below) it is possible to conclude:-

1) F on Southern hake has not reduced during the period of the plan.
2) TACs have not been restrictive for landings or catches of Southern hake

To make any sensible conclusion leading to recommendations for the future it is necessary to:-
1) Check if STECF effort database catches conform to ICES catches (currently preliminary investigations suggest this may be OK and catch data by fleet may be useful).
2) Identify which fleets catch hake significant quantities of hake (even if it is low

tonnages per boat) and if these fleet segments are available separately in the STECF database.
4) Determine if significant catch is from fleets outside regulation (or not).

All the above may be possible with current data.

5) Determine if effort has reduced with or without catch changes for fleets for those under the plan. (This item depends on reliable effort data which is still in question)

Initial evaluations suggest that the landings data in STECF database may be coherent with ICES assessment values. SGMOS 10-04 indicated that the discard component of catch may differ from the reported discards at ICES, giving overall catches that are different. SGMOS 10-04 has found some issues with Spanish effort data and this data is still being evaluated. The next SG MOS effort data meeting is currently set for 27 Sept this year. SG MOS 10-04 hope to have revised effort data available for hake and Nephrops by early September this year; this should be in sufficient time for the SG MOS 10-06 meeting in mid October. If available this will be circulated in September.

Discards are included in the effort call and available in data for the ICES assessment. They may not be exactly the same since they have been reviewed for the last assessment, however the differences may not be great. The more recent analysis under the effort data can be taken as the most valid.

4.2.2. Stocks

ICES assessment for Southern hake. Southern hake is assessed with an age-length structured model with the individual based model GADGET. Fmax = 0.26 have been suggested as a proxy for Fmsy. Catches have increased since 2004 by substantially more than the TAC. The assessment results show Fishing Mortality was relatively stable in recent years being about 3 times over Fmsy. Recruitment has been high since 2004 and SSB has eventually increased in recent years. Recruitment in 2009 is uncertain however there are signals of good recruitment. Reference points have been reviewed. No reference points for SSB have been suggested given the lack of signal on the SSB-Recruitment plot. This has implications on the evaluation of the recovery plan since their objective was to achieve SSB equal to 35 000 t by 2015. The new assessment is provided on a different basis and gives a different historic perspective. However, the differences may not be that great, comparing an old assessment from 2004 the mean of SSB 1982-89 is 35 000 t. The new ICES assessment (2010) gives SSB in the same period as 36 000 t suggesting that the new assessment has not revised the estimate of historic SSB by very much. Blim was set in 2003 based on results showing bad recruitments below SSB=25 Kt; (Bpa=Blim*1.4=35 Kt). In the new assessment this signal does not exist, a lower breakpoint is weakly supported by the data. If an alternative biomass target is need this will need some consideration. However, yield per recruit analysis (ICES 2010) suggests that the equilibrium biomass generally associated with the proposed Fmsy is well above 35,000 t so the requirement for a different biomass target may not be of high importance.

Summary for state of Nephrops FUs and trends in landings.

There are 7 FUs affected by the Plan. These are assessed with CPUE trends, with the exception of FUs 28 and 29, which are assessed together with XSA; though those results are valid only for trends. No reference points have been suggested for these FUs.

Division VIIIc has two Functional Units of Nephrops: a) North Galicia (FU 25) and b) Cantabrian Sea (FU 31). The catches have drop continuously from 600 t in 1991 to 60 in 2008. LPUE trends indicate that the FU 25 is at a very low abundance level. FU 31 available information indicates that the state of the stock is poor.

There are five Nephrops Functional Units in IXa, which are assessed as three stocks units:

West Galicia (FU 26) and Northern Portugal (FU 27),
South-western Portugal (FU 28), and Southern Portugal (FU 29),
Gulf of Cadiz (FU 30).

Landings in FU 26-27 (West Galicia and North Portugal):- have gradually declined since the 1980s, and are now very low. LPUE levels are low, but increased slightly in 2007. Mean sizes have increased in recent years and this may reflect continuing poor recruitment as indicated in the previous assessment. Available information indicates that the stocks are at a very low level of abundance.

Landings in FU 28+29 (SW and S Portugal):- The stock assessments are only indicative of stock trends. The stock appears to have recovered from its low level in 1996 to almost the level of the mid-1980s by 2002 and has been relatively stable since then. The average landings during the period when the stock was recovering (1996–2002) was about 200 t. Therefore, ICES advises that landings in 2009 should not exceed 200 t.

Landings for FU 30 (Gulf Cadiz) have been between 1000 and 3000 t in 70s and 80s; since than have dropped until 300 t. The stock appears to be low and relatively stable based on survey and LPUE data, but the stock status is unknown in relation to its long-term potential.

Scientific surveys SC EJ --- JS to discuss data availability and software availability and contact Fran Velasco from IEO.

4.2.3. Economic / Social

Currently there is uncertainty in the validity of Spanish fishing effort data, in the STECF database. Portuguese landings and effort data from the SG MOS 10-04 meeting are possibly correct

It is intended to try to revise the Spanish effort data by the next SGMOS meeting in late September. Continued analysis may depend on accepting the data. If the data is incorrect we need to say why we think this is the case.

Economic analysis can be done at population level if assumption on sampled data are acceptable. WD to be provided by Jose Maria Da Rocha Alvarez

4.2.4. Alternative scenario

Option 1 – show what would have been expected if catches had been reduced according to the plan

Option 2 – describe changes in fleet structure related to effort restrictions. Discuss possible fleet differences that would have resulted without plan. If possible look at impact of catch of under 10m fleet segment if data is available. SC to check if under 10m data on landings is available.

4.2.5. Actions

It is important to determine validity of STECF effort database and see what is possible. Preliminary examinations suggest that landings in the database are coherent with ICES data though some checks on landings of under 10m vessels remain to be carried out. J S to keep in touch with effort database at JRC and coordinate with EJ and S C as necessary with objective of confirming data availability in September

Hake / Nephrops discard data needs to be confirmed. (Santiago /Ernesto)

Spanish Effort data needs to be checked.

The Commission needs to provide document reference numbers for the plan and any other formal documents. The Commission should prepare a note on any issues regarding the agreement. Particularly which fleets were covered by effort regulation and how the effort regime was to be monitored.

Commission should request information from enforcement (CFCA) regarding changes in effort and monitoring of landings of hake from VIIIc and IXa.

Scientific surveys SC/EJ --- JS to discuss data availability and software availability.

5. IMPACT ASSESSMENTS

5.1. General Objectives

Following a discussion the following general objectives were selected as the main objectives chosen to compare different plans. For each of the general objectives specific parameters that serve as the metrics to be measured are identified.

Type of Objective	Objectives	Parameters to monitor	Conditions
Environmental / Biological	MSY (2015 and later) GES (2020 and later)	Fishing mortality	1) F target = Fmsy 2) If multiple objectives F <= Fmsy
Economic Objectives (for both fleet and infrastructure)	MEY	Resource Rent	1) Maximizing resource rent 2) Ensure that a minimum resource rent is achievable across a three year period
Social Objectives	Potential employment	1) Revenue	1) Maximum revenue

	and quality of employment	2) Gross value added (as indicators of employment)	2) Maximum gross value added.
Efficiency	Management/Resource costs	Value of fishery Costs of management and enforcement	Cost/benefit ratio of management is maximized.

5.2. Bay of Biscay sole

5.2.1. Objectives of management

The general objective of the multi-annual plan is to ensure the sustainable exploitation of the Bay of Biscay sole stock. This aim implies that fishing mortality will deliver the highest yield in the long term and it should consequently be at or below Fmax. The economical sustainability of the fishing is embedded in the general objective of the pluri-annual plan. According to the industry, stability and predictability of the dynamic of the resource is an important component of this sustainability.

Objectives of SWW RAC

The considerations below have not been adopted within SWW RAC Executive Committee because of the schedule of this meeting.

Stock of sole in the Bay of Biscay has reached safe biological limits. The current management strategy is now based on moving to an MSY long term approach. But with additional criteria of ensuring the stock remains within PA reference points.

The general objective of the plan are both biological and economic : setting a long-term fishing mortality target (Fmsy) while maintaining sustainable economic conditions.

Fmax appears to be a plausible Fmsy fishing target.

It seems that we are not able yet to deal with an economic target but Ifremer is building a bio-economic model. Professional organisation, DPMA and SWW RAC are involved in this workshop. Suitable and effective socio-economic indicators should help us to assess our different options.

It estimated that information from this study will be available in early 2011.

5.2.2. Tactical options and scenarios

Position of the SWW RAC:

5.2.2.1. Options history

The Bay of Biscay sole stock is quite closed to MSY fishing mortality level (Fmax), and achieving such level in the long term doesn’t require the application of drastic measures. Difficulties met by the fishing sector should be taken into account while elaborating the new plan :

- difficulties to set up new fishermen's own business in the fleet due to the reduction of capacity ceiling after decommissions (SFP management rules)

- boats are getting older and older, we have to take that into account in the IA

- lack of economic visibility

- fishing capacities of boats under 10 meters are not taken into account in the current declared capacity ceiling (SFP). We have to be more clear about SFP new management rules.

The difficulties in providing detailed options come from the need to identify first the problem (the fleets concerned) and to describe the starting points (economic in particular).

In the framework of the IA, we will test different management measures but before putting them into the plan, we probably have to evaluate the added value, against keeping them under national tool box.

5.2.2.2. Options

1) Test the sensitivity of the Fmsy to changes in the exploitation diagram (fraction of the stock caught by age or size)

The STECF study group has suggested that the fishing mortality that would enable the maximum sustainable yield to be reached is the Fmsy = F max = 0.24 (STECF needs to evaluate Fmsy as part of the impact assessment to ensure that Fmax is sustainable and gives a sufficiently low risk of SSB<Blim)

However, the value of Fmsy depends on the stock exploitation pattern (selection at age). In the context of management option simulations, the range of variation of values for Fmsy depending on modifications of the exploitation diagram should be established. This analysis must enable the determination of which exploitation approach would enable an Fmsy exploitation that gives the most beneficial exploitation.

It should be noted that, in the context of the Bay of Biscay sole fishery, the exploitation diagram depends on:

- the respective fishing pressure of the different fleets (behaviour, days at sea, etc.): nets, bottom trawls, beam trawls;
- The selectivity of the fishing gear used.
- The sorting practices for fish caught, taking account of market considerations and considering the survival rate of individuals thrown back.

2) Strategies during transition to Fmsy

2a) Test Fixed TAC strategy during the transition period to Fmsy.

In line with the advice issued by SW RAC after its March 2010 Executive Committee meeting, SW RAC's "Sole" *ad hoc* group wishes to test the option of a constant TAC enabling the Fmsy to be reached by analysing the time required to reach this objective while considering that the current capacity in the fishery remains.

A range of constant TACs between 3,600 and 4,600 tonnes could thus be tested. (such a constant TAC strategy would also require the possibility to reduce the TAC during this period if the stock assessment indicated that Fmsy was not likely to be attainable while continuing with the constant TAC. This additional use of a breakpoint would need to be included in the

tests to check the robustness of the strategy). The test should look both at what rule achieves Fmsy in 2015 with 50% probability and at what year Fmsy is achieved with a 50% probability with a breakpoint that has a very low probability of being triggered.

2b) Test gradually reducing the fishing mortality rate on the stock during the transition period

What could be the consequences on the annual TAC ?

2c) Constraints on changes in TAC.

Where SSB falls under precautionary level, a new recovery step should be activated.

In this case, the TAC could be reduced in order to re-establish the biomass within the precautionary limits in the shortest possible time compatible with socio-economic equilibrium of the fishery. The limits to the changes in TAC levels should be constrained as in the first part of the plan (+15/- 15%).

A break out point could be based on economic aspects but the results from the bio-economic model Ifremer is developing are required to evaluate this.

3) Evaluation of TAC once F is equal to Fmsy

3a) Where the current F has been estimated to be equal to or below Fmsy, the TAC should be set at a level of catches that will result in the target Fmsy decided by the plan.

What could be the consequences of that strategy on TAC variability ?

3b) What could be the added value of a constant TAC strategy when fishing at approximately MSY with respect to 3a?

5.2.2.3. Conclusions

When available, the bio-economic model should be run for the criteria above. The results from these studies will not be available for the STECF October 2010 meeting. So we request to delay the IA for Bay of Biscay sole to and STECF SG-MOS meeting February/March 2011.

That will permit us to take into account the information's from the Benchmark workshop on sole which takes place on the same time schedule. This implies effectively carrying out the benchmark study in 2010 in and the data can be supplied for economic modelling in January.

MS Position (France):

Some tactical options have been proposed by RAC and they need to be commented on by STECF. However, it seems more efficient to test these options together under biological and economic considerations. The bio-economical model is not available for October, therefore it is necessary to delay the impact assessment the beginning of 2011 February / March before the next spring STECF plenary. This option has been discussed with Ifremer, RAC, STECF and CE, the French authorities will ask to delay the impact assessment.

5.2.3. Definition of starting point for options and scenarios

Biology will be defined from the next ICES Benchmark (see also modelling below).

It should be noted that to conduct the management plan bio-economic assessment it is necessary to identify groups of vessels of same strategies (homogeneous gross revenue species structure) and of same cost structure. The bay of Biscay sole is fished by mainly three different fleet segments: a French trawler segment, a French gill-netters segment and a Belgium beam trawler segment. Among these segments several strategies can be distinguished according to their contribution to sole fishing mortality and to their dependence on this species (in terms of part of their gross revenue formed by sole). Segmentation based on fleet segment (trawlers, gill-netters or beam-trawlers), dependence on sole and length structure enables to differentiate several groups of vessels (or sub-fleets) for which management plan's impacts are expected to be different. Among vessels of the bay of Biscay that catch more than 1 ton of sole per year, the following sub-fleets can be identified:

- gill-netters directed on sole the main part of the year and that are therefore highly dependant on this species,
- other gill-netters catching sole and other fishes (hake, monkfish..)
- trawlers targeting Nephrops most of the year and by-catching sole
- other trawlers catching a mix of species of which sole, hake, monkfish, cephalopod etc.
- beam-trawlers

Characteristics of these fleets are provided in the table bellow:

	Nb of vessels	Total Employment	Mean crew nb	Mean length (m)	Mean age of vessel
Sole gillnetters	170	547	3	13.01	20
other gillnetters	38	101	2	11.32	16
Nephrops trawlers	77	242	3	15.04	21
other trawlers	159	483	3	15.32	19
Beam-trawlers					

Sources: IFREMER/SIH/French Ministry

In 2008, the trawler segment and the gillnetter segment respectively provided 65 and 44 millions euros of Gross revenue. Sole represented about 11% of the value of landings for the trawlers that contribute to 20% of the fishing mortality on the stock and 56% of the value of landings for the gillnetters that catch about 60% of the total landings of sole of the Bay of Biscay.

Gillnetter segment is more performing than the trawler segment mainly because of the variable cost structure. Gillnetters' variable costs represent 17% to 24% (according to length class) of the gross revenue and trawlers' variable costs vary between 26% to more than 30% of the gross revenue.

Within the gillnetter fleet, the fleet segment upper than 12 meters was in 2008 the most profitable of the fishery.

5.2.4. Tactical options to be evaluated.

TACs with effort restrictions

5.2.5. Plausible biological and economic scenarios

Basic biological scenarios are based on ICES assessment and hockey-stick model based on SSB and recruitment data. The S/R data shows some evidence of reduced recruitment in recent years relative to earlier values. Its unclear if this is due to a relationship between SSB and recruitment or if there is some change in productivity. Sensitivity of management to the level of recruitment should be tested based on 2 biological hypotheses

1) S/R relationship fitted to data (Hockey Stick)

2) S/R with break point at lowest observed with mean recruitment based on two options (a) yc 1984-94 or (b) yc1995-2005.

Economic impacts of options will be assessed in terms of impact on indicators such as gross revenue, gross operating surplus or total surplus but no economic scenarios will be taken into account at this stage. Results of scenarios tested will be nevertheless discussed according to likely expected economic dynamics like investment dynamics leading to capacity increase, report of effort on other metiers, price-quantity relationship limiting expected impacts of catch increases on value etc.

5.2.6. Methodology to be used.

A bio-economic model in development at Ifremer in the framework of a project funded by the French Ministry will be used to perform the bio-economic impact assessment.

The model is multi-fleet and multi-species. It enables to test the economic impacts on different fleet segment of management measures such as F reduction.

It is composed of

a biological component that :

- allocate initial fishing mortality between sub-fleets according to their main metier and to their contribution to fishing mortality

- calculate step by step the stock numbers at age according to fishing mortality simulated

- calculate step by step catches per sub-fleet according to the stock status

a market component that:

calculates the sole gross revenue per sub-fleet according to the price assumed (at this stage a constant price assumption is made)

an economic component that:

- calculates the total gross revenue per sub-fleet according to the initial gross revenue of other species and assumptions on joint production or non-joint productions

- calculates economic indicators of sub-fleets performance such as gross operational surplus according to fixed and variable costs per sub-fleets

- Calculates cost-benefit indicators to evaluate the scenario.

Complimentary biological modelling will be used to assess risks.

5.2.7. Criteria (indicators and performance measures) to be retained and presented for all scenarios and options to allow comparison of scenarios and options.

Biological indicators (as for NS)

A number of standard biological and fishery indicators will be retained from the simulations:

- SSB
- Recruitment (as a check of the underlying stock dynamics assumption, not as an output for evaluation of the plan).
- Mean F (Fhc, Fdis and Ftot)
- Yield (total catch, landings and discards as well as percentage by market category)
- Catch/TAC variability, including the number and amount of negative changes in TAC vs. positive changes in TAC.
- Inter annual change based on Average % change from year to year of parameters.
- SSB > Bpa and F<Fpa (safe biological status) as % of stocks and years
- Risk SSB<Blim % of stocks at least once in 10 years
- SSB<Blim as % of stocks and years

In addition to these some indicators will be examined to account for the need to move towards good ecological status (GES) by 2020. Specifically, the proportion of the population larger than the mean length at first maturation will be examined. Other population structure metrics useful for assessing progress in terms of GES could include metrics on the population structure (mean age, age diversity).

Economic indicators:

Value of landings

Gross revenue

Gross profit

Return to be shared

Fleet size, composition and value

Gross value added

Gross operating surplus

Total surplus variation

5.2.8. Biological reference points

Bpa has set been set at 13 000 t, according to the frequence of low recruitments in the historical development of the stock.

Fpa has been set to have a high probability that the fishing mortality is above Flim, this latter being based on the historical response of the stock.

Fmsy is set to Fmax because there is no stock-recruitment relationship. The long term biomass corresponding to Fmax is 21000t, well above the highest SSB in the time series (16600t).

5.2.9. Identify specific data that required and timescale for acquisition including any data call required.

No data currently identified

5.2.10. checked/verified.

Biological part to be checked / with JS – file swap

5.2.11. Responsibilities

A timetable to be agreed correspondence by October meeting preliminary date for Impact assessment meeting Feb 2011.

5.3. Western channel sole

5.3.1. Objectives of management

As generic objectives above

5.3.2. Clear tactical options and scenarios are selected

TACs (and effort controls / single area licence)

5.3.3. Definition of starting point for options and scenarios

2009 landings and 2008 cost data for economic and social starting situation. Available for UK fleets. Currently we believe that detailed fleet data are not available for French fleets.

State of the stock(s) at the beginning of the period ICES assessment 2010 with 1st two ages replaced with random draws (on same basis as subsequent recruitment).

The no change management regime one run based on current management plan. With all other setting a defined below (same as Fmsy below)

5.3.4. Tactical options to be evaluated.

TAC control. F based rules

5.3.5. Plausible biological and economic scenarios

Biological hypothesis to test:

- Low and high recruitment periods as there is some indication of autocorrelation in the recruitment estimate. (low recruitment years 1988-2006; high recruitment years 1974-1987), (hockey stick at 2600t)
- Single recruitment period (hockey stick at 4000t)
- Single recruitment period with autocorrelation (hockey stick at 4000t)
- Assessment variance estimation (add a 10% random component to the TAC for constant F scenarios, small variance for constant TAC for implementation error)
- Assessment bias, add auto-correlated random component to TAC for constant F scenarios

Scenarios to test:

- Constant Exploitation rate Fmsy = 0.27
- Range 0.1 – 0.4 (with / without 15% TAC constraint) @ 0.05
- Constant TAC 600-1000 @ 50 ; with possible step change from high to low recruitment periods
- Banking wider variation on TAC (low TAC banking) - need further advice on implementation

Reference periods: 2011-2015; 2015; 2020-2040 for output evaluations

The economic component of the impact assessment of the Sole management plan in Area VIIe is problematic due to the nature of the fishery. Sole catch for vessels operating in Area VIIe account for just 6% of volume and 26% of revenue. Fishers operating in Area VIIe and catching sole therefore have opportunities to diversify away from Sole in Area VIIe to different species and neighbouring areas in response to management rules. A quantitative assessment of the economic impact of a management plan will require either qualified guesses about the expected fishing pattern, which is a cumbersome task to implement, or alternatively the inclusion of estimated production functions for each fleet, species and area. The latter requires huge effort and is not possible given the resources.

The assessment of objectives like MEY/resource rent cannot therefore be evaluated based on the Area VIIe sole management plan in isolation. However it is possible to assess the likely impact of a MSY objective on economic parameters for the fleet operating in Area VIIe using a static profit forecasting model. This approach for assessing the economic impact for vessels fishing sole in Area VIIe will be based on a static economic forecasting model developed by Seafish. The model will make use of landing information produced by different scenarios from the output of the FLR biological model.

The Seafish profit forecasting model is currently a static short-run model with estimations of activity, costs and earnings conducted for one year. Three dimensions are included in the model: 1) fleet/vessel, 2) fishing area and 3) species, and it is programmed in MS Excel spreadsheet. The model would have to be extended in scope for the purpose of analysing the economic consequences of the Sole management plan in Area VIIe over a short term horizon (5 years) and a long term horizon (20 years). It is also possible to run a sensitivity analysis on the results of the profit forecasting model in relation to fish prices, fuel prices and days at sea constraints to test the economic fragility of the vessels in question.

5.3.6. Methodology to be used.

Main biological models to be run in FLR / links to be made for a limited set of scenarios to SeaFish static economic model.

S/R hockey-stick model with different assumptions about recruitment (see above)

Maturity:- fixed

Stock weights and catch weights:- picked randomly as matched pairs from 1988 onwards.

Selection:– two years back and average of 10 years smoothed run at MSY to be tested with variability.

Variability / control:- Precision and bias adjustment of TAC implementation to simulate a range of error conditions. The objective is to explore sensitivity to assessment / implementation combined. Where yearly decisions are taken the error relates directly to TAC. If constant TAC/ maintenance of TAC at fixed for a period is used the error should be considered primarily as assessment error.

Check all populations will recover from below Blim

5.3.7. Criteria (indicators and performance measures) to be retained and presented for all scenarios and options to allow comparison of scenarios and options.

A number of standard biological and fishery indicators will be retained from the simulations:

- SSB
- Recruitment (as a check of the underlying stock dynamics assumption, not as an output for evaluation of the plan).
- Mean F (Fhc, Fdis and Ftot)
- Yield (total catch, landings and discards as well as percentage by market category)
- Catch/TAC variability, including the number and amount of negative changes in TAC vs. positive changes in TAC.
- Inter annual change based on Average % change from year to year of parameters.
- SSB > Bpa and F<Fpa (safe biological status) as % of stocks and years
- Risk SSB<Blim % of stocks at least once in 10 years
- SSB<Blim as % of stocks and years

In addition to these some indicators will be examined to account for the need to move towards good ecological status (GES) by 2020. Specifically, the proportion of the population larger than the mean length at first maturation will be examined. Other population structure metrics useful for assessing progress in terms of GES could include metrics on the population structure (mean age, age diversity).

5.3.8. Biological reference points

Currently biological reference points are not available in the absence of other criteria Blim = Bloss should be avoided with 5% probability over 10 years.

5.3.9. Identify specific data that required and timescale for acquisition including any data call required.

Data shall primarily be sourced from the Data Collection Framework from databases in JRC, although additional information should be sourced where necessary.

5.3.10. checked/verified.

For biological model an exchange data file Sven with John Simmonds to run long term equilibrium check for general validation.

5.3.11. Actions

Sven / Colin - Biological parts – by end July to start looking at economics by august.

WDs to be circulated 2 weeks prior to meeting.

If problems occur that make this likely to fail contact will be made with JS to indicate issues.

5.4. North Sea plaice and sole

5.4.1. Objectives of management

Four broad categories of management objectives are considered for this management plan: biological/environmental, economic and social objectives as well as the optimization of resource management costs (as described in section 5.0 above). The biological objectives will be primarily addressed by a full feedback management strategy evaluation conducted by researchers at Wageningen IMARES while the economic objectives will be consider in separate analyses conducted by LEI (the FISHRENT model) and MRAG. The last two objectives will not be explicitly evaluated but could be analysed by proxy using model outputs such as effort and catch.

5.4.2. Clear tactical options and scenarios are selected

TAC and days at sea effort control

5.4.3. Definition of starting point for options and scenarios

The 'base-case' biological starting point of the evaluation is the accepted ICES benchmark assessment of the two stocks. Past retrospective patterns suggest that this starting point may be uncertain. Therefore, to test the sensitivity of the multi-annual plan performance to the stock status in the starting point, three alternative starting points based on an alternative statistical catch at age (SCA) model are used. These are the model fits corresponding to the 5^{th}, 50^{th} (median) and 95^{th} percentiles of the uncertainty estimates of SSB in the final year, hence providing a range of potential stock statuses at the start of the simulations.

5.4.4. Tactical options to be evaluated.

The harvest control rules for the two stocks as described in the management plan will be applied. The main aspects of this are:

- target F values
- annual decreases in F (10%) until these targets are met
- a limit on the permitted change in TAC (15%)

In order to examine whether improvements can be made to the current plan, alternatives to the values provided in the current formulation will be evaluated. Specifically the following will be examined:

- alternative target F values (Fmsy proxies)
- the potential of a greater annual decrease in F (15%) to increase the likelihood of achieving Fmsy by 2015
- the effect of increasing the allowable changes in TAC (25%) as well as leaving TAC changes unbounded to examine what size fluctuations would result

A number of constant F scenarios will be examined over the range of potential Fmsy proxies for the two stocks.

Banking of TAC for the next year is considered for sole but no borrowing in advance scenarios are modelled.

5.4.5. Plausible biological and economic scenarios

To ensure robustness of the different tactical options some sensitivity analyses will be run and the MSE will also consider a number of different scenarios of stock dynamics (stock-recruit relationships).

Sensitivity analyses include:

- Starting point: four alternative starting points will be examined to check that the performance of the tactical options is not dependent on initial stock status.
- Recruitment level (time allowing): An examination of the plaice recruitment time series indicates that mean recruitment level has varied through time between high (1973-1994), low (1957-1972) and mid-level (1994 to present) states. Constant F runs (lower and upper bounds of the Fmsy range) will be run using hockeystick recruitment with geometric mean recruitment above the point of inflection and variability from these three periods.

Both sensitivity analyses would assess the sensitivity of the probability of falling outside safe biological limits to the assumptions on stock status and dynamics.

Alternative scenarios for the full feedback MSE analysis will consider alternative stock recruitment functions for the generation of future recruitment.

Its important that the MRAG report is made available to the group as soon as possible (ideally in August) so that an attempt can be made by IMARES to ensure that at least one scenario is run that corresponds to the biological component of the MRAG assessment to allow for some comparison between the outcomes of the two models. Similarly, a comparison with the biological component of the LEI FISHRENT model will be attempted IMARES will liaise directly with LEI to establish the basis of the LEI model.

One check that LEI will include in their evaluations is the difference in target exploitation rate that delivers maximum yield and the rates that give desirable economic yield. A ratio of MSY and Max resource rent will be presented in FISHRENT model results.

5.4.6. Methodology to be used.

The biological MSE will be carried out in R utilizing FLR libraries (2.8.1 FLCore 3.0). It is a full feedback stochastic projection model incorporating process error (variation in recruitment, weights at age and selectivity) as well as observation error (uncertainty in stock abundance indices and catch quantities) and model error (a full XSA assessment conducted each year to set the TAC based on the HCR). 100 stochastic simulations will run out to 2025.

Biology:

- Starting point (historical numbers at age, F at age etc.) will be based on two different models of stock status: XSA and SCA.
- Future weights at age will be resampled by year from the recent period (last five years). A check on the variability in weight over the historical period will be done to ensure future variability generated is reasonable.
- Maturity ogive is constant over time.
- Recruitment functions are fit to each alternative starting point:
    - Segmented regression with breakpoint at lowest observed for both stocks. Given that both stocks are currently well above the breakpoint and considered likely to remain there this might be unnecessary if simulated stocks to not go below Blim but the lower part may be required to ensure risks are correctly characterized.
    - Beverton and Holt (greater potential population growth, lower steepness)
    - Ricker (reduced recruitment as stock grows, lower potential stock size)
    - A combined S/R set will be developed over the next month to establish if this approach give useful results for simulations. The method combines different models with statistically based probabilities allowing model uncertainty to be included. (DM to supply S/R information – data and models JS to carry out analysis and supply suitable parameter set within.)

Fleet:

A simplified fleet structure is considered due to data constraints. However, it is believed that this structure is adequate for assessment purposes. To parameterize the model, specifically to estimate selectivity at age and catchability (relating effort to F) both total effort and catch at age data are needed on a fleet level. Using the data available three fleet components are considered:

1. Dutch 80mm bean trawl

2. BT1 100mm beam trawl (basically plaice only – not limited in effort restrictions if sole doing poorly).

3. Other

Future selectivity will be resampled from the recent period (last five years). Catchability increases over time (according to estimated technological creep values). Discard catchability of plaice remains constant over time and no discarding of sole is considered.

Error/uncertainty:

1. Process error

- Recruitment (lognormal error from bootstrapping of past residuals)

2. Observation error

- Landings/discards: estimated from SCA model
- Indices: based on historic catchability residuals from model fits to data.

3. Model error: that resulting the XSA fit each year due only observation error and the assumptions of the XSA based on benchmark assessment settings. Errors generated by this process will be compared with magnitude of differences contained in ICES quality sheets, to check for realistic errors.

Economics

The Fishrent model, developed in the project on resource rent is currently under evaluation by the commission and will become available shortly. The main characteristics of the model are:

- The model accounts for eight species and eight fleet segments (4*4 version is also available), but can be extended to a larger number if required. Procedure for such extension will be described in detail during the 2nd phase of the project.
- The model is a dynamic simulation model, running for a period of 25 years. Extension to a longer period is possible.
- By using the Excel Solver tool, the model can be used as an optimization model, which is particularly relevant in relation to the estimation of the resource rent, MSY and/or MEY.
- The model combines input and output based management, as well as their combinations. This has been achieved by a two stage calculation, in which first relevant combination of effort and catch is determined and subsequently applied in the actual simulation model.
- The model contains various options for the collection of rent (payment for access), including fixed payment per unit of capacity (vessel), payment per unit of effort (day-at sea) and tax on revenues or profits

For the evaluation of the management plan for sole in area 7e two models are available, but none of these integrate biological and economic aspects. CEFAS has developed a biological single species simulation model that is comparable to the IMARES model. An economic model is available from Seafish, but this model only provides short term forecasts, assuming stable fleet dynamics and fleet structure. The different model properties are compared below:-

	IMARES FLR model	FISHRENT Model	CEFAS model	SEAFISH model
Biological component	Age structured	Surplus production	Age structured	-
Economic component	- but can be included	+	-	+
Readily available	+	-	+	+
Dynamic	+	+	+	-
Stochastic	+	-	?	-
Optimization	-	+	-	-

Objectives to be evaluated				
MSY	+	+	?	-
MEY	-	+	-	-
Fleet continuity	-	+/-	-	+/-
Employment	-	-	-	-

+ included, - not included ? unknown

Suitability

For all models it was evaluated whether the effects of using the different objectives suggested could be evaluated. In case of the North Sea, the IMARES model could evaluate the biological performance against the MSY objective amongst other biological performance indicators. If the economics component is added some economic consequences could also be evaluated using the IMARES model. As this would take considerable resources that are not available at the moment it was decided not to do this. The FISHRENT model could also evaluate the performance in terms of MEY and the fleet continuity. Employment objectives cannot not be evaluated by either one of these models at the moment, although resulting indicators on effort, fleet size and total added value could give some information on the range of outcomes for employment.

Combining the two models is not an option because of the models not being compatible. Therefore it was decided to use both models in parallel and compare and discuss the results during the October meeting. Because of the conceptual differences in the models it was concluded that it would be preferred to look into the differences in more detail, to be able to explain possible differences in outcomes. Specifically, there will be an attempt to compare the parameterization of the surplus production model used in the FISHRENT model to the biological dynamics of the IMARES model.

For the evaluation of the sole management plan in 7e an evaluation of the different objectives seems to be difficult, given the tools available. However, it is questionable whether a complete evaluation including the economic and social effects of the different objectives is appropriate given the fact that the fleet in question taking only 25% of the revenues (6% of its catches by weight) from that stock. Thus, the fishing behavior will have only partial dependency on this stock with important dependence on other stocks (both of same species in other areas and other species in the same area). Therefore, the effects of objectives like MEY and fleet continuity cannot be evaluated based on this management plan for this stock in isolation. What can be done is to evaluate the effects on biological and economic parameters of a range of strategies for exploitation of this stock.

Inputs and outputs

The input information for all tools are available at the institutes (either from impact assessments or through the DCF), but the economic information currently used is from 2005-2007. This information will be updated with the latest available information on the cost structure from the recent AER and with recent information on prices of fuel and fish.

The table below gives an overview of the different models used

	IMARES model	FISHRENT Model	CEFAS model	SEAFISH model
Biological parameters	From ICES			
SSB	+	+	+	
F	+	+	+	
Catch	+	+	+	
Economic parameters				
Catch	+	+		+
Revenue	+	+		+
Effort	~+	+		+
Price	-	+		+
Gross value added	-	+		+
Profit	-	+		+

5.4.7. Criteria (indicators and performance measures) to be retained and presented for all scenarios and options to allow comparison of scenarios and options.

A number of standard biological and fishery indicators will be retained from the simulations:

- SSB
- Recruitment (as a check of the underlying stock dynamics assumption, not as an output for evaluation of the plan).
- Mean F (Fhc, Fdis and Ftot)
- Yield (total catch, landings and discards as well as percentage by market category)
- Catch/TAC variability, including the number and amount of negative changes in TAC vs. positive changes in TAC.
- Inter annual change based on Average % change from year to year of parameters.
- SSB > Bpa and F<Fpa (safe biological status) as % of stocks and years
- Risk SSB<Blim % of stocks at least once in 10 years
- SSB<Blim as % of stocks and years

In addition to these some indicators will be examined to account for the need to move towards good ecological status (GES) by 2020. Specifically, the proportion of the population larger than the mean length at first maturation will be examined. Other population structure metrics useful for assessing progress in terms of GES could include metrics on the population structure (mean age, age diversity) and the discards proportion in the fishery (for plaice).

For all metrics means and percentile values (median, 5-95, 10-90 and 25-75) will be calculated for each year of the projections. The first ten iterations of the stochastic runs will also be retained to illustrate individual run trajectories of SSB, catch and recruitment.

The metrics will be evaluated at the following specific years and time horizons:

- 2015 (target year for Fmsy)
- 2025 (final year of the long term evaluation)
- 2011-2015 (short-term performance)
- 2016-2025 (ten year long-term period)

According to ICES (2010), in order for the management plan to be considered precautionary (in terms of Blim), it is necessary that:

"*…no more than 5% of 10 year simulation runs having one or more years outside of safe biological limits*."

This will be evaluated over the long term horizon (2016-2025).

For safe biological status the proportion stocks and years SSB > Bpa and F<Fpa

Plots will be produced of time series of metrics showing median values and 90% confidence limits. 'Worm plots' of the first ten iterations of the stochastic simulations will be produced as well as box plots (median, interquartile range and 90% confidence limits) of the metric values at 2015, 2025 and the averages over the short-term and long-term.

5.4.8. Biological reference points

Precautionary references points have been defined for NS sole and plaice stocks: Bpa, Blim, Fpa and Flim (plaice only). A precautionary management plan is defined by in terms of risk of SSB<Blim. Safe biological status is defined as SSB > Bpa and F<Fpa. In addition to this, the current target values and new estimates of Fmsy will be considered. No MSY Btrigger reference point has been defined for either stock.

5.4.9. Identify specific data that required and timescale for acquisition including any data call required.

Data shall primarily be sourced from the Data Collection Framework from databases in JRC, although additional information should be sourced where necessary.

5.4.10. checked/verified.

Simple FLR check JS evaluation of equilibrium Fmsy.

5.4.11. Responsibilities

The biological MSE will be conducted by Wageningen IMARES (David Miller and Jan Jaap Poos).

Hans Van Oostenbrugge will carry economic modelling.

David Millar will provide John Simmonds with SR data (parameters) and specifications of how fit by FLR (error structure) and parameterization. – All years, XSA.

WDs to be circulated 2 weeks prior to meeting.

If problems occur that make this likely to fail contact will be made with JS to indicate issues.

5.5. References

ICES. 2010. Report of the ICES-STECF Workshop on Fishery Management Plan Development and Evaluation (WKOMSE), 28-30 January 2009, EEA, Copenhagen, Denmark

6. RESOURCE IMPLICATIONS AND PLANS

The next meeting SG-MOS 10-06 will be held 18-22 October – venue to be arranged depending on size of meeting.

Currently no specific study projects requiring funding are proposed.

6.1. Terms of Reference for SG-MOS 10-06

EVALUATION AND IMPACT ASSESSMENT MEETING

The SG-MOS 10-06 is requested to

A) Evaluation of the following plans:

1. Multi-annual plan for hake and Nephrops in ICES sub areas VIIIc and IXa
2. Multi-annual plan for cod in the Baltic

by taking into account *inter alia* the criteria and report following the STECF framework specified in Annex C of SG-MOS 10-06a and WDs prepared by participants prior to the meeting. Separate reports should be prepared for each plan.

B) Provide Impact Assessment of the following plans:

3. Multi-annual plan for sole in the Western Channel
4. Sole and plaice in the North Sea

by taking into account by taking into account *inter alia*, the external report prepared by MRAG on assessing the impact for the revision multiannual plan for sole and plaice, WDs on sole and plaice prepared by IMARES, LEI, and WD prepared by CEFAS and Seafish on WC sole, the criteria and report following the STECF framework specified in Annex B of SG-MOS 10-06a. Separtate reports should be prepared for each plan.

Observers from the relevant RACs and Member States should be invited to attend under the STECF guidelines for Observers. Both Evaluations and Impact Assessments reports should make reference to the comments of the observers.

The SG-MOS Meeting will produce four reports. The reports for Impact assessments will consist of the following structure

1. Executive summary

2. Introduction and ToR

3. Participants

4. Problem statement

5 Objectives

6 Tactical methods

7 Overriding considerations of the Options

8 Environmental Effects of the Options

8.1 Evaluation of the effects of the multi-annual plan options on the fishery

8.2 Evaluation of the effects of the options on the stock

8.3 Evaluation of the effects of the multi-annual plan on the ecosystem.

9 Social and Economic Effects of the Plan

10 Cost effectiveness of Control and Enforcement

11 Conclusions to the Impact Assessment

11.1 Comparison of Options

11.2 Effectiveness: best placed to achieve the objectives (select appropriately just to relate to the objectives given above)

11.3 Efficiency: cost-effectiveness

11.4 Consistency: limiting trade-offs across the economic, social and environmental domains

12 Forward look to Evaluation

The reports for historic Evaluations will consist of the following structure

1. Executive summary
2. Introduction and ToR
3. Participants
4. Design Issues
5. Enforcement and Compliance
6. Environmental Effects of the Plan

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

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

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

7. Social and Economic Effects of the Plan
8. The added value of the management plan
9. Performance Evaluation of the Plan

9.1 Effectiveness

9.2 Utility

9.3 Efficiency (cost-effectiveness)

9.4 Indicators

9.5 Sustainability

9.6 Conclusions

ANNEX A GENERIC APPROACH AND TERMS OF REFERENCE FOR IMPACT ASSESSMENT MEETINGS

1. OBJECTIVES

The process aims at assessing social and economic, fishery and environmental impacts of the various options and scenarios for a future multi-annual plan.

The impact assessment will answer the following questions:

- Are the options consistent with the objectives of the CFP
- What are the likely economic, social and environmental impacts and the potential (dis)advantages, synergies and trade-offs of those options?
- How do the main options compare in terms of effectiveness, efficiency and coherence in solving the problems?
- Are the objectives proposed appropriate at ensuring sustainable management (2015 MSY objective – 2020 for the good environmental status of marine ecosystems)
- How could future monitoring and evaluation be organised?

The approach chosen involves the following steps

- Preparatory phase
- Scoping meeting
- Work to be carried out prior to the Impact Assessment meeting.
- Impact Assessment report preparation meeting.

2. ACTIONS TO BE CARRIED OUT IN THE PREPARATORY PHASE

2.1. Initial activities for DGMARE

Statement of the problem (stocks, fisheries and areas to be assessed)

Timetable of the administrative requirements

Provision of the results of any evaluation already carried out

2.2. STECF Bureau in consultation with DGMARE

Appoint chair to oversee the whole process.

Identify who needs to attend scoping meeting: Fisheries Scientists / Economists / Sociologists, Commission, Policy Makers, Policy Managers (MS),Stakeholders (RACs),

Timetable scoping meeting (with sufficient notice to ensure stakeholders and scientists can be identified and can carry out necessary preparation.) This aspects will be discussed at the Commission/RACs meeting 9-10 March.

Stakeholders should be actively involved throughout the scoping meetings. The impact assessment meetings should be open to observers throughout the meeting. To ensure stakeholders views are fully represented one day should be specifically set aside for discussion of results (for example day 3 of 5).

2.3. Role of the chair of the process

Identify and arrange participation of key people.

Obtain Background Information

- The legislative framework (DG Mare)
- The current management system at community and MS level (DGMare MS Managers / Experts)
- Conclusions of the Evaluation (if appropriate) (DG Mare and/or STECF)
- Objectives of the multi-annual plan (DG Mare)
- Information on the fishery, metier and fleets (DGMare /Experts)
- Stocks description including basic diagnostics (Scientists)

Before Scoping meeting oversee limited preparation of biological model diagnostics and a selection of a range of plausible economic / sociological modelling options.

3. TERMS OF REFERENCE FOR THE SCOPING MEETING

The objective of this meeting is to determine the workload required and to reconcile this with available resources, to arrive at an effective detailed plan of what is needed to carry out the technical work that will underpin the required Impact Assessment.

The scoping group must ensure that

- The objectives of management are clear
- Idea of resources that should be committed are appropriate for the work
- Clear tactical options and scenarios are selected

Define Starting point for options and scenarios

(a) To define the starting situation: the starting situation is the social and economic situation observed at the end of the evaluation period, it should be defined during the evaluation process.
If not, define the economic and social starting situation for the fishing fleets, onshore industries and communities that depend on the fishery concerned and of associated fisheries (e.g. size, turnover, costs, profits, employment for last three years) for each Member State and fishery affected.

(b) State of the stock(s) at the beginning of the period.

(c) Define the 'no change' management regime that would be followed such that biological, economic and social consequences can be estimated over the impact assessment period.

Select a number of tactical options to be evaluated.

Select a number of plausible biological and economic scenarios against which the tactical options are tested in order to characterise the robustness of the different tactical options to external factors.

Identify basic methodology to be used.

Decide on the models to be used and define how they are to be parameterized, with stock dynamics, estimation and implementation components. Simulation methodology and criteria for stock modelling should follow ICES – SGMAS 2008 section 5

Define the criteria (indicators and performance measures) to be retained and presented for all scenarios and options to allow comparison of scenarios and options.

Check that biological reference points are compatible with Stock/Recruit dynamics and reconcile if necessary.

Identify specific data that required and timescale for acquisition including any data call required.

(d) Data shall primarily be sourced from the Data Collection Framework from databases in JRC, although additional information should be sourced where necessary.

Define how the simulation work will be checked/verified.

Identify who will do what on what timescale and under what conditions and define how the chair will monitor progress between the meetings

Agree work timetable and dates for Impact Assessment meeting.

Prepare a report detailing the agreed data requirement, modelling approach and parameterisation and made available no later than 15 days after the scoping meeting. The report should be prepared to document the calculation procedures that will be employed to give the parameters in the modelling and the range of conditions under which the plan has been evaluated. See standards in SGMAS 2008

4. WORK TO BE CARRIED OUT TO SUPPORT THE IMPACT ASSESSMENT

Between the scoping meeting and the impact assessment meeting work will be completed on all options and scenario required to be presented at the Assessment meeting. This process will be monitored by the chair.

Participants will prepare a working document on the simulations to be made available at least 15 days prior to the Impact Assessment meeting.

5. TERMS OF REFERENCE FOR IMPACT ASSESSMENT MEETING

The objective of the meeting is to evaluate the working documents, discuss results with stakeholders and assemble a report to support the Impact Assessment.

(1) Assess the options of multi-annual management defined at the scoping meeting (including a 'No Change' option).

(a) Under the long term proposal, for each Member State, the analysis shall look into what economic, social, fishery and environmental impacts can be expected in the short, medium and long run.

(b) Prepare a table showing the results of the selected options using criteria defined in the scoping meeting.

(c) Create a short list of options that will reach the objectives set by the Commission.

(d) Provide to SGRN information on data required, for Evaluation and future Impact Assessments, for the options in the short list, currently not available under the DCF.

(e) Identify potential economic and social spillover effects on the other fisheries sectors (processing, marketing) or other capture fisheries.

(2) Assemble a report to support the Impact Assessment following the Framework in Annex B.

ANNEX B FRAMEWORK FOR IMPACT ASSESSMENTS REPORT

The following layout describes the minimum aspects to be considered in preparing an Impact Assessment. In addition the meeting should consult the Table in Appendix I which details a more complete list of relevant questions for impact assessments, where appropriate additional aspects should be added.

4 PROBLEM STATEMENT

The Commission should provide scope and limits of problem to be addressed

Why there is a need to react and where appropriate link this to background studies or information.

5 DEFINE OBJECTIVES : GENERAL / SPECIFIC / OPERATIONAL

General objective: will be CFP (statement provided by the Commission)

Specific objective: what the objectives are in terms of changes and expectations of outcomes with timescales (for example achieving exploitation target in X years)

6 IDENTIFY TACTICAL METHODS

Describe the operational objectives (which may be option dependent)

Effort changes / or Capacity / or TACs with interannual stability criteria.

Select the different approaches that are to be considered.

These should be predefined by Commission and limited to a specified range confirmed at the scoping meeting.

7 OVERRIDING CONSIDERATIONS OF THE OPTIONS

Identify if there are significant parts of the any options that are unlikely contribute to the overall objectives

Identify if in the opinion of the evaluators the options are likely to be able to deliver the objectives of the plan.

8 ENVIRONMENTAL EFFECTS OF THE OPTIONS

5.1. Evaluation of the effects of the multi-annual plan options on the fishery

Show what is expected to be the resulting impact on landings and the fleet of any of the following aspects that are affected by the plan options:-

• Catch and effort limitations – either through TAC or effort management expected to result from the different options.

• Technical measures – eg. Closed areas, gear restrictions, etc. that are included in the options.

• Control and enforcement measures proposed – eg. Entry and exit rules, allocation rights, etc. and any exemptions,

• Capacity management measures that are included in the options,

What is the expected fishery response to the different options? The response strategies of the fleets include possible shifts to other stocks or species, to other gears or métiers, changes in discard and slippage and other behavioural issues.

5.2. Evaluation of the effects of the options on the stock

This section should be adapted to any particular plan and stock.

a) Evaluating the stock response to the changes in the fisheries resulting from the plan - will the options deliver their own internal objectives with respect to the stock?

b) 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.

• Are the reference points in the plan appropriate given the current information on stock status and dynamics?

• Are the options likely to achieve F_{MSY} by 2015? If not, why? (see note 1)

• Are the options likely to be considered precautionary. If not, why? (see note 2)

• Is there a need to propose all the measures in the plan to make it capable of achieving the objectives? If so is STECF able to propose simpler options for a better plan to achieve stock – specific objectives?

5.3. Evaluation of the effects of the multi-annual plan on the ecosystem.

• What impacts of the different options plan on the ecosystem can be identified? Ecosystem impacts might include changes in discarding practices, by-catch rates, and catch of non-target species, habitat degradation, etc.

• What will be the effect on agreed indicators or descriptors that are directly (and where possible indirectly) affected by the options.

6. SOCIAL AND ECONOMIC EFFECTS OF THE PLAN

6.1. Data and Calculation of Indicators

• If there is no explicit socio-economic objectives defined by the multi-annual plan the options should be measured against the general socio-economic objectives as stated in the CFP.

• Will the explicit socio-economic objective defined by the multi-annual plan be met by the different options.

• The social and economic state of the fleets exploiting the stock or stocks concerned can be assessed using appropriate indicators, i.e. those proposed in the plan or those given below which include those proposed by STECF in the April 2009 plenary report.

Yearly economic indicators

- *Value of landings* ~ revenue from sale of fish.

- *Market price* ~ ex-vessel price and where possible price along the chain.

- *Gross Cash flow* ~ income minus all operational costs (excluding capital costs).

- *Break even revenue* ~ long term break even revenue. The income (revenue) level at which economic profit is zero.

- *Gross Profit* ~ income minus all costs, including capital costs.

- *Gross Value added* ~ contribution to gross national product (GNP). Income minus all expenses except capital costs and crew cost.

- *Fleet size and composition and value*

- *Return to be shared* - (share of owner (incl. vessel) and crew after paying the running costs) Turnover - landings costs – fuel costs – food costs – bait costs – ice costs (can be calculated from DCF data)

Longer term economic indicators over the period of the impact assessment should be obtained from cost benefit analysis.

- Net present value

Social indicators

- *Employment (and in other fishery sectors)*

- *Salary ~ if data is available (in the future)to compare with other sectors (job market)*

7. COST EFFECTIVENESS OF CONTROL AND ENFORCEMENT

Do the different options have important differences in implementation costs against there effectiveness in delivering the objectives of the plan. (for example is one option able to deliver better conservation measures than another at comparable costs, or do both options has similar conservation properties with differing costs). There is currently no general methodology to provide a quantitative cost/benefit analysis of control and enforcement, however, if there are important aspects to be considered these should be described qualitatively.

8. CONCLUSIONS TO THE IMPACT ASSESSMENT

8.1. Comparison of Options

• based on agreed criteria and draw-up a short-list of options that satisfy the Commissions Objectives for further discussion (Always include option « No Change»)

• Provide a summary table of options

•Screen possible options to see which can best meet the objectives using the agreed the criteria from the scoping meeting to be used to compare the options.

8.2. Effectiveness: best placed to achieve the objectives (select appropriately just to relate to the objectives given above)

• What would be the short and long term impacts for the stock(s) and fleets and linked economic sectors affected by the different options. Will the tactical objectives of the plan be achieved?

• What would be the short and long term impacts of the multi-annual plan on the environment and the ecosystem, for example by-catch, discards, non-target species?

• Are there any likely side effects that might result from the plan? (for example, changes in behaviour that affect other fisheries, or environmental consequences, changes in the market).

• Has the implementation been affected by external factors such as global change, ecosystems effects, or other fisheries?

8.3. Efficiency: cost-effectiveness

• What will be the impact of this plan in terms of for example employment, gross revenue of the fleet?

• Will there be any effects on the broader industry (processing, transporting, auxiliary)?

• What are the expected economic benefit/loss during the period of implementation?

8.4. Consistency: limiting trade-offs across the economic, social and environmental domains

• Are there important tradeoffs between the three main objectives of the CFP (economic, social and environment) that are importantly different amongst the options.

• Are is there any overriding major imbalances among the three main objectives of sustainable economic, social and environmental aspects.

8.5. Forward look to Evaluation

• Define a set of appropriate indicators to measure implementation, compliance, effectiveness, costs and other impacts.

• Plan for future evaluation or review of the policy initiative (when, by whom, what, how?)

Notes:-

1) Achieving targets (F_{msy})– means with 50% probability of achieving this by specified time

2) Precautionary approach criteria in agreement with ICES criteria (95% SSB>Blim) (95% F<Flim)

ANNEX C: FRAMEWORK FOR THE EVALUATION OF MANAGEMENT PLANS

A review of the practical implementation of the management plan considering the actions taken and measures implemented at the Member State level.

1. DESIGN ISSUES

• What issues relating to the design of the plan can be identified. eg. differences and/or ambiguity in interpretation of the requirements and/or provisions of the plan, or different levels of implementation of the plan. Analysis should be conducted at the Member State level.

• Has the plan been updated in the light of new information since first implementation e.g. have reference points been updated in line with more recent advice?

• In the case of multi-species plans, are the procedures for setting the TACs for the different species likely to lead to imbalances in the TAC levels for the stocks concerned.

• Has the potential overlap with other management plans been adequately addressed?

2. ENFORCEMENT AND COMPLIANCE

• What level of compliance has been achieved (using the background information provided above - analysis should be conducted at MS and EU level – i.e. MS implementation may differ and have differing outcomes)?

3. ENVIRONMENTAL EFFECTS OF THE PLAN

3.1. Evaluation of the effects of the management plan on the fishery

• What has been the fishery response to the management plan? The response strategies of the fleets include possible shifts to other stocks or species, to other gears or metiers and other behavioural issues.

• What measures of the management plan are considered to have influenced the fishery response. Measures of the management plan will include

• Catch and effort limitations – either through TAC or effort management

• Technical measures – eg. Closed areas, gear restrictions, etc.

• Control and enforcement measures – eg. Entry and exit rules, allocation rights, etc.

• Capacity management measures

3.2. Evaluation of the effects of the management plan on the stock

This section should be adapted to any particular plan and stock. The terms of reference proposed hereafter are drawing on the generic aspects of the evaluation.

a) 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?

• What changes in the stock dynamics can be identified and to what extent are these consistent with (or attributable to) changes in the fishery imposed by the management plan?

For example can reductions in fishing mortality be identified in instances where fishing effort has been reduced.

b) 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.

• Are the reference points in the plan still sensible given the latest information on stock status and dynamics?

• Is the plan likely to achieve MSY by 2015? If not, why?

• Is there a need to revise the measures in the plan to make it more effective in achieving the objectives?

• Is STECF able to propose options for a better plan to achieve stock – specific objectives?

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

• What impacts of the management plan on the ecosystem can be identified? Ecosystem impacts might include changes in discarding practices, by-catch rates, habitat degradation, etc.

4. SOCIAL AND ECONOMIC EFFECTS OF THE PLAN

4.1. Data and Calculation of Indicators

• If there is no explicit socio-economic objective defined by the management plan the evaluation should be against the general socio-economic objectives as stated in the CFP.

• Characterise the social and economic state of the fleets exploiting the stock or stocks concerned using appropriate indicators, i.e. those proposed in the plan these below proposed by STECF in the April 2009 plenary report,.

- *Value of landings* ~ revenue from sale of fish.
- *Gross Cash flow* ~ income minus all operational costs (excluding capital costs).
- *Break even revenue* ~ long term break even revenue. The income (revenue) level at which economic profit is zero.
- *Gross Profit* ~ income minus all costs, including capital costs.
- *Gross Value added* ~ contribution to gross national product (GNP). Income minus all expenses except capital costs and crew cost.
- *Fleet size and composition*
- *Employment*

• The implementation and enforcement costs should be estimated, if possible in order to assess their cost effectiveness e.g do the benefits outweigh the cost of implementation and enforcement.

5. WHAT HAS BEEN THE ADDED VALUE OF THE MANAGEMENT PLAN

The question "What is likely to have happened if the management plan had not been put in place?" should be addressed. This should include a comparison between the current state of the stock and fisheries compared to the situation that is likely to have occurred had the management plan not been implemented. The scenario representing the absence of the plan will constitute the baseline scenario, as advised by the desk officer.

• With specific reference to the items identified in section 2, identify the benefits/losses to the fishery and to the stock that have resulted from the management plan. Analysis to be based on indicators of stock status and exploitation rate

• With specific reference to the items identified in section 3, identify the economic and social benefits/losses that have resulted from the management plan. Analysis to be based on suitable social and economic indicators.

6. PERFORMANCE EVALUATION OF THE PLAN

Based on the above analyses please answer the following questions.

NB: the judgment provided on the following questions could be qualitative (at this stage) where data are not available. Similarly if other effects are detected they can be considered.

Effectiveness

• What have been the immediate results and medium term impacts for the stock addressed by the management plan? Have the objectives of the plan been achieved?

• What have been the immediate results and medium term impacts of the management plan on the environment and the ecosystem, for example by-catch, discards, non-target species?

• Have there been any side effects resulting from the plan? (for example, changes in behaviour that affect other fisheries, or environmental consequences, changes in the market).

• Has the implementation been affected by external factors such as global change, ecosystems effects, or other fisheries?

Utility

• What trends in fleet capacity (kW or GT) would have been expected from the implementation of the plan? What trends were actually observed?

• Are the fleets affected by the management plan in a situation of overcapacity?

• Did the management plan contribute to adapting the fleet capacity to the fishing possibilities resulting from the management plan?

Efficiency (cost-effectiveness)

• What have been the costs of this plan in terms of for example employment, gross revenue of the fleet?

• Have there been any effects on the broader industry (processing, transporting, auxiliary)?

• What have been economic benefit/loss during the period of implementation? STECF will require guidance on to whom this applies.

Indicators

• Were the indicators used sufficiently useful to evaluate the multi-annual plan?

Sustainability

From the experience so far,

• Is it possible to draw conclusions about the sustainability of the plan that differ from those envisaged by the initial impact assessment?

7. CONCLUSIONS

Based on the answers to previous questions, *please give us your global judgement on the plan*

• With regards to the utility and sustainability of the multi-annual plan and its contribution to the objectives of the Common Fisheries Policy.

• Is the plan succeeding in achieving its stated objectives

• Which elements of the plan have had the greatest influence in achieving the objectives.

• Are there any specific indicators that would be useful for a future evaluation of this multi-annual plan?

• Are there any additional data that should be collected in the future to help in evaluating the multi-annual plan?

• Should the plan be linked to other plans?

• Are there any elements of the plan that require revision? What are the proposals for revision?

APPENDIX IV: LIST OF INFORMATION TO REQUESTED FROM THE COMMISSION FOR EVALUATIONS

1. **Provision of Background Information**

   An introductory text to be prepared by the Commission which will

   a. Outlining the historical background to the plan and its design process. For example who proposed the plan and initiated the process; who was consulted during the development of the plan; how the objectives of the plan were developed etc.

   b. The overall objectives of the plan

   c. The text of the plan, including any management reference points that are applicable and any changes that have occurred to text or reference points during the period. Indicate if any considerations additional to the plan were taken, particularly if the plan is multi species. If additional indicators were used during the period of implementation provide these.

   d. The period over which the plan is to be evaluated

2. **General / Quantitative information**

   a. A history of annual *F* and or TAC targets set during the period of implementation. If the plan allows for setting TAC by any other criteria than a fixed rule or if exceptions were made at any time during the period indicate what these were and the basis for them. A table of quota consumption (uptake 2006 to 2009) and national TAC allocation, including any quota swaps (2006-2009)

   b. Data on prices per quarter and auction / region (and weekly if available).

   c. Effort data disaggregated by fishery (STECF Effort database)

   d. Provide Information (A summary paragraph) on the level and effectiveness of enforcement and on the extent of compliance achieved in the practical implementation of the plan from appropriate sources (eg. Inspection reports). Indicate if enforcement has improved or deteriorated because of the plan. This requires a bit more information than just the inspection reports which deal only specifically documented compliance issues.

   e. Provide estimates of the cost of enforcement to allow for evaluation of cost benefit analysis.

   f. Indicate any known differences of information between STECF stock report or ICES stock summary sheet and Commission view of actions taken.

   g. The exploitation (F and or TAC) that the Commission would have implemented in the absence of the plan. A set of Commission policy statements starting in the year of the signing of the plans (2006/07/08) including any elements having led to decision during the negotiation where nothing is/was in Policy Statement or where outcomes departed from policy.

   h. Commission view of any added value that the plan has provided (in addition to catches / economic value) that should be considered.

ANNEX D DECLARATIONS OF EXPERTS

Declarations of invited experts are published on the STECF web site on https://stecf.jrc.ec.europa.eu/home together with the final report.

European Commission

EUR XXXXX LL – Joint Research Centre – Institute for the Protection and Security of the Citizen

Title: Scientific, Technical and Economic Committee for Fisheries. Report of scoping meeting for Evaluation and Impact Assessments. SG-MOS 10-06A Copenhagen 7-11 June 2010,

Author(s): John Casey, Eskild Kirkegaard, Hans van Oostenbrugge, Jose Maria Da Rocha Alvarez, Jörg Berkenhagen, Gérard Biais, Colin Brodie, Claire Macher, Eskild Kirkegaard, Sven Kupschus, Ari Leskelä, David Miller, Jan Jaap Poos, Tiit Raid, Santiago Cerviño, Christopher Zimmermann, John Simmonds

Luxembourg: Office for Official Publications of the European Communities
2010 – 57 pp. 21 x 29.7 cm
EUR – Scientific and Technical Research series – ISSN 1018-5593
ISBN X-XXXX-XXXX-X
DOI XXXXX

Abstract

SG-MOS 10-06a was held in Copenhagen, (Denmark), on 7-11 June 2010. The aim of the workshop was to develop scope the European Commission's requirements for a) Impact Assessments of multi-annual fishery management plans for Bay of Biscay sole, Western Channel sole, and North Sea plaice and sole; and b) Evaluations of management plans for Baltic cod and hake and Nephrops in ICES subareas VIIIc and IXa. The approach used the framework for Impact Assessments from SG MOS 10-01 in Hamburg 1-5 February 2010 and the framework for Evaluations previously developed and extended under SG-MOS 090-02 in Lisbon in November 2009. STECF reviewed the report during its Plenary meeting on 12-16 July 2010.

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