

Non paper from the services of the European Commission

"MANAGEMENT DECISIONS ADDRESSING UNCERTAINTIES IN CATEGORY 11 STOCKS"

1. Background

Each year the STECF (the Scientific, Technical and Economic Committee for Fisheries) is requested to review the most recent advice on stocks of interest to the European Union and provide appropriate comments and recommendations. In undertaking the review, the STECF summarises the relevant scientific information after consulting recent reports on stock assessments and advice from scientific advisory bodies of reference and other readily available literature. For some stocks the review remains unchanged as no new information on the status or advice for such stocks became available. These are classified by the Commission, in its annual Communication¹ on fishing opportunities, as category 11 stocks meaning that the STECF was not able to provide advice and therefore TACs should be adjusted towards recent catch levels within a 15% decrease or otherwise the Member States should commit themselves to substantiate a TAC by providing reliable scientific advice within a short time.

During the last negotiations on TACs and Quotas for 2010 (in December 2009) the Council and the Commission recognized that scientific advice for a number of stocks is unknown due to insufficient data to assess their status and that work should continue in 2010 to address this management shortcoming. When fixing TACs and Quotas for 2010, for the first time the Council agreed on TAC reductions for certain category 11 stocks acknowledging the need to apply the precautionary principle to stocks for which scientific advice is not available.

ICES (the International Council for the Exploration of the Sea) is the main scientific body behind the assessment of stocks in waters of interest to the Union in the North Atlantic Ocean and adjacent areas. Since no assessment can be better than the available data, ICES welcomes additional input from stakeholders, so that it can assure that all relevant data including that originating from non traditional sources are considered and reviewed. Knowledge on the population's dynamics combined with available data and estimation procedures is essential to complete ICES work. Nevertheless, the analytical assessment of a number of stocks is undermined due to insufficient or unavailable survey data and catch information.

As a starting point, ICES Working Group on the Assessment of New MoU Species (WGNEW) deals with species/stocks for which management advice has never been provided. This first assessment is based on existing information on: (i) the general biology, stock identity and possible assessment areas; (ii) the description of the fisheries, historical landings, catch and effort data by sea area and country; (iii) survey data, including recruit series; (iv) associated biological sampling and research on population biology; and (iv) the results of any analyses on stock trends that have been carried out. Not only for the first assessment as well as for subsequent assessments are both the availability and quality of this information crucial to allow conclusive statements on the state of the resource. In cases where existing data is insufficient, ICES reports on data requirements and recommendations for future research.

Based on ICES advice or other relevant scientific source, the STECF summarises the following information in its annual review:

¹ Communication from the Commission: Consultation on Fishing Opportunities for 2010. COM(2009) 224.

- Stock: species name, scientific name and management area;
- Fisheries: fleets prosecuting the stock, management body in charge, economic importance, historical development of the fishery, potential of the stock in relation to reference points or historical catches, current catches and any other pertinent information.
- Source of the management advice which for the North Atlantic Ocean is ICES;
- Management agreement where exists;
- Precautionary reference points where these have been proposed;
- Stock status in relation to reference or precautionary points;
- Recent management advice;
- Comments and conclusions in relation to TAC decision rules from the Commission's annual Communication on fishing opportunities.

2. Main shortcomings defining category 11 stocks

In cases where the scientific information (mainly originated in ICES) is inconclusive or inexistent, the STECF is normally not able to issue an advice. Explanations for not having provided the requested advice in 2009 are summarised below.

Table 1 – Summary of STECF's comments in 2009 in relation to category 11 stocks.

Fisheries	Described in most cases
Source of the advice	Lack of scientific advice from ICES due to: <ul style="list-style-type: none"> - lack of analytical assessment made in recent years - lack of independent survey data available in recent years - assessment on the basis of survey information only and considered to be indicative of trends - insufficient data to carry out the assessment - ICES rejection of exploratory analytical assessment
Precautionary reference points	No precautionary reference points or precautionary TAC set in the past
Stock status	Unknown due to: <ul style="list-style-type: none"> - information on landings only - perception of the stock based on landings per unit effort - most recent analytical assessment outdated - no catch data in the last 3 years - short-lived species with large annual fluctuations - survey data gives indications of biomass level - impossible to quantify SSB, fishing mortality and recruitment; however commercial data gives indications <p>Known in other eco-regions</p> <p>Uncertain due to: <ul style="list-style-type: none"> - recent independent survey - exploratory estimates of mortality </p>

	<ul style="list-style-type: none"> - short series of data and lack of reliable tuning indices - inadequate available information
Management objectives	There are usually no management objectives
Recent management advice	<p>No recent management advice</p> <p>Insufficient data</p> <p>Data only on landings per unit effort</p> <p>Fishing may be authorised under mandatory data collection</p> <p>Limit fisheries to restrictions imposed to by-catches fisheries</p> <p>ICES advices on precautionary considerations meaning the effort should not increase</p>
STECF comments	<p>To enhance the quality of basic data</p> <p>Insufficient information to advise</p> <p>Not possible to judge whether landings are low due to low stock level, effort reduction or the two</p> <p>TAC based on average catches over the last 3 years with a 15% constraint</p> <p>ICES workshop results not yet published</p> <p>In mixed fisheries the measures should be consistent with other those for other fish</p> <p>Stock not considered by any ICES expert group</p> <p>Lack of knowledge on the predator population</p> <p>No assessment for the area in question</p> <p>No increase in effort following ICES advice due to concerns on accuracy of landings and increasing discards rates</p>

2.1 Data issues

Despite the data shortcomings identified by the scientists, the new legal framework for the collection, management and use of data in the fisheries sector, in particular Commission Decision 2008/949/EC, already contain a number of elements that are expected to contribute to improve advice on category 11 stocks. Mandatory collection of biological information (age,

weight, sex and maturity) for most of category 11 stocks is foreseen in Appendix VII of Commission Decision 2008/949/EC (see **Annex**). For the remaining stocks, it could be envisaged to enlarge the data collection framework to cover all relevant stocks.

Scientific assessment is expected to improve alongside with the implementation of the new data collection framework. Concrete results will be more visible in the next years as time-series data become available. Timeliness, punctuality, completeness and quality of the data provided by the Member States are crucial to improve scientific knowledge.

3. Possible management decisions on category 11 stocks

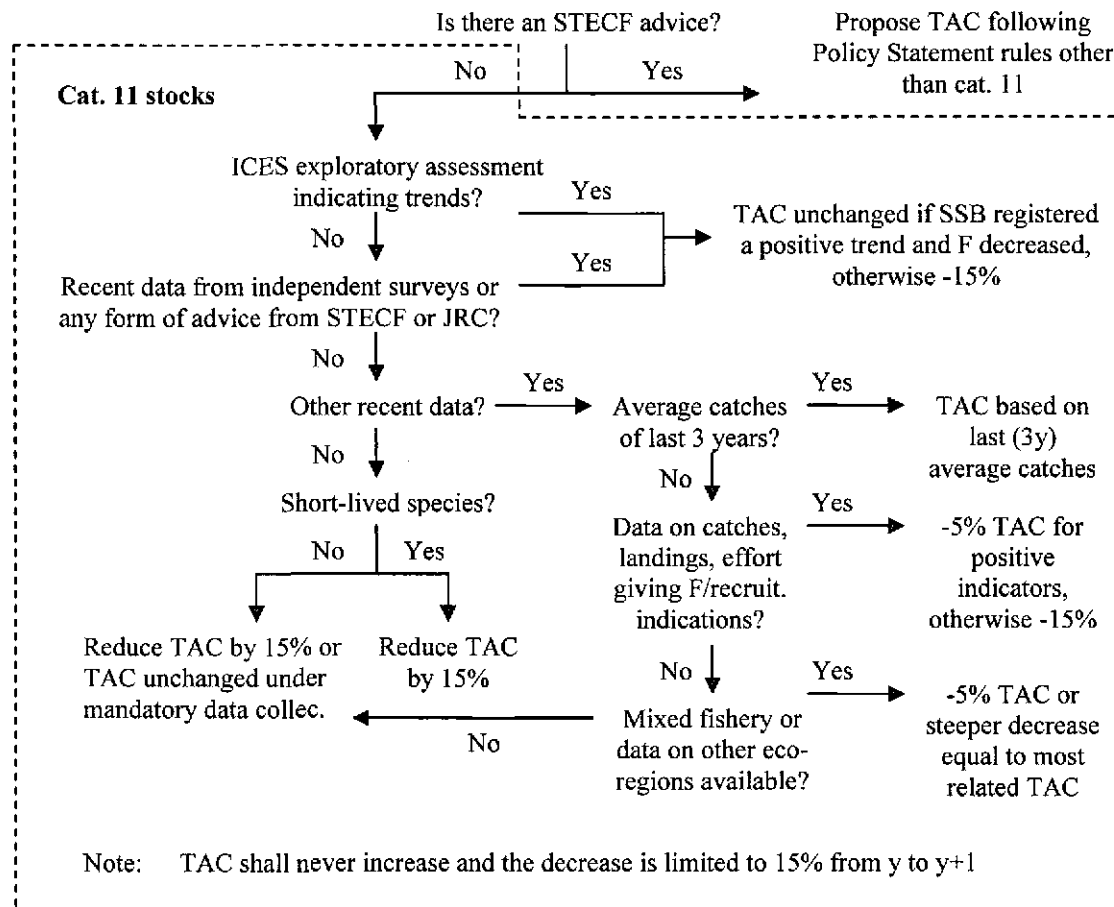
The most appropriate way to deal with stocks for which there is no scientific advice is to immediately address (in the year $y+1$) the scientific shortcomings identified (in the year y) by the STECF. Here the Member States could play an important role by implementing action plans designed to improve the information made available to scientists. To streamline the use of available human and financial resources and focus on the most relevant issues, a list of priority stocks subject to data improvement could be established on a case-by-case basis (see **Annex**). In the absence of such approach, recurrent stocks without scientific advice are likely to occur.

Where insufficient data hinder both ICES and STECF's efforts to complete and validate an analytical assessment, the existing data in combination with qualitative information can give indications on the status of the stock. Applying the precautionary principle to this indicative information may allow managers to make relatively informed choices acceptable in the short-term. In this context, an exploratory decision tree designed to guide decision-makers on the choice of fishing opportunities (presented **below**) may represent a step forward in the sophistication of the process dealing with category 11 stocks.

The logic behind the decision tree is to use all qualitative/quantitative information available by descending order of importance. When exploratory assessments by scientists are available, these come first, then data are explored and finally biological features may be used. The decision-tree is based on the following principals:

1. The TAC shall never increase and the decrease is limited to 15% from y to $y+1$.
2. When ICES exploratory assessments indicating trends and/or recent data from independent surveys are available, the TAC may remain unchanged if the SSB (Spawning Stock Biomass) has registered a positive trend from y to $y+1$ and F (fishing mortality) has decreased, otherwise the TAC shall decrease by 15%.
3. When data other than that originated from independent surveys are available, the TAC should be adjusted to recent real catch levels potentially subject to a precautionary reduction of 5% or 15% depending on the nature of the data available.
4. When data are not available, the TAC should be reduced by 15% unless the Member States concerned establish an annual action plan designed to improve the information available and provide reliable data within short time.

Decision tree addressing uncertainties in category 11 stocks



4. Conclusion

The status of a number of stocks classified as category 11 is still unknown mainly because the available data are insufficient to assess the current stock size and exploitation rate. In these cases scientific advice is not available and managers face the difficult choice to gradually move towards the real catches in order to avoid fishing expansions that may not be sustainable running at the same time the risk of stock overexploitation. To address this issue, the following actions could be envisaged:

- The cooperation between Member States and scientists (both STECF and ICES) should be improved. Timeliness, punctuality, completeness and quality of the data provided by the Member States are crucial to improve scientific knowledge.
- A short list of priority stocks can be established to focus on the most relevant issues. In this context, it may be appropriate to enlarge the data collection requirements of Appendix VII of Commission Decision 2008/949/EC to certain stocks.
- The Member States should establish annual action plans designed to improve the information made available to scientists on category 11 stocks within short time.
- Where insufficient data hinder both ICES and STECF's efforts to complete and validate an analytical assessment, the existing data in combination with qualitative information can give indications on the status of the stock. In this case, it could be

envisaged to follow a decision-tree designed to address uncertainties in category 11 stocks.

The issues presented in this non-paper, in particular the appropriateness and impact of choices in the decision tree, are to be discussed in detail with scientists and stakeholders.

The Member States are kindly requested to express their views on the approach described in this non-paper.

ANNEX

Table – STECF conclusions and ICES comments in 2009 regarding each category 11 stock.

Stock	STECF conclusions	ICES comments	Data collection framework
Anglerfish (<i>Lophius piscatorius</i>) in IIa and North Sea	- Since 2004 the assessment is combined with anglerfish in VI.	-	Included in Appendix VII of Decision(*) 2008/949/EC for the North Sea but not in IIa
Anglerfish (<i>Lophius piscatorius</i>) in Vb, VI, XII, XIV	- The information basis for anglerfish is being developed, with improvements to both industry-related data and surveys. - Stock status is uncertain due to uncertain catch and effort data. - Effort should not increase and fishery must be accompanied by mandatory data collection programmes.	<i>Data and methods</i> - The information basis for anglerfish is being developed, with improvements to both industry-related data and surveys. - There are currently only 4 years of survey data and that is not enough for an assessment. - ICES previously emphasized the importance of data collection from the fishery and this needs further progress. Age validation was highlighted as being an issue of concern and an age-reading workshop has been recommended, which should take place in 2009/10. <i>Comparison with previous assessment</i> - No analytical assessment since 2003.	Included in Appendix VII of Decision 2008/949/EC for zone VI but not in zones Vb, XII, XIV.
Cod (<i>Gadus morhua</i>) in Division VIIb (Rockhall)	- No advice by ICES. - No precautionary reference points. - Stock status unknown. - Management measures to be consistent with those for haddock because of mixed fisheries	-	Included in Appendix VII of Decision 2008/949/EC
Dab (<i>Limanda limanda</i>) and flounder (<i>Platichthys flesus</i>) in IIa and North Sea	- No assessment by ICES and no other assessment information in this area. - Precautionary TAC set.	-	Both dab and flounder are included Appendix VII of Decision 2008/949/EC in the North Sea but not in zone IIa.
Great silver smelt (<i>Argentina silus</i>) in zones I, II, III, IV + int. w.	- No reference points. - Stock status unknown. - Old fish in catches suggest high exploitation rates. - Fisheries only allowed when accompanied by data collection programmes.	-	Argentine in IV is included in Appendix VII of Decision 2008/949/EC but not in zones I, II and III.
Haddock (<i>Melanogrammus aeglefinus</i>) in VIIa (Irish Sea)	- Assessment based on survey information only and considered indicative of trends only. - Both total mortality and SSB estimates are relative as survey catchabilities at age	<i>Data and methods</i> - An assessment was carried out based on survey information only and is considered to be indicative of trends only. Both total mortality and SSB estimates are relative as survey catchabilities at age are not	Included in Appendix VII of Decision 2008/949/EC.

	<p>are not known.</p> <ul style="list-style-type: none"> - Proposed fishing mortality ref. point $F_{pa} = 0.50$. - Stock status is uncertain. 	<p>known.</p> <p><i>Information from the fishing industry</i></p> <ul style="list-style-type: none"> - The UK Fishery Science Partnership Irish Sea roundfish survey 2004–2009, which was carried out using commercial trawlers, indicated similar year-class signals to research vessel surveys. This survey supports the conclusions of the assessment. <p><i>Uncertainties in assessment and forecast</i></p> <ul style="list-style-type: none"> - This assessment is based on survey trends only as recent levels of catch are uncertain. - The survey estimate of biomass is projected to decline. Additional recruitment survey indices indicate that the recruitment estimates for the last two years might be lower than estimated by the current survey based assessment. <p><i>Comparison with previous assessment and advice</i></p> <ul style="list-style-type: none"> - The perception of the stock has not changed since last year's assessment. The most recent SSB estimate indicates that the stock has declined since last year. - ICES advice - no increase in effort. 	
Herring (<i>Clupea harengus</i>) in the Clyde division VIa	<ul style="list-style-type: none"> - No recent analytical assessment by ICES. - No recent independent survey data available. - Stock status unknown because of inadequate available information to evaluate trends. - Current restrictions to continue until new evidence become available. 	-	Included in Appendix VII of Decision 2008/949/EC.
Herring (<i>Clupea harengus</i>) in divisions VIIe,f	<ul style="list-style-type: none"> - No recent analytical assessment by ICES. - No precautionary reference points. - Stock status uncertain because of inadequate available information to evaluate trends. 	-	Not included in Appendix VII of Decision 2008/949/EC.
Horse mackerel (<i>Trachurus trachurus</i>) in X and CECAF	<ul style="list-style-type: none"> - No stock assessment information. 	-	Included in Appendix VII of Decision 2008/949/EC.
Lemon sole (<i>Microstomus kitt</i>) and witch in North Sea	<ul style="list-style-type: none"> - No stock assessment. 	-	Both included in Appendix VII of Decision 2008/949/EC.
Megrim	<ul style="list-style-type: none"> - No advice. 	Megrims for areas IV and VI:	Included in Appendix

<p>(<i>Lepidorhombus whiffiagonis</i>) in IIa and North Sea</p>		<p><i>Data</i></p> <ul style="list-style-type: none"> - The information basis is being developed, with improvements to both industry-related data and surveys. - Only 4 years of survey data considered not enough for an assessment of the state of the stock. <p><i>Uncertainties in assessment and forecast</i></p> <ul style="list-style-type: none"> - The quality of the available landings data (specifically the area misreporting), discard information, lack of effort data and cpue data for the main fleet in the fishery, severely hampers the ability of ICES to carry out an assessment for this stock. - For stocks like megrim and anglerfish on the Northern Shelf, there is a general need for improved spatio-temporal resolution of commercial catch and effort data through integration of VMS and logbook data. 	<p>VII of Decision 2008/949/EC for the North Sea but not IIa.</p>
<p>Megrim (<i>Lepidorhombus whiffiagonis</i>) in Vb, VI, XII, XIV</p>	<ul style="list-style-type: none"> - Unclear whether trends in landings reflect stock abundance or are due to a change in trawl effort. - No recent analytical assessment by ICES. - Advice based on average landings or effort. - Evidence that the megrim population is continuous between IVa and VIa. - No precautionary reference points. - Independent survey suggests increasing trend in biomass. - Recent surveys on anglerfish could be used for the assessment of megrim stocks. 		<p>Included in Appendix VII of Decision 2008/949/EC for zones VI but not in zones Vb, XII, XIV.</p>
<p>Megrim (<i>Lepidorhombus whiffiagonis</i>) in VII, VIIIabde</p>	<ul style="list-style-type: none"> - Precautionary ref. points: $F_{pa} = 0.3$, $B_{pa} = 55000t$. - Stock status unknown because is impossible to quantify SSB, fishing mortality and recruitment. - Both surveys and commercial data indicate trends over the time-series. 	<p><i>Data and methods</i></p> <ul style="list-style-type: none"> - Advice based on information from three surveys indicating recent biomass trends. - Data applicable to an age-structured analytic assessment are being collected, but at present insufficient to provide a reliable assessment. - Some discards data are available, but filling in the missing years is problematic because discarding 	<p>Included in Appendix VII of Decision 2008/949/EC for zones VII, VIIIabde but not in zone VIIIe.</p>

		<p>practices in the fisheries are very variable over time.</p> <ul style="list-style-type: none"> - Some logue tuning series are pending revision. <p><i>Information from the fishing industry</i></p> <ul style="list-style-type: none"> - No additional qualitative information has been provided by the industry in relation to catches and fleet spatial. <p><i>Uncertainties in assessment and forecast</i></p> <ul style="list-style-type: none"> - Surveys indicate conflicting trends in recent years. However, the EVHOE survey covers a wide area of the distribution of megrim and gives reliable estimates. The species is caught in fair quantities in almost all hauls, giving a good estimate of the length composition of the part of the population selected by the gear. <p><i>Comparison with previous assessment and advice</i></p> <ul style="list-style-type: none"> - ICES was not able to provide an analytical assessment. To be consistent with other megrim stock and anglerfish and due to problems with estimating discards, the basis of the advice was changed to no increase in effort. 	
Norway lobster (<i>Nephrops norvegicus</i>) in VI (Norwegian waters)	- No increase in effort.	-	Included in Appendix VII of Decision 2008/949/EC.
Norway lobster (<i>Nephrops norvegicus</i>) in Skagerrak, Kettogat and III	<ul style="list-style-type: none"> - Danish and Swedish UWTV surveys being established and preliminary data for reliable estimates available in 2010. - No precautionary ref. points. - Despite available assessment data giving indications the stock status is unknown due to inadequate info. to evaluate spawning stock or fishing mortality relative to risk. 	- ICES advises no catches for cod in IIIa, which is a significant by-catch species in the <i>Nephrops</i> fishery. Restrict effort may increase the use of sorting grids and reduce cod by-catches.	Included in Appendix VII of Decision 2008/949/EC.
Penaeus shrimps in French Guyana	- No advice.	-	Included in Appendix VII of Decision 2008/949/EC.
Plaice (<i>Pleuronectes platessa</i>) in Vb, VI, XII, XIV	- No stock assessment in these areas.	-	Not included in Appendix VII of Decision 2008/949/EC.
Pollack (<i>Pollachius pollachius</i>) in	- No assessment or advice on Pollack in all areas.	-	Included in Appendix VII of Decision 2008/949/EC in all

several areas			areas of the North East Atlantic and Western Channel except IX, X.
Saithe (<i>Pollachius virens</i>) in VII, VIII, IX, X	- No stock assessment in this area. - No information on recent level of catches in these areas.	-	Included in Appendix VII of Decision 2008/949/EC but not in zones IX, X.
Sole (<i>Solea solea</i>) in Vb, VI, XII, XIV	- No advice.	-	Not included in Appendix VII of Decision 2008/949/EC.
Sole (<i>Solea solea</i>) in VIIbc	- No precautionary ref. points. - Stock state unknown due to short data series and lack of reliable tuning indices.	- The available information is insufficient to evaluate stock trends. Therefore the state of the stock is unknown and there is no basis for an advice.	Included in Appendix VII of Decision 2008/949/EC.
Sole (<i>Solea solea</i>) in VIIhjk	- Stock state unknown because of inadequate available information. - Exploratory mortality estimates suggest the stock is severely overexploited.	- The available information is insufficient to evaluate stock trends. Therefore the state of the stock is unknown and there is no basis for an advice.	Included in Appendix VII of Decision 2008/949/EC.
Sole (<i>Solea solea</i>) in VIIIcde, IX, X	- No stock assessment in this area.	-	Included in Appendix VII of Decision 2008/949/EC for zone VIIIc but not in zones VIIIcd, IX, X
Sprat (<i>Sprattus sprattus</i>) in North Sea	- Assessment based on indicators derived from a research survey and on a two-stage Catch-Survey Analysis. Uncertainties in both survey and method make the stock understanding poor. - No precautionary ref. points. - Stock state uncertain.	- There is currently no analytical assessment for this stock. - There is no apparent relation between the survey indices and catch at age data. <i>Uncertainties in assessment and forecast</i> - Application of alternative assessment methods and the use of additional information sources (e.g. acoustic surveys, catch per unit effort) are required to improve the level of understanding. <i>Comparison with previous assessment and advice</i> - Previous advice has been based around a relationship between the IBTS Q1 index and catches, resulting in specific numerical advice. Because recent catches have been low due to other factors than stock abundance, the historical relationship between stock size and catch is now considered inappropriate to provide annual quantitative advice.	Included in Appendix VII of Decision 2008/949/EC.
Sprat (<i>Sprattus sprattus</i>) VIIde	- ICES attempted to undertake an assessment in 2009 but once again consider data insufficient. - No precautionary ref. points. - Stock state unknown.	- The available information is insufficient to evaluate stock trends and therefore the state of the stock is unknown.	Included in Appendix VII of Decision 2008/949/EC.

	Short-lived species with natural biomass fluctuations.		
Turbot (<i>Psetta maxima</i>) and brill in IIa, North Sea	- No stock assessment in this area.	-	Both included in Appendix VII of Decision 2008/949/EC but not in IIa.
Whiting (<i>Merlangius merlangus</i>) in IX, X	- No stock assessment.	-	Included in Appendix VII of Decision 2008/949/EC.
Whiting (<i>Merlangius merlangus</i>) in VIII	- No stock assessment.	-	Included in Appendix VII of Decision 2008/949/EC.
Whiting and Pollock in IV (Norwegian waters S62°N)	(²)	-	Whiting is included in Appendix VII of Decision 2008/949/EC but not Pollock.

(-) information not available.

(*) Commission Decision 2008/949/EC adopting a multiannual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy.

² There is an ICES advice on whiting in Subarea IV and Division VIIId.