

## RMC Resolutions 2007

**2007/2/RMC01** The **Study Group on Fisheries Induced Adaptive Change** [SGFIAC] (Co-Chairs: M. Heino, Norway, U. Dieckmann, Austria, A. Rijnsdorp, The Netherlands) will meet at ICES Headquarters, Copenhagen, from 21–25 January 2008 to:

- a) assemble and review empirical evidence of fisheries-induced adaptive change and its consequences for conservation of biodiversity and sustainable exploitation of marine species, within an ecosystem context, including previous work by WGAGFM and WGECCO;
- b) evaluate the impact of existing management measures and tools, such as minimum mesh and landing sizes, precautionary reference points, marine protected areas, effort regulations, on fisheries-induced adaptive change;
- c) develop appropriate scientific and methodological tools to monitor and respond appropriately to risks to biodiversity and sustainable exploitation posed by fisheries-induced adaptive change;
- d) relate consequences of fisheries-induced adaptive change to current management objectives and evaluate possible more specific objectives for managing fisheries-induced adaptive change.

SGFIAC will report by 1 March 2008 for the attention of the Resource Management Committee, and ACOM.

### Supporting information

<b>PRIORITY:</b>	The activities of the Study Group will provide ICES with a basis for advice on whether and how the adaptive effects of fisheries need to be taken into account in future management. Such advice is needed in relation to the precautionary approach, the ecosystem approach, biodiversity, and evaluation of risk and uncertainty. Consequently, these activities are considered to have a very high priority.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>Action Plan No: 2.5 (Assess and evaluate the genetic consequences of human-induced selective factors):</p> <p><b>Term of Reference a)</b> Several countries are conducting, or have recently completed, significant studies in this area and the subject would benefit from a review of progress and an evaluation of the results obtained.</p> <p><b>Term of Reference b)</b> A framework is needed to evaluate which stocks are most at risk, what level of monitoring is needed, and how to respond where fisheries-induced adaptive changes are likely to have significant negative impacts. Where management measures to mitigate such changes are required, it is in our best interests that most cost-effective management measures are found.</p> <p><b>Term of Reference c)</b> As this is a relatively new field, methods for observing and monitoring fisheries-induced evolution as well as its consequences and for evaluating possible management targets and thresholds are still under development.</p> <p><b>Term of Reference d)</b> Managing fisheries-induced adaptive change is implicitly included in management objectives under the precautionary approach, as sustainable harvesting must be understood to include evolutionary sustainability. However, explicit attention to fisheries-induced change raises some new issues. For example, the World Summit on Sustainable Development (2002) stipulated that fish stocks shall be maintained or restored to levels that can produce the maximum sustainable yield by 2015, but MSY itself may be eroded because of fisheries-induced adaptive changes. It is therefore important to assess the degree to which fisheries-induced adaptive changes are properly accounted for by the existing management objectives, and to what degree more</p>

	specific considerations are warranted. Timeframe: 2-3 years
<b>RESOURCE REQUIREMENTS:</b>	No financial requirements for ICES. The research programmes which provide the main input to this group are already underway, and resources are already committed (see 'Participants' below). The additional resources required to undertake additional activities in the framework of this group are negligible.
<b>PARTICIPANTS:</b>	Ca. 15–20 participants. Closely related EC-funded projects <i>Fisheries-induced Adaptive Changes in Exploited Fish Stocks</i> (2005–2009) and <i>Fisheries-induced Evolution</i> (2007–2010) as well as <i>Marfish</i> project within EU Network of Excellence <i>Marine Biodiversity and Ecosystem Functioning</i> (2005–2009) will secure participation from both fisheries research institutes and universities.
<b>SECRETARIAT FACILITIES:</b>	None.
<b>FINANCIAL:</b>	No financial implications.
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	For management implications: Resource Management Committee (RMC), Living Resources Committee (LRC), Working Group on Fishery Systems (WGFS), possible follow-up by the Study Group on Management Strategies (SGMAS)  For more fundamental aspects: Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM)
<b>LINKAGES TO OTHER ORGANIZATIONS:</b>	

**2007/2/RMC02** The **International Bottom Trawl Survey Working Group** [IBTSWG] (Chair: R. ter Hofstede, The Netherlands) will meet in Vigo, Spain, from 31 March–4 April 2008 to:

- a) coordinate and plan North Sea and North-Eastern Atlantic surveys for the next twelve months including appropriate field sampling in accordance to the EU Data Collection Regulation;
- b) Further develop the standard reporting format for the annual surveys for species of interest to assessment working groups according to their response;
- c) Further evaluate and standardise criteria for ensuring quality and consistency in collection and reporting of survey data. These include (i) review of abundance indices and estimates of precision in DATRAS; and (ii) review the reporting procedures of trawl, vessel and environmental parameters and analyse changes in survey effort and/or constant catchability;
- d) Review recent updates within DATRAS, including the implementations of user requirements as defined by the workshop DATRAS URS;
- e) Improve the quality of future and historic IBTS data by: (i) the production and dissemination of identification keys for IBTS groundfish surveys; (ii) the examination of DATRAS data, i.e. to analyse size distributions, geographical distributions, and consistency of taxonomic use, and to correct data where possible;
- f) review the outcome from the SGSTS in respect to issues relevant to IBTS and implement recommendations where agreed;
- g) Agree on strata and their definitions for surveys in the Eastern Atlantic (including shapefiles and supporting information; shapefiles to be completed inter-sessionally and prior to the Q4 survey).

IBTSWG will report by 30 April 2008 for the attention of the Resource Management Committee.

## Supporting Information

<b>PRIORITY:</b>	Essential.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>The general need for monitoring fish abundance using surveys is evident in relation to fish stock assessments and in biodiversity studies. The meeting is based on the following needs:</p> <p>a) This is a core function of the IBTSWG. It is an important forum for coordination and evaluation of standardized bottom trawl surveys in the Eastern Atlantic Area, to ensure good survey coverage in relation to stocks and areas, intercalibration work, and high quality of data.</p> <p>b) The move towards a standard reporting format is intended to provide a brief, structured overview of the main results and difficulties from individual vessel surveys annually. A standard reporting format will provide a centralised and easily accessible overview of specific survey data sets, to those using the data. IBTSWG will continue to revue feedback and implement modifications.</p> <p>c) In order to achieve the required level of quality in survey data, there is an urgent demand for clear international protocols on sampling strategies and data analysis. The surveys coordinated by the IBTSWG have different sampling strategies and there is a need to define the best adapted methods for computing indices and estimating precision.</p> <p>d) The development of DATRAS needs to be evaluated. IBTSWG will comment on the new version of DATRAS and will recommend on desired further developments.</p> <p>e) Detected errors in the database (e.g. DATRAS) should be corrected and protocols for the avoidance of misuse of existing data and for the prevention of future errors will be developed and implemented.</p> <p>f) Aspects of quality in survey design, sampling strategies and analysis of data are of prime importance for IBTSWG. Many aspects of trawl standardisation and intercalibration being examined by SGSTS are pertinent to IBTS and review of recommendations is essential.</p> <p>g) GIS *.shapefiles have now been made available for strata used by most of the surveys in the Eastern Atlantic area. The IBTSWG will further develop a scheme that will include all shapefiles, strata descriptions, computed areas and the information used for the strata definition.</p>
<b>RESOURCE REQUIREMENTS:</b>	<p>A five day IBTS meeting. Pre-prepared documents from members. Eight days Chair's time to edit. It is estimated that each ToR will require at least 8 hours pre-preparation</p>
<b>PARTICIPANTS:</b>	All members will participate in all ToRs, although leads for each ToR will be allocated. It would be highly beneficial to have the person responsible for the ICES DATRAS participating for some days.
<b>SECRETARIAT FACILITIES:</b>	None
<b>FINANCIAL:</b>	None
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	<p>Assessment Working Groups, WGBEAM, WGBIFS f) Cooperation with SGSTS</p>
<b>LINKAGES TO OTHER ORGANIZATIONS:</b>	IOC, GOOS

**2007/2/RMC03** The **Working Group on Methods of Fish Stock Assessments [WGMG]** (Chair: Coby Needle, UK) will meet in Woods Hole, USA from 7–16 October 2008 to:

- a) develop or verify methods and software for evaluating harvest control rules;
- b) develop methods for detecting, quantifying, communicating and correcting retrospective bias and noise, and consider implications of retrospective bias for management advice;
- c) develop methods for the appropriate incorporation and estimation of uncertainty in stock assessment methods;
- d) develop methods to detect persistent changes in stock productivity, including time series approaches;
- e) examine ways to accommodate zero observations in stock assessment methods.

WGMG will report by 16 November 2008 for the attention of the Resource Management Committee and ACOM.

### Supporting Information

<b>PRIORITY:</b>	The work of this group is essential for ICES to progress in the development of methods for fish stock assessment and for the evaluation of management strategies.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p><b>ToR a):</b> The relevance of this work to WGM in particular lies in the development and testing of methods and tools to allow for the appropriate evaluation of management plans and strategies. It is not the function of scientists to propose or advocate management plans or targets – that is for managers themselves, along with stakeholders and the wider society. It is, however, incumbent on scientists to advise managers on the likely consequences of different management actions, and to assist managers in developing plans that have the best possible likelihood of achieving whatever it is the managers want to achieve – this, again, is not for scientists to decide. WGM should focus on the methodological aspects of this process. Specifically, WGM should neither propose management plans nor conclude whether this or that plan is more likely to succeed – rather, WGMG should test and develop methods that enable scientists to answer the questions asked of them by managers. One example of such a question would be: how would this or that management plan function in a situation where the underlying stock assessment was biased (retrospectively or otherwise)? This ToR is intended to address this question.</p> <p><b>ToR b):</b> Considerable progress was made during the 2007 meeting in collating a suite of analysis tools that could assist in the detection (and possible correction) of causes of retrospective bias. However, testing of these tools during the meeting was carried out on simulated datasets with effects that were both simple and substantial – for example, a tripling of survey catchability combined with no other sources of bias. In reality, a number of sources of bias are likely to exist. The next stage of this analysis is therefore to generate simulated data which contains features that would be more typical of data encountered in reality, and explore the ability of the tools to detect and correct bias in those situations.</p> <p><b>ToR c):</b> This ToR is intentionally rather wider than the others, because there are two main issues to be considered. Firstly, much assessment data is now available with estimates of variance, and it is important that WGM advises on the best way(s) to incorporate this variance. Secondly, the group should give advice on how to estimate and display variance in output parameters such as F and spawning-stock biomass (this was the area that the 2007 meeting focussed on). Both of these are important and need to be progressed.</p> <p><b>ToR d):</b> This ToR opens up the field of detecting changes in long time series. It relates to regime shifts, and also has implications for data-poor situations where an important aspect is to detect changes in stock productivity that requires management action. Emphasis should primarily be on theoretical and methodological aspects, which may later be translated into operational guidelines.</p> <p><b>ToR e):</b> It is the view of WGM that the meeting should not become a repository for all methodological issues raised by assessment WGs, as this leads to a proliferation of special requests that WGM will often not be in a position to address. The issue of zero observations in surveys is somewhat different as a participant has already agreed to do the work to address it, so WGM felt the inclusion of this ToR would be an acceptable exception to the general rule.</p> <p>The longer meeting held in 2007 allowed for considerably more collaborative work than had been the case in 2006, and this length should be retained for the 2008 meeting.</p>
<b>RESOURCE REQUIREMENTS:</b>	None.
<b>PARTICIPANTS:</b>	The Group is well-manned by the correct people but would benefit from new members, particularly in respect of ToR d).
<b>SECRETARIAT FACILITIES:</b>	Meeting facilities, production of report.
<b>FINANCIAL:</b>	None.
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM has strongly supported the work of this group and has worked actively in formulating the ToRs for recent meetings. WGM will report to ACOM at its autumn meeting in 2008.
<b>LINKAGES TO OTHER</b>	WGMG will report to the Resource Management Committee at the ICES ASC

<b>COMMITTEES OR GROUPS:</b>	in 2008. There will also be links to the Fisheries Technology Committee.
<b>LINKAGES TO OTHER ORGANIZATIONS:</b>	There is similar work going on within ICCAT and NAFO. Coordination should be assured.

**2007/2/RMC04** The **Workshop on historical data on fisheries and fish** [WKHIST] (Co-Chairs: Martin Pastoors\*, The Netherlands, and Bo Poulsen\*, Denmark) will meet at ICES Headquarters, Copenhagen, Denmark, from 11-15 August 2008 to:

- a) compile an inventory of historical data on marine fisheries and fish stocks and the status of the data (paper, reference, digitized). The historical data should focus on the period 1850-1960 but earlier data should also be included;
- b) compile and develop methods for estimating changes in technical efficiency in historical fisheries;
- c) develop a workplan for case studies on historical stock dynamics in the ICES area and link this to overall changes in the environment.

WKHIST will report by 10 September 2008 for the attention of the Resource Management Committee.

### Supporting Information

<b>PRIORITY:</b>	The activities of this Group will improve the understanding of long-term changes in fish stocks productivity and changes in the ecosystems. Consequently these activities are considered to have a very high priority.
<b>SCIENTIFIC JUSTIFICATION:</b>	<p>Historical data on fish and fisheries can refer to information on catches, survey information, catch rates, length and/or age compositions, tax records and any other sources that can provide information of stock dynamics before 1960.</p> <p>There is growing interest in historical data on fish and fisheries. The interest is on the discovery, recovery, digitization and analysis of historical data. The analysis of historical data is expected to give insight in long-term historical trends in fish stocks and fisheries which can be related to long term changes in environmental indicators.</p> <p>The work will link to the History of Marine Animal Populations project that is funded under the Census of Marine Life and which aims to discover historical data sources. Several fisheries research institutes in Europe have started to make inventories of historical information and the workshop is intended to bring these initiatives together.</p>
<b>RESOURCE REQUIREMENTS:</b>	No specific requirements
<b>PARTICIPANTS:</b>	The Group is expected to attract approx 10 participants
<b>SECRETARIAT FACILITIES:</b>	None.
<b>FINANCIAL:</b>	No financial implications.
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	LRC, OCC, FTC. Also linked to ICES proposal proposal for the digitisation, analysis and interpretation of plankton data for pre-1914 ices sampling in the north sea and adjacent waters
<b>LINKAGES TO OTHER ORGANIZATIONS:</b>	Census of Marine Life / History of Marine Animal Populations

**2007/2/RMC05** The **Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys** [PGNAPES] (Chair: Alexander Krysov, Russian Federation) will meet in Hirtshals, Denmark, from 19–22 August 2008 to:

- a) critically evaluate the surveys carried out in 2008 in respect of their utility as indicators of trends in the stocks, both in terms of stock migrations and accuracy of stock estimates in relation to the stock – environment interactions;
- b) review the 2008 survey data and provide the following data for the Northern Pelagic and Blue Whiting Working Group:
  - i) stock indices of blue whiting and Norwegian spring-spawning herring.
  - ii) zooplankton biomass for making short-term projection of herring growth.
  - iii) hydrographic and zooplankton conditions for ecological considerations.
  - iv) aerial distribution of such pelagic species as mackerel.
- c) describe the migration pattern of the Norwegian spring-spawning herring and blue whiting stocks in 2008 on the basis of biological and environmental data;
- d) plan and coordinate the surveys on the pelagic resources and the environment in the North-East Atlantic in 2009 including the following:
  - i) the international acoustic survey covering the main spawning grounds of blue whiting in March-April 2009.
  - ii) the international coordinated survey on Norwegian spring-spawning herring, blue whiting and environmental data in May-June 2009.
  - iii) national investigations on pelagic fish and the environment in June-August 2009.
- e) plan, and as relevant coordinate, surveys in the Northern Norwegian Sea to observe abundance and distribution of pelagic redfish.

PGNAPES will report by 1 September 2008 for the attention of the Resource Management the Living Resource Committees and ACOM.

### Supporting Information

<b>PRIORITY:</b>	The coordination of the surveys has strongly enhanced the possibility to assess abundance and provide essential input to the assessment process of two of the main pelagic species in the Northeast Atlantic and describes their general biology and behaviour in relation to the physical and biological environment.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>The Planning Group is a potential meeting place for inter-disciplinary discussion and considerations on ecosystem approach to management of fisheries.</p> <p><b>ToR a)</b> Two international and some national surveys with coordinated by PGNAPES. The Planning Group describes the procedures for acoustic, hydrographic, plankton, and fish sampling to be used during the surveys.</p> <p><b>ToR b)</b> The abundance indexes estimates of Norwegian Spring Spawning Herring and Blue Whiting produced from surveys are used in ICES Northern Pelagic and Blue Whiting Fishery Working Group (NPBWWG) in assessment. The collection of environmental data improves the basis for ecosystem modelling of the Northeast Atlantic.</p> <p><b>ToR c)</b> The Planning Group describes the migrations of the stocks and considers possible stock – environment interactions.</p> <p><b>ToR d)</b> The Planning Group contributes significantly to improving abundance surveys essential for fish stock assessment of herring and blue whiting and improving the collection of data for ecosystem modelling of the Northeast Atlantic. The Planning Group will identify existing procedures to ensure that the sampling gear and any instrumentation used to monitor its performance are constructed, maintained and used in a consistent and standardized manner. Where necessary, procedures and protocols should be established for intercalibration to take into account platform and sampling tools-survey gear differences.</p> <p><b>ToR e)</b> There is a need to monitor the pelagic redfish in the Northern Norwegian Sea, where a fishery is rapidly expanding. The task at present for the Planning Group will be to coordinate and quality control surveys in the area where redfish is recorded. In the coming years, the Planning Group should also evaluate the surveys and analyse and report the results. For a survey in 2008,</p>

	there may be a need for coordination during the spring 2008 through consultations between interested parties. In general, the remit of this group addresses Action Numbers 1.2.2, 1.3 and 1.11.
<b>RESOURCE REQUIREMENTS :</b>	None
<b>PARTICIPANTS :</b>	15
<b>SECRETARIAT FACILITIES:</b>	Standard report production.
<b>FINANCIAL:</b>	None
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	WGNPBW, WGMHSA and SGBYSAL
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	None

**2007/2/RMC06** The **Working Group on Multispecies Assessment Methods** [WGSAM] (Co-Chairs: John Pinnegar, UK and Bjarte Bogstad, Norway) will meet at ICES Headquarters, Copenhagen, Denmark from 6–10 October 2008 to:

- a) Explore the concept of Maximum Sustainable Yield (MSY) within a multispecies context.
- b) Report on ‘key-runs’ (standardised model runs updated with more recent data, and agreed upon by WGSAM participants) of multispecies fisheries models for the North Sea and Barents Sea, and work towards similar standardised outputs and reporting protocols for the Bay of Biscay and Iberian Peninsula.
- c) Report back on model comparison exercises, carried out under the auspices of the EU FP6 UNCOVER project.
- d) Evaluate interannual variability in feeding patterns. Explore the implications for multispecies models.
- e) Review further progress in multispecies and ecosystem modelling throughout the ICES region.

**Longer term aspirations (possible ToRs for future years)**

- Consider possible methodologies and techniques to better characterise predation processes affecting early-life history stages of fish.
- Evaluate complementarities between different ecosystem and multispecies modelling approaches, for example the use of whole food-web models to provide better estimates of ‘other food’ in multispecies assessment models. Also links between biogeochemical ecosystem models, and models which focus on higher trophic levels.
- Explore the possibility of developing ‘virtual datasets’ which might be used in multiple models, for comparison and sensitivity testing.

WGSAM will report by 16 November 2008 for the attention of the Resource Management Committee, and ACOM.

**Supporting information**

<b>PRIORITY:</b>	Multispecies assessment modelling is essential for the development of viable long-term management strategies.
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<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>The increased emphasis on ecosystem management, and the move away from advising on single stocks in isolation, necessitate considering interactions between fish stocks and the ecosystems which they are part of.</p> <p>Historically the ICES multispecies working and study groups have acted as a useful conduit within the ICES system, drawing together advice and quantitative outputs from many different assessment working groups. Hence this pan-regional ICES working-group, accommodating these activities and including sea areas where multispecies development has been less linked to ICES should continue. The 2007 meeting of WGSAM showed that there is much ongoing work within this field of research, and that there is a need for a forum for reviewing progress within this field (ToR e).</p> <p>As ICES moves towards studies of target reference points, MSY is a key concept. Most countries are committed to achieving MSY under the terms of the World Summit of Sustainable Development by 2015. In a multispecies context, trade-offs will have to be considered, as the yield of all species cannot be maximized simultaneously (ToR a). Standardised outputs and reporting protocols are also needed (ToR b). There is also need for comparison of modelling exercises, both within and across regions (ToR c).</p> <p>Stomach content data serve as the basis for a plethora of multi-species, extended single-species, and ecosystem models. Having a solid foundation of adequate stomach content data is a pre-requisite for implementing the ecosystem approaches to fisheries. Stomach sampling has been annual in some areas, while in other areas (e.g. the North Sea) a large effort ('Year of the Stomach') has been made sporadically. Feeding patterns should be evaluated to study inter-annual variations (ToR d). Such variations will have implications for multispecies models and future sampling requirements.</p>
<b>RESOURCE REQUIREMENTS:</b>	–
<b>PARTICIPANTS:</b>	Approx 25. Expertise in ecosystem, modelling and fish stock assessment from across the whole ICES region.
<b>SECRETARIAT FACILITIES:</b>	None
<b>FINANCIAL:</b>	No financial implications
<b>LINKAGE TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGE TO OTHER COMMITTEES OR GROUPS:</b>	AMAWGC, WGRED, WGECO, SGMAS, WKEFA, SGMIXMAN, most assessment WGs
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	–

**2007/2/RMC07** The Working Group on Fishery Systems [WGFS] (Chair: D. Wilson, Denmark) will meet at ICES Headquarters, Copenhagen, Denmark from 13–17 October 2008 to:

- a) engage with experts from outside of fisheries to review how uncertainty, complexity and ambiguity are addressed in related policy regimes. This review will inform tool development, the design of adequate participation procedures and comparative research on approaches being used in fisheries;
- b) assess forms of quality control and external accountability for participatory approaches to making decisions about the fisheries knowledge base in terms of both tools and practices. The objective of this is to begin to identify appropriate mechanisms and practices for facilitating extended peer review of the growing number of stakeholder driven scientific fora appearing in European fisheries using quantitative and qualitative assessments of uncertainties;
- c) develop approaches to participation in decision making through a risk framework considering:
  - i) risk communication.
  - ii) structuring stakeholder interactions.
  - iii) issues of representation and legitimate participation.
  - iv) contextualizing risk within broader issues of uncertainty, complexity and ambiguity.
  - v) identifying science-based responses to uncertainty, complexity and ambiguity.

WGFS will report by 30 November 2008 for the attention of the Resource Management Committee.

### Supporting Information

<b>PRIORITY:</b>	The main focus of WGFS is the fishery system and the role of scientific advice within that system. The system-based approach relates directly to priorities such as developing an ecosystem-based approach to management and the effective implementation of the precautionary approach. Consequently, these activities have a very high priority. The work of the Group is also essential if ICES is to advance the development of realistic projections of fisheries development that take into account the reaction of other parts of the overall fisheries system.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>The Group met in 2000, 2001, 2003, and 2004 to develop a framework for case study analysis and has identified European (North Sea cod) and North American (Georges Bank mixed fisheries) case studies. Funding for the European case study had been granted from 2003 under the EU Framework V Programme; funding for the North American study was granted from 2004. This effort resulted in seven papers that were published in the special issue of the ICES JMS based on the Symposium on Management Strategies held in Galway in 2006.</p> <p>The key role for the WGFS is to integrate across disciplines to develop analytical and investigative methods/approaches for studying fishery management systems. The main but not exclusive focus of these investigations of the overall fisheries system is to improve the effectiveness of scientific advice. The Group met in 2005 in conjunction with the PKFM, FEMS and EASE projects all of which dealt with organizational and institutional aspects of the production of scientific advice. The 2006 meeting placed a strong emphasis on the ecosystem-based approach and particularly the issue of spatial planning. This meeting also considered and provided specific recommendations in relation to ICES current reorganization of the advice system.</p> <p>In general, the remit of this group addresses Action Numbers 4.13 and 5.3.</p>
<b>RESOURCE REQUIREMENTS:</b>	Secretariat support for meeting.
<b>PARTICIPANTS:</b>	These include scientists working with fisheries management, both from an economic, social and biological perspective. Participation is from ICES countries and scientists both from disciplines and scientific circles not traditionally represented at ICES.
<b>SECRETARIAT FACILITIES:</b>	No additional software/hardware is anticipated beyond that which is currently available.

<b>FINANCIAL:</b>	None
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	The goal for this Working Group is to better understand fishery management systems which is a central element of the work of ACOM.
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	Close links to SGMAS. Methodological issues are within the mandate of this Group, but fish stock assessment methods are referred to WGMG. WGFS will work in close cooperation with the SGRAMA, and ToR b) reflects a division of labour between WGFS and SGRAMA.
<b>LINKAGES TO OTHER ORGANISATIONS</b>	ICES will seek to widen participation for this group, including contact with relevant academic and inter-governmental organisations (including FAO, OECD and IIFET).

**2007/2/RMC08 The Study Group on the evaluation of assessment and management strategies of the western herring stocks [SGHERWAY]** (Chair: Emma Hatfield,\* UK) will be established and will meet in Aberdeen, UK from 8–12 December 2008 to:

Take into account the results of WESTHER in relation to VIaN, VIaS and VIIaN stocks:

- a) evaluate the utility of a synoptic acoustic survey in the summer for the Hebrides, Malin and Irish shelf areas, in conjunction with PGMERS surveys of VIaN and the North Sea;
- b) explore a combined assessment of the three stocks and investigate its utility for advisory purposes;
- c) evaluate, through simulation, alternative management strategies for the metapopulation of VIaN, VIaS and VIIaN;
- d) comment on the best way to maintain each spawning component in a healthy state, whilst managing the fish of that component when they are in a neighbouring area.

SGHERWAY will report by 1 March 2009 for the attention of RMC, and ACOM.

### Supporting Information

<b>PRIORITY:</b>	It is expected that this work will resolve issues surrounding the assessment and management of the herring stocks to the west of the British Isles. Its impact is expected to be high and consequently this work is considered to have a very high priority.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>The EU funded project WESTHER evaluated the uncertain stock identity of herring stocks to the west of the British Isles. Its results suggested a rearrangement of the stocks as they are currently assessed and these results now need to be taken forward into the assessment and management process.</p> <p>We recognize the need to provide sound management advice for the western herring areas, and in particular the importance of ensuring as far as possible that there is no depletion of local components. HAWG noted that WESTHER was not funded to evaluate the extent of mixing in the fisheries or to evaluate alternate management strategies for the area. Currently it is unclear what management regime would provide the most cost effective method for successful management and what data would be needed to support this management.</p> <p>We consider that it is necessary to move towards an integrated management plan for this area through a series of iterations involving the following steps :-</p> <ul style="list-style-type: none"> <li>• Investigation of combined assessment of the three currently assessed stocks, VIaN, VIaS and VIIaN (to be called the Malin Shelf stock), including an investigation of the utility of a combined acoustic survey.</li> <li>• Examination of alternative management strategies based on their ability to deliver protection to local populations and provide cost effective information applicable for management of the two proposed stock units of herring to the west of the British Isles (Malin Shelf and Celtic Sea).</li> <li>• Amendment of existing, or development of new, cost effective assessment and data collection schemes which will be required to support this management.</li> </ul> <p>SGHERWAY supports directly ICES Goals 1, 3 and 4 in the action plan,</p>

	specifically 1.11, 3.4, 4.1, 4.2, 4.3 and 4.15.
<b>RESOURCE REQUIREMENTS:</b>	It is proposed that this would be the first of two meetings of SGHERWAY. It is intended that there would be 8-10 –participants, meeting for a week each time, with intersessional work required.
<b>PARTICIPANTS:</b>	Herring biologists and scientists experienced in assessment and management strategy evaluation, from Denmark, Ireland, Norway, The Netherlands, and the UK have agreed to attend the study group.
<b>SECRETARIAT FACILITIES:</b>	None, other than formatting and publishing of the final report.
<b>FINANCIAL:</b>	There are virtually no financial implications
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	The study group will provide information to ACOM. This group feeds into the advisory process.
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	This SG is essential to the work of HAWG and will have clear links to PGMERS, LRC and RMC.
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	None

**2007/2/RMC09 The Study Group on Risk Assessment and Management Advice [SGRAMA]** (Chair: Knut Korsbrekke, Norway) will meet at ICES Headquarters, Copenhagen, 1–5 December 2008 to:

- a) on the basis of the SGRAMA report from 2007 (in particular the framework described in the report), input from WGFS and experience gained elsewhere, develop operational guidelines for risk assessment by:
  - i) identifying potentials for measuring or estimating consequences and probabilities.
  - ii) relating indicators to negative consequences and developing management procedures based upon such indicators.
  - iii) considering pseudo quantification methods (Multi-criteria decision analysis, fuzzy, Bayesian) and other qualitative approaches;
  - iv) considering risk analysis methods;
  - v) reviewing implementations;
- b) consider and report on training needs and possible modalities for training to disseminate knowledge about risk assessments to members of ICES expert groups;
- c) develop operational guidelines for setting precautionary biomass limit reference points, taking the broader concept of risk into account.

SGRAMA will report by 1 March 2009 for the attention of the Resource Management, the Living Resources Committee as well as ACOM.

### Supporting Information

<b>PRIORITY:</b>	The work is essential for ICES to progress in the development of its capacity to provide advice on fisheries and marine management which includes considerations of risk. Such evaluations are necessary to fulfil the requirements stipulated in the MOUs between ICES and Commissions
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>[Action numbers 3.2, 3.4, 3.5, 3.12, 4.2, 4.3, 4.5, 4.11.2, 4.13, 4.15, 7.2]</p> <p>The SGRAMA report is a first step in establishing guidelines for production of risk assessments and inclusion of considerations of risk management in the advice.</p> <p>Risk assessment and risk management is an important field in several branches of science. The SGRAMA aims at drawing on the experience from other branches of science, and to include that experience in the development of risk assessment and risk management in fisheries science.</p> <p>The field covered by the SGRAMA is close to the field of the WGFS. The <b>ToR a)</b> is coordinated with a ToR for the WGFS, to ensure a rational division of labour, where the SGRAMA concentrates on technical aspects supporting risk decision making</p>

	<p><b>ToR a)</b> The guidelines shall outline the kind of information and participation needed required for a risk assessment. They shall describe the process of identifying risk including how these relates to existing conservation and target limits, and with an overall focus on the ecosystem effect of fishing. The guidelines shall furthermore contain references to methods of quantifying risk including pseudo quantification methods and other qualitative approaches to risk analysis</p> <p>An important part of the guidelines will be a description of risk communication (how to communicate the findings in the assessment to managers in a way that facilitates decisions).</p> <p><b>ToR b)</b> addresses the communication of the results by the SGRAMA to the wider audience.</p> <p><b>ToR c)</b> addresses the specific problem of providing a firm basis for the precautionary reference points, and is related to the process of reviewing biomass limit reference points in particular.</p>
<b>RESOURCE REQUIREMENTS</b>	
<b>PARTICIPANTS:</b>	Experts with qualifications regarding assessment and institutional aspects of risk assessment and management. Effort should be made to attract participants with experience in risk assessment and management outside the fisheries sector.
<b>SECRETARIAT FACILITIES:</b>	Secretariat support, meeting facilities.
<b>FINANCIAL:</b>	No extra costs for ICES
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	RMC, WGFS, AMAWGC and Assessment WGs ToR c) relates directly to the WKREF, and WGEIM under MCC.
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	This work serves as a mechanism in fulfilment of the MOU with EC and fisheries commissions. Co-ordination should be assured as a number of participants in EU-funded projects such as PRONE and JAKFISH are expected to participate.

**2007/2/RMC10**      **The Study Group on Redfish Stocks [SGRS]** (Chair: A. Pedchenko\*, Russia) will meet at ICES Headquarters, Copenhagen, from 27–29 January 2009 and in Reykjavík, Iceland, from 28–30 July 2009 to:

- a) plan the international trawl/acoustic survey of redfish to be carried out in the Irminger Sea and adjacent waters in June/July 2009 (January);
- b) prepare the report on the outcome of the 2009 survey (July).

SGRS will report by 15 March 2009 (January meeting) and 15 August 2009 (July meeting) for the attention of the Resource Management Committee, North Western Working Group, and ACOM.

### Supporting Information

<b>PRIORITY:</b>	Essential.
<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	<p>Action Plan Numbers: 1.8, 1.10, 1.11, 1.13 and 6.1</p> <p>SGRS (formerly PGRS) has been responsible for the planning of the international trawl/acoustic surveys of redfish in the Irminger Sea and adjacent waters since 1994 and corresponding reports on the survey results. The observed drastic changes in abundance and biomass estimates since 1994 and considerable changes in environmental conditions in recent years confirm the</p>

	<p>need of precise monitoring of the redfish in the distribution area.</p> <p>SGRS, however, repeatedly faced the problem of a large spacing between hydroacoustic survey tracks and between trawl hauls due to the large survey area (about 400 000 square nautical miles) that has to be covered with only three vessels currently participating in the survey. In order to reach a sufficient density of survey tracks and trawls, SGRS recommended (ICES CM 2005/D:03) that “as many vessels as possible (at least four) should participate to improve the quality of the derived estimates. Thus, the efforts directed at involving other nations in the survey should be continued.” Consequently, the potential countries were requested to consider a participation in the next redfish survey in June/July 2007, without success so far. SGRS repeated this recommendation in 2007 (ICES CM 2007/RMC:01).</p>
<b>RELATION TO STRATEGIC PLAN:</b>	Provide sound, credible, timely, peer-reviewed, and integrated scientific advice on fishery management and the protection of the marine environment in response to requests from regulatory commissions, Member Countries, and partner organisations.
<b>RESOURCE REQUIREMENTS :</b>	N/A
<b>PARTICIPANTS :</b>	<10 (incl. the cruise leaders of each vessel and the principle experts involved in abundance and biomass calculations)
<b>SECRETARIAT FACILITIES:</b>	N/A
<b>FINANCIAL:</b>	None
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	NWWG
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	NAFO, NEAFC