# ICES WKDDRAC2 REPORT 2011

ICES ADVISORY COMMITTEE

ICES CM 2011/ACOM:60

# Report of the Second Data Deficiency Coordination Meeting with the RACs (WKDDRAC2)

31 March–1 April 2011

Copenhagen, Denmark

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

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Recommended format for purposes of citation:

ICES. 2011. Report of the Second Data Deficiency Coordination Meeting with the RACs (WKDDRAC2), 31 March–1 April 2011, Copenhagen, Denmark. ICES CM 2011/ACOM:60. 47 pp.

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# 1 Introduction and Terms of Reference

In January WKDDRAC agreed that collaboration be ICES and RACs was important to address the data deficiencies that currently undermine the quantity and quality of assessments (ICES, 2011). This first meeting defined the problem and types of data deficiencies and data needs, identified existing initiatives, discussed the need to involve key stakeholders, and explored the range of possible remedial measures. Other issues touched upon at the first meeting included dealing with uncertainty and simpler assessment methods.

This follow up meeting combined interested participants from North Sea/North West Waters. The meeting agenda was prepared by the ICES Secretariat Annex 1. The meeting was very well attended, ~25 people (Annex 2), with a diverse stakeholder group participants included Member State Administrations (UK, SP, SW, FR), Fishing Industry Organisations, Chairs of WGHMM, WGCSE, WGNSSK, NS RCM and the EC form the DCF side and policy side. Time was rather limited so discussions on the first day focused on the broad principles behind a collaborative approach. It involved a brainstorming exercise exploring the problem, in order to define a role for task forces' in the future and develop the approach to be taken on day 2. On day two the group divided into a North Sea and Western Waters Subgroup.

The objective on day 2 of the workshop was to identify stock assessment in each RAC area which suffer from data deficiencies and consequently do not achieve "analytical" status, and to prioritize stocks of immediate concern based on the benchmarking schedule and stakeholders views. Where possible the nature of the data problems, the groups (scientists, member state fisheries authorities or fisheries stakeholders) with principal responsibility for resolving specific problems and potential remedial actions were listed.

The specific ToRs are outlined below:

2011/ACOM60 The **Second Data Deficiency Coordination Workshop with the RACs** (WKDDRAC2), chaired by Colm Lordan (Ireland) and Barrie Deas (UK), will meet at ICES in Copenhagen, Denmark, 31 March–1 April 2011 to:

1 ) Agree on Terms of Reference for the Data Task Forces;

2 ) Avoiding Duplication;

3 ) Data preparation for ICES stock benchmark meetings;

4 ) Dealing with uncertainties systematically: the pedigree matrix.

# 2 Avoiding duplication

Given the already stretched resources across the fisheries system the group acknowledge the need to avoid duplication with ongoing processes. Obviously the "Data Collection Framework" is a key development in recent years and the various structures within the DCF such as the Study Group on Research Needs (SGRN), Regional Coordination Meetings (RCMs), Reviews of MS National Programmes, Review of Surveys, development of regional databases were all mentioned and discussed briefly. The aim of the DCF is to improve data collection but despite this the state of around 60% of the stocks is considered unknown, because of the poor data (EC, 2010). Two key areas were identified by the group as particularly important. The first was the development of regional databases, leading to improved data sharing and integration. The second was the review of the DCF currently being undertaken by SGRN. The main stakeholders; scientists, industry, member states and the EC should ensure the DCF addresses priority data deficiencies and is fit for purpose.

The work already underway within ICES and the role they might have in identifying and addressing the data problems were discussed. In particular the following reports or sections were brought to the group's attention:

ICES Data Tables (which are compiled for each stock)

ICES Working Group Reports (WGCSE and WGNSSK)

Data quality sections

Stock Annexes

Benchmark planning

ICES Benchmark Working Groups (WKROUND, WKFLAT, WKNEPH)

Data sections

Data Workshops

Planning Group on Commercial Catch, Discard and bycatch sampling (PGCCDBS)

Age & Maturity WS

Sampling WS

WKMERGE

WKCOST

WKPRECISE

WKACCU

Workshop on Fisheries sampling Catches WKSC

In the development of collaborative initiatives to address data deficiencies there is a lot to be learned from the reports of the various projects that have already attempted to do this. The following projects were briefly discussed:

EC Funded Projects

- JAKFISH https://www.surfgroepen.nl/sites/jakfish/default.aspx
  - e.g. Baltic Herring Case study

- GAPS www.gap1.eu
  - Excellent guidelines for SIPs (Mackinson *et al*., 2008)
  - Mackinson *et al*., 2011
- Lot 1 Joint Data Collection in the Western Waters
  - http://ec.europa.eu/fisheries/documentation/studies/joint_data_collection_western_waters_en.pdf
- EASE
  - What are the critical uncertainties and assumptions? NS Herring case study
- PROFET POLICY

Experiences of data collection by industry within and beyond the EC was briefly highlighted these included the ICES/FAO Fishery Dependent Information Conference Galway July 2010. Several scientific papers from this conference are now available in the ICES journal http://icesjms.oxfordjournals.org/content/68/8.toc. There is also several national initiatives and experiences including:

- UK Fisheries Science Partnerships
- Irish Fisheries Science Research Partnership (IFSRP)
- French Self Sampling
- Belgian Self Sampling

Various new developments on control and enforcement side such as buyers and sellers, e-logbooks, extended VMS, highgrading bans, increased transparency in inspection results were all likely to impact on and probably improve the quality of data available for assessment. It should be recognized that one of the key concerns among assessment scientists is the accuracy of data from the commercial fisheries (i.e. landings, discards and effort). Progress has been made at recent assessment WG meetings at reintroducing commercial data but this is a slow process.

# 3 Dealing with uncertainties systematically

There was a discussion on the various models of "Pedigree Matrix". The main purpose of this tool is to describe in a systematic way where the main assumptions, data deficiencies, uncertainties and potential biases lie in the underlying assessment data and models. The WKACCU Scorecard (ICES, 2008) was seen as being of more relevant to scientist than industry or other stakeholders. The group was informed that completion of this was a standard ToR for future benchmarks. In completing the card it is important to focus effort on quantitatively evaluating the largest sources of uncertainty and bias and where possible to eliminate subjective judgements. Subjectivity is something that belies the use of all these methods so careful reviews of the matrix should be carried out at benchmark meetings.

The approach used with JAKFISH, as described in Ulrich *et al*., 2010, comes from the environmental science. The experience of this with this type of "Pedigree Matrix" was broadly positive and could have wide applicability within ICES (Ulrich *et al*., 2010). The main advantage of this approach over the WKACCU score card was that it is a better tool to formally share information about the quality of assessments/advice and improve communication flow with industry in particular. As such it could be a useful tool to use when discussing priority areas to be addressed for individual stocks.

# 4 Simpler or alternative assessment models?

An important aspect of the discussion on day one focused on the need for a pragmatic approach within ICES and indeed the EC to the data, assessment and advice paradigm. The data required for assessment is linked to the assessment method to be used and the level of information and risk acceptable to manage the fishery. Clearly dynamic age based assessment models, stock–recruit relationships, productivity functions, etc. will not be attainable for a large proportion of stocks. This is particularly the case where there are inherent problems with stock structure, age estimation, biological parameters and short/sparse time-series of data. In these cases the benchmark assessment process needs to deliver working assessments that can address policy needs (e.g. status in relation to MSY). There was a perception voiced among some stakeholders that the ICES assessment and advice framework remains too rigid and does not make the most use of the available information.

# 5 North Western Waters subgroup

The participants split into two subgroups on day two to discuss the priority stocks and data issues in slightly more detail. The two main criteria for prioritization were whether the stock was due for benchmark in 2012 and the socio-economic importance of the stocks to the industry and member states. From 60 potential stocks in NW waters, the meeting identified 22 which suffer from serious data deficiencies (Table 5.1). It was agreed that these should be the focus of our initial attention. The meeting accepted that this list of priorities was not exhaustive and might change over time as additional information from scientists or stakeholders emerged. The stocks identified were concentrated on the following species: anglerfish, megrim, cod, sole, *Nephrops*, haddock, hake and some elasmobranch species. The current assessment model and key concerns in relation inputs/state of knowledge were discussed and classified according to a simple traffic light approach (Table 5.1).

More detail of the discussions on a stock by stock basis is given below, this was mainly informed by the EG reports WGCSE and WGHMM (ICES, 2010). Again this was not meant to be exhaustive and should be improved with direct input from the data and stock co-ordinators for each stock.

## 5.1 Area VII anglers

The principal problem facing the angler assessments is that scientists are sceptical about the age readings and therefore work is underway on moving to a different assessment model that does not require age data. A production model could provide an indication of abundance on the basis of length data.

The question of the most appropriate assessment model is principally a scientific responsibility.

Data Issues:

1 ) Accurate landings data are the most important data point;
2 ) Sampling data from the gillnetters could strengthen the assessment;
3 ) Landings data from France was required but this may be a problem that is on its way to being solved;
4 ) Tuning: Information from the industry on whether vessels are targeting monkfish or not; this could be helped by industry information, possibly annual fisheries reports from industry organizations.

In summary:

| Data Issue | Responsibility/Solution |
|---|---|
| Assessment model | Scientists |
| Landings info | Member State |
| Discard Estimates | Industry, Scientists and Member State |
| Effort/cpue | Industry and Scientists |
| Proximity of benchmark | Scientists |

**Table 5.1. Overview of data deficiencies for priority stocks identified by WKDDRAC2. The colour coding attempts to highlight the main problem areas for each stock, but these are subject to further discussion with other stakeholders.**

| Stock | EG | Benchmark | Model | Landings | Effort/CPUE | Discards | Surveys | Samping | Other | Stock ID | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anglerfish IIa, IIIa, Subarea IV and VI | WGCSE | 2012 | Indicators | Area misreporting | I & S to work on LPUE serise | | High risk to coninuation | | Age estimation Uncertainty Species ID S | S & 1 | Has become more data rich with surveys |
| Anglerfish Divisions VIIb-k, VIIIa,b,d | WGHMM | 2012 | SS or Surpus production | Species split, french landings, unknown misreporting MS | Needs standarisation S & I | Chaing patterns, few countries providing discard estimates, paricularly france I & MS | But need integration | Gill net met not sampled I & S | Age estimation Uncertainty Species ID S | S | Current assessment trends based, Benchmark dependent on progress on data issues, should be priorty for data task force |
| Cod in Division VIa (West of Scotland) | WGCSE | 2012 | TSA re integration of landings | Historical Under Reporting, Area misreporting still and issue | | Incentivise discards | | Improved sampling for discards S, MS & Industry | Unknown Natural mortality... Estimates for seal mortality how to integrate in assessment Temp ? | Mixing with North Sea S | Managment Mesures complicate MS, EC, I & S |
| Cod in Division VIIa (Irish Sea) | WGCSE | 2012 | BADAPT | | | | | Low catches changes in fishing patterns difficulty in sampling S & I Need for sentinel fishery | Unknown Natural mortality... Tagging S & Industry | S | |
| Cod in Divisions VIIe-k (Celtic Sea cod) | WGCSE | 2012 | XSA | Area misreoprting with VIIa | | I MS EC | S, ISP survey I & MS | | Natural Mortality? | Mixing with Other stocks | No assessment currently, Fishers reponse to managment measures |
| Haddock in Division VIa (West of Scotland) | WGCSE | ? | TSA re integration of landings | Historical Under Reporting, Area misreporting still and issue | | Incentivise discards Better discard sampling | | Improved sampling for discards S, MS & Industry | Unknown Natural mortality.. | Mixing with North Sea S | Via managment measures New MP |

**Table 5.1. Continued.**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Haddock in Division VIb (Rockall) | WGCSE | ? | XSA | | | | | Improved sampling for discards S, MS & Industry some self sampling initiatives | | | NEAFC Mesh size , closed areas |
| Haddock in Division VIIa (Irish Sea) | WGCSE | ? | SURBA | Historical Under Reporting | | Discard rates high and uncertain | | Could be improved | | | |
| Haddock in Divisions VIIb-k | WGCSE | ? | XSA | | | Discard rates high and uncertain | Surveys noisey | | | ? Stock structure | |
| Hake in Division IIIa, Subareas IV, VI and VII and Divisions VIIIa,b,d (Northern stock) | WGHMM | 2010 | SS base on lenght Trends only, stong trend in F | Need for accuate catch data S & I | Standardising Commercial effort Long Line? S & I | Missing discards for some fleets, S & I & MS | Multiple surveys, missing info in VIaN and IV, covering juveniles mainly S & MS | | Major age estimation problem S | One stock? | Complex stock wide distribution |
| Megrim (Lepidorhombus spp) in Subarea VI (West of Scotland and Rockall) and Subarea IV (North sea) | WGCSE | 2011 No Progress | Baysian Surplus Production | | | | | In sufficent age sampling | Unknown migration/distribution | | |
| Megrim (Lepidorhombus whiffiagonis) in Divisions VIIb-k and VIIIa,b,d | WGHMM | 2012 | | French data MS trasmission issue | Need Irish and french tuning serise MS & I & S | Stoped in 1999, Just Spanish data since... I & S Promote better sampling | 3 surveys need integration S | | Biological data form France | ? | No analitical assessment since 2007 |
| Nephrops in Porcupine Bank (FU 16) | WGCSE | ? | Indicators | | Changes in targeting behaviour | Better sampling needed | | Poor recent sampling | Unkown age struture | | |
| Nephrops in Division VIIf,g,h (Celtic Sea, FU 20-22) | WGCSE | ? | UWTV & Indicators | | Changes in targeting behaviour | Better sampling needed | Only covers FU22 | Variable | Unkown age struture | Several discrete grounds | |

**Table 5.1. Continued.**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Skates and Rays in VII | WGEF | ? | Indicators | ? Speciation in landings | | Better sampling needed | Multiple survey information but low catch rates | In sufficent sampling problems ageing | Unkown age struture | Many different species/stocks | |
| Sole in Division VIIe (Western Channel) | WGCSE | 2012 | | | Commercial LPUE does not agree with surveys | | Future of survey uncertain | Sampling issues on french side I & S (automitic measuring of effort for gill nets) | Managment & ability of assessment to feed it is an issue | Incomplete mixing S | FSP survey shows some inconsitencies but shows spatial changes |
| Sole in Divisions VIIf, g (Celtic Sea) | WGCSE | 2012 | | | No commercial LPUE serise S & I | | Single survey index | | | | |
| Spurdog | WGEF | ? | ? | ? Speciation in landings | Not useful due to hyper-aggregation | Unknown Discard rates | | | Poor knowledge of biological parameters | | |
| Porbeagle | WGEF | ? | ? | ? Speciation in landings | | Unknown Discard rates | | | Poor knowledge of biological parameters | | |
| Whiting in Division VIa (West of Scotland) | WGCSE | ? | TSA, Surba, XSA | Historical Under Reporting, Area misreporting still and issue | | Incentivise discards | | Improved sampling for discards S, MS & Industry | Unknown Natural mortality... Estimates for seal mortality how to integrate in assessment Temp ? | Mixing with North Sea S | Via managment measures |
| Whiting in Division VIIa (Irish Sea) | WGCSE | ? | None | | | Discard rates high and uncertain | Surveys noisey | Improved sampling for discards S, MS & Industry | | Mixing between VIIa & VIIg? | |
| Whiting in Division VIIe-k | WGCSE | ? | XSA | Need for accuate catch data S & I | | Discard rates high and uncertain | Surveys noisey | Improved sampling for discards S, MS & Industry | | Mixing between VIIa & VIIg? | |

## 5.2 Megrim

The assessment model for megrim is considered satisfactory and age data relevant but there is a data deficiency issue relating to discards (only partial discards data available). Some member states are not collecting/providing age data. The surveys demonstrate different stock trends as do some commercial lpue series.

| Data issue | Responsibility/Solution |
|---|---|
| Landings data | MS |
| Discards | MS + I + S self-sampling project |
| Tuning | MS + I |
| Biological data | MS |

## 5.3 West of Scotland cod

The main problem facing the assessment for west of Scotland cod is that landings data from 1984 has been unreliable as a result of historical underreporting. A current area misreporting issue may exist. There is a large question over unallocated removals (estimated to be X5 reported landings). Estimated of natural mortality are uncertain (assumed constant against the background of an increasing seal population). Changing sea temperatures may also be an issue, as are stock identity/migration issues. Similarly, the fishery's response to management measures may have given rise to a significant level of discards in recent years (estimated to be X7 landings). The spatial distribution of discards is also an issue. Incentivised discard sampling could considerably strengthen the assessment.

| Issue | Responsibility/Solution |
|---|---|
| Total mortality estimates | S |
| Stock identity | S |
| Discards sampling more relevant | MS +I |
| Fisheries response to management | I (describe) |
| Landings data | I+MS |

## 5.4 Irish Sea cod

Discards do not seem to be a problem in this fishery but some area misreporting to the Celtic Sea may be an issue. The breakdown of relations between the industry, scientists and management authorities means that there are many historical factors that impact on the assessment. Stock identity/migration issues at the north and south of the area may be an issue. The model suggests that removals are higher than landings + discards. (Removals are estimated to be X3 catches). The model suggests that the stock has the capacity to rebuild, although there may be uncertainty over whether the correct reference points have been chosen. There is a problem of accurate sampling because of the impact of the seasonal closure.

| Issue | Responsibility/solution | |
|---|---|---|
| Misreported catches | MS + I | |
| Stock identity | S | |
| Historical issues | MS+S+I | (sentinel fishery?) |
| Sampling issues | S+I | (self-sampling?) |
| Natural mortality | S+I | (tagging) |

## 5.5 Celtic Sea cod

This stock was benchmarked in 2009 and as a result the assessment "fell over". The fishery has suffered from a sequential degradation in landings data. Restrictive TACs have led to significant levels of discards, highgrading since 2003. Different fleets in the fishery have different selectivity patterns. France has instigated a self-sampling programme to address some of these issues from 2008. The stock is highly dependent on recruitment but displays a truncated age structure. A large year class has currently been observed but the restrictive TAC has led to widespread discarding.

| Issues | Responsibility/solution | |
|---|---|---|
| Fisheries response to management | I+MS+S + Commission | |
| Surveys not adequate to cover stock size | S +MS+I | (FSP*) |
| UK survey data not provided | MS | |
| Estimates of natural mortality | S | |
| Intermixing with VIIa & d | S | |
| Area misreporting (already taken into account?) | S+I | |
| Trevose closure impact | S | |

***Fisheries Science Partnership**

## 5.6 Western Channel sole

The stock structure is sound and discard data are reasonable.

UK: Single are licensing has resolved misreporting by area. Estimating lpue is a problem and there is a misalignment between commercial and survey data. The low TAC has led to diversion of effort to other fisheries with the result that cpue is no longer representative, undermining the assessment assumptions. The future of an important commercial survey is uncertain and annual changes in the spatial pattern of fisheries pose a challenge to the assessment.

France: Low priority is accorded to this fishery and as a result there is a sampling issue. However a partnership project is already underway that should provide data on all year classes.

| Issue | Responsibility/solution |
|---|---|
| Cpue | S+I (underway) |
| Sampling | S+I (underway) |

## 5.7 Celtic Sea sole

Very high recruitment in 1999; fishing is largely reliant on this year class and that is a problem. The fishing effort directed on this fishery by the Belgian fleet is significant and this is also governed by opportunities/constraints in other fisheries. Lack of knowledge of the resulting patterns causes problems for the assessment.

| Issues | Responsibility/solution |
|---|---|
| Tuning index | S+I |
| Discard data | MS +S+I |
| Sampling | MS |
| Effort | MS |

## 5.8 West of Scotland anglerfish

This is a continuous slope fishery but subject to artificial management cut offs into Areas VI, VII, IV and III. As a result of underreporting the assessment "fell over" in 2003 but subsequently skippers' diary information has rebuilt something approximating an accurate picture of catches. However cooperation of this sort has tailed off and it is a legal grey area. Funding for surveys has been an issue. The impact of cod management measures of the distribution of fishing effort is an issue.

| Issue | Responsibility/solution |
|---|---|
| Appropriate assessment model? | S |
| Stock identity/misreporting | S+I |
| Survey problem with time-series | S+MS+I |
| Risk in future of becoming data poor | S+MS+I |
| Cpue/response to cod recovery plan | S+I |

## 5.9 West of Scotland haddock

The assessment problems in the WOS haddock fishery parallel those in the WOS cod fishery (see above).

## 5.10 West of Scotland whiting

The assessment problems facing WOS whiting parallel those facing the WOS cod and haddock fisheries (see above).

## 5.11 Rockall haddock

Sampling is inadequate at Rockall and a number of issues arise from transboundary issues (Russian fishing/mesh size). Closed areas have implications for the spatial distribution of fishing effort and therefore for the assumptions underpinning assessments. Otherwise the situation at Rockall parallels that for West of Scotland cod (see above).

## 5.12 Hake

Benchmarked in 2010, the hake fishery covers a large area (3a, 4, 5, 6, 7 and 8) and is fished by vessels from different jurisdictions, using many different types of gear. This

poses challenges for the assessment. The benchmark accepted a new methodology. Aging of the fish is problematic and at present can't be trusted. Survey indices are patchy (nothing in VI or IV). The scientists are confident of trends but not enough to provide TAC advice. The signal of a strongly decreasing trend in fishing mortality is doubted.

| Issues | Responsibility/solution |
|---|---|
| Assessment model | S |
| Survey coverage (spatial and age structure) | S+MS |
| Decrease in F | S+I (industry narrative?) |
| Discards (uneven coverage) | MS +I+S |
| Very dependent on accurate catch data | MS+I+S |
| Standardised cpue | S |

## 5.13 Skates and rays

The data issues in relation to skates and rays are due to be addressed at a forthcoming ICES working group. It therefore makes sense to await the outcome of that group before making recommendations from the data task force.

### Conclusions

This was a very productive meeting which saw a high degree of collaboration between scientists, member states and the RACs. A very important start was made in resolving the data deficiencies which plague many fisheries in Areas VI and VII. A number of common themes were identified across several stocks and species. For example high and variable discarding is a key data deficiency for all the plaice, whiting and haddock stocks. Unknown growth rates are an issue for anglerfish and *Nephrops* assessment. Historical underreporting and possible changes to natural mortality are key issues in the cod assessments. It was agreed that the parties identified as responsible for dealing with specific data deficiencies should take the steps that they deem necessary; a future meeting of the NW waters task force would assess progress. In the meantime it would be possible to track initiatives generated by the Task Force by coordinating with ICES. In particular it was decided that the NWWRAC open a dialog with data and stock coordinators in WGCSE and WGHMM to find solutions to the key data deficiencies identified.

# 6 North Sea subgroup

## 6.1 Norway pout

Norway pout is the only WGNSSK stock that is to be benchmarked in 2012. The primary aim of the NOP benchmark will be to change the values of a number of biological parameters (natural mortality, maturity, growth, etc), based on some work mainly performed in 2007 and summarized in two scientific publications (one already published, one on its way). This would have implications for the overall perception of the stock, as well as reference points and management targets. But there will likely not be inclusion of any new data or new methods.

There are no major data deficiencies identified for this stock, whose assessment is usually of high quality. However the life cycle of this species can cause dramatic changes in the assessment between first and second semester.

However, some detailed information on distribution of different life stages will be very welcome. For example indication on spawning sites and spawning periods (i.e. observations of fish with running roe); information/data on detailed distribution changes of different size groups on the Fladen Ground (outer bank, inner bank; schools of size groups or mixing; vertical distribution patterns) over the fishing seasons and changes herein will be welcome (especially 1st, 3rd and 4th quarter). Potential distribution patterns regarding when and where is it possible to obtain the cleanest Norway pout fishery, i.e. with minimum bycatch would be important, as well as information on potential diurnal changes in distribution, density and availability.

## 6.2 Stocks without a full forecast

### 6.2.1 Plaice in VIId

This stock was benchmarked during ICES WKFLAT 2010 (ICES, 2010). There is no forecast provided because the precise status of the stock is unknown due to large migration patterns to - and from the Eastern English Channel. ICES WKFLAT 2010 recommended that 65% of the first quarter catches were removed. These 65% were estimated during ICES WKFLAT 2010, based on published tagging results and some previous studies demonstrating that 50% of the fish caught during the first quarter are fish coming from Area IV to spawn. The same study also demonstrated that 15% of the fish caught during the first quarter were fish from Area VIIe.

However, these hypotheses are based on limited tagging experiments, and it would be necessary to monitor these migration patterns more comprehensively.

Routine discard monitoring has recently begun following the introduction of the EU data collection regulations. Discards data from 2008 are available from France and UK, although sampling levels are not high. The percentage discarded per period, métier and country is highly variable but is considered substantial. However, the time-series of discards is currently too short to be used in analytical assessment.

### 6.2.2 Plaice in IIIa

The assessment of this stock suffers from a number of issues, mainly dealing with (i) catch-at-age information and (ii) survey spatial coverage. Catch-at-age issues relate both to the fisheries mainly taking place at the southwestern entrance of Skagerrak

where some mixing may occur with North Sea plaice, and to large intrinsic variability in growth within the distributional area, which may not be sufficiently covered by the sampling. Survey issues arise from the survey stations exclusively sampling the eastern side of the stock distribution where only limited fishing occurs.

These issues cannot be easily addressed through a standard benchmarking procedure and would require large-scale improvement in both commercial and survey sampling design. The WG considers that analytical assessment is not appropriate until these issues are solved.

In 2010, new projects have been launched, aiming at 1) providing a detailed analysis of the Danish commercial data (landings and harbour samples) looking for potential improvements of the catch-at-age estimates (DTU Aqua and DFA), and 2) mapping the genetic differences between plaice populations from the North Sea to the Baltic (IMR Sweden). These projects are still ongoing, and the preliminary results will be presented to WGNSSK meeting in May 2011.

### 6.2.3 *Nephrops* in FU 3, 4, 5, 32, 33

Stocks in FUs 3 and 4 have been subject to a TV survey in recent years which will hopefully be considered robust enough within the next year. The stock in FU 5 was surveyed for the first time in 2010. Stocks 32 and 33 do not have an underwater TV survey, nor is it anticipated that they will in the near future. All these stocks are currently reliant upon commercial data in conjunction with catch samples for length frequencies. Given the complex behaviour of *Nephrops* with regards to their burrowing habits coupled to the seasonality of the fisheries and the potential for efficiency creep, the use of commercial lpue data as a proxy for stock abundance is only used with caution. The careful analysis of individual logbook data, including information regarding gear type, may allow for the development of more robust "sentinel" dataseries.

There are specific issues for the FU 32 related to deficient Norwegian data, including a different measurement scheme in the samples (TL instead of CL), no discards data from the Norwegian fishery (because discarding is prohibited in Norwegian waters and no vessel may discard *Nephrops* with observers on board), and very poor Norwegian logbook data.

Catch sampling for length frequency is generally considered adequate (note FU 5 is not particularly well sampled) although discard sampling rates are typically low (as with most species). Growth data are scant and calls for new growth studies are repeatedly made by *Nephrops* groups.

## 6.3 Stocks with forecast

### 6.3.1 North Sea cod

North Sea cod has just been into a benchmark process, see WKCOD 2011 report (ICES, 2011). A great part of the benchmark has dealt with data issues, and the main findings were as follows:

- The system used for raising Scottish sampled discard rates to fleet discard rates is currently under revision and improvement at Marine Scotland-Science (MSS).
- According to Marine Scotland-Compliance, the Scottish government department responsible for monitoring the Scottish fishing industry, detected

and suspected unreported or otherwise illegal fish landings (known as "blackfish") has dropped as to be negligible (although not quite zero) and that trend has been consistent. While it has had an effect, it would be an oversimplification to suggest that the UK Registration of Buyers and Sellers (RBS) regulation was solely responsible for this behavioural change in the Scottish fleet. Other potential driving factors are 1) Two large-scale decommissioning schemes targeted on whitefish vessels run by Scottish Government, which between them removed over half of the demersal fleet, 2) The development of targeting and monitoring systems that has significantly increased the pressure on the fleet. WKCOD concluded that the incidence of underreporting in the landings in the Scottish fleet fishing for cod has declined significantly since 2003 and is likely to be extremely low since 2006.

- One of the biggest issues with misreporting is the so called French line where catch composition rules mean that some species are misreported on either side of the line. That does affect overall catch stats of course but does undermine other aspects of fisheries management. The problem of misreporting persists but it is small compared with what existed before. It does occur for particular reasons such as monk and hake in the North Sea and various species in the Faroese zone but is considered to be negligible for cod and haddock.
- On the Danish side, based on six different indicators, the Directorate of Fisheries does not estimate that there is placing on market of illegal fish on a big scale. Furthermore, Danish Fisheries Directorate has calculated the difference between the total quantity of cod registered in the logbooks and the cod registered in sales receipts for Danish vessels over ten meters per quarter over the period 2008–2010. It is demonstrated, that the difference (i.e. the misjudgement) varies between approximately 0.5% and 2.5%. The Danish Fisheries Directorate is therefore of the opinion, that there is no indication of lack of reporting of cod of any significance for vessels of ten meters and up.
- The size composition of landed cod from Danish trips with and without an observer on board was compared to investigate potential observer effects on discard estimates (e.g. less discard with an observer on board). However, it could not be concluded that the present discard estimates are biased.
- The conflict in the IBTS quarter 1 vs. quarter 3 surveys, an issue raised by the WGNSSK in 2010, was not fully resolved. The abundance indices in the quarter 1 survey were considered to more likely reflect stock trends in recent years, because of suspected changes in catchability in the quarter 3 survey in relation to recent changes in the spatial distribution of fish in the latter part of the year. After deep considerations, it was agreed to use only the quarter 1 survey in the assessment for the time being.

### Conclusions

WKCOD conclusions were that landings data are largely more reliable now than back in the past. A main source of uncertainty remains though within the amount of high-grading, which could bias the discards estimates. However, the benchmark assessment seems more robust than the WGNSSK 2010 assessment (ICES, 2010), which should allow ICES to give advice on the stock in 2011.

### 6.3.2 North Sea haddock

The assessment is considered of high quality, and no major data deficiencies have been pointed out. North Sea haddock has just been benchmarked (ICES-WKBENCH 2011). No new catch or landings data were presented; neither were there any new survey cpue tuning data.

Commercial cpue tuning data have not been used in the assessment of North Sea haddock for several years, due to problems with reporting systems (see ICES-WGNSSK 2001). However, fishing-industry data from VMS and CCTV programmes are available, and are being extensively used in evaluations of management strategies and systems. Work is also proceeding on ways to use these data more directly in stock assessments, as well as developments in estimates of natural mortality, maturity, and reproductive potential. It is intended that the use of these new estimates in management advice will be investigated closely during 2011.

### 6.3.3 North Sea whiting

The current assessment is formally classified as an update assessment. A benchmark was held for this stock in January 2009. The conclusions from the benchmark were that the assessment was consistent since 1995 and offers a reliable basis for determining stock status, including estimation of current stock size and fishing mortality.

Main issues raised for whiting deal with spatial distribution and uncertain discards estimates.

- Catches of whiting have been declining since 1980 (from 224 000 t in 1980 to 27 000 t in 2007, including discards and industrial bycatch). Distribution maps of survey IBTS indices demonstrate a change in distribution of the stock which is now located mainly in the central North Sea. Catch rates from localized fleets may not represent trends in the overall North Sea and English Channel population. The localized distribution of the population is known to be resulting in substantial differences in the quota uptake rate. This is likely to result in localized discarding problems that should be monitored carefully.
- However, scientific discards estimates point out that discards have decreased and are now the lowest in the series.
- Given the spatial structure of the whiting stock and of the fleets exploiting it, it is therefore important to have data that covers all fleets. Considering that age 1 and age 2 whiting make up a large proportion of the total-stock biomass, good information of the discarding practices of the major fleets is important. Discard information was supplied by France for 2003–2007 but was not supplied for 2008 or 2009.
- Survey information for VIId was not available in a form that could be used by the working group. Due to the recent changes in distribution of the stock, tuning information from this area would be extremely useful, and could improve the estimate of recruitment in the most recent year.

## 6.4 North Sea flatfish

These stocks are treated together here as they are largely accounted for together with regards to data collection, due to the large predominance of the Dutch beam trawl fishery.

### 6.4.1 Sole

The stock has been benchmarked last year (WKFLAT 2010). There are no major data deficiencies regarding landings data. Overall, the samples are thought to be representative of around 85% of the total landings in 2009. There are though some potential issues related to changes in sex ratio in the largest market sampling categories, which are much more female biased than they had been in the past. Explanations for this observation (sampling bias vs. real biological effects) should be explored in detail.

The data available had too few immature individuals for a reliable estimate of long-term trend in the proportion of mature fish in the population. Small individual sole sampled during the Belgian, German, Dutch, and British discarding programmes (Quarter 1) should be sexed and staged so that a reliable time-series can be constructed.

### 6.4.2 Plaice

This stock was benchmarked in 2009 (WKFLAT 2009). The assessment is considered to be highly uncertain most importantly because the different survey tuning-series in different areas of the North Sea indicate different trends in the most recent development of the stock. This uncertainty is compounded by a relatively strong retrospective pattern, where this year's assessment result estimates higher SSBs and lower fishing mortalities for the most recent years. However, this retrospective pattern has been decreasing in recent years.

There is no major data deficiencies associated with commercial landings.

The discards time-series used in the assessment were derived from Dutch, Danish, German and UK discards observations for 2000–2009. However, total sampling effort of the discards remains low, and data are sparse. Also, samples may not always be available from relevant fleets and fisheries within a country.

The Dutch discards data for 2009 were derived from a combination of the observer programme that has been running since 2000, and a new self-sampling programme. The estimates from both programmes were combined to come up with an overall estimate of discarding by the Dutch beam trawl fleet.

Commercial lpue series (consisting of an effort series and landings-at-age series) that can be used as tuning fleets are 1) The Dutch beam trawl fleet and 2) The UK beam trawl fleet excluding all flag vessels.

The commercial lpue data of the Dutch beam trawl-fleet, which dominates the fishery, will most likely be biased due to (individual) quota restrictions and increased fuel prices, which caused fishermen to leave productive fishing grounds in the more northern region. A method that corrects for such spatial changes in effort has been developed (WGNSSK 2009 WD 1, Quirijns and Poos). Under the assumption that discarding is negligible for the older ages, the lpue represents cpue, and this time-series could be used to tune age structured assessment methods. Also, age-aggregated lpue series, corrected for directed fishing under a TAC-constraint by area and fleet component, can be used as indication of stock development. In the benchmark assessment, first attempts were made to include the lpue into the stock assessment. However, because other factors besides the spatial changes in fishing effort likely affect the catchability for plaice, the WKFLAT recommended to include the lpue index in to the assessment process, but to exclude lpue series the final assessment run upon which management advice is based. This series has not been updated for 2009 due to discrepancies in the effort data for 2009.

#### Combined Dutch approach

There are several data issues with respect to NS plaice and sole that are already being dealt with together between IMARES and stakeholders in the Netherlands. There are stakeholders on board of research surveys, and the possibility of setting up a combined IMARES/industry survey for some of the flatfish species are being investigated (sole, plaice, but also turbot and brill). Further, comparisons of cpue data to assessment input and output are being undertaken.

The task force could potentially focus on is to collect data on those species that are poorly covered by the current surveys, or in periods of the year where there is no survey coverage. But that would imply careful planning with IMARES with regards to such additional data collection and analysis.

### 6.4.3 Sole in VIId

This stock was benchmarked in 2009.

There are no particular data deficiencies associated with the commercial data for this stock. Samples by country and quarter cover 100% of the landings.

Information available on discards for 2009 suggest, as in previous years, that discards are not substantial and therefore discards are not incorporated in the assessment. Discard information from French otter trawls suggest however that some discarding of one-year-old sole is taking place in the first two quarters of the year. Although the observed discarding at age 1 will not affect the assessment substantially, they will have an impact on forecasts, but the low level of discards are not considered a significant factor in catch forecasts.

The main data issue for this stock relates to the fact that the UK component of the YFS index stopped in 2007, resulting in the unavailability of the combined YFS-index over the past few years. This combined index had previously estimated the incoming year-class strength very consistently, hereby providing reliable estimates to the forecasts. Although results of using the YFS indices separately (YFS-FR for 1987-present and YFS-UK for 1987–2006) did not demonstrate apparent changes in retrospective patterns, it was noted that the lack of information from the UK YFS affects significantly the quality of the recruitment estimates and therefore the forecast.

Alternatively, a French commercial cpue index could be useful.

## 6.5 *Nephrops* in FU 6 to 10

These stocks have time-series of underwater TV surveys and are considered to be relatively robust assessments.

The models used in determining sustainable harvest rates are reliant upon growth parameters which are historical and not necessarily determined at the correct spatial scale. Calls for new growth studies are repeatedly made by *Nephrops* groups; however these are difficult and expensive to perform on crustaceans.

Length frequency data are generally considered to be good for the catches, discard sampling rates are typically quite low (as with other species).

With regards to consideration of industry-based data, same comments as for North Sea haddock are relevant here.

## 6.6 Stocks for which there is no advice (Category 11 stocks)

A number of commercially important species are not assessed by ICES, and no advice is therefore given. Under annual TAC negotiations, these stocks are therefore considered under the Category 11 of the EC Consultation on Fishing Opportunities ("Policy Paper"), which states that TAC should be adjusted towards recent real catches and that there should be no increase in fishing effort. In practice, this implies that the TAC can only be stable or decreasing, but can never increase.

There is therefore a clear desire from the industry side to improve the knowledge base for these stocks and allow some scientific advice to be given.

A number of these stocks were included in the previous MoU between ICES and the EC; and are being considered within the WGNEW assessment group. WGNEW has collected all existing data directly available within national labs but has been largely unable to complete analyses due to time constraint. Processing and analysing old data is very time-demanding, and it is not a simple task to integrate sporadic and incomplete datasets into a standard stock assessment framework. Running a stock assessment on these new stocks requires therefore much time and also particular skills in stock assessment to implement non-standard assessment models. What is limiting now is therefore time for analysis and assessment rather than additional data collection.

According to Henk Heessen (former chair of WGNEW), the stocks for which an assessment could be further developed with the current data available are brill, turbot, lemon sole, dab, witch flounder and sea bass. The Task force discussed the possibilities for requiring and funding additional scientific work on these species.

A number of new species have been added in the 2011 MoU, and similar processes will have to be conducted on these. For the North Sea, this involves mainly pollock, which will be looked at by WGNSSK in May 2011 for the first time.

## 6.7 Conclusions

Primary conclusion from the task force group: The main issue is lack of data analysis for Category 11 stocks. It is important to first encourage further work for providing preliminary assessment with the data already existing, than to collect more data for the time being. On the basis of a preliminary assessment, recommendations for further data needs could be issued at a later stage. Lack of scientists' time seems to be the main issue, rather than funding itself.

On this basis the group sees no immediate need for establishing a permanent task force addressing data deficiencies in the North Sea. This doesn't exclude close cooperation between industry and scientists at a national level. The group recommends to pursue/extend the national data meetings that are already often taking place before assessment working groups meetings.

With regards to stocks currently assessed by WGNSSK:

The conclusions from this round are that to a large extent, North Sea demersal stock assessments do not suffer from very deficient data. Most stocks have a fairly sound basis for assessment, and for those which don't, the issues seem more related to biological uncertainty with regards to e.g. migration and growth, than to obvious deficiencies in commercial data.

Misreporting is being monitored to a higher extent, both by scientists and public authorities using VMS, and black landings are now considered of much less importance than in the past.

Indications about highgrading and discarding practices are still necessary and could be an obvious contribution of the task force.

The adequacy between biological sampling and commercial landings needs more careful monitoring, and we believe that some work is ongoing on this topic within national labs under the direction of PGCCDBS.

It is important that there is increased collaboration between scientists and public authorities to have ongoing monitoring of where the fishery is, so that the sampling programme can be adapted. An example for this is the online access to VMS data granted to Danish scientists, which allows them to improve the spatial distribution of harbour sampling.

On a more general issue, the STECF SGMOS group on effort management and ICES WGMIXFISH group noticed a number of discrepancies (not specifically related to the North Sea but across all regions) between the landings data used for the stock assessment and the landings data provided to STECF, and the difference can sometimes be very large. The task force could also work towards greater consistency and transparency between the various bodies providing data, so that no doubt can be left on the actual landings. Potential differences should be explained.

There are a number of initiatives going on to develop more robust commercial tuning indices. It could be discussed whether such approaches could be generalized to other stocks and be better integrated in assessment. Reference or sentinel fleets and industry surveys could also be considered; however, the issue of large spatial coverage over the whole stock distribution will always be an issue.

Finally, we encourage some methodological developments that could help integrating the annual Fishers Survey into a global quantitative index that could be potentially used in the assessment.

# 7 Conclusions

Although a stock by stock approach to data deficiencies taken in the subgroups makes much sense, the meeting recognized that the following generic points could be made on how assessments could be strengthened:

- Strong communications between scientists, fisheries managers and fisheries stakeholders at every level is required to address the data deficiencies described above;
- There is an urgency to address stocks with upcoming benchmarks and the pedigree matrix tool can be a useful focal point for dialog between stock co-ordinators and industry;
- There is a need to avoid duplication and learn from previous collaborative experiences. The revision of the DCF may provide an opportunity to develop collaborative data collection initiatives. Improved data management (e.g. Connolly and Caffrey, 2011) within MS and the DCF is a critical next step in addressing some data deficiencies;
- Accurate recording of landings provides the backbone for most stock assessments and in many cases is perceived as a key uncertainty by scientists;
- Dialogue between scientists and industry on changing fishing patterns will improve understanding of fishing effort, targeting and other fishing behaviours and strategies. This is a prerequisite to integrating or reintegrating commercial lpue data into assessments;
- Well designed and applied self-sampling programmes can be developed and sustained;
- Industry cooperation with the requirements of the Data Collection Framework Regulation is critical;
- An increasing number of incentivised fully documented fisheries, "reference fleets" and where appropriate sentinel fisheries should be developed;
- RACs and member states promotion of fisheries science partnerships;
- Cooperation on tagging studies;
- Closing the gap in perceptions.

It remains unclear what shape future task forces will take but it is necessary to maintain the initial momentum given the number of stocks without "full assessments" and labelled by the European Commission as data poor (EC, 2011). There is a clear need for better communications between, or possibly reform of, the existing structures (i.e. ICES WGs, RAC Focus groups). It is impossible to consider the data issues separately from the wider fisheries system. Data problems/needs and assessment methodology are also intrinsically linked.

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# Annex 1: Agenda

Notice of a meeting to Establish Regional Data Deficiency Task Forces for the North Sea and North West Waters (WKDDRAC).

Date: 31st March/1st April 2011.

Venue: ICES Headquarters 44–46 Hans Christian Andersen Boulevard, Copenhagen.

Participants: ICES, representatives from member state authorities and Norway, representatives from the North Sea and North West Waters RACs.

Programme:

2pm Thursday 31st March, North Sea room

1 ) Introductions
2 ) Background and purpose
3 ) Participants
4 ) Terms of Reference for the Data Task Forces
5 ) Avoiding duplication
6 ) Data preparation for ICES stock benchmark meetings; generalities
7 ) Dealing with uncertainties systematically: the pedigree matrix
8 ) Any other business

Friday 1st April 9am to 1pm

### North Sea Room

Work will begin on identifying data weaknesses in North Sea Stocks and prioritizing future work

- Priority stocks/Forthcoming Benchmark meetings (see table below)
- Identified data deficiencies on stocks priority and forthcoming benchmark stocks
- Recommendations to overcome data deficiencies in short and long term
- Working methods
- Programme of work/meetings

### Baltic Room

Work will begin on identifying data weaknesses in North West Waters stocks and prioritizing future work

- Priority Stocks/Forthcoming Benchmark meetings (see table below)
- Identified data deficiencies on stocks priority and forthcoming benchmark stocks
- Recommendations to overcome data deficiencies in short and long term
- Working Methods
- Programme of work/meetings

Both meetings will close at 1pm.

Draft list of stocks to be benchmarked in 2012, relevant to this meeting.

| ICES EG | Stock | Subgroup in Regional Data Deficiency Task Forces |
|---|---|---|
| WGCSE | Anglerfish (Divisions IIa and IIIa, Subarea IV and Subarea VI) | North West Waters and North Sea |
| WGNSSK | Norway pout (Division IIIa and Subarea IV) | North Sea |
| WGHMM | Anglerfish (Divisions VIIb–k and VIIIabd) | North West Waters |
| WGHMM | Megrim (Divisions VIIb–k and VIIIabd) | North West Waters |
| WGCSE | Sole in Divisions VIIf,g | North West Waters |
| WGCSE | Sole in Division VIIe | North West Waters |
| WGCSE | Cod in Division VIa | North West Waters |
| WGCSE | Cod VIIa | North West Waters |
| WGCSE | Cod VIIe–k | North West Waters |

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# Annex 3: Data issues identified by WGHMM members

**D**ata issues identified by WGHMM members regarding stocks of megrim (VIIb–k and VIIIa,b,d) and anglerfish (VIIb–k and VIIIa,b,d) and northern hake (IIIa, IV, VI, VII and VIIIa,b,d)

**Fishery units used for data reporting for these stocks.**

| Fishery Unit | Description | Subarea |
|---|---|---|
| FU1 | Longline in medium to deep water | VII |
| FU2 | Longline in shallow water | VII |
| FU3 | Gillnets | VII |
| FU4 | Non-*Nephrops* trawling in medium to deep water | VII |
| FU5 | Non-*Nephrops* trawling in shallow water | VII |
| FU6 | Beam trawling in shallow water | VII |
| FU8 | *Nephrops* trawling in medium to deep water | VII |
| FU9 | *Nephrops* trawling in shallow to medium water | VIII |
| FU10 | Trawling in shallow to medium water | VIII |
| FU12 | Longline in medium to deep water | VIII |
| FU13 | Gillnets in shallow to medium water | VIII |
| FU14 | Trawling in medium to deep water | VIII |
| FU15 | Miscellaneous | VII & VIII |
| FU16 | Outsiders | IIIa, IV, V & VI |
| FU00 | French unknown | |

## Megrim

### Reasons for a benchmark workshop (originally scheduled for the start of 2011)

Since 2007, severe deficiencies in the data led to serious shortage of basic information for this stock, precluding analytical assessment.

### Major data issues

- *Limited discards*: Lack of complete discards data continues to be a major problem for this stock. No data other than Spanish and Irish dataseries have been provided to the assessment WG in 2010. From UK only sampling data were available. Underestimation of the international catch matrix occurs as some main countries (mostly France) involved in the fishery do not provide discard data. The lack of consistency of the catch series (which could cause great bias in assessment) is also a result of only one country (Spain) providing discard data since 1999.
- Revisions of some commercial cpue series should be conducted (Irish and French).

None of the French 2009 commercial catch data were available to the WGHMM assessment meeting in 2010. During the WGHMM 2010 meeting, the following information was given about French data:

> 2009 landings: the official deadline for availability of statistical catch data is October 2010.

Discard data: there may be some estimate for 2009, but not for the previous years as there is no reliable discard sampling data for previous years.

The French FU04 lpue series will be updated to include 2009 but not to the segmentation level 6. These data have not been validated, if available, for previous years in the database. The detailed segmentation is theoretically available for 2009 but reliability has to be checked.

If past discard data are not provided, there is a need to reconstruct discards dataseries to fill the gaps. The solutions considered for the assessment were:

- *Age based models*: XSA after reconstructing the discard dataseries using selectivity functions applied to the catches distribution.
- *Age based models that allow for some missing discards data:* evaluate whether to shift into e.g. SS3 (Stock Synthesis) model would be useful. Recent developments on analysis of fisheries data created the opportunity to use models that allow for missing discards data, as well as other uncertainties in the data. This situation requires previous practices to be developed in agreement, like forecasts, biological reference points, advice, etc.

**Conclusions**

In view of the above, the megrim benchmark has been postponed to 2012, hoping that during this time the work on the new models can be developed. The WGHMM 2011 will check the progress on data availability and model development, to confirm or even delay the newly proposed benchmark date.

| Stock | Data Problem | How to be addressed in DCR | By who |
|---|---|---|---|
| Mgw-78 | Ireland: Revised tunning fleet catches not provided since 2007 | Lpue dataseries stopped in 2006 because of patterns in different areas and major changes in the fleet structure over time. | Ireland and ICES delegate & PGCCDBS |
| Mgw-78 | France: No 2009 Landings were provided to WGHMM in 2010. | STRONG request for providing these data to Member State. | France and ICES delegate & PGCCDBS |
| Mgw-78 | France: No update of cpue dataseries are provided to the group. | STRONG request for providing these data to Member State. | France and ICES delegate & PGCCDBS |
| Mgw-78 | France: No discard data (biomass, length distributions and age composition) is delivered to the WGHMM since 1998. | STRONG request for providing these data to Member State. | France and ICES delegate & PGCCDBS |
| Mgw-78 | France: No ALK and consequently age composition of landings and weigth-at-age is provided to the WGHMM routinely. | STRONG request for providing these data to Member State. | France and Ices delegate & PGCCDBS |
| Mgw-78 | UK: Discards provided to WGHMM but not used because of bad quality of the data. (Actually sampling data are not raised). | Application of recommendations of WS Discards (Charlotte Lund, 2003) and future WS on discards (2009). | UK and PGCCDBS |

**Stock information table for benchmark (filled by stock coordinator in March 2011).**

| **Stock** | **Meg78** | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Marina Santurtun/Ane Iriondo | E-mail:msanturtun@azti.es; airiondo@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Tuning series | Lpue dataseries stopped in 2006 because of patterns in different areas and major changes in the fleet structure over time.<br><br>Trends in log-catchabilities residuals are still to be investigated as no Irish Otter trawl fleet was revised. | Ireland: Revised tunning fleet catches. | Yes, data should be available at Marne Institute. Analysisi of Data from Marine Institute. | Not needed<br><br>(-RAC involvement: Basic data comes from the Irish Industry. Maybe qualitative information , as for example , technological creeping can be given by Industry.) |
| | No segmentation of the main commercial fleets used in the assessment has been carried out | France: The FU04 (cpues and effort)series is updated every year. However, no data of numbers-at-age are available since 2001.<br><br>Alñso, maybe these Fishing Unit data are not the most adeaquate level of aggregation. An effort should be made to segmentate FU04 to to the level 5 or 6 of the Nantes Matrix (Fishery and or Métier). The detailed segmentation is theoretically available for 2009 but reliability has to be checked by France. | France: Data should be available at Ifremer. Segmentation on the main commercial fleets used in the assessment will be revised and, if appropriated, will then be applied. | No need<br><br>(- RAC incolvement: Maybe RAC members could help with qualitative knowledge for further segmentation that could be carry out in this FU04 used for tuning.) |

| Stock | Meg78 | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Marina Santurtun/Ane Iriondo | E-mail:msanturtun@azti.es; airiondo@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Discards | It is considered that a main problem with megrim assessment is the lack of discard data (biomass, length distributions and age composition ).<br><br>Underestimation of the international catch matrix occurs as some main countries (mostly France) involved in the fishery do not provide discard data. The lack of consistency of the catch series (which could cause great bias in assessment) is also a result of only one country (Spain) providing discard data since 1999.<br><br>No data other than Spanish and Irish dataseries have been provided for the assessment in 2010.<br><br>From UK only sampling data were available. | France: to provide discard data available since 1999.<br><br>UK: to provide discad data raised to the total of the fleet. Methodology to be used: Application of recommendations of WS Discards (Charlotte Lund, 2003) and future WS on discards (2009). | Yes . Data should be available at Ifremer.<br><br>Yes. Data should be available at Cefas. | No need<br><br>(- RAC incolvement: Basically, I think that RACs cannot help much as data should be available at the Fisheries Institutes. It will maybe be good to remember the importance of a good (number of samples and sample size). This is, maybe RAC members could facilitate sampling on board to get discard data which are really important for this stock). |

| **Stock** | **Meg78** | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Marina Santurtun/Ane Iriondo | E-mail:msanturtun@azti.es; airiondo@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Landing | In 2010, France did not provide LANDINGS to the group. | Official deadline is October 2010. France should provide this basic data a.s.a.p. | Yes, landing data should be available already (by October every year) and provided by Ifremer. | No need |
| Biological Parameters | France: No ALK and consequently age composition of landings and weight-at-age is provided to the WGHMM routinely. | Strong request for providing these data for Ifremer (Member State). | I do not know about availability. Should be at Ifremer (Age data Weight-at-age). | No need<br><br>(- RAC incolvement: Basically, I think that RACs cannot help much as data should be available or worked out at the Fisheries Institutes). |

| **Stock** | **Meg78** | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Marina Santurtun/Ane Iriondo | E-mail:msanturtun@azti.es; airiondo@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Assessment method | If discard data are not provided to the group, then experts on megrim should look for other solutions to overcome data deficiencies. | If discard data are not provided, there is a need to reconstruct discards dataseries to fill the gaps. The solutions considered were:<br>o Age based models – XSA after reconstructing the discard dataseries using selectivity functions applied to the catches distribution.<br>o Age based models that allow for some missing discards data - evaluate whether to shift into e.g. SS3 (Stock Synthesis) model would be useful. Recent developments on analysis of fisheries data created the opportunity to use models that allow for missing discards data, as well as other uncertainties in the data. This situation requires previous practices to be developed in agreement, like forecasts, biological reference points, advice, etc.<br>o Assessment without discards will be attempted although dataseries will be shorter due to inability to recover landing and discard dataseries disaggregated before 1990. | Different methodologies to be used by AZTI as Megrim Coordinator.<br>If SS3 method is chosen as the best adecuate for Megrim assessment then ➔ | Hake experts as they have already used the SS3 method (Carmen Fernandez or Michel Bertinac). |
| Biological Reference Points | Non defined | If new assessment success ➔recalculate them | | No need |

## Anglerfish

**Stock information table for benchmark (filled by stock coordinators on March 2011).**

***Lophius piscatorius***

| **Stock** | ***Lophious piscatorius*** **VIIabd VII** | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Iñaki Quincoces | E-mail:iquincoces@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Basic data | No data from France for 2009 and 2010 | Strong request from ICES to France providing the data | All the French data to be collected for this stock under DCF | NO |
| Tuning series | No standardized commercial tuning data are available | Standardization of commercial tuning data by lengths | Raw data from logbooks and the length distributions for that fleet. Data should be available from member states | NO |
| Discards | Enforcement of laws about minimum landing weight (0.5 kg) changed totally the retention ogive and the landings length distribution. | Try to reconstruct the length distribution of specimens bellow 0.5 kg in the catch or remove the historical data of fish below 0.5 kg from the catch matrix. | Discard estimates from all the involved countries | NO |
| Biological Parameters | Split of the landings between both species of anglerfish not known for some countries and suspect of not being correctly done some years due to differences between species proportion among different countries fishing the same grounds. | Have the historical detailed information on methods used by each country.<br>Historically apply the split between species from the best identified method/country/fleet (i.e. the proportions in landings of countries splitting the species due to market reasons…). | Available directly from historical data or from Member States | NO |

| Stock | *Lophious piscatorius* VIIabd VII | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Iñaki Quincoces | E-mail:iquincoces@azti.es | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark<br>type of expertise/proposed names |
| | Sex ratio and maturity of anglerfish only from an European project done in 1996–1998. | Compilation of the data collected under DCF and analysis for new sex-ratio and maturity parameters (COST). | Raw data from DCF. | NO |
| | Growth pattern unknown or poorly known | Research on anglerfish growth pattern. Could come from tag/recapture experiments, analysis of length distributions from surveys. | Workshop to be conducted by ICES in 2011. Results are not likely to be applicable to a benchmark in 2012 due to time constraints. | NO |
| Assessment method | It depends on data available. If all the data with the needed length distributions is available a length structured model could be used. If only landings data and some tuning-series are available a production model could be used. | All the above plus exploratory analysis from stock coordinators | | YES |

*Lophius budegassa*

| **Stock** | ***Lophius budegassa*** **VIIabd VII** | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Jean-Claude Mahé | E-mail: jean.claude.mahe@ifremer.fr | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Basic data | No data from France for 2009 and 2010 | Strong request from ICES to France providing the data | All the French data to be collected for this stock under DCF | NO |
| Tuning series | No standardized commercial tuning data are available | Standardization of commercial tuning data by lengths | Raw data from logbooks and the length distributions for that fleet. Data should be available from member states. | NO |
| Discards | Enforcement of laws about minimum landing weight (0.5 kg) changed totally the retention ogive and the landings length distribution. | Try to reconstruct the length distribution of specimens bellow 0.5 kg in the catch or remove the historical data of fish below 0.5 kg from the catch matrix | Discard estimates from all the involved countries | NO |

| Stock | *Lophius budegassa* VIIabd VII | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Jean-Claude Mahé | E-mail: jean.claude.mahe@ifremer.fr | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark<br>type of expertise/proposed names |
| Biological Parameters | Split of the landings between both species of anglerfish not known for some countries and suspect of not being correctly done some years due to differences between species proportion among different countries fishing the same grounds. | Have the historical detailed information on methods used by each country.<br>Historically apply the split between species from the best identified method/country/fleet (i.e. the proportions in landings of countries splitting the species due to market reasons…). | Available directly from historical data or from Member States | NO |
| | Sex ratio and maturity of anglerfish only from an European project done in 1996–1998 | Compilation of the data collected under DCF and analysis for new sex-ratio and maturity parameters (COST) | Raw data from DCF. | NO |
| | Growth pattern unknown or poorly known | Research on anglerfish growth pattern. Could come from tag/recapture experiments, analysis of length distributions from surveys. | Workshop to be conducted by ICES in 2011. Results are not likely to be applicable to a benchmark in 2012 due to time constraints. | NO |

| Stock | *Lophius budegassa* VIIabd VII | | | |
|---|---|---|---|---|
| Stock coordinator | Name: Jean-Claude Mahé | E-mail: jean.claude.mahe@ifremer.fr | | |
| Issue | Problem/Aim | Work needed/possible direction of solution | Data needed to be able to do this: are these available/where should these come from? | External expertise needed at benchmark type of expertise/proposed names |
| Assessment method | It depends of data available. If all the data with the needed length distributions is available a length structured model could be used. If only landings data and some tuning series are available a production model could be used. | All the above plus exploratory analysis from stock coordinators. | | YES |

### Could the RACs help with the splitting of catch between both *Lophius* species?

#### Comments from *L. budegassa* stock coordinator

Concerning *Lophius* spp., the main problem is ageing and we are hoping to move to a length based analysis (SS3?). I have started going back to the database (everything is here in Lorient) to provide LDs per quarter. That should be available by mid 2011.

Concerning the French statistical data, we will have a definite answer by mid-March as we are moving towards a more integrated algorithm including logbook data, specific enquiries on fishing activity and VMS data. As a first step we would provide data using this algorithm for 2009 and 2010, then move backward but not before 1999. The problem will be: a disrupted time-series with different methodologies and from 1999 to now different level of information depending on year (VMS, enquiries, on-board sampling...). This will be documented and presented at the next benchmarks.

#### Problems obtaining anglerfish biological samples

In the last few years, Spain has had big difficulties gathering the biological samples: the fish required for this are bought to the fishing industry, which brings them back from their fishing trips, but they have often not brought them (they have to bring the fish whole, without evisceration. Apparently this disrupts their operations and often they don't bring them). As a consequence, there are too few biological samples in some years (2010 particularly bad) and it is difficult to cover the full range of lengths.

It is very important to "educate" the fishing industry on the need and relevance of their cooperation. Perhaps these data could be obtained by observers on board or by autosampling by the fishing industry, although the present arrangement would be fine if the industry understood the importance of its cooperation.

| Stock | Data Problem | How to be addressed in DCR | By who |
|---|---|---|---|
| Stock name | Data problem identification | Description of data problem and recommend solution | Who should take care of the recommended solution and who should be notified on this data issue. |
| Ang-78 | UK, Spain and Ireland: Discards provided to WGHMM but not used because of bad quality of the data. (Doubts about the adequacy of raising methodology used). | Application of recommendations of WS Discards (Charlotte Lund, 2003) and future WS on discards (2009). | UK, IRL, SP and PGCCDBS |
| Ang-78 | France: Neither landings nor length distribution data are delivered to the 209 WGHMM. | Strong request for providing these data to Member State. | France and Ices delegate & PGCCDBS |
| Ang-78 | France: No discard data are delivered to the WGHMM. | Strong request for providing these data to Member State. | France and Ices delegate & PGCCDBS |
| Ang-78 | The precise methodology used for splitting catches between both *Lophius* species is not available to the WGHMM and no precision estimates are delivered. | Strong request for providing these data to Member States. | PGCCDBS |
| Ang-78 | Available maturity data recorded under DCF is not being delivered to WGHMM. | Strong request for providing these data to Member States. | PGCCDBS |
| Ang-78 | Sex-ratio data recorded under DCF is not being delivered to WGHMM. | Strong request for providing these data to Member States. | PGCCDBS |
| Ang-78 | Growth at length data recorded under DCF is not being delivered to WGHMM. | Strong request for providing these data to Member States. | PGCCDBS |

## Northern hake

A benchmark took place in February 2010. A main issue was the age data, which constituted the basis of the previous assessment (XSA). It was established that the ageing procedure used resulted in wrong ages. Tagging experiments demonstrated that growth is much faster (about twice as fast) than what would be coherent with the ageing procedure used. No new ageing method could be found, so new assessment used a model (SS3) that only requires length structured data. At the moment, the assessment with the new method is considered to be only indicative of stock trends.

In the new assessment, data (landings, discards and corresponding length frequency distributions) are entered on a quarterly basis (instead of annual) and by fleet (seven fleets: "Spanish trawl in VII"–FU4; "Spanish trawl in VIII"–FU14; "French *Nephrops* trawling in VIII"–FU9; "all other trawling in VII and VIII"–FU5+6+8+10; "gillnet"–FU3+13; "longline"–FU1+2+12; "others"–FU15+16+00). Four survey abundance indices used in the assessment (EVHOE, IGFS, Porcupine; RESSGASC this survey ended in 2002)0.

#### Data issues problematic for assessment (we're not sure with which aspects RACs might help)

**Historical data:** With the new assessment model using quarterly data the historical series has been reduced to just the period 1990–present. We are trying to recover historical data from before 1990 by fleet (first on a yearly basis).

**Abundance index for the big individuals in the population:** Surveys provide indices mainly for young individuals, so recruitment levels are thought to be reasonably well estimated. But we do not have an index that covers the big individuals in the population. Having such an index would increase confidence on assessment biomass estimates. The index could be derived by appropriate standardisation of the cpue of a commercial fleet catching big individuals, most likely a longline fleet would be best. We would need a time-series starting as early as possible (e.g. 1990 or earlier) and going into the present and future. To standardise such a cpue series we would need to know the number of hooks used (or some alternative indicator of effective effort) for the fleet in question. If this information is not available, interviews with fishing industry may give a good idea of how effective effort has changed over time?

**Catch data:** Given that the available survey indices only cover young individuals in population, if commercial catch is underestimated, this is expected to result in too big an increase in SSB (and too big a decrease in F). This (a very large increase in SSB and decrease in F) is what we see in the last 3–4 assessment years, giving rise to the suspicion that catch could be underestimated particularly in this most recent period. It's possible that the level of underreporting could have increased in recent years because of increasing stock size.

**Discard data:** At the moment, the assessment incorporates discards on three fleets "Spanish trawl in VII", "Spanish trawl in VIII" and "French *Nephrops* trawling in VIII". However, discards are expected to occur in all other trawl fleets. There are still some fleets for which we are missing discards data, for example *Nephrops* fishery in the Celtic Sea (FU8). Here also it is a problem of sampling effort and RAC can't really help except facilitating observer samplings on board boats. Maybe some auto-sampling could be tested.

**Effort data:** Effort data by fleet (or, at least, for some fleets) would be very useful. The assessment model currently used allows to incorporate such data (but it is not incorporated in the present assessment), which can be informative about F.