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Report of the Second *Ad Hoc* Group on Criteria for Reopening Fisheries Advice (AGCREFA2)

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Contents

1 Introduction

The Second *Ad Hoc* Group on Criteria for Reopening Fisheries Advice (AGCREFA2 (hereafter referred to as the Group) met at ICES Headquarters on 23–24 May 2012. The participants were Michael Sissenwine (Chair), Hans Lassen and Barbara Schoute. The purpose of the meeting was to consider, and revise as appropriate, the ICES 2008 protocol for reopening spring (e.g. by the end of June) advice in response to relevant summer/early autumn resource survey information.

2 Terms of Reference

The terms of reference for the meeting were as follows:

a) Prepare the list of stocks for which survey results become available between the advice presentation and September of the same year. The list should contain all stocks in this situation, including a comment on the current assessment status, and for which of these reopening of the advice could be considered;

b) Evaluate the existing protocol for reopening fisheries advice (AGCREFA 2008, ICES CM 2008/ACOM:60), continuing to base the protocol on survey data alone, without having to update the assessment. Consider criteria such as change in survey data vs. magnitude of expected change in advice, and the ability to distinguish signal from noise for a new survey data point;

c) Extend the protocol specific to the *Nephrops* stocks assessed through the UWTV surveys, by considering criteria for magnitudes in survey result changes that merit changing the advice. Additionally consider the relevance of updating reference points as a result of updating survey results;

d) Put forward the combined protocol for reopening of the advice.

Report by 18 June 2012 for the attention of ACOM.

3 Background

In 2007, ICES changed the time for issuing advice on several stocks from autumn to spring (by the end of June) of the year. The change was made at the request of the European Commission and introduced after consultation with all Clients to allow more time for deliberations between the issuance of advice and management decisions. However, the change also meant that some scientific information that had been used in autumn advice was not available at the time when assessments were conducted as the basis for spring advice. In general, it was deemed worth it to trade-off some degree of precision and accuracy as a result of less scientific information being available for more time to deliberate. However, it was understood that there would be some situations where information that became available during summer/early autumn could be important enough to merit being taken into account in revised advice.

Accordingly, ICES established a protocol for reopening spring advice in light of new information that became available during summer/early autumn (AGCREFA 2008). The protocol was intentionally narrow. It only applied to stocks for which the timing

of advice had been shifted from autumn to spring, and it only allowed consideration of new survey information on recruitment if such information was used in advice prior to the change in the timing of advice. The reasons for making the protocol narrow are discussed in AGCREFA 2008. In particular, ICES felt that the protocol should be narrow so that reopening was infrequent and so that there wasn't abuse. If reopening is too frequent, the benefits of more time for deliberations will be negated and it would be a burdensome workload for ICES. Concern about abuse stems from the possibility of interest groups that don't like advice looking for a justification to have it revised.

ICES recognized in 2008 when it established the protocol that it was breaking new ground and it should learn and evolve as it gained experience. In fact, the 2008 protocol was described for 2008 only. However, ICES has carried on with the protocol more or less unchanged to the current time. In 2009 it was modified for application to some *Nephrops* management units when summer/early autumn underwater camera survey information became available.

Experience to date is that the protocol has worked well for the situation where it is applicable. Reopening advice has not been too frequent, and there doesn't seem to be abuse. A summary of experience with the protocol is given in Appendix 1. While the 2008 protocol seems to be working well, enough time has passed and the situation has changed enough to merit revising the protocol.

4 Response to Terms of Reference

Lack of participation in the meeting severely limited the group's ability to respond to the ToR. However, a brief response to each of the ToRs is given below.

a) Prepare the list of stocks for which survey results become available between the advice presentation and September of the same year. Appendix 2 contains a table that lists stocks and relevant surveys. It also indicates how survey information is used in current assessments and if it is an input to advice. The table is more comprehensive than the table of surveys for which reopening advice was to be considered according to the 2008 protocol. This expansion in candidate surveys for reopening advice reflects both the evolution in the ICES portfolio of surveys and advances in the way data are used in assessments. The Group recommends this table as a reference for Assessment Working Groups when they consider candidate information that might trigger reopening advice.

b) Evaluate the existing protocol for reopening fisheries advice (AGCREFA 2008). The Group was unable to evaluate the 2008 protocol except to note that it seems to have served its purpose well. However, the Group had some concerns. First, the 2008 protocol uses a statistical approach for analysing recruitment data and an associated software package (RCT3) that is not widely used in ICES, and it is rarely, if ever, used elsewhere. While it is based on a peer reviewed publication, the statistical characteristics of the method are not entirely understood.

   Second, the 2008 protocol is designed to separate signal from noise in new information that becomes available during summer/early autumn. This is a necessary condition for using new information (it should be statistically meaningful), but this condition may not be sufficient. Even if there is a clear signal in a variable (e.g. it is virtually certain that X is twice the value of X as-

sumed in the spring advice), the advice may not be sensitive to X. Therefore a change in X doesn't matter, and may not be a good reason for reopening advice. Therefore, the Group recommends that the protocol for reopening advice based on new information be revised to criteria that focus on the sensitivity of the assessment outputs that drive advice.

c) Extend the protocol specifically to the *Nephrops* stocks assessed through the UWTV surveys. *Nephrops* advice for management units where there is a UWTV (i.e. underwater TV) survey biomass estimate is derived by applying a target fishing mortality rate to the biomass estimate. When advice is given in spring, the implicit assumption is that the survey in the intermediate year (the year when advice is given for the following year) will give the same biomass estimate as the survey in the previous year. If there is a desire to reopen advice based on survey data that becomes available in summer/spring of the intermediate year, it is simply a matter of determining that surveys between years are significantly different (statistically) and deciding how small a change in TAC advice is important to managers and stakeholders. The Group believes the recommended revised protocol discussed below is applicable to this situation.

d) Put forward the combined protocol for reopening of the advice. In light of its deliberations on ToRs 1–3, the Group recommends a revised protocol. It is described in the next section of the report.

5 Recommended revised protocol for reopening spring TAC advice

The Group recommends a revised protocol for reopening and revising spring advice based on new information that becomes available in summer/autumn of the year in which advice is given. In terms of the work of assessment working groups, the year in which the advice is prepared and given is referred to as the "intermediate year." The assessment is complete with data through the previous year. That is, it gives an estimate of the beginning of the year and end of the year numbers-at-age and biomass, and the fishing mortality by age during the year. There are key assumptions (discussed later) made during the intermediate year that allow a projection of numbers-at-age and biomass to the beginning of the next year. The next year is the year to which the advice applies. It is referred to as the forecast year because the TAC during the forecast year is forecasted by applying various management options (e.g. management control rule from a Management Plan, MSY approach, Precautionary Approach).

The recommend protocol requires Expert Groups to **predetermine** trigger points in new information that would trigger reopening and revision of advice. It is too late in 2012 for Expert Groups to do so. Therefore, the protocol is recommended for 2013 and beyond. In light of the small number of participants in the Group, it is also appropriate to used 2012 to discuss the recommended protocol with Expert Groups and to get there feedback. The 2008 protocol can be continued in 2012.

Rationale: The protocol is based on a determination of the degree of sensitivity of a spring assessment of stock size and fishing mortality rate to new information that becomes available after advice has been issued according to a spring assessment. The new information must become available in time to revise advice by mid-November.

Broadly speaking, the new information might affect the spring assessment looking back in time through the assessment tuning process and/or looking forward in time by informing the assumptions that are made for the intermediate year. This protocol only applies to the forward looking influence of new information, as was the case for the 2008 protocol. Specifically, it applies to new information that can be used to improve intermediate year assumptions and the influence of changes in intermediate year assumptions on forecasts for the year to which advice applies (referred to as the forecast year by ICES, but also logically the management year).

The types of assumptions commonly applied to the intermediate year and the likely sources of new information are as follows:

1) Strength of recruiting year class (R)- It is common to assume an average value from a historical period (e.g. long-term or recent). In some cases, a recruitment assumption is derived from a stock–recruit function. In future, such functions might be conditional on environmental information. There may be some specific information about the cohort available from a resources survey or fisheries data. A summer/early autumn survey may provide additional information that can be used to improve the intermediate year assumption about the strength of a recruiting year class.

2) Age specific fishing mortality rate (F)- This concerns two issues: overall exploitation and selectivity among age or size groups. Assumptions about overall fishing mortality are typically based on either (a) an assumption about the catch in the intermediate year (e.g. it equals the previous year's catch or it equals the TAC); or (b) the most recent estimate of F ("status quo assumption"). As time passes, more current information about the fishery (e.g. projected catch based on monthly reported landings during the first half of the year, information on effort trends) might become available. It is rare that there is information that allows updating the selectivity assumption for the intermediate year.

3) Weight-at-Age (W_a). The weight-at-age is usually assumed to equal the weight-at-age in the most recent year or few years for which there are observations. As time passes, information about W_a in the intermediate year might become available from a resource survey or samples from the fishery.

4) Exploitable Biomass (B_{exp}). Some assessments are based on an annual estimate of biomass from a resources survey (e.g. some *Nephrops* units for which there are annual underwater camera surveys). Such assessments could be based entirely on the most recent survey or they could be based on a weight running average for species with multiple ages in the population. When the annual survey takes place too late in the year to be the basis of spring advice, the implicit intermediate year assumption is that the next survey estimate of biomass will equal the estimate from the previous year's survey or from the weighted running average of previous surveys. Subsequent to the issuing of spring advice, new survey results may become available.

5) Numbers-at-age. Numbers-at-age in the intermediate year is brought forward from the assessment taking account of natural and fishing mortality. In principle, these values could be refined by taking account of a summer/early autumn survey during the intermediate year, but typically this

would be done by re-tuning the assessment, which is beyond the scope of this protocol.

This protocol can be applied to any type of intermediate year assumptions and new sources of information. However it should only be used forward looking (e.g. forecasting from the intermediate year through the forecast year). It should not be used backward looking to re-tune the assessment. ICES previous protocol (ICES CM 2008/ACOM:60) solely applied to recruitment (number 1 above) and it is anticipated that this protocol will primarily be applied to recruitment as well. However, it offers more flexibility. Another important distinction between this protocol and the 2008 protocol is that it is based on a sensitivity criteria (as discussed below) rather than criteria for separating signal from noise.

There are several aspects about the sensitivity of an assessment to intermediate year assumptions and new information about these assumptions that need to be considered. In particular, one must decide which assessment results have the most influence on advice and how sensitive these assessment results must be to new information to trigger reopening the advice.

With respect to the degree of sensitivity, there are two considerations. One consideration is the accuracy and precision of assessment information. From a statistical point of view, an assessment is not sensitive to new information about intermediate year assumptions if the change in assessment results is within assessment confidence intervals. Confidence intervals around assessment results are not easily calculated and they are often unknown, but it is doubtful that standard errors are any better than 10–20%.

The second consideration is the magnitude of change in advice (e.g. TAC) that is important to managers and stakeholders. There are examples where as little as a 3% increase in TAC (for North Sea sole) was considered significant, although such changes are below the threshold of the statistical significance of assessments. For a variety of reasons, managers and stakeholders prefer small or moderate changes as indicated by TAC constraints in management plans (typically 15%). Taking into account both statistical considerations and managers' and stakeholders' desires, it is recommended that ICES use a sensitivity criteria of 10%.

In terms of the sensitivity of assessment results, it can be characterized in terms of the percent change in fishing mortality (e.g. for a specific age or average over several ages), population numbers (e.g. for recruits or all ages), or biomass (e.g. total, spawning, exploitable). Roughly speaking, TAC advice for the forecast year (the year for which the advice applies) is almost always dependent on the exploitable biomass, and it will be dependent on the average F when management advice is based on a value of F in the forecast year that is a multiplier (percentage adjustment) of the intermediate year F. Therefore, the protocol calls for sensitivity to be judged in terms of the percentage change in:

1) Exploitable biomass- if exploitable biomass is not routinely calculated or ill-defined for a specific stock, the total biomass in the age groups used to calculate average F should be used as a proxy. The exploitable biomass is affected by three processes: growth, mortality (natural and fishing) and recruitment;
2) Average F, if and only if, management advice takes account of F in the intermediate year.

Thus, new information that results in a change in exploitable biomass (or its proxy) at the beginning of the forecast year and/or in average F (if applicable according to number 2 above) during the intermediate year equal to or greater than 10% triggers reopening advice.

As discussed above, the criteria of 10% blends both statistical considerations and management and stakeholder desires. However, there needs to be a "statistical bottom line" that cannot be violated. New information usually comes from a sampling programme (e.g. trawl survey random samples, underwater camera line transect survey, biological sampling of commercial sampling of the catch). The precision of this information should be estimated. If the sensitivity analysis discussed above shows that assessment results are more sensitive to the new information than can be justified based on sampling error, then the new information should not be used as the basis for reopening advice. More specifically,

If sensitivity analysis indicates advice should be reopened if X is outside the range of X_L to X_u, but 67% confidence interval of X (X±SD) overlaps with the sensitivity range (X_L to X_U), then advice should not be reopened.

The implication is that the sample size or sampling design are not good enough to inform the intermediate year assumption. The choice of a 67% confidence interval is not very demanding compared with typical statistical criteria (~95%), but it corresponds to the criteria in the 2008 protocol. In practice, the number of times that reopening has been triggered according to the one standard deviation confidence interval criteria has been workable.

To date, ICES has maintains a distinction between reopening an assessment and revising advice. Reopening an assessment has meant that the criteria according to the 2008 protocol has been triggered, and therefore an expert group is required to revise the assessment forecast table taking account of new information It was then up to ACOM to decide if advice should be revised. In most cases, the advice was not very sensitive (less than a 10% change in TAC), and the advice was not revised. In some cases, the advice was insensitive because of a TAC constraint contained in a management plan TAC control rule, although the assessment was much more sensitive to new information. This approach meant that ACOM made its own somewhat arbitrary judgement (without pre-agreed criteria) on how much change was enough to merit revising advice.

The previous protocol was geared to separating signal from noise in the new information itself rather than sensitivity of advice to the new information. In a sense, this new protocol integrates both the decisions to reopen advice and to revise advice. If it is reopened, it is because at least the forecast table is likely to be sensitive to the new information although a management plan TAC constraint might damp the sensitivity of the advice. However, the forecast table itself is sometimes an important consideration in management decisions and in this sense it is very much part of the advice. Therefore, if the criterion for reopening advice is triggered, advice should be revised so that a new forecast table is available, even if the numerical value derived from a management plan TAC control rule is unchanged.

Implementation: Expert Groups will have flexibility in implementing the protocol. It is up to them to identify potential new information that might merit reopening advice. They should consult the list of surveys appended to this report as a starting point for their deliberations.

The protocol should be implemented as follows:

1) Expert Groups review intermediate year assumptions and identify new information (in the form of variable X) that is pertinent to these assumptions that they anticipate being available (in a quality assured form) by the end of October. X may be directly applicable to an intermediate year assumption (e.g. estimate of catch) or it may be an independent variable of a function (e.g. catch per tow of a recruiting age group as input to a recruitment estimate).

2) If new information is anticipated, the Expert Group performs a sensitivity analysis to determine the upper and lower bounds of X (X_U, X_L) that change exploitable biomass (or its proxy) by 10%.

3) If intermediate year average F is taken into account in advice, a sensitivity analysis is also performed to determine X_U and X_L that change average F by 10%.

4) The lower of the X_U values and the higher of the X_L values from step 2 and 3 (when applicable) are proposed as trigger points for reopening advice, subject to ACOM approval.

5) The outcome of step 4 is incorporated into advice. That is, the advice identifies the potential for revising advice based on new information, and it gives the pre-agreed trigger points. With ACOM's approval of advice, the trigger points are approved.

6) When anticipated new information becomes available, working groups determine that it has been adequately quality assured. If so, they evaluate the information relative to the trigger points. If reopening is triggered, intermediate year assumptions, the forecast table, and options highlighted in the advice summary are revised. These revisions are submitted to ACOM by the second week in November.

7) Unless ACOM decides otherwise, revised advice is issued by mid-November. ACOM may decide to modify advice text to reflect numerical changes.

Appendix 1: Experience with the 2008 protocol for reopening advice

(Prepared by the ICES Secretariat)

Annually, WGBFAS, WGCSE, WGHMM and WGNSSK are asked to check their stocks against the AGCREFA 2008 protocol. WGNSSK is the only group that has implemented the protocol every year.

WGHMM and WGBFAS consider there are no stocks with relevant surveys that need to be considered.

WGCSE has had some problems implementing this, because not all surveys are ready by the time. CSE applied modified version of the protocol (with ACOM's agreement) in 2009 for *Nephrops*.

Applications of the protocol are summarized in the following table.

	Ecoregions: results of the protocol	Links
2008	**NS**: No change in advice, NS Haddock and whiting showed significant change in R, but changes were within error bounds	WGNSSK Annex 2
2009	**Celtic**: *Nephrops* in VII (FU15 and FU17) updated **NS**: no changes, only corrections after WGMIXFISH. Comparisons indicated that there was potential for reopening of the advice for sole a 3% decrease in the TAC would result. The estimates of recruitment for cod, whiting and saithe are unchanged from the values used in spring; the new information is either too uncertain to provide a change to the advice (saithe) or indicates that the estimate from the new information does not differ from the assumptions used in the spring forecast (cod, whiting). For haddock and plaice there are indications of improved recruitment in 2009 which will increase future catches and SSB, however in both cases, the constraint which restricts changes in the TAC to +/-15% is applicable for both stocks, as it was in May and the advice is unchanged	Celtic, WGNSSK Annex 2
2010	**NS**: No changes: comparisons indicated that there was potential for reopening of the advice for sole, resulting in the same TAC in 2011 as 2010 under the Management Plan. The estimates of recruitment for plaice and haddock are unchanged from the values used in spring, as the estimate from the new information does not differ from the assumptions used in the spring forecast.	WGNSSK Annex 2
2011	**NS**: comparisons indicated that there was potential for reopening of the advice for sole, resulting in a 3.2% increase of the TAC under the Management Plan [decided not to change], and for saithe, with a 15% decrease of the TAC compared with last year [changed]. The estimates of recruitment for plaice and haddock are also significantly different from the values used in spring, with an increase for plaice and a reduction for haddock. However, the 15% cap on interannual TAC variation implemented in the Management Plans for both stocks implies that the advice remains unchanged for 2012. But a 2% reduction in haddock biomass for 2013 is expected, compared with the spring advice. No significant changes were observed for whiting **The saithe reopening** of the advice turned out difficult, issues with the update + many comments from the RG – on the basis of that the assessment basis changed between June and reopened advice.	WGNSSK Annex 2 Reopening Review

Appendix 2: Surveys and their use in stock assessments

(Prepared by the ICES Secretariat)

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Norwegian and Barents Sea	afwg	cap-bars	Eco-NoRu-Q3 (Aco)	Y	Acoustic	August–September	Survey used as absolute estimate of stock size. The capelin investigations are part of a joint ecosystem survey in August–September, thus the number of days used is a bit hard to estimate. Capelin is a short-lived species, fishery is mainly on mature fish (ages 3 and 4) in winter/spring.
Norwegian and Barents Sea	afwg	cod-arct	BS-NoRu-Q1 (BTr)	Y	Bottom trawl	February–March	Shifted to the end of previous year in order to use most recent survey in XSA tuning.
Norwegian and Barents Sea	afwg	cod-arct	BS-NoRu-Q1 (Aco)	Y	Acoustic	February–March	Tuning fleet together with Lofoten Acoustic survey, shifted to the end of previous year in order to use most recent survey in XSA tuning. Maturity calculated in combination with Lofoten survey.
Norwegian and Barents Sea	afwg	cod-arct	Lof-Aco-Q1	Y	Acoustic	March–April	Tuning fleet together with Joint Barents Sea Acoustic, winter. shifted to the end of previous year in order to use most recent survey in XSA tuning. Maturity data calculated in combination with Joint Barents Sea Acoustic, winter.
Norwegian and Barents Sea	afwg	cod-arct	RU-BTr-Q4	Y	Bottom trawl	October–December	Acoustic data recorded,but not used in assessment. Maturity data used in combination with Norwegian surveys.
Norwegian and Barents Sea	afwg	cod-arct	Eco-NoRu-Q3 (Btr)	N	Bottom trawl	August–September	International 0-group survey, survey started in 1965, but data prior to 1980 not compatible with newer data.
Norwegian and Barents Sea	afwg	cod-coas	NOcoast-Aco-Q4	Y	Acoustic	October–November	
Norwegian and Barents Sea	afwg	ghl-arct	Eco-NoRu-Q3 (Btr)	Y	Bottom trawl	August–September	Use as tuning fleet combined with other surveys - Norwegian combined index survey (1996–present).
Norwegian and Barents Sea	afwg	ghl-arct	NO-GH-Btr-Q3	Y	Bottom trawl	August–September	Use as tuning fleet combined with other surveys - Norwegian combined index survey (1996–present).

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Norwegian and Barents Sea	afwg	ghl-arct	RU-BTr-Q4	Y	Bottom trawl	October–December	New Russian Greenland halibut survey.
Norwegian and Barents Sea	afwg	ghl-arct	RU-BTr-Q4	N	Bottom trawl	October–December	
Norwegian and Barents Sea	afwg	ghl-arct	SP-Svalbard-Q4	N	Bottom trawl	October	
Norwegian and Barents Sea	afwg	ghl-arct	Eco-NoRu-Q3 (Btr)	N	Bottom trawl	August–September	Pelagic 0-group.
Norwegian and Barents Sea	afwg	ghl-arct	BS-NoRu-Q1 (BTr)	N	Bottom trawl + acoustic	February–March	
Norwegian and Barents Sea	afwg	had-arct	BS-NoRu-Q1 (BTr)	Y	Bottom trawl	February–March	Shifted to the end of previous year in order to use most recent survey in XSA tuning.
Norwegian and Barents Sea	afwg	had-arct	RU-BTr-Q4	Y	Bottom trawl	October–December	Acoustic data recorded,but not used in assessment. Maturity data used.
Norwegian and Barents Sea	afwg	had-arct	BS-NoRu-Q1 (Aco)	Y	Acoustic	February–March	Shifted to the end of previous year in order to use most recent survey in XSA tuning.
Norwegian and Barents Sea	afwg	had-arct	Eco-NoRu-Q3 (Btr)	N	Bottom trawl	August–September	International 0-group survey, survey started in 1965, but data prior to 1980 not compatible with newer data.
Norwegian and Barents Sea	afwg	sai-arct	NOcoast-Aco-Q4	Y	Acoustic	October–November	
Norwegian and Barents Sea	afwg	smn-arct	RU-BTr-Q4	N	Bottom trawl	October–December	No analytical assessment. Advice based on survey trends. Index only for Norwegian EEZ and Svalbard area.
Norwegian and Barents Sea	afwg	smn-arct	Eco-NoRu-Q3 (Btr)	Y	Bottom trawl	August–September	No analytical assessment. Advice based on survey trends. Index only for Norwegian EEZ and Svalbard area.
Norwegian and Barents Sea	afwg	smn-arct	BS-NoRu-Q1 (BTr)	N	Bottom trawl	February–March	No analytical assessment. Advice based on survey trends.
Norwegian and Barents Sea	afwg	smn-arct	REDNOR-Q3		Acoustic	Q3	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Norwegian and Barents Sea	afwg	smr-arct	BS-NoRu-Q1 (BTr)	Y	Bottom trawl	February–March	Combined index with Norwegian Svalbard (Division IIb) bottom-trawl survey.
Norwegian and Barents Sea	afwg	smr-arct	Eco-NoRu-Q3 (Btr)	Y	Bottom trawl	August–September	Index only for Svalbard area.
Norwegian and Barents Sea	afwg	smr-arct	NOcoast-Aco-Q4	Y	Bottom trawl+ pelagic	October–November	100–350 m depth range only.
Baltic Sea	hawg	her-3a22	BITS-Q1	N	Bottom trawl	February	Survey coordinated by WGBIFS
Baltic Sea	hawg	her-3a22	GerAS	Y	Acoustic	October	In Subdivisions 21–24. Survey index from BIAS.
Baltic Sea	hawg	her-3a22	N20	Y	Larval	March–June	
Baltic Sea	hawg	her-3a22	BITS-Q3	N	Bottom trawl	November	
Baltic Sea	hawg	her-3a22	HERAS	Y	Acoustic	July	
North Sea	hawg	her-47d3	HERAS	Y	Acoustic	July	In Division IIIa.
North Sea	hawg	her-47d3	IBTS-Q1	Y	Bottom trawl	February	
North Sea	hawg	her-47d3	IBTSO	Y	Other	February	
North Sea	hawg	her-47d3	IHLS	Y	Larval	-	MLAI index is usse for tuning.
Celtic Seas	hawg	her-irls	CSHAS	Y	Acoustic	October	Good index, performing well.
Celtic Seas	hawg	her-irls	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	Not used due to short series, noisy distribution.
Celtic Seas	hawg	her-irls	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	No consistent signals.
Celtic Seas	hawg	her-irls	NIGFS-WIBTS-Q4	N	Bottom trawl	October	Not use because stock splitting not available.
Celtic Seas	hawg	her-irls	NIGFS-WIBTS-Q1	N	Bottom trawl	March	Not use because stock splitting not available.
Celtic Seas	hawg	her-irls	CSHRS	N	Bottom trawl	February	May become useful in time. Recruit index required.
Celtic Seas	hawg	her-irlw	MSHAS_S	N	Acoustic	June–July	New series 2008–2011.
Celtic Seas	hawg	her-irlw	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	Not used due to short series, noisy distribution.
Celtic Seas	hawg	her-irlw	MSHAS_N	N	Acoustic	June–July	See MSHAS_S.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	hawg	her-nirs	AC(VIIaN)	Y	Acoustic	September	
Celtic Seas	hawg	her-nirs	NINEL	Y	Larval	November	
Celtic Seas	hawg	her-vian	MSHAS_S	N	Acoustic	June–July	New series 2008-2011.
North Sea	hawg	spr-kask	HERAS	N	Acoustic	July	No analytical assessment.
North Sea	hawg	spr-kask	IBTS-Q3	N	Bottom trawl	September	No analytical assessment.
North Sea	hawg	spr-kask	IBTS-Q1	N	Bottom trawl	February	No analytical assessment.
North Sea	hawg	spr-nsea	IBTS-Q1	N	Bottom trawl	February	No analytical assessment.
North Sea	hawg	spr-nsea	IBTS-Q3	N	Bottom trawl	Autumn	No analytical assessment.
North Sea	hawg	spr-nsea	HERAS	N	Acoustic	July	No analytical assessment.
Iceland and Greenland seas	nwwg	cap-icel	IS-Capelin-Aco	N	Acoustic	Autumn/ January–March	Survey to set final quota.
Iceland and Greenland seas	nwwg	cod-ewgr	GER(GRL)-GFS-Q4	N	Other	Q4	No analytical assessment.
Faroe	nwwg	cod-farb	FO-GFS-Q1	N	Bottom trawl	February–March	Discontinued in 2004 and 2005. Advice based on surveys trends.
Faroe	nwwg	cod-farb	FO-GFS-Q3	N	Bottom trawl	August–September	Advice based on survey trends.
Faroe	nwwg	cod-farp	FO-GFS-Q1	Y	Bottom trawl	February–March	
Faroe	nwwg	cod-farp	FO-GFS-Q3	Y	Bottom trawl	August–September	
Iceland and Greenland seas	nwwg	cod-iceg	IS-SMB	N	Bottom trawl	March	Advice based on catch and survey data using the AD-CAM.
Iceland and Greenland seas	nwwg	cod-iceg	IS-SMH	N	Bottom trawl	October	Advice based on catch and survey data using the AD-CAM.
Iceland and Greenland seas	nwwg	ghl-grn	IS-SMH	N	Bottom trawl	October	No analytical assessment. Inappropriate as a biomass indicator at present time.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Iceland and Greenland seas	nwwg	ghl-grn	FO-GFS-Q1	N	Bottom trawl	February–March	No analytical assessment. Inappropriate as a biomass indicator at present time.
		ghl-grn	FO-GFS-Q3			Q3	
Faroe	nwwg	had-faro	FO-GFS-Q1	Y	Bottom trawl	February–March	
Faroe	nwwg	had-faro	FO-GFS-Q3	Y	Bottom trawl	August–September	
Iceland and Greenland seas	nwwg	had-iceg	IS-SMB	Y	Bottom trawl	March	
Iceland and Greenland seas	nwwg	had-iceg	IS-SMH	N	Bottom trawl	October	
Iceland and Greenland seas	nwwg	her-vasu	IS-Her-Aco-Q4/Q1	Y	Acoustic	October–December and/or January	
Iceland and Greenland seas	nwwg	her-vasu	IS-Her-Aco-Spawn-Q3		Acoustic	Q3	
Iceland and Greenland seas	nwwg	her-vasu	IS-Her-Aco-Juv-Q4/Q1			Q4–Q1	
Faroe	nwwg	sai-faro	FO-GFS-Q1	N	Bottom trawl	February–March	
Faroe	nwwg	sai-faro	FO-GFS-Q3	N	Bottom trawl	August–September	
Iceland and Greenland seas	nwwg	sai-icel	IS-SMB	Y	Bottom trawl	March	
Iceland and Greenland seas	nwwg	smn-con	IS-SMH	N	Bottom trawl	October	No analytical assessment.
Iceland and Greenland seas	nwwg	smn-dp	GER(GRL)-GFS-Q4	N	Bottom trawl	October–November	No analytical assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Iceland and Greenland seas	nwwg	smn-sp	GER(GRL)-GFS-Q4	N	Bottom trawl	October–November	No analytical assessment.
Iceland and Greenland seas	nwwg	smr-5614	IS-SMB	N	Bottom trawl	March	No analytical assessment. Advice based on the research survey series and information from the fishery.
Iceland and Greenland seas	nwwg	smr-5614	IS-SMH	N	Bottom trawl	October	No analytical assessment. Advice based on the research survey series and information from the fishery.
Iceland and Greenland seas	nwwg	smr-5614	FO-GFS-Q1	N	Bottom trawl	February–March	
Iceland and Greenland seas	nwwg	smr-5614	FO-GFS-Q3	N	Bottom trawl	August–September	
Iceland and Greenland seas	nwwg	smr-5614	GER(GRL)-GFS-Q4	N	Bottom trawl	October–November	
Bay of Biscay and Iberian seas	wghansa	ane-bisc	BIOMAN	Y	DEPM	May	Assessment based on this tuning index.
Bay of Biscay and Iberian seas	wghansa	ane-bisc	PELGAS	Y	Acoustic	Spring	
Bay of Biscay and Iberian seas	wghansa	ane-bisc	JUVENA	N	Acoustic	September	Survey in testing phase. Design to cover the gap for recruitment forecasting. Good results so far (R=0.80 n=6, P=0.06). PELACUS and JUVENA surveys are expected to merge in a single survey in 2010, continuing JUVENA series.
Bay of Biscay and Iberian seas	wghansa	ane-bisc	PELACUS-Q4	N	Acoustic	September–October	
Bay of Biscay and Iberian seas	wghansa	ane-pore	PELAGO	N	Acoustic	March–April	No analytical assessment.
Bay of Biscay and Iberian seas	wghansa	ane-pore	SAR	N	Acoustic	October–November	No analytical assessment. Recommended for a recruitment tuning fleet in coordination with a IEO autumn survey. Not used as basis for advice.
Bay of Biscay and Iberian seas	wghansa	ane-pore	PELACUS-Q2	N	Acoustic	March–April	No analytical assessment (qualitative assess.= trends of fishery & surveys data). Very low abundanve on this area. (for ane-pore surveying in Subarea IXa North-Spain only).

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Bay of Biscay and Iberian seas	wghansa	ane-pore	ECOCÁDIZ	N	Acoustic	June–July	In Subarea IXa South only. No analytical assessment (qualitative assess.= trends of fishery & surveys data).Not used due to short time-series (4 datapoints). New surveys in 2009 recommended by WGACEEG: ECOCÁDIZ-RECLUTAS (extend and ensure Golf of Cádiz coverage) and ECOCÁDIZ-COSTA (increase both the acoustic sampling coverage and fishing for echotrace identification in the shallow waters (< 20 m depth)in the Golf of Cádiz).
Bay of Biscay and Iberian seas	wghansa	ane-pore	BOCADEVA	N	DEPM	June –uly	No analytical assessment (qualitative assess.= trends of fishery & surveys data). Not used due to short time-series (two datapoints) ((Triennial survey). In Subarea IXa South only.
Bay of Biscay and Iberian seas	wghansa	ane-pore	DEPM (BOCADEVA)		DEPM		
Bay of Biscay and Iberian seas	wghansa	sar-soth	SAREVA	Y	DEPM	January (PT), March (ES)	Joint index with DEPM-Pt.
Baltic Sea	wgbfas	bll-2232	-	-	-	-	No analytical assessment.
Baltic Sea	wgbfas	cod-2224	KASU-Q1	Y	Bottom trawl	February	
Baltic Sea	wgbfas	cod-2224	KASU-Q4	Y	Bottom trawl	November	
Baltic Sea	wgbfas	cod-2224	Solea-Q1	N	Bottom trawl	Q1	
Baltic Sea	wgbfas	cod-2224	Solea-Q4	Y	Bottom trawl	Q4	
Baltic Sea	wgbfas	cod-2532	BITS-Q1	Y	Bottom trawl	1Q	Split in different tuning fleets.
Baltic Sea	wgbfas	cod-2532	BITS-Q4	Y	Bottom trawl	4Q	
Baltic Sea	wgbfas	cod-2532		N	Larval	-	Use to validate estimates the egg production.
Baltic Sea	wgbfas	cod-2532		N	Larval	-	
Baltic Sea	wgbfas	cod-2532		N	Larval	-	
North Sea	wgbfas	cod-kat	IBTS-Q1	Y	Bottom trawl	February	
North Sea	wgbfas	cod-kat	IBTS-Q3	Y	Bottom trawl	3Q	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
North Sea	wgbfas	cod-kat	KASU-Q1	Y	Bottom trawl	Q1	
North Sea	wgbfas	cod-kat	KASU-Q4	Y	Bottom trawl	Q4	
Baltic Sea	wgbfas	dab-2232	-	-	-	-	No analytical assessment.
Baltic Sea	wgbfas	fle-2232	BITS-Q1	N	Bottom trawl	1Q	No analytical assessment.
Baltic Sea	wgbfas	her-2532-gor	BIAS	Y	Acoustic	October	
Baltic Sea	wgbfas	her-30	BIAS	N	Acoustic	October	Not used due to the short time-series (expected to be include in the next benchamark of this stock).
Baltic Sea	wgbfas	her-31	-	-	-	-	
Baltic Sea	wgbfas	her-riga	BIAS	Y	Acoustic	October	
Baltic Sea	wgbfas	ple-2232	-	-	-	-	No analytical assessment.
North Sea	wgbfas	sol-kask		N	Bottom trawl	July–August	
North Sea	wgbfas	sol-kask	KASU-Q1	N	Bottom trawl	March	
North Sea	wgbfas	sol-kask	KASU-Q4	N	Bottom trawl	October	
North Sea	wgbfas	sol-kask	IBTS-Q1	N	Bottom trawl	February	
North Sea	wgbfas	sol-kask	Fishermen-DTU Aqua	Y	Bottom trawl	-	Survey included in WKFLAT 2010.
Baltic Sea	wgbfas	spr-2232	BIAS	Y	Acoustic	October	Used as two surveys-series.
Baltic Sea	wgbfas	spr-2232	BIAS	Y	Acoustic	October	
Baltic Sea	wgbfas	spr-2232	SPRASS	Y	Acoustic	May	
Baltic Sea	wgbfas	tur-2232	-	-	-	-	No analytical assessment.
Celtic Seas	wgcse	ang-ivvi	ScoGFS-WIBTS-Q1	N	Bottom trawl	March	DiscontinuedNo analytical assessment. Traditional groundfish surveys are ineffective at catching anglerfish.
Celtic Seas	wgcse	ang-ivvi	New-ScoGFS-WIBTS-Q1	N	Bottom trawl	March	No analytical assessment. Traditional groundfish surveys are ineffective at catching anglerfish.
Celtic Seas	wgcse	ang-ivvi	SCO-IV-VI-AMISS-Q2	Y	Bottom trawl	April	Used as basis for advice combined with the IR-IV-VI-AMISS-Q2. Survey targeting anglerfish. No analytical assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgcse	ang-ivvi	IR-IV-VI-AMISS-Q2	Y	Bottom trawl	2Q	Used as basis for advice combined with the SCO-IV-VI-AMISS-Q2. No analitycal assessment. Provides absolute abundace estimate and awaits benchmarking.
Celtic Seas	wgcse	cod-7e-k	EVHOE-WIBTS-Q4	Y	Bottom trawl	(October–November) + (September–December)	Used as basis for advice combined with the IGFS-WIBTS-Q4.
Celtic Seas	wgcse	cod-7e-k	IGFS-WIBTS-Q4	Y	Bottom trawl	September–December	Used as basis for advice combined with the EVHOE-WIBTS-Q4
Celtic Seas	wgcse	cod-iris	NIGFS-WIBTS-Q4	Y	Bottom trawl	October	
Celtic Seas	wgcse	cod-iris	NIGFS-WIBTS-Q1	Y	Bottom trawl	March	Biological/Maturity information.
Celtic Seas	wgcse	cod-iris	ScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 1981. Discontinued
Celtic Seas	wgcse	cod-iris	NewScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 1211.
Celtic Seas	wgcse	cod-iris	UK-FSP	N	midwater pelagic	February–March	
Celtic Seas	wgcse	cod-iris	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Synonyms (stock section specific): ENG BTS-September Survey name: Irish Sea and Bristol Channel survey-Q3.
Celtic Seas	wgcse	cod-iris	NIMIK	Y	Other	June	Synonyms (stock section specific): NIMIKNET.
Celtic Seas	wgcse	cod-rock		-	-	-	No analytical assessment.
Celtic Seas	wgcse	cod-scow	ScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 1981. Discontinued
Celtic Seas	wgcse	cod-scow	ScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	Survey series commenced 1990. Discontinued
Celtic Seas	wgcse	cod-scow	NewScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 2011.
Celtic Seas	wgcse	cod-scow	NewScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	Survey series commenced 2011.
Celtic Seas	wgcse	cod-scow	ScoAMISS-Q2	Y	Bottom trawl	April	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgcse	cod-scow	IR-AMISS-Q2	Y	Bottom trawl	2Q	
Celtic Seas	wgcse	cod-scow	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	Stock subject to LTP survey infromation is very important but the assessmemt method TSA only allows for one indext to be used this is likley to be changed at next benchmark.
Celtic Seas	wgcse	had-7b-k	EVHOE-WIBTS-Q4	Y	Bottom trawl	October–November	Previous name in the WGCSE: FR7fghjEVHOE.
Celtic Seas	wgcse	had-7b-k	IGFS-WIBTS-Q4	Y	Bottom trawl	September–December	Used as a combined index with Irish Sea and Celtic Sea survey (1999–2002).
Celtic Seas	wgcse	had-iris	NIGFS-WIBTS-Q1	Y	Bottom trawl	March	Biological/Maturity information.
Celtic Seas	wgcse	had-iris	NIGFS-WIBTS-Q4	N	Bottom trawl	October	Not used as tuning fleet due to model restrictions, but important as recruitment index.
Celtic Seas	wgcse	had-iris	NIMIK	N	Other	June	Not used as tuning fleet due to model restrictions, but important as recruitment index.
Celtic Seas	wgcse	had-iris	IS-AEPM	N			
Celtic Seas	wgcse	had-iris	UK-FSP	N	midwater pelagic	February–March	Surveys under UK Fisheries Science Partnership providing survey indices using commercial gears. Not yet been evaluated through benchmark process, but provide valuable supporting evidence and comparison with research vessel indices.
Celtic Seas	wgcse	had-rock	Rock-WIBTS-Q3	Y	Bottom trawl	September	Survey series commenced 1985.
Celtic Seas	wgcse	had-rock	SAMISS-Q2	Y	Bottom trawl	April	
Celtic Seas	wgcse	had-rock	IAMISS-Q2	Y	Bottom trawl	2Q	
Celtic Seas	wgcse	had-scow	ScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 1981.
Celtic Seas	wgcse	had-scow	ScoGFS-WIBTS-Q4	Y	Bottom trawl	Autumn	Survey series commenced 1990.
Celtic Seas	wgcse	had-scow	SAMISS-Q2	Y	Bottom trawl	April	
Celtic Seas	wgcse	had-scow	IAMISS-Q2	Y	Bottom trawl	2Q	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgcse	had-scow	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	IGFS-WIBTS-Q4 series has six years of data and cannot yet be considered for tuning purposes until the stock is benchmarked.
Celtic Seas	wgcse	meg-4a6a	SAMISS-Q2	Y	Bottom trawl	April	
Celtic Seas	wgcse	meg-4a6a	IAMISS-Q2	Y	Bottom trawl	2Q	
Celtic Seas	wgcse	meg-rock	SAMISS-Q2	Y	Bottom trawl	April	No analytical assessment.
Celtic Seas	wgcse	nep-11	UWTV-FU11	Y	UWTV	June	This is the only survey for this FU and is the basis for the assessment.
Celtic Seas	wgcse	nep-12	UWTV-FU12	Y	UWTV	June	This is the only survey for this FU and is the basis for the assessment.
Celtic Seas	wgcse	nep-13	UWTV-FU13	Y	UWTV	June	This is the only survey for this FU and is the basis for the assessment.
Celtic Seas	wgcse	nep-14	UWTV-FU14-15	N	UWTV	August	Short time-series.
Celtic Seas	wgcse	nep-15	NI-NEP-trawl-Q3	Y	Bottom trawl	Summer	
Celtic Seas	wgcse	nep-15	UWTV-FU14-15	Y	UWTV	August	
Celtic Seas	wgcse	nep-16	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	Primary source of fishery-independent data for this stock.
Celtic Seas	wgcse	nep-17	UWTV-FU17	Y	UWTV	June	UWTV survey is the basis for the advice.
Celtic Seas	wgcse	nep-19	-	-	-	-	No analytical assessment. Fishery-independent methods such as UWTV surveys may also be useful for this FU in future.
Celtic Seas	wgcse	nep-2022	UWTV-FU22	N	UWTV	July	UWTV may form the basis for the assessment in future but it covers only part of the *Nephrops* stock area.
Celtic Seas	wgcse	ple-7b-c	-	-	-	-	IRGFS indices has been presented as WD.
Celtic Seas	wgcse	ple-7h-k	-	-	-	-	IRGFS indices has been presented as WD.
Celtic Seas	wgcse	ple-celt	UK (E&W)-BTS-Q3	Y	beam trawl	September–October	Survey name: Western English channel beam trawl survey.
Celtic Seas	wgcse	ple-echw	UK-WEC-BTS	Y	beam trawl	September–October	Survey name: Western English channel beam trawl survey.
Celtic Seas	wgcse	ple-echw	FSP-7e (UK (E+W)	Y	bottom trawl	September	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgcse	ple-iris	NIGFS-WIBTS-Q4	Y	Bottom trawl	October	
Celtic Seas	wgcse	ple-iris	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3.
Celtic Seas	wgcse	ple-iris	NIGFS-WIBTS-Q1	Y	Bottom trawl	March	Biological/Maturity information.
Celtic Seas	wgcse	sol-7b-c	-	-	-	-	IRGFS indices has been presented as WD.
Celtic Seas	wgcse	sol-7h-k	UK (BTS-Q3)	N	Beam trawl	August–September	No analytical assessement. IRGFS indices has been presented as WD. Survey name: Western English Channel beam trawl survey.
Celtic Seas	wgcse	sol-celt	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3.
Celtic Seas	wgcse	sol-echw	FSP-7e (UK (E+W)	N	Bottom trawl	September	No analytical assessment.
Celtic Seas	wgcse	sol-echw	UK-WEC-BTS	Y	Beam trawl	September–October	No analytical assessment. Survey name: Western English channel beam trawl survey.
Celtic Seas	wgcse	sol-iris	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3
Celtic Seas	wgcse	whg-7e-k	EVHOE-WIBTS-Q4	Y	Bottom trawl	October–November	Several tuning fleets are discontinued surveys.
Celtic Seas	wgcse	whg-7e-k	IGFS-WIBTS-Q4	Y	Bottom trawl	September–December	Several tuning fleets are discontinued surveys.
Celtic Seas	wgcse	whg-iris	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3.
Celtic Seas	wgcse	whg-iris	NIGFS-WIBTS-Q4	Y	Bottom trawl	October	
Celtic Seas	wgcse	whg-iris	NIGFS-WIBTS-Q1	Y	Bottom trawl	March	Biological/Maturity information.
Celtic Seas	wgcse	whg-iris	NIMIK	N	Other	June	
Celtic Seas	wgcse	whg-iris	UK-FSP	N	midwater pelagic	February–March	
Celtic Seas	wgcse	whg-scow	ScoGFS-WIBTS-Q1	Y	Bottom trawl	March	Survey series commenced 1981. Survey based assessment.
Celtic Seas	wgcse	whg-scow	ScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	Survey series commenced 1990. Survey based assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgcse	whg-scow	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	Survey based assessment.
Celtic Seas	wgcse	whg-rock	-	-	-	-	No assessment.
Widely distributed and migratory stocks	wgdeep	arg-rest		N	Bottom trawl + acoustic	May–June	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	bli-5a14	IS-SMB	N	Bottom trawl	March	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	bli-5a14	IS-SMH	N	Bottom trawl	October	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	bli-5b67	FO-GFS-Q1	Y	Bottom trawl	February–March	
Widely distributed and migratory stocks	wgdeep	bli-5b67	FO-GFS-Q3	N	Bottom trawl	August–September	
Widely distributed and migratory stocks	wgdeep	bli-5b67	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	
Widely distributed and migratory stocks	wgdeep	bli-5b67	IDS	N	Bottom trawl	-	Now part of international WGNEACS proposal. Discontinued
Widely distributed and migratory stocks	wgdeep	bli-rest	-	-	-	-	
Widely distributed and migratory stocks	wgdeep	bsf-soth	-	-	-	-	Covered in future international WGNEACS proposal.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgdeep	bsf-89	-	-	-	-	Covered in future international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	bsf-rest	-	-	-	-	Covered in future international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	gfb-comb	WIBTS-Q4	N	Bottom trawl	Q4	No analytical assessment. Indicative trends accepted in benchmark.
Widely distributed and migratory stocks	wgdeep	gfb-comb	IDS	N		September–December	No analytical assessment. Accepted in Benchmark. Survey now part of international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	gfb-comb	SDS	N	Bottom trawl	March	No anaytical assessment. Accepted in Benchmark. Now part of international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	gfb-comb	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	No analytical assessment. Accepted in benchmark.
Widely distributed and migratory stocks	wgdeep	lin-faro	FO-GFS-Q1	Y	Bottom trawl	February–March	Advice based on survey and catch trends.
Widely distributed and migratory stocks	wgdeep	lin-icel	FO-GFS-Q3	N	Bottom trawl	August–September	Advice based on survey and catch trends.
Widely distributed and migratory stocks	wgdeep	lin-icel	-	-	-	-	
Widely distributed and migratory stocks	wgdeep	lin-arct	IS-SMB	N	Bottom trawl	March	Advice based on survey trends.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgdeep	lin-arct	IS-SMH	N	Bottom trawl	October	Advice based on survey trends.
Widely distributed and migratory stocks	wgdeep	lin-rest	-	-	-	-	Advice based on survey trends.
Widely distributed and migratory stocks	wgdeep	ory-scrk	-	-	-	-	No analytical assessment. Survey now part of international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	ory-vii	IDS	N	Bottom trawl	September–December	No analytical assessment. Survey now part of international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	ory-rest	-	-	-	-	No assessment.
Widely distributed and migratory stocks	wgdeep	rng-soth	SDS	N	Bottom trawl	March	No analytical assessment. Accepted in Benchmark. Survey now part of international WGNEACS proposal.
Widely distributed and migratory stocks	wgdeep	rng-nsea	-	-	-	-	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	rng-1012	-	-	-	-	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	rng-rest	-	-	-	-	No assessment.
Widely distributed and migratory stocks	wgdeep	sbr-678	-	-	-	-	Covered in future international WGNEACS proposal.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgdeep	sbr-ix	-	-	-	-	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	sbr-x	ARQDACO(P)-Q1	N	Longline	Q2–Q3	No analytical assessment. Advice based on survey and catch trends.
Norwegian and Barents Sea	wgdeep	usk-arct	-	-	-	-	
Iceland and Greenland seas	wgdeep	usk-icel	IS-SMH	N	Bottom trawl	October	No analytical assessment.
Iceland and Greenland seas	wgdeep	usk-icel	IS-SMB	N	Bottom trawl	March	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	usk-mar	-	-	-	-	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	usk-oth	FO-GFS-Q1	Y	Bottom trawl	February–March	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	usk-oth	FO-GFS-Q3	N	Bottom trawl	August–September	No analytical assessment.
Widely distributed and migratory stocks	wgdeep	usk-rock	-	-	-	-	No analytical assessment.
Widely distributed and migratory stocks	wgef	basking shark		N	Other	-	No assessment.
Widely distributed and migratory stocks	wgef	blue shark	-	-	-	-	No assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgef	deep-water sharks	SDS	N	Bottom trawl	September	No analytical assessment. Advice based on survey and catch trends.
Widely distributed and migratory stocks	wgef	deep-water sharks	IDS	N	Bottom trawl	September–December	No analytical assessment. Advice based on survey and catch trends.
Widely distributed and migratory stocks	wgef	demersal elasmobranchs azores	ARQDACO(P)-Q1	N	Longline	Q2–Q3	No analytical assessment. Advice based on survey and catch trends.
Norwegian and Barents Sea	wgef	demersal elasmobranchs barents sea	RU-BTr-Q4	N	Bottom trawl	October–December	No assessment.
Norwegian and Barents Sea	wgef	demersal elasmobranchs barents sea	NOcoast-Aco-Q4	N	Bottom trawl	October–November	No assessment.
Bay of Biscay and Iberian seas	wgef	demersal elasmobranchs biscay and iberian	SpGFS-WIBTS-Q4	N	Bottom trawl	September–October	No analytical assessment. Advice based on survey and catch trends.
Bay of Biscay and Iberian seas	wgef	demersal elasmobranchs biscay and iberian	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	UK-WEC-BTS	Y	beam trawl	September–October	Survey name: Western English channel beam trawl survey.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	UK (E&W)-BTS-Q3	Y	Beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wgef	demersal elasmobranchs celtic seas	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	Rock-WIBTS-Q3	Y	Bottom trawl	September	
Celtic Seas	wgef	demersal elasmobranchs celtic seas	ScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	PHHT-Q1	N	Bottom trawl	1Q	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wgef	demersal elasmobranchs celtic seas	EngW-WIBTS-Q4	N	Bottom trawl	September–December	No analytical assessment. Advice based on survey and catch trends.
Iceland and Greenland seas	wgef	demersal elasmobranchs iceland		N	Bottom trawl		No assessment.
North Sea	wgef	demersal elasmobranchs north sea	IBTS-Q1	N	Bottom trawl	February	Exploratory assessment based on survey trends.
North Sea	wgef	demersal elasmobranchs north sea	IBTS-Q3		Bottom trawl	Summer	Exploratory assessment based on survey trends.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
North Sea	wgef	demersal elasmobranchs north sea	CGFS	N	Bottom trawl	-	Exploratory assessment based on survey trends.
North Sea	wgef	demersal elasmobranchs north sea	UK (BTS-Q3)	N	Beam trawl	August–September	Exploratory assessment based on survey trends. Survey name: Western English Channel beam trawl survey.
Norwegian and Barents Sea	wgef	demersal elasmobranchs norwegian sea	NOcoast-Aco-Q4	N	Bottom trawl	Autumn	No assessment.
Widely distributed and migratory stocks	wgef	kitefin shark	ARQDACO(P)-Q1	N	Longline	Q2–Q3	No analytical assessment. Advice based on survey and catch trends.
Widely distributed and migratory stocks	wgef	porbeagle	-	-	-	-	No assessment.
North Sea	wgef	shortfin mako	-	-	-	-	Exploratory assessment.
Widely distributed and migratory stocks	wgef	spurdog	EngW-WIBTS-Q4	N	Bottom trawl	September–December	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	spurdog	IGFS-WIBTS-Q4	N	Bottom trawl	Q4	
Widely distributed and migratory stocks	wgef	spurdog	NIGFS-WIBTS-Q4	N	Bottom trawl	October	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	spurdog	ScoGFS-WIBTS-Q1	N	Bottom trawl	March	Exploratory assessment. Advive based on catch and survey trends.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgef	spurdog	ScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	spurdog	Sco-IBTS-Q1	N	Bottom trawl	March	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	spurdog	Sco-IBTS-Q3	N	Bottom trawl	August	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	spurdog	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	Exploratory assessment. Advive based on catch and survey trends.
Widely distributed and migratory stocks	wgef	tope		N	-	-	No assessment.
Celtic Seas	wghmm	ang-78ab	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wghmm	ang-78ab	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wghmm	ang-78ab	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	No analytical assessement. Advice based on survey and catch trends. Survey coordinated by IBTSWG. Data sparse for *L.budegassa*.
Celtic Seas	wghmm	ang-78ab	FSP-Eng-Monk	N	Bottom trawl	September–October	Advice based on survey and catch trends.
Bay of Biscay and Iberian seas	wghmm	ang-8c9a	SpGFS-WIBTS-Q4	N	Bottom trawl	September–October	Survey not considered representative of stock abundance due to low numbers caught. Survey coordinated by IBTSWG.
Bay of Biscay and Iberian seas	wghmm	ang-8c9a	PtGFS-WIBTS-Q4	N	Bottom trawl	October	Survey not considered representative of stock abundance due to low numbers caught. Survey coordinated by IBTSWG.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wghmm	hke-nrtn	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	The dataseries may be considered for inclusion in the next benchmark.
Widely distributed and migratory stocks	wghmm	hke-nrtn	EVHOE-WIBTS-Q4	Y	Bottom trawl	October–November	Some tuning fleets are discontinued.
Widely distributed and migratory stocks	wghmm	hke-nrtn	SpPGFS-WIBTS-Q4	Y	Bottom trawl	September	Some tuning fleets are discontinued.
Bay of Biscay and Iberian seas	wghmm	hke-soth	SpGFS-WIBTS-Q4	Y	Bottom trawl	September–October	Survey coordinated by IBTSWG. Length based assessement no tuning age information
Bay of Biscay and Iberian seas	wghmm	hke-soth	PtGFS-WIBTS-Q4	Y	Bottom trawl	October	Survey coordinated by IBTSWG. Length based assessement no tuning age information
Bay of Biscay and Iberian seas	wghmm	hke-soth	PtGFS-WIBTS-Q1	N	Bottom trawl	February–March	Survey data important for biological parameters (namely maturation). Coordinated by IBTSWG.
Bay of Biscay and Iberian seas	wghmm	hke-soth	PT-CTS (UWTV (FU 28-29))	N	Bottom trawl + UWTV	May–June	
Bay of Biscay and Iberian seas	wghmm	hke-soth	SPGFS-caut-WIBTS-Q4	Y	Bottom trawl	November	Length based assessement no tuning age information.
Bay of Biscay and Iberian seas	wghmm	hke-soth	SPGFS-cspr-WIBTS-Q1	N	Bottom trawl	March	
Bay of Biscay and Iberian seas	wghmm	meg-8c9a	SpGFS-WIBTS-Q4	Y	Bottom trawl	September–October	Some tuning fleets are discontinued.
Bay of Biscay and Iberian seas	wghmm	meg-8c9a	PtGFS-WIBTS-Q4	N	Bottom trawl	October	Survey not considered representative of stock abundance due to low numbers caught. Survey coordinated by IBTSWG
Bay of Biscay and Iberian seas	wghmm	meg-8c9a	PT-CTS (UWTV (FU 28-29))	N	Bottom trawl	May–June	
Celtic Seas	wghmm	mgw-78	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	No analytical assessment. Advice based on survey and catch trends.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Celtic Seas	wghmm	mgw-78	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	No analytical assessment. Advice based on survey and catch trends.
Celtic Seas	wghmm	mgw-78	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	No analytical assessment. Advice based on survey and catch trends.
Bay of Biscay and Iberian seas	wghmm	nep-8ab	LANGOLF	N	Bottom trawl	2Q	Currently short time-series to be included as tuning fleet
Bay of Biscay and Iberian seas	wghmm	nep-8c	-	-	-	-	
Bay of Biscay and Iberian seas	wghmm	nep-9a	PT-CTS (UWTV (FU 28-29))	Y	Bottom trawl + UWTV	May–June	The number of stations increased from 60 to 74 since 2005. From 2009 onward also with UWTV. Survey for FU 28 and 29. Used for abundance estimation and collection of maturity data of Nephrops and other deep-water crustacean species.
Bay of Biscay and Iberian seas	wghmm	nep-9a	PtGFS-WIBTS-Q4	N	Bottom trawl	October	Survey not considered representative of stock abundance due to low numbers caught. Survey coordinated by IBTSWG
Bay of Biscay and Iberian seas	wghmm	nep-9a	SPGFS-cspr-WIBTS-Q1	N	Bottom trawl	March	Survey for FU 30.
Bay of Biscay and Iberian seas	wghmm	sol-bisc	ORHAGO	N	beam trawl	November	RESSGASC survey stopped in 2002. WGHMM considers survey ORHAGO, launched in 2007 and aiming to provide abundance indices for BB sole, a priority for this assessment.
Widely distributed and migratory stocks	wgnew	mut-comb	IBTS-Q3	N	Bottom trawl	September	
Widely distributed and migratory stocks	wgnew	mut-comb	IBTS-Q1	N	Bottom trawl	February	
Widely distributed and migratory stocks	wgnew	mut-comb	CGFS	N	Bottom trawl	-	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgnew	czs-comb	CGFS	N	Bottom trawl	-	
Widely distributed and migratory stocks	wgnew	czs-comb	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	Survey coordinated by IBTSWG
Widely distributed and migratory stocks	wgnew	czs-comb	WIBTS-Q4	N	Bottom trawl	Q4	includes SP- Porcupain survey
Widely distributed and migratory stocks	wgnew	gug-comb	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	Survey coordinated by IBTSWG
Widely distributed and migratory stocks	wgnew	gug-comb	IBTS-Q1	N	Bottom trawl	February	
Widely distributed and migratory stocks	wgnew	gug-comb	CGFS	N	Bottom trawl	-	
	wgnew		EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	Survey coordinated by IBTSWG
	wgnew		CGFS	N	Bottom trawl	-	
North Sea	wgnew	dab-nsea	IBTS-Q3	N	Bottom trawl	3Q	
			-	-	-	-	
North Sea	wgnew	fle-nsea	IBTS-Q1	N	Bottom trawl	February	
North Sea	wgnew	wit-nsea	-	-	-	-	
	wgnew		EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	
North Sea	wgnew	lem-nsea	IBTS-Q1	N	Bottom trawl	February	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
North Sea	wgnew	lem-nsea	BTS-Q3	N	beam trawl	August–September	in ICES Divisions IVc + VIId. Coordinated by WGBEAM
	wgnew		UK (E&W)-BTS-Q3	N	beam trawl	September–October	Survey name: Irish Sea and Bristol Channel survey-Q3.
North Sea	wgnew	lem-nsea	UK (E&W)-BTS-Q1	N	Beam trawl	March	
North Sea	wgnew	tur-nsea	IBTS-Q1	N	Bottom trawl	February	
	wgnew		EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	
North Sea	wgnew	bll-nsea	BTS-Q3	N	Beam trawl	August–September	
North Sea	wgnew	bll-nsea	IBTS-Q1	N	Bottom trawl	February	
Widely distributed and migratory stocks	wgnew	bss-comb	UK-YFS	N	Beam trawl	-	Exploratory assessment.
Widely distributed and migratory stocks	wgnew	bss-comb		N			
Widely distributed and migratory stocks	wgnew	bss-comb	DFS-Q3	N	beam trawl	September	Exploratory assessment.
North Sea	wgnssk	cod-347d	IBTS-Q1	Y	Bottom trawl	February	Survey coordinated by IBTSWG
North Sea	wgnssk	cod-347d	IBTS-Q3	Y	Bottom trawl	August–September	Survey coordinated by IBTSWG
North Sea	wgnssk	had-34	EngGFS-IBTS-Q3	Y	Bottom trawl	August–September	English IBTS as an independent tuning fleet. Survey coordinated by IBTSWG
North Sea	wgnssk	had-34	Sco-IBTS-Q3	Y	Bottom trawl	August	Scottish IBTS as an independent tuning fleet.
North Sea	wgnssk	had-34	IBTS-Q1	Y	Bottom trawl	February	
North Sea	wgnssk	nep-10	UWTV-Sco-J	N	UWTV	June	No analytical assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
North Sea	wgnssk	nep-32	No-shrimp-Q1	N	Bottom trawl	January–February	No analytical assessment.
North Sea	wgnssk	nep-33	-	-	-	-	No analytical assessment.
North Sea	wgnssk	nep-5	-	-	-	-	No analytical assessment.
North Sea	wgnssk	nep-6	UWTV-E&W_spr	Y	UWTV	Spring	
North Sea	wgnssk	nep-6	UWTV-E&W-aut	Y	UWTV	September–October	
North Sea	wgnssk	nep-7	UWTV-Sco-J	Y	UWTV	June	
North Sea	wgnssk	nep-8	UWTV-Sco-A	Y	UWTV	August	
North Sea	wgnssk	nep-9	UWTV-Sco-A	Y	UWTV	August	
North Sea	wgnssk	nep-iiia	UWTV-DK	N	UWTV	-	No analytical assessment.
North Sea	wgnssk	nop-34	EngGFS-IBTS-Q3	Y	Bottom trawl	August–September	English IBTS as an independent tuning fleet. Survey coordinated by IBTSWG
North Sea	wgnssk	nop-34	Sco-IBTS-Q3	Y	Bottom trawl	August	Scottish IBTS as an independent tuning fleet.
North Sea	wgnssk	nop-34	IBTS-Q1	Y	Bottom trawl	February	Survey coordinated by IBTSWG
North Sea	wgnssk	nop-34	IBTS-Q3	Y	Bottom trawl	August–September	Survey coordinated by IBTSWG
North Sea	wgnssk	ple-eche	UK (BTS-Q3)	Y	Beam trawl	September–October	Survey name: Western English channel beam trawl survey. Coordinated by WGBEAM.
North Sea	wgnssk	ple-eche	YFS	N	Bottom trawl	September	Survey used for tuning until 2006.
North Sea	wgnssk	ple-eche	CGFS	Y	Bottom trawl	October	Also called as French otter trawl groundfish survey.
North Sea	wgnssk	ple-kask	IBTS-Q1	Y	Bottom trawl	February	
North Sea	wgnssk	ple-kask	IBTS-Q3	Y	Bottom trawl	August–September	
North Sea	wgnssk	ple-kask	KASU-Q1	Y	Bottom trawl	February	
North Sea	wgnssk	ple-kask	KASU-Q4	Y	Bottom trawl	November	

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
North Sea	wgnssk	ple-nsea	BTS-Isis	Y	beam trawl	August–September	gear=beam trawl, 8 m width.
North Sea	wgnssk	ple-nsea	BTS-Tridents	Y	beam trawl	August–September	gear=beam trawl, 8 m width.
North Sea	wgnssk	ple-nsea	SNS	Y	Beam trawl	September	
North Sea	wgnssk	ple-nsea	DFS-Q3	N	Bottom trawl	September–October	only used in STF, gear = beam trawl. Wadden Sea and Scheld Estuary: 3 m, Coast: 6 m.
North Sea	wgnssk	sai-3a46	NORACU	Y	Acoustic	July	
North Sea	wgnssk	sai-3a46	NORASS	Y	Acoustic	May	Included in WKBENCH (2011).
North Sea	wgnssk	sai-3a46	IBTS-Q3	Y	Bottom trawl	August–September	
North Sea	wgnssk	san-nsea	DK-SANlarval-Q2		Larval	April–May	
North Sea	wgnssk	san-nsea	DK-Psettled-Q4		Other	November–December	
North Sea	wgnssk	san-nsea	No-Aco-dredge-Q2		Acoustic	April–May	
North Sea	wgnssk	san-shet	-			-	
North Sea	wgnssk	sol-eche	UK (BTS-Q3)	Y	Beam trawl	August–September	Survey name: Western English Channel beam trawl survey.
North Sea	wgnssk	sol-eche	YFS-FR	Y	Bottom trawl	October	
North Sea	wgnssk	sol-eche	IBTS-Q3	Y	Bottom trawl	October	Named in the WG report as UK young fish survey (YFS-UK).
North Sea	wgnssk	sol-nsea	BTS-Isis	Y	beam trawl	August–September	
North Sea	wgnssk	sol-nsea	SNS	Y	Beam trawl	September	
North Sea	wgnssk	whg-47d	IBTS-Q1	Y	Bottom trawl	February	
North Sea	wgnssk	whg-47d	IBTS-Q3	Y	Bottom trawl	August–September	
North Sea	wgnssk	whg-kask	-	-	-	-	No assessment.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Norwegian and Barents Sea	nipag	pan-barn	Eco-NoRu-Q3 (Btr)	N	Bottom trawl	August–September	Since 2004 is a joint survey.
North Sea	nipag	pan-flad	-	-	-	-	
North Sea	nipag	pan-sknd	No-shrimp-Q1	N	Bottom trawl	January–February	The time-series of this survey is longer, but is sptil on different surveys-series.
Widely distributed and migratory stocks	wgwide	her-noss	NASF			February–March	
Widely distributed and migratory stocks	wgwide	her-noss	NASN			November–December	Split in to two tuning flets with diferent age range.
Widely distributed and migratory stocks	wgwide	her-noss	NASJ			January	
Widely distributed and migratory stocks	wgwide	her-noss	IESNS		Pelagic trawl + acoustic	April–June	
Widely distributed and migratory stocks	wgwide	her-noss	Eco-NoRu-Q3 (Aco)		acoustic	Q3	
Widely distributed and migratory stocks	wgwide	her-noss	NHLS		larvae		Split in to two tuning fleets with different age range.
Widely distributed and migratory stocks	wgwide	her-noss	IESSNS	N	Pelagic trawl + Acoustics	July–August	Abundance estimates from swept-area and acoustics on mackerel and Norwegian spring–spawning herring.
North Sea	wgwide	hom-nsea	-	-	-	-	No analytical assessment.
Bay of Biscay and Iberian seas	wghansa	hom-soth	SpGFS-WIBTS-Q4	Y	Bottom trawl	September–October	Combined index with PtGFS-WIBTS-Q4.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Bay of Biscay and Iberian seas	wghansa	hom-soth	PtGFS-WIBTS-Q4	Y	Bottom trawl	October	Combined index with SpGFS-WIBTS-Q4.
Bay of Biscay and Iberian seas	wghansa	sar-soth	PT-DEPM	Y	DEPM	January (PT), March (ES)	Joint index with SAREVA.
Bay of Biscay and Iberian seas	wghansa	hom-soth	DEPM	N	DEPM	January–February	
Widely distributed and migratory stocks	wgwide	hom-west	MEGS	N	Egg survey		
Widely distributed and migratory stocks	wgwide	mac-nea	MEGS	Y	Egg survey		Used as tuning fleet combined with Mackerel egg survey - North Sea and Skagerrak spawning grounds
Widely distributed and migratory stocks	wgwide	mac-nea	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	
Widely distributed and migratory stocks	wgwide	mac-nea	EVHOE-WIBTS-Q4	N	Bottom trawl	October–November	
Widely distributed and migratory stocks	wgwide	mac-nea	PtGFS-WIBTS-Q4	N	Bottom trawl	October	
Widely distributed and migratory stocks	wgwide	mac-nea	IGFS-WIBTS-Q4	N	Bottom trawl	September–December	
Widely distributed and migratory stocks	wgwide	mac-nea	ScoGFS-WIBTS-Q1	N	Bottom trawl	March	Survey series commenced 1981. Survey based assessment

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgwide	mac-nea	ScoGFS-WIBTS-Q4	N	Bottom trawl	Autumn	Survey series commenced 1990. Survey based assessment
Widely distributed and migratory stocks	wgwide	mac-nea	NSMEGS	Y	Egg survey		Used as tuning fleet combined with Mackerel egg survey – western–southern spawning grounds.
Widely distributed and migratory stocks	wgwide	mac-nea	IBTS-Q1	N	Bottom trawl	February	
Widely distributed and migratory stocks	wgwide	mac-nea	EVHOE-WIBTS-Q4		Bottom trawl	4Q	
Widely distributed and migratory stocks	wgwide	mac-nea	SpGFS-WIBTS-Q4		Bottom trawl	September–October	
Widely distributed and migratory stocks	wgwide	mac-nea	IESSNS	N	Pelagic trawl + Acoustics	July–August	Abundance estimates from swept-area and acoustics on mackerel and Norwegian spring-spawning herring.
Widely distributed and migratory stocks	wgwide	mac-nea	IBTS-Q3	N	Bottom trawl	3Q	
Widely distributed and migratory stocks	wgwide	whb-comb	IBWSS	Y		March–April	
Widely distributed and migratory stocks	wgwide	whb-comb	IESNS	Y	Pelagic trawl + acoustic	April–June	
Widely distributed and migratory stocks	wgwide	whb-comb	BS-NoRu-Q1(Btr)	Y	Bottom trawl	February	Only Norwegian data are used.

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgwide	whb-comb	SpGFS-WIBTS-Q4	N	Bottom trawl	September–October	
Widely distributed and migratory stocks	wgwide	whb-comb	PtGFS-WIBTS-Q4	N	Bottom trawl	October	
Widely distributed and migratory stocks	wgwide	whb-comb	IESSNS	N	Pelagic trawl + Acoustics	July–August	
Widely distributed and migratory stocks	wgwide	whb-comb	FO-GFS-Q1	N	Bottom trawl	March	
Widely distributed and migratory stocks	wgwide	whb-comb	FO-GFS-Q3	N	Bottom trawl	August–September	
Bay of Biscay and Iberian seas	wghansa	sar-soth	PELACUS-Q2	N	Acoustic	March–April	Tuning series with PELAGO.
Bay of Biscay and Iberian seas	wghansa	sar-soth	PELAGO	N	Acoustic	March–April	Tuning series with PELACUS.
Bay of Biscay and Iberian seas	wghansa	sar-soth	SAR	N	Acoustic	October–November	Recommended for a recruitment tunning fleet in coordination with a IEO autumn survey.
Bay of Biscay and Iberian seas	wghansa	sar-bisc	PELGAS	N	Acoustic	Spring	
Celtic Seas	hawg	her-irlw	ScoGFS-WIBTS-Q1	N	Bottom trawl	Q1	Patchy coverage. Discontinued
Celtic Seas	hawg	her-irlw	ScoGFS-WIBTS-Q4	N	Bottom trawl	Q4	Patchy coverage. Discontinued
Celtic Seas	hawg	her-vian	ScoGFS-WIBTS-Q1	N	Bottom trawl	Q1	Patchy coverage. Discontinued
Celtic Seas	hawg	her-vian	ScoGFS-WIBTS-Q4	N	Bottom trawl	Q4	Patchy coverage. Discontinued
Celtic Seas	hawg	her-vian	MSHAS_N	Y	Acoustic	June–July	see MSHAS_S.
Celtic Seas	wgcse	pol-celt					

Ecoregion	WG	Stock code	Acronym	Input to Advice (Y or N)	Category	Period	Other comments
Widely distributed and migratory stocks	wgwide	boc-nea	SpPGFS-WIBTS-Q4	N	Bottom trawl	September	
Widely distributed and migratory stocks	wgwide	boc-nea	EVHOE-WIBTS-Q4		Bottom trawl	September	
Bay of Biscay and Iberian seas	wghmm	pol-89a					
Celtic Seas	wgcse	pol-celt					
North Sea	wgnssk	pol-nsea					
Bay of Biscay and Iberian seas	wghmm	whg-89a	EVHOE-WIBTS-Q4		Bottom trawl	September	
Bay of Biscay and Iberian seas	wghmm	sol-8c9a					
Bay of Biscay and Iberian seas	wghansa	sar-78	PELGAS	Y	Acoustic	Spring	
Bay of Biscay and Iberian seas	wghmm	ple-89a					
Bay of Biscay and Iberian seas	wghansa	jaa-10					

Annex 1: Participants list

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