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Report of the Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR)

26-28 January 2011

Dublin, Ireland



ICES

International Council for
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Executive summary

The Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR), chaired by D. Reid, Ireland met at the Marine Institute, Dublin, Ireland, 26–28 January 2011. This meeting was delayed from the original timing of April 2010.

The WG had four ongoing terms of reference that represent the core work of the WG.

- a) Develop surveys to be applicable to the ecosystem approach;
- b) Identify expert groups and develop terms of reference for them;
- c) Identify issues common to all surveys, set up workshops and manage them as appropriate;
- d) Identify complementary technology to add value to surveys;
- e) A final term of reference was specific to this year;
- f) Evaluate the outcomes of WKCATDAT and make recommendations on the basis of this.

The programme for this WG was envisaged as being carried out through a series of one-off workshops. The first of these workshops was WKCATDAT (Workshop on cataloguing data requirements from surveys for the EAFM) which was held at the same time and place as WGISUR and with the same participation. The task of WGISUR was then to steer the work on developing surveys for the EAFM on the basis of this and subsequent workshops.

The main output from WKCATDAT was the production of a table and supporting text summarizing the data needs for the EAFM. WKCATDAT was also asked to apply a prioritization to that list. However, the participants, who were predominantly survey specialists, agreed that this task was best carried out by those who would make use of the data rather than the originators. On that basis WGISUR recommended that the catalogue be passed to a number of ecosystem EGs including: WGECO, WGINOSE, WGEAWESS, WGIAB and WGOOFE. The request was in the form of a ToR for these groups, and was to evaluate the table and provide an index of priorities to each data task, (3 – primary, 2 – important, 1- desirable and, 0 – not needed). The EG were also asked provide a brief description of why the priority has been assigned at this level, and what it would be used for. Also they were asked, if possible, to address the accuracy, precision and resolution issues for these data tasks, in the form of a brief description of the degree of accuracy and precision required in the data, possibly including the positioning of samples, i.e. random locations or adopting the often fixed sample locations of trawl surveys. This should also include the optimal spatial and temporal resolution of the samples. I.e. would samples taken at IBTS trawl stations be useful, or would there need to be more stations. **This falls under ToRs a) and b).**

Based on the work of WKCATDAT, WGISUR also proposed that the table and report be passed to the survey EG for response. Again this was drafted in the form of a ToR for these groups. The EG were asked to evaluate the prioritised catalogue of data needs for the EAFM developed by WKCATDAT/WGISUR and report to WGISUR on what is currently provided, could be provided but is not currently, and what could be provided with modification. For the latter category the EG were asked to provide details of what these changes would be and any implications. The appropriate EG would be IBTSWG, WGACEGG, WGBEAM, WGBIFS, WGEGGS, WGIPS, WGMEGS, WGNAPES, WGNEACS and possibly SGNEPS. **This also falls under ToRs a) and b).**

WGISUR identified the next two steps to be taken in this process, again using the workshop format as with WKCATDAT. One of the tasks of the WGISUR was to “Develop surveys to be applicable to the ecosystem approach”. To this end we have proposed a new workshop to “Define the requirements of the ideal fishery ecosystem survey and develop a description of such survey”. With a working title: Workshop on the Ideal Ecosystem Fishery Survey (WKIEFS). The basic aim will be to detail the specific requirements for such surveys, and to propose specific modifications of existing example surveys to that end. It is proposed this workshop be held along with a WGISUR meeting in January 2012. **This falls under ToRs a) and c).**

The second task would be to collate the responses from the ecosystem and survey EG to the data catalogue. It is recognized that it may take some time for this ToR to be addressed by the other EG. It is proposed to incorporate the prioritization input from the ecosystem EG through intersessional work, before passing this to the survey EG. It was then proposed to hold a workshop to collate the information from the survey EGs, and prepare recommendations appropriately. This WK would also be able to compare the conclusions from WKIEFS with the responses from the survey EG. **This also falls under ToR c).**

WGISUR were also asked **under ToR c)**, to review the proposal for a new EG on “Improving use of Survey Data for Assessment and Advice [WGISDAA]”. The proposal was examined, a small number of changes recommended and accepted, and has now been forwarded to SSGESST with support.

The WKCATDAT data needs table also includes numbers of alternate technologies available for survey development within an EAFM. These include both sampling platforms e.g. towed or autonomous platforms, and sampling tools, e.g. acoustic instruments and TV systems. **This falls under ToR d).**

No specific evaluation of the work of WKCATDAT is provided (**ToR e)**, as the memberships of the two groups was the same. The recommendations for new ToR for other EG, and for future workshops represents the response of WGISUR to the work of WKCATDAT.

1 Opening of the meeting

1.1 Terms of Reference

The Transition-Group on Integrating Surveys for the Ecosystem Approach (TGISUR), will be renamed the Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR), chaired by D. Reid, Ireland will meet at the Marine Institute, Dublin, Ireland, 26–28 January 2011 to:

- a) Develop surveys to be applicable to the ecosystem approach;
- b) Identify expert groups and develop terms of reference for them;
- c) Identify issues common to all surveys, set up workshops and manage them as appropriate;
- d) Identify complementary technology to add value to surveys;
- e) Evaluate the outcomes of WKCATDAT and make recommendations on the basis of this.

The first four ToRs are replicated from 2009 and represent the core work of the TG. The fifth represents the first major step in this process.

WGISUR will report by 28 February 2011 (via SSGESST) for the attention of SCICOM and ACOM.

2 Adoption of the agenda

No formal agenda was developed for this meeting. The meeting was held as a constituent part of the meeting of WKCATDAT. It was agreed at the start of WKCATDAT, that the ToR for WGISUR would be addressed by the group in relation to the developments and discussion within WKCATDAT.

3 Develop surveys to be applicable to the ecosystem approach (addressing ToR a)

3.1 Introduction

As described in the previous report from this group as TGISUR (ICES 2009), the ongoing task of the WG was to oversee a series of workshops covering different aspects of EAFM survey integration. These tasks were as follows:

- A catalogue of data requirements
- Relating data needs to survey métiers
- Redesign the surveys
- Identify potential redundancy in current surveys

WKCATDAT represented the first of these workshops aimed at producing the catalogue of data requirements for the EAFM. This has been completed and will be forwarded to relevant WG for annotation and prioritization.

4 Identify expert groups and develop terms of reference for them (addressing ToR b)

The WG identified two separate tasks which could be completed by a number of appropriate working groups

4.1 Prioritisation of the data collection needs outlined in the catalogue

As outlined above, WKCATDAT has produced a catalogue of potential data needs. The aim was then to provide guidance on priorities for data collection on improved and enhanced EAFM surveys. This was not carried out. The membership of the workshop was largely drawn from high level fishery survey leaders and operatives. While this group included significant expertise in the EAFM, it was agreed that priorities were better set by the users of such data, rather than those whose principle task was to collect it. To complete this step in the process it was agreed that the catalogue from this meeting should be passed to appropriate ecosystem groups (e.g. WGECO, WGINOSE, WGEAWESS, WGIAB, and WGOOFE). The catalogue has already been passed to WGINOSE and WGOOFE. WGISUR will collate these reports intersessionally to provide the completed and prioritized catalogue.

Possible ToR wording

Evaluate the table cataloguing the data needs for the EAFM produced by WKCATDAT (ICES, 2011). Provide index of priorities to each data task, 3 – primary, 2 – important, 1- desirable and, 0 – not needed. Also provide a brief description of why the priority has been assigned at this level, and what it would be used for. If possible address the accuracy, precision and resolution issues for these data tasks, in the form of a brief description of the degree of accuracy and precision required in the data, possibly including the positioning of samples, i.e. random locations or adopting the often fixed sample locations of trawl surveys. This should also include the optimal spatial and temporal resolution of the samples, i.e. would samples taken at IBTS trawl stations be useful, or would there need to be more stations.

4.2 Relating data needs to survey métiers

This was the second of the tasks described under the work programme for WGISUR. It is proposed that the completed catalogue with priorities be passed to the appropriate survey WG to provide the information on what their surveys could provide from within the catalogue.

This will firstly involve documenting what ecosystem data needs are currently provided from the existing surveys. This could be either as a routine activity (e.g. fish sampling) or on the basis of specific requests (e.g. cetacean observation). In each data case, we should document how well this data provision matches up to the prioritization determined by the ecosystem WG described in Section 4.1.

Second we should document where existing surveys and métiers could provide such data, but currently do not. The reasons why a survey would not provide such data may simply be that it has not been tasked to do so, but could technically do so e.g. for lack of people or equipment. Alternatively, the survey may be able to encompass these data collection requirements, but this would need a modification in that survey. For example, where the area covered is not sufficient, the timing (season) is wrong, or the additional work would need a longer time in the field.

Within this process it will be important to remain aware of the value of the long time-series of particular datasets that have been produced by the surveys.

The basic aim here would be to determine how much of the data needs we are currently filling, how much we could fill without change to the surveys, and how much we could fill if we modified our surveys. This process should also reveal those data needs for which we would need completely new approaches.

Target WG would be: IBTSWG, WGACEGG, WGBEAM, WGBIFS, WGEAGS, WGIPS, WGMEGS, WGNAPES, WGNEACS and possibly SGNEPS.

Possible wording for a ToR for these groups could be as follows:

Evaluate the prioritized catalogue of data needs for the EAFM developed by WKCATDAT/WGISUR and report to WGISUR on what is currently provided, could be provided but is not currently, and what could be provided with modification. For the latter category please provide details of what these changes would be and any implications.

5 Identify issues common to all surveys, set up workshops and manage them as appropriate (addressing ToR c)

A number of common issues arose during the meeting that will require further workshops or working groups. The most important of these were as follows:

5.1 The ideal fishery and ecosystem survey

What are the requirements of the ideal fishery ecosystem survey? One of the issues identified in the WGISUR meeting in 2009 (ICES, 2010) was the redesign of surveys for an ecosystem approach. It is proposed that WGISUR should produce guidelines and/or a template for the best practice combined ecosystem and fishery survey. This would be based on the feedback from ICES ecosystems EG responses to the data tasks table, and the feedback from the survey EGs on the options within their surveys (see Section 4.2 above). Depending on feedback, the approach could involve potential redesign of an existing survey to incorporate pertinent ecosystem factors that are feasible to collect, for example based on the IBTS or other existing survey. Alternatively, the approach could be to develop a complete, designed for purpose, ecosystem and fishery survey. It is proposed that this work be the subject of the next workshop in the WGISUR series after WKCATDAT. A working title would be "Workshop on the Ideal Ecosystem Fishery Survey" (WKIEFS). A proposed date for that meeting would be January 2012.

5.2 Relating data needs to survey métiers

As detailed above (Section 4.2), WGISUR proposes asking the various survey EG to provide information on the ability of their surveys to deliver some or all of the data needs for the ecosystem approach. It is recognized that this will take some time to be completed. Following that exercise, there will be a need to collate these responses and to provide a coherent synthesis of what the surveys currently deliver, would they be able to deliver within the current procedures, and what they could deliver with modifications, and to make recommendations on that basis. In turn this synthesis could be compared to the ideal survey description developed by WGISUR and detailed in Section 5.1. Given the time that would be required for the survey EG to address their ToR under this approach and for WGISUR to carry out the workshop on the ideal survey, it is proposed that this meeting take place one year thereafter, i.e.

January 2013. Recommendations and ToR will be proposed at the 2012 meeting of WGISUR.

5.3 Working Group on improving use of Survey Data for Assessment and Advice [WGISDAA]

At the current meeting, WGISUR was asked to consider the suggestion for a new workshop or WG to address the issues surrounding the uses of survey data in assessment. A proposal for this has been submitted to SSGESST under the above title. Among the issues to be addressed were; lack of stability, conflicting signals between surveys, possible changes in survey catchability and hypersensitivity. These issues can severely impact an assessment and subsequent basis of advice. WGISUR agreed that this was an important issue, and recommended that an expert group as described in the WGISDAA proposal, working outside the assessment and survey groups was needed.

6 Evaluate the outcomes of WKCATDAT and make recommendations on the basis of this (addressing ToR e)

WKCATDAT was held at the same time and place and with the same participants as WGISUR. The recommendations presented in this report have been drawn up on the basis of the work of WKCATDAT.

7 References

ICES. 2009. Report of the Transition Group on Integrating Surveys for the Ecosystem Approach (TGISUR), 24 September 2009, Berlin, Germany. ICES CM 2009/LRC:18. 14 pp.

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Annex 2: Terms of Reference for new Workshop

The **Workshop on the Ideal Ecosystem Fishery Surveys** (WKIEFS) chaired by (to be decided), will meet at IMARES, IJmuiden, The Netherlands 24–26 January 2012 to:

- a) Evaluate feedback from ICES ecosystems EGs to the CATDAT data tasks table, and the feedback from the survey EGs on the options within their surveys.
- b) On this basis define the requirements for ideal fishery ecosystem surveys and develop a descriptions of such surveys;
- c) Provide guidance on the adaptation of existing surveys to provide an approach to the ideal fishery ecosystem survey;
- d) Report on any implications from this exercise for the planning of future surveys.

WKIEFS will report by 28 February 2012 (via SSGESST) for the attention of the SSGEF, WGISUR, SCICOM and ACOM.

SUPPORTING INFORMATION

| | |
|---------------------------------|--|
| Priority | High: This is the second step in the work identified for WGISUR. The definition of the ideal survey provides a baseline against which to evaluate and modify, if needed, existing fishery surveys. It should also provide a template for the development of fishery ecosystem surveys that are designed for purpose and not simply evolved out of existing surveys. |
| Scientific justification | The main source for ecosystem data for the EAFM come from research vessel surveys, of which the majority are fish stock assessment surveys. Ecosystem data collection on these surveys is often ad hoc, unplanned and unfocused. With the EAFM becoming enshrined in policy and legislation within the EU and North America, it is important to identify how surveys can best provide information for the EAFM. This information will be used within WGISUR to evaluate surveys and survey methodology to optimize the ecosystem component of fisheries research. Research vessel surveys are our primary data collection tool, and coordination and conduct of these surveys is a key role for ICES through many survey based expert groups, e.g. WGMEGS, IBTSWG, WGBITS etc. ICES is ideally placed to carry out this task, given it's wide range of expertise in the fishery ecosystem work, survey coordination and planning and in promulgating the EAFM. Successful completion of this task will be benchmark and a test for the ability of ICES to integrate science across disciplines. |
| Resource requirements | No new research is proposed so costs would be negligible; travel to workshop etc. |
| Participants | Participants should include survey specialists as well as those involved in Ecosystem modelling, fish stock assessment and management, and process based studies. Ideally, the participation should include representatives from all institutes conducting RV surveys. We should aim to include experts in all survey métiers, but not from all institutes. In addition, it would be very useful to expand participation to include marine ecosystem experts from the academic sector. Institutes are encouraged to recommend this to University scientists with whom they collaborate. |
| Secretariat facilities | None. Unless held at ICES |
| Financial | No financial implications. |
| Linkages to advisory committees | Principally SCICOM |

| | |
|--|---|
| Linkages to other committees or groups | Main links to SSGEF and SSGESST, but relevant to SSGHIE and SSGSUE. Links to all survey WG and to WGECO. |
| Linkages to other organizations | The work is relevant to all international groups promoting the EAFM. Contact will be made with PICES, FAO, SCOR, OSPAR and other relevant groups |

Annex 3: WGISUR terms of reference for the next meeting

The **Working Group Integrating Surveys for the Ecosystem Approach** (WGISUR), chaired by Dave Reid, Ireland, will meet in IMARES, IJmuiden, The Netherlands, 24–26 January, 2012 to:

- a) Develop surveys to be applicable to the ecosystem approach ;
- b) Identify expert groups and develop terms of reference for them;
- c) Identify issues common to all surveys, set up workshops and manage them as appropriate;
- d) Identify complementary technology to add value to surveys;
- e) Evaluate the outcomes of WKEIFS and make recommendations on the basis of this.

WGISUR will report by 1 March 2012 (via SSGESST) for the attention of SCICOM and ACOM.

Supporting Information

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|--------------------------|---|
| Priority | High. Integration of surveys is needed in support to the ecosystem approach. The working group will meet that objective by steering all survey groups and providing a home in which integration can be planned. |
| Scientific justification | <p>Surveys are coordinated on a regional basis but there are issues common to all, requiring the steering of all groups. Also the integration of surveys is needed in support to the ecosystem approach.</p> <p>International survey programs involve many vessels and teams. Calibration of methods, protocols and exchange in expertise requires global steering. Methodological issues include topics on: species identification, echogram interpretation, Phase I analysis of data such as combination of indices of different nature (acoustic and trawl) or of multiple surveys (different gears), precision of estimates.</p> <p>International survey programs deliver data and products. Regional databases are being developed for all surveys (not only for BTS but also for acoustic, egg and larvae surveys). Standard data format and portals to access data require global steering of all survey groups. Also, steering the format of survey products (e.g. atlas) for all surveys would contribute to constructing the overall picture needed for the ecosystem approach.</p> <p>International survey programs are evolving towards ecosystem monitoring platforms. Such evolution should be steered for all surveys. In particular, can ecosystem monitoring be performed by fisheries surveys as they are presently just adding new data collection protocols? Adaptation of surveys for the ecosystem approach include topics on:</p> <p>Planning of surveys to fit for a purpose and evaluation of the compliance of surveys to fit for the purpose;</p> <p>Spatio-temporal scales and designs to sample different components of the ecosystem;</p> <p>Coordination and combination of surveys of different nature and scales (sampling processes and surveying patterns, annual and intra-season surveys).</p> |
| Resource requirements | No specific requirements beyond the need for members to prepare for and participate in the meeting. There will be need for a meeting room at ASC |
| Participants | 15–20 Chairs of identified Expert Groups and additional experts invited by the Steering Group chair as appropriate |
| Secretariat facilities | None. |

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| Financial | No financial implications. |
| Linkages to advisory committees | SCICOM and ACOM |
| Linkages to other committees or groups | Survey based WG under SCICOM, WGEKO and other ecology based WG |
| Linkages to other organizations | There are no direct linkages to other organizations |

Annex 4: Recommendations

| Recommendation | For follow up by: |
|---|---|
| 1. Evaluate the table cataloguing the data needs for the EAFM produced by WKCATDAT (ICES, 2010). Provide index of priorities to each data task, 3 – primary, 2 – important, 1- desirable and,0 – not needed. Also provide a brief description of why the priority has been assigned at this level, and what it would be used for. If possible address the accuracy, precision and resolution issues for these data tasks, in the form of a brief description of the degree of accuracy and precision required in the data, possibly including the positioning of samples, i.e. random locations or adopting the often fixed sample locations of trawl surveys. This should also include the optimal spatial and temporal resolution of the samples. i.e. would samples taken at IBTS trawl stations be useful, or would there need to be more stations. | WGECO, WGINOSE, WGEAWESS, WGIAB and WGOOFE |
| 2. Evaluate the prioritised catalogue of data needs for the EAFM developed by WKCATDAT/WGISUR and report to WGISUR on what is currently provided, could be provided but is not currently, and what could be provided with modification. For the latter category please provide details of what these changes would be and any implications. | IBTSWG, WGACEGG, WGBEAM, WGBIFS, WGEAGGS, WGIPS, WGMEGS, WGNAPES, WGNEACS and SGNEPS. |
| 3. ICES set up a new workshop under the WGISUR umbrella to – “Define the requirements of the ideal fishery ecosystem survey and develop a description of such survey”. Working title Workshop on the Ideal Ecosystem Fishery Survey (WKIEFS). | ICES, SSGESST |
| 4. That the proposed Working Group on Improving use of Survey Data for Assessment and Advice [WGISDAA] be approved. | ICES, SSGESST |