

ICES WGDIM REPORT 2012

ICES SCIENCE COMMITTEE

ICES CM 2012/WGDIM:01

REF. SCICOM

Report of the Working Group on Data and Information Management (WGDIM)

23–25 May 2012

Copenhagen, Denmark



ICES

International Council for
the Exploration of the Sea

CIEM

Conseil International pour
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Recommended format for purposes of citation:

ICES. 2012. Report of the Working Group on Data and Information Management (WGDIM), 23-25 May 2012, Copenhagen, Denmark. ICES CM 2012/WGDIM:01. 38 pp. <https://doi.org/10.17895/ices.pub.8729>

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Executive summary

The Working Group on Data and Information Management met in Copenhagen, Denmark, from 23–25 May 2012. 17 participants from nine countries, and various members from ICES Data Centre joined the meeting.

In 2009, WGDIM developed its mission statement: "To provide ICES with advice on all aspects of data management including data policy, data strategy, data quality, technical issues and user-oriented guidance." The mission statement is still what the group stands for. An operational plan was developed, describing the tasks of the group and the way the group recommends to be organised.

Data policy

The current (2006) ICES Data Policy was evaluated by WGDIM and updated, taking into account Creative commons license and deficiencies in the current ICES Data Policy. The updated ICES Data Strategy is proposed in this report. It is recommended that the revised Data Policy is reviewed by ACOM and SCICOM at their join meeting in September before the policy is presented to Bureau for a decision on its publication.

ICES Data Centre

One of the roles of WGDIM is communication with ICES Data Centre. This year, the ICES Data Centre held six presentations on work and programs that have been developed over the last year. WGDIM split into smaller groups and had a tour along all the presentations. This set-up was very convenient to the ICES Data Centre as well as to the WGDIM members, as it facilitated discussions on specific fields of interest. The topics presented were: DATRAS, Intercatch & Fishframe, Oceanographic data & ETC-ICM, Ecosystemdata, Reco, and ICES spatial facility.

VMS Data

The potential future needs for (raw) VMS data in the ICES community were discussed. At present, it appears that only very specific requests for advice would require raw VMS data, so the present approach of collating combined VMS/logbook data on a national level first and then combining it to an international dataset addressing specific requests seems appropriate. However, it is considered that this will change rapidly in the near future due to various reasons.

Future developments

A presentation was given on data citation as this is getting increased importance around the world, but when asking questions among data centre managers it seems to be not well known. Data citation practices will impose certain changes in how data centres manage data. Persistent identifiers, like the Digital Object Identifier (DOI), will be assigned to data and publishing data under such identifiers creates the need for managing different versions of data, not only the current or the best version as many data centres currently do.

1 Opening of the meeting

The Working Group on Data and Information Management met in Copenhagen, Denmark, from 23–25 May 2012. 17 participants from 9 countries, and various members from ICES Data Centre joined the meeting. The participant list is in Annex 1.

The terms of reference were:

- a) Review outputs/products of offspring groups:
 - SGVMS – Study Group on VMS data
 - DUAP - DATRAS User Advisory Panel
 - WKQF – Workshop on Quality Flagging
- b) Review ICES Strategic documents and recommend updates/amendments
 - Data Policy
 - Data Strategy
- c) Support ICES Data Centre with feedback and advice on a number of topics, including existing products, current developments, potential new products, and the potential risk of data-duplication resulting from multiple submission roots, evaluation of the checklists.
- d) Review progress on recommendations and actions from WGDIM 2011. (co-chairs)
- e) Create a theme session proposal on a WGDIM related topic for ICES ASC 2013.
- f) Investigate the implications ‘creative commons licence’ might have on the ICES Data Policy
- g) Develop a set of options using a top–down approach for ICES’ strategic position regarding VMS, the level of involvement required in the short, medium and long-term
- h) Develop a transition of WGDIM from a working group to a SCICOM Operational Group, along the rules of procedure of similar groups, such as PUB-COM.

2 Adoption of the agenda, review of actions and recommendations

2.1 Agenda

The agenda was adopted with minor changes. The agenda is in Annex 2.

2.2 Review action items from 2011 meeting

Action	Adressed to	Status
1. Create a WGDIM group on LinkedIn to facilitate intersessional activity	Jens Rasmussen	Complete. A closed WGDIM LinkedIn group was established shortly after WGDIM 2011, as a subgroup of the ICES LinkedIn group. 33 members have joined the group. Discussion was at a good level but could be better if it was more technical and more data management. It has been mostly data user topics. In a straw poll most thought it was a good forum for discussion. As the topics raised in 2011 and 2012 might be relevant to the wider audience, the group is now open. This will be announced in ICES Inside Out (see also section 7.3)
2. Outreach of activities: e.g. Publication about achievements WGDIM in ICES Inside Out or other relevant information sources Presentation about WGDIM on SG meetings at ASC	Daphne Johnson, Ingeborg de Boois, Taco de Bruin	Incomplete. Action item scheduled for 2012 meeting, see section 7.3
3. it is recommended that the co-chairs of WGDIM and WGSAM and ICES Data Centre get into contact intersessionally to discuss the stomach database	Co-chairs	Incomplete. There is however an EU call for proposals dealing with stomach analysis and data storage/availability in the Baltic which might increase the interest in the ICES stomach database. WGINOSE (integrated assessments) participants used the stomach database in 2012.
4. The coordinators of strategic initiative on the MSFD should have direct communication with the co-chairs of WGDIM	Co-chairs	Incomplete
5. Discuss VMS requirements within ICES with SCICOM and ACOM representatives and ICES Data Centre	Co-chairs	Complete. The topic has been discussed during one of the strategy meetings (representatives of ACOM and SCICOM, WGDIM co-chairs, head of ICES Data Centre). The ACOM members promised to create a list of requirements from the ACOM groups, as a start. There is no list available yet.
6. Submission theme session proposal 2012	Helge Sagen	Complete

Action	Adressed to	Status
7. Submission of SG and WK proposals	Ingeborg de Boois	Complete
8. Preparation of ToR f 2012	Peter v.d. Kamp, Taco de Bruin	Complete. See Annex 6.
9. Preparation of ToR g 2012		Topic is scheduled for the 2012 WGDIM meeting. See section 5
10. Prepare a draft version of the Data Policy that accounts for the current inadequacies in the 2006 version for discussion at the WG2012 meeting	Peter Wiebe, Ingeborg de Boois, Neil Holdsworth	Complete. Scheduled for 2012 meeting, see Annex 5 and section 3.
11. Finalize WKQF participant list (Annex 7)	All	Complete, see also section 6.3

2.3 Review recommendations from 2011 meeting

Recommendation	Adressed to	Status
1. it is recommended that the yearly report created by the Data Centre is actively shared with WGDIM, either via the sharepoint or by email.	ICES Data Centre	Complete
2. It is recommended that the working groups follow their regular procedure of data processing for the assessment working groups and send the data to ICES Data Centre after the assessment group has worked with the data.	WGEGBS, WGMEGS, IBTSWG (MIK), WGIPS	Incomplete, as this refers to the creation of the eggs and larvae database, assuming that the database would have been up and running in 2011. Due to data quality issues, this database is not filled with data yet, so no action is undertaken
3. It is recommended that this workflow is evaluated by the working groups uploading the data as well as the ICES Data Centre.	WGEGBS, WGMEGS, IBTSWG (MIK), WGIPS, ICES Data Centre	Incomplete, as this refers to the creation of the eggs and larvae database, assuming that the database would have been up and running in 2011. Due to data quality issues, this database is not filled with data yet, so no action is undertaken
4. it is recommended that the co-chairs of WGDIM and WGSAM and ICES Data Centre get into contact inter-sessionally to discuss the feedback from WGSAM.	Co-chairs WGSAM, co-chairs WGDIM	See action item list, item 3.
5. It is recommended that ICES Data Centre also version control on the vocabularies used (reco)	ICES Data Centre	Complete, see section 4.

3 Data Policy and Data Strategy

3.1 Data Strategy

The positioning of data in the overall ICES strategy was presented by the Head of Data Centre, Neil Holdsworth. The current ICES Strategic Plan (A vision worth sharing, 2008) is under review. In the 2008 version, there are 3 distinct plans: Advice, Science and Secretariat. The Data Centre, and the Data Strategy (2011–2015), are currently a sub-component of the Secretariat plan. The Secretariat plan is not made available on the ICES website, and it is therefore very difficult to profile the importance of Data and related activities at this high level.

The new ICES strategic plan (under development) will make room for a high level Data plan that will be a stand-alone document equivalent to the Advice and Science plans. This is thought to better reflect the importance of Data in the ICES organisation and the prominence of the ICES Data Centre in its work with the ICES Community.

3.2 Data Policy

As a preparation for the revision of the Data Policy, a working document about the potential effect of the Creative Commons Licenses (CCs) on the ICES Data Policy was created. The working document on the Creative Common Licenses is in Annex 6.

The current (2006) Data Policy was evaluated by WGDIM and updated, based on Annex 6 and deficiencies in the current ICES Data Policy, in summary these were:

- Implication of CCs
- Separate data policies for Commercial Catch Data
- Redistribution rights
- Data quality statement and responsibilities
- Data security statement
- Glossary of terms

The proposed new Data Policy is in Annex 5.

As external developments (e.g. EU INSPIRE Directive, adoption of CC by institutes) might influence the way institutes or MS deal with data, it is important to re-investigate the ICES Data Policy if necessary, even before the official update is scheduled.

It is recommended that the revised Data Policy is reviewed by ACOM and SCICOM at their join meeting in September before the policy is presented to Bureau for a decision on its publication.

4 WGDIM in relation to ICES Data Centre

The ICES Data Centre held six presentations for WGDIM on work and programs that have been developed over the last year. The WGDIM group split into smaller groups and had a tour along all the presentations. The topics presented were: DATRAS, Intercatch & Fishframe, Oceanographic data & ETC-ICM, Ecosystemdata, Reco, and ICES spatial facility. This set-up was very convenient to the ICES Data Centre as well as to the WGDIM members, as it facilitated discussions on specific fields of interest.

DATRAS (Database Trawl Survey) is a central database for European trawl survey data that was presented by Vaishav Soni and Frank Sejer. DATRAS is a system that allows submission and extraction of trawl survey data at ICES. It is available at <http://datras.ices.dk>. Main developments are related to improvement of documentation, and to versioning of data and data products.

Intercatch & Fishframe are two databases for commercial catch data with different scopes. They were presented by Henrik Kjems-Nielsen. Fishframe holds raw/disaggregated commercial catch and scientific sampling data, and has been developed by DTU-Aqua. It now forms the basis of regional databases (in the EU DCF context) and is being moved to ICES. Intercatch is an ICES database and holds nationally aggregated catch and sampling data. The international Intercatch dataset forms the basis of ICES fish stock assessments. The main task for the ICES Data Centre in the next year is to accomplish the migration of Fishframe to ICES, and to ensure its maintenance and development.

Although the Regional Database has received funding through the EU DCF, there are other non-EU countries that have datasets that are of interest to the ICES Science and Advice processes. Therefore it is recommended that non-EU countries are encouraged to participate in the development of the regional database to ensure that information in InterCatch and FishFrame are as complete and consistent as possible.

Oceanographic Data & European Topic Centre on Inland, coastal and Marine waters (ETC-ICM) were presented by Hjalte Parner, Else Juul Green and Jørgen Jensen. <http://ocean.ices.dk> was presented. During the presentation it appeared that there is a need to revise the ICES guidelines on Oceanographic Quality Control as they have not been reviewed in the last 4-5 years.

Ecosystemdata (<http://ecosystemdata.ices.dk>) was presented by Carlos Pinto. Ecosystemdata is a spatial tool to visualise data from the various ICES databases. It is the ICES dataportal, a new version was released in May 2012.

The ICES data **vocabulary** database (RECO, <http://vocab.ices.dk>) was presented by Mike Drew. RECO contains vocabularies used and maintained by ICES such as the ship and platform codes. It was re-developed in 2012 and facilitates consistency between databases. There might be opportunities to link with other vocabularies eg. from SeaDataNet.

ICES spatial facility (<http://geo.ices.dk>) was presented by Hans Mose Jensen. It combines maps with metadata to show datasets, and is and can be used by spatially oriented expert groups to store maps and metadata, as is done by WGMHM.

5 VMS requirements

In 2012, ICES issued a call¹ for Vessel Monitoring System (VMS) and logbook data for ICES Fishing Areas in the North East Atlantic, the North Sea, and the Baltic Sea for all fleets. Based on comments from contributing nations, the call was subsequently delayed to re-work the call and clarify issues that may otherwise prevent member countries from providing the data on the basis of national or EU data protection laws.

WGDIM discussed extensively the potential future needs for VMS data in the ICES community. At present, it appears that only very specific requests for advice would require raw VMS data, so the present approach of collating combined VMS/logbook data on a national level first and then combining it to an international dataset addressing specific requests seems appropriate. However, it is considered that this will change rapidly in the near future: detailed descriptions of fishing activity will be required for the development of spatially explicit multispecies assessments and management plans, which are recommended, e.g. for the Baltic Sea.

In addition, ICES is increasingly requested to give advice on spatial management of habitats and ultimately the implementation of an ecosystem approach to marine management. Therefore, the group predicts a rapid increase in requirements for spatial information that could be derived from VMS- and logbook data. Finally, making such data available in a standardised format, validated and made anonymous, would strengthen the position of ICES as the primary source of marine data in the NE-Atlantic.

If implemented early, VMS and logbook data could be considered for implementation in the Regional databases currently under development with EU Data Collection Framework support. WGDIM therefore recommends to ACOM and SCICOM to develop an ICES strategic position towards the assembly and use of VMS and logbook data, as outlined below.

The identified methods for creating this data resource are, in order of preference:

- 1) ICES member countries to provide detailed VMS and logbook data (made anonymous, but with full spatial and temporal resolutions and linkage between the two data sets). This may require a change of legislation, as VMS data is currently only collected for enforcement purposes and is not in all member states (easily) available to science. Discussions on the need to change this policy started early, and there were indications from EU COM that it would be planning to act (e.g. see report of the data management theme session at the ASC 2006, <http://www.ices.dk/iceswork/asc/2006/themes.asp#sessionm>), but the reform of the Common Fisheries Policy may offer another good opportunity to progress.
- 2) ICES member countries to provide data that are aggregated by harmonised methods used by all data providers to create comparable and consolidated data.

The further development and use of harmonised aggregation tools is relevant, even if detailed data are made available, as data can then be aggregated for the specific sci-

¹ ICES Data Call #1 L.27

entific purposes on the full data set. Needs and use case examples are summarised in the SGVMS report (ICES CM 2011/SSGSUE:07).

6 Review offspring groups

6.1 DUAP

The DATRAS User Advisory Panel (established in 2009, groupnet.ices.dk/DUAP) is functional for data providers, data users and the ICES Data Centre. In the last year, 15 discussions were posted, or continued. The forum is used for general DATRAS announcements, and also for more specific questions regarding data-upload, or specific survey data sets.

6.2 SGVMS

6.2.1 Review of the SGVMS report

The Study Group on VMS Data (SGVMS) reported on the work done in the past year on data and tools. VMS data on its own does not offer a lot of detailed information on fishing activities, so SGVMS has been working towards the use of combined VMS and log book data to offer relevant data for expert groups in ICES.

The recommendation of SGVMS to hold a training course on the R package *vmstools* used to perform merging and aggregations of VMS and logbook data from EFLALO and TACSAT formats to output the FishFrame VMS format has been agreed, and it is fully subscribed.

Further, given the range of data protection concerns surrounding VMS data, it was acknowledged that unless there are legislative changes, it may not be possible to achieve an inventory of detailed data for currently collected data. It was proposed that SGVMS adds a term of reference to provide a statement on “minimum requirements”, defining the highest level of aggregation that data can be obtained and remain useful to a range of expert groups within ICES.

6.2.2 Additions

SGVMS is asked to:

- 1) Incorporate an additional term of reference for their 2012 meeting, addressing suitability/fitness for purpose of VMS and logbook data in relation to the level of aggregation and the requirements from ICES expert groups.

6.3 WKQF

The Workshop on Quality Flagging (WKQF) was postponed until September 2012, but to move the topic forward it was agreed that initial work will be undertaken by e-mail and WebEx conference, and by thorough discussion with the ICES Data Centre (including face to face discussions) to determine their needs and requirements.

7 Other subjects

7.1 Future developments: Data citation

Data citation is getting increased importance around the world, but when asking questions among data centre managers it seems to be not well known. Data citation practices will impose certain changes in how data centres manage data. Persistent identifiers, like the Digital Object Identifier (DOI), will be assigned to data and publishing data under such identifiers creates the need for managing different versions of data, not only the current or the best version as many data centres currently do.

At marine institutions, citing data is usually not put into a specific data citation policy, but mostly put in the data policy as a statement in that the institution has to be referred to as data source. Institutes should be encouraged to either incorporate a chapter about data citation in the data policy, or develop a specific document on data citation policy.

Helge Sagen represents the data centre community in the International Council for Science and Technical Information Task Group for Data Citation Standards and Practices (ICSTI-TGDCSP) and acts as linkage between this group and the SCOR/IODE/WHOIMBL Library Data Publication Project.

The TGDCSP work falls apart into three activities: Bibliography Group, Survey Group and Website/intranet Group. The bibliography group conducts an inventory of existing literature and data citation and attribution initiatives, identifying how currently data repositories cite and provide attribution to their data sets. The Survey Group conducted a series of interviews using a questionnaire asking four different groups of users, research funders, researchers, data centres and publishers. The Website/intranet Group targets to increase international awareness for data citation issues by establishing a public web presence.

Several conferences related to data citation will take place in 2012:

- The DataCite summer meeting (Copenhagen 14th June 2012, attendance H. Sagen, N. Holdsworth and H. Jensen <http://www.datacite.org>). The meeting focuses on digital research data in practice: solutions for improving discovery, access and use.
- The 23rd conference of the Committee on Data for Science and Technology CODATA (<http://www.codata2012.com>) "Open data & Information for a changing Planet, will take place 28-31 October 2012 in Taipei, Taiwan.

7.2 ICES ASC theme session proposal

As in 2013 the IMDIS conference on data will take place during ICES ASC, it might not be feasible to organise a complete session on data during ICES ASC. A proposal for a session is however drafted and available in Annex 7. It will be discussed with SCICOM SG chairs to find linkages with fields of interest, and based on this, the proposal will be revised.

7.3 WGDIM communication

During WGDIM 2011 it was decided that visibility of the group should be increased. No action was undertaken then. It is, however, still relevant to inform the ICES public about the operational group on Data and Information. The communication plan is in Annex 8.

Two short messages were prepared, one to be published on the Bulletin board (www.ices.dk) about the ICES Data Centre presentations to WGDIM, and one for ICES Inside Out presenting the LinkedIn group to the wider ICES audience.

It was decided that the announcement of the organisational change of WGDIM (and name change) is going to be announced via the ICES Bulletin board on the website.

7.4 Implications for WGDIM transforming into an operational group

The last steps of WGDIM's transformation process to an operational group were discussed and an operational plan was developed, describing the tasks of the group and the way the group recommends to be organised. The plan is in Annex 9.

Annex 1: List of participants

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Annex 2: WGDIM Agenda, 23–25 May 2012

Wednesday, 23 May 2012

- 09:00 Opening greetings and aims for the day [Co-chairs]
 Local arrangements [V. Piil]
 Appoint rapporteurs [Co-chairs]
 09:45
 ToR d) Review progress on recommendations and actions from WGDIM 2011 [Co-chairs]

Action list WGDIM

Action	Adressed to
1. Create a WGDIM group on LinkedIn to facilitate intersessional activity	Jens Rasmussen
2. Outreach of activities: e.g. Publication about achievements WGDIM in ICES Inside Out or other relevant information sources Presentation about WGDIM on SG meetings at ASC	Daphne Johnson, Ingeborg de Boois, Taco de Bruin
3. it is recommended that the co-chairs of WGDIM and WGSAM and ICES Data Centre get into contact intersessionally to discuss the stomach database	Co-chairs
4. The coordinators of strategic initiative on the MSFD should have direct communication with the co-chairs of WGDIM	Co-chairs
5. Discuss VMS requirements within ICES with SCICOM and ACOM representatives and ICES Data Centre	Co-chairs
6. Submission theme session proposal 2012	Helge Sagen
7. Submission of SG and WK proposals	Ingeborg de Boois
8. Preparation of ToR f 2012	Peter v.d. Kamp, Taco de Bruin
9. Preparation of ToR g 2012	
10. Prepare a draft version of the Data Policy that accounts for the current inadequacies in the 2006 version for discussion at the WG2012 meeting	Peter Wiebe, Ingeborg de Boois, Neil Holdsworth
11. Finalize WKQF participant list (Annex 7)	All

- Review agenda, meeting schedule and items for discussion [Co-chairs]

10:30 *Coffee break*

11:00 ToR a) Review outputs/products of offspring groups

- SGVMS – Study Group on VMS data
- DUAP - DATRAS User Advisory Panel
- WKQF – Workshop on Quality Flagging – postponed till September 2012

11:30 Subgroup work

Subgroup theme	Output	Chair
ToR g	Set of options using a top–down approach for ICES' strategic position regarding VMS, the level of involvement required in the short, medium and long-term	H. Sagen
Data policy	Proposal for updated Data Policy, taking into account ToR f) Investigate the implications 'creative commons licence' might have on the ICES Data Policy See also: WD1 and WD2	I. de Boois

12:30 *Lunch break*

13:30 Continuation of subgroup work

15:00 *Tea break*

15:30 Feedback from subgroups

16:00 ToR h) Develop a transition of WGDIM from a working group to a SCICOM Operational Group, along the rules of procedure of similar groups, such as PUB-COM.

Transformation process: update from SCICOM meeting

[I. de Boois]

[also scheduled for Thursday]

17:30 Summary of day 1

*[Co-chairs, rapporteurs]***Thursday, 24 May 2012**

09:00 Aims of the day

09:05 Positioning of 'Data' in ICES

[N. Holdsworth]

09 :30 Interactive session

[ICES Data Centre]

ToR c) Support ICES Data Centre with feedback and advice on a number of topics, including existing products, current developments, potential new products, and the potential risk of data-duplication resulting from multiple submission roots, evaluation of the checklists.

11:00 *Coffee break*

11:15 Continuation ToR h –transformation process

Wrap-up of Wednesday discussion

Implementation plan: steps to be taken

12:30 *Lunch break*

13:30 Continuation ToR h –transformation process

Intensify communication with other operational groups:

- Presentation Søren A. Pedersen (Training)
- Example from PUBCOM (I. de Boois)

15:00 *Tea break*

15:30

Subgroup theme	Output	Chair
ToR e	Theme session proposal on a WGDIM related topic for ICES ASC 2013	H. Sagen
WGDIM communication plan	Communication plan for the Operational group on Data and Information management Including experiences with LinkedIn, and taking into account the transformation process of the group Taking into account all players, including MSFD strategic initiative coordinators	I. de Boois

17:30 Summary of day 2

[Co-chairs, rapporteurs]

Friday, 25 May 2012

09:00	Aims of the day, appointment of Rapporteur	<i>[Co-chairs]</i>
09:15	Data citation	<i>[H. Sagen]</i>
09:45	Finalise report writing	<i>[all]</i>
10:30	Report writing and agreement	<i>[Co-chairs]</i>
11:00	<i>Coffee break</i>	
11:25	Recommendations for 2012/2013	<i>[Co-chairs]</i>
12:00	Summary of inter-sessional work and ToRs 2012/2013	<i>[Co-chairs]</i>
12:30	Dates of next meeting	<i>[Co-chairs]</i>
13:00	Closure	<i>[Co-chairs]</i>

Annex 3: Data and Information Group: tasks for the next meeting

A representation of the **Data and Information Group**, chaired by Ingeborg de Boois, Netherlands and Helge Sagen, Norway, will meet in Bergen, Norway, during ICES ASC 2012 (date to be decided) to:

- a) Review action list
- b) Provide input to and draft ICES Data Plan

Products from the meeting (draft ICES Data Plan) will be delivered before 1 November 2012.

The **Data and Information Group**, chaired by Ingeborg de Boois, Netherlands and Helge Sagen, Norway, will meet in Copenhagen, Denmark, 21-23 May 2013 to:

- a) Review priorities on the Data Centre action list
- b) Provide guidance and feedback to the ICES Data Centre
- c) Advise on other data regulations and their impact on ICES Data Strategy, ICES Data Policy
- d) Review output from offspring groups (WKQF, SGVMS, DUAP, LinkedIn Data and Information Forum)
- e) Provide guidelines for quality assurance methodologies
- f) Revise the ICES guidelines on Oceanographic Quality Control
- g) Promote new technologies and data management infrastructure development
- h) Evaluate the Data and Information Group Operational Plan

Products (eg. updated data management guidelines, reviews of ICES Data Strategy, ICES Data Policy, input ICES Data Plan) from the meeting as well as a written report to SCICOM will be delivered before 15 July 2013.

The group reports to SCICOM during the SCICOM mid-term meeting 11-13 March 2013 as well as the SCICOM meeting at ICES ASC 2013.

Annex 4: Recommendations

Recommendation	Addressed to
1. Institutes should be encouraged to either incorporate a chapter about data citation in the data policy, or develop a specific document on data citation policy. (section 7.1)	National institutes
2. it is recommended that an ICES strategic position towards the assembly and use of VMS and logbook data, as outlined in section 5 of the WGDIM 2012 is developed	ACOM and SCICOM
3. Incorporate an additional term of reference for the 2012 meeting, addressing suitability/fitness for purpose of VMS and logbook data in relation to the level of aggregation and the requirements from ICES expert groups.	SGVMS
4. It is recommended that the revised Data Policy is reviewed by ACOM and SCICOM at their joint meeting in September before the policy is presented to Bureau for a decision on its publication	ACOM and SCICOM

Action items

Recommendation	Addressed to	Complete before
1. Publish development of WGDIM on ICES Bulletin board	Ingeborg de Boois	1 November 2012
2. Discuss ASC theme session proposal with SG chair(s), and revise theme session proposal	Ingeborg de Boois, Neil Holdsworth, Helge Sagen	1 August 2012
3. Discuss quality flagging needs with ICES Data Centre and list those	Lesley Rickards, Jens Rasmussen	1 September 2012
4. Provide the Data Centre action list (sharepoint)	Neil Holdsworth	1 March 2013
5. Revise the ICES guidelines on Oceanographic Quality Control	Sjur Ringheim Lid, Taco de Bruin, Lesley Rickards, Peter Wiebe	1 April 2013

Annex 5: Revision ICES Data Policy. WGDIM, May 2012

1 Scope

ICES will be a leader in marine data and information management, providing best practices, data mobilisation and services for its advisory and science groups and the wider marine and maritime communities

This policy states the conditions for data submission, access and use in order to facilitate the production of science based advice and status reports, and serve the scientific community.

This policy applies to data managed by ICES, and to ICES activities for providing access to data managed elsewhere.

This policy excludes the commercial catch data from the Regional Fisheries Database (RDB-FishFrame) and InterCatch, which have independent data policies.

2 Definitions

Data: measurements and observations available in an ICES database

Data user: entity (eg. person, organization, group, including ICES expert groups) using data

Data provider: entity providing data

Data source: ICES, or ICES and data provider(s)

Publicly available: online open access

Meta-data: descriptive information about detail or aggregate data sets, necessary to interpret, use and disclose data

3 Use of Data

- a) Data users can obtain publicly available data as soon as is feasible
- b) Correct and appropriate data interpretation is solely the responsibility of data user
- c) Results, conclusions, and/or recommendations derived from the data do not imply endorsement from ICES
- d) Data sources must be acknowledged, preferably using a formal citation
- e) Data users must respect all restrictions on the use of data such as for commercial purposes
- f) Data users are requested to inform ICES of any suspected problems in the data
- g) Data users are encouraged to inform ICES of possible sources of relevant information

4 Contribution of Data

- a. All data provided to ICES are considered to be publicly available unless otherwise explicitly specified and agreed

- b. The data provider must be authorized to provide the data
- c. Data contributions should be made as soon as possible after the data collection event
- d. All data including meta-data, supplemental information and quality indicators should be provided using standard codes, formats, and protocols to the extent possible. Further guidance can be found on the ICES website <http://www.ices.dk/datacentre/Submissions/>
- e. The quality assurance of data is the responsibility of the data provider
- f. Data providers are requested to inform ICES of any national policies that may place special conditions on the redistribution of data

5 Redistribution of data

- a. Data may only be redistributed, i.e., made available in other data collections or data portals, with the prior written consent of ICES
- b. Redistribution of meta-data is always allowed

6 Data Quality

- a. ICES develops and applies quality assurance procedures as appropriate and feasible, and in cooperation with data providers, ICES Expert groups and other organizations
- b. ICES may be informed of potentially erroneous data. ICES will ensure that data providers are informed of quality issues
- c. The ICES Data Centre will never change the original data record from a data provider, but may undertake conversions or transformations of that data to allow its inclusion in ICES databases
- d. Although the ICES Data Centre may perform some data quality control, the data provider always retains complete responsibility for data quality
- e. Data users are responsible for proper use of the data, including regard to data quality

Supplemental information to the ICES data policy

Motivation Objective and Framework for the Data Policy

This policy sets the framework for ICES' work involving data collected, evaluated and/or used. It gives rules needed as a prerequisite to make ICES data and ICES work attractive to a wider public and to clarify rules and procedures with regard to data used by ICES expert groups. It will therefore improve the capacity of the ICES to provide quality advice in an ecosystem context.

Elements on how to implement the policy within ICES can be found in the ICES Data Strategy and the ICES Data Centre Business plan.

Data used might be stored in centralised or distributed systems. In a centralised database all data are physically located at, and served from, a single location. A distributed database is where data can be located at various geographically distributed nodes (but still be accessible through one central node or hub). The ICES data policy applies to data managed by ICES and to ICES activities for providing access to data managed elsewhere. A full overview of databases (centralised and distributed) available at ICES can be found at <http://www.ices.dk/datacentre/Submissions/index.aspx>

By maximizing the availability of data to the community at-large, ICES promotes the use of these data, thereby ensuring that their maximum value can be realized and thus contribute to an increased understanding of the marine environment.

The ICES data policy is consistent with, and in the spirit of, national and international policies and laws. The policies and laws may apply to the ICES Secretariat, member states, and/or to the people or organizations that either provide or use data and information managed by ICES. Applicable policies or laws are those related to UN conventions, policies of international bodies often within the UN, policies and laws of the European Union as well as of ICES member states. A review of data policies relevant to ICES' work is given in annex 4 of the Report of the ICES Study Group on Management of Integrated Data (ICES CM2005/ACE:03, Appendix 1).

Data security and storage

- h) ICES makes every effort to ensure that data received are handled and stored in a way that preserves the integrity of the data as it was provided to them
- i) ICES maintains an accession system that ensures that all data can be identified in the system, and any resubmissions of data are recorded as such
- j) All data, meta-data and supporting information are stored as original files and also as part of the database systems backups

Use of Data

The ICES website is a key focal point in disseminating information to the ICES community and beyond. Data might be quality controlled (see below): regardless of whether the data is quality controlled or not, ICES and the data provider do not accept any liability for the correctness and/or appropriate interpretation of the data. Interpretation should follow scientific rules and is always the user's responsibility.

Users must acknowledge data sources, as it is not ethical to publish data without proper attribution or co-authorship. Any person making substantial use of data must

communicate with the data provider prior to publication, and should possibly consider the data provider(s) for co-authorship of published results.

All data held by ICES should eventually become publicly available, with due regard to relevant legislation. However, access to sensitive data may be restricted or data may be aggregated for a limited period of time if specifically stipulated by the data source (see below). Also, the use or reproduction of data for commercial purposes might require prior written permission from ICES and/or the data source.

Users are requested to inform ICES of any problems encountered with ICES-provided data. A timely and easy-to-use feedback procedure will be available, aimed at correcting data at the data source. This feedback will increase the quality of the data and therefore cover one aspect of added value through open access to data.

To become the focal point for marine data in the North Atlantic, ICES will continuously expand its data repositories as well as links to external data. Users are therefore encouraged to contribute information on data sources currently not available through ICES, but possibly important for ICES' work.

Citation of Data

As stated in the 'use of data' section, Data Sources should be acknowledged by a citation. The citation must include as a minimum a reference to the ICES database where the data extraction was made and the year in which the database was referenced. In addition, where the data extraction is largely based on a specific country/institute dataset, this must also be acknowledged.

Examples of citation are given below:

standard citations

"ICES Historical plankton dataset 2011. ICES, Copenhagen"

"ICES EcoSystemData data portal, 2012. ICES, Copenhagen"

Extended citations

"ICES Database of Trawl Surveys (DATRAS), Extraction 3 JUNE 2012 of International Bottom Trawl Survey (IBTS). ICES, Copenhagen"

"ICES Environmental database (DOME), Extractions 3-10 JUNE 2012; Chemical data for the OSPAR CEMP, Reporting laboratory(s) via British Oceanographic Data Centre (UK). ICES, Copenhagen"

A Data Citation may also include a URL to the database, and/or a URL to the meta-data record for the ICES dataset in the ICES Spatial facility (<http://geo.ices.dk>). Additional citation information is made available in the Disclaimer file that accompanies the data download under the section 'Data Acknowledgment'.

Contribution of Data

Data providers may be the originators of the data/information, for example, persons responsible for the scientific work that produce the data/information; or an intermediary such as the data providers' associated institute(s), the agency that commissioned or funded the work, or even the information technology group responsible for preparing the data for submission to ICES. The data provider must precisely specify any access restrictions that it wishes ICES to uphold. Some cases that call for restrictions include data which is protected by law and data submitted during a prescribed period of exclusive use (which is normally not more than two years for data from

scientific origin - the time needed for initial collation and quality control). Restricted access will be considered on a case-by-case basis. ICES urges data providers to re-enforce their commitment to free-of-charge and unrestricted use of their data.

Data and information are provided to ICES from many data sources. They are of variable quality and can be obtained using a variety of methodologies. Three types of data are distinguished:

- 1) Detail data are individual measurements or observations. In order to interpret detail data, expertise as well as related attribute data such as type of date, location, time and unit of measurement are also required
- 2) Aggregate data are summarized detail data
- 3) Meta-data are data about data. That is, they provide information about detail or aggregate data sets. Examples of meta-data include accuracy, precision or method of measurement, and location, structure or ownership of the data.

In order to maximize the usability of data and thereby their value, data providers must supply meta-data and, if available, data quality indicators. All data including meta-data and quality indicators should be submitted using standard coding formats and protocols to the extent possible.

Speed is a primary factor determining the usefulness of data, thus data should be made accessible as soon as possible and to the broadest user group possible. This implies both technical and policy considerations and coordination on the part of data sources, users, and ICES. For example, it will be possible for data sources to submit multiple versions of the same data set during the process of quality control.

End-to-end data management (data life cycle) is encouraged (see Annex 3 of ICES CM 2005/ACE:03; BCO-DMO Data Management Best Practices Guide, www.bco-dmo.org/resources).

Some -often older- data may be unintentionally destroyed or lost. ICES strives to rescue and archive valuable data relevant to the ICES mission that are at risk, including those residing in reports and documents. The data provider, however, is responsible for the providing sufficient documentation with the data.

Data Quality

To indicate the quality controls that have been applied to a specific data set, ICES' systems will accommodate quality flags. The system will allow re-submission of data throughout the quality control process, and thus also allow for accelerated submission of data. For example, preliminary data can be submitted immediately after collection and replaced later by cleaned data.

Finally, the reporting of suspected errors in the data will be facilitated, and that information relayed to the respective data source so corrections can be made.

Annex 6: Implications of Creative Commons licences on the ICES Data Policy

Peter van der Kamp (IMARES), Taco de Bruin (NIOZ)

1 Introduction

During the WGDIM meeting in May 2011, the ICES data policy as available on the ICES website was reviewed. One of the conclusions was that it should be investigated which implications a 'creative commons' (CC) licence might have on the ICES data policy (IDP).

The information in this document is not legally checked, so we recommend that decisions based on this document are checked before they are put in practice.

2 ICES Data Policy

The ICES Data Policy was adopted in 2006. The two paragraphs that are relevant with respect to CC are paragraph 3 and 4; they are printed hereafter.

3. Use of data

ICES makes data available in an open, timely and easy way to users, but ICES remains dependent on data contributions.

- Correct and appropriate data interpretation is solely the responsibility of data users.
- Data Users must not expressly or otherwise imply ICES' substantiation of their work, results, conclusions and/or recommendations.
- Data sources must be duly acknowledged.
- Data Users must respect any and all restrictions on the use or reproduction of data such as restrictions on use for commercial purposes.
- Data Users are obliged to inform ICES of any suspected problems in the data.
- Data Users are encouraged to inform ICES of possible sources of other relevant data.

4. Contribution of Data

All data submitted to ICES are considered to be in the public domain unless otherwise explicitly specified and agreed.

Meta-data and other supplemental information should be submitted. This includes:

- Measurement technique, accuracy and precision
- Analysis techniques
- Quality information such as flags or other indicators
- Contact person for data queries
- Person(s) or organization(s) to be acknowledged

All data including meta-data and quality indicators should be submitted using standard codes, formats, and protocols to the extent possible.

Data submissions should be made as early as possible.

These paragraphs raise at least two questions

1. What is the precise definition of ‘public domain’
2. There seems to be an inconsistency between 3 and 4. Where paragraph 3 sets several requirements on the use of the data, such as ‘Data sources must be duly acknowledged’ and ‘Data users must respect any and all restrictions on the use or reproduction of data such as restrictions on use for commercial purposes’, it is claimed in paragraph 4 that the data are in the public domain. We believe that public domain means: no restrictions or requirements at all, not even that of attribution. Giving a solution for this contradiction is beyond the scope of this paper. In the development of the new IDP, the current inconsistency should either be solved, or it should be explained that the paragraphs do not contradict.

3 Open access to data and publications

A lot of ‘open’ initiatives are emerging: Open Access, Open Data Commons, Open Knowledge Foundation to mention a few. This can be somewhat confusing as it seems that they use their own licences (which is true in case of Open Data Commons). It is not always clear if those licences are based on the CC licences. We only take into account the CC licences.

3.1 Creative Commons

The reason for the foundation of CC in 2001 was the rapid growth of internet and the actions performed on the network: copy, paste, edit source, and post to the Web. Legal and social systems require all of these actions to have explicit permission, granted in advance. This hampers the universal access to research, education and culture which is made possible by the internet. To create a balance between the internet and the reality of copyright laws CC comes in. [1]

Creative Commons licences

CC distinguishes 7 licences

Licence	Description
Attribution (CC-by)	This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation.
Attribution-ShareAlike	This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to “copyleft” free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use.
Attribution-NoDerivs	This license allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.
Attribution-NonCommercial	This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don’t have to license their derivative works on the same terms.

Attribution-NonCommercial-ShareAlike	This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.
Attribution-NonCommercial-NoDerivs	This license is the most restrictive of our six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any way or use them commercially.
CC0	CC0 enables scientists, educators, artists and other creators and owners of copyright- or database-protected content to waive those interests in their works and thereby place them as completely as possible in the public domain, so that others may freely build upon, enhance and reuse the works for any purposes without restriction under copyright or database law.

Legal aspects

De Bruin et al [2] state that standard licences have to meet certain requirements in order to make them usable for Open Access publication of research data. Standard licences like CC are developed for research results which are clearly protected by copyright like books and articles. They lack the flexibility that is necessary for sharing and reuse of research data. The use of code of conducts is recommended together with a CC0 licence. This licence takes away the copyright and database laws hindrances with respect to sharing and reuse of research data. Sharing and reuse is regulated in a code of conduct. This approach is implemented by the Polar Information Commons [3].

Note that the CC0 licence is in some jurisdictions not applicable. Notably nations of the British Commonwealth have a legal instrument called Queen's Copyright which prohibits the use of CC0. In this case CC-by is a valid alternative.

4 Proposal

ICES is committed to openness for the scientific process and to free access to scientific data [4]. This consideration is best supported by using CC licences. They describe in a standardized way the permissions that are granted by the entitled party. We also recommend that ICES promotes that contributed data is labelled with, preferably, a CC0 or CC By licence. If not applicable for the data involved, then one of the other CC licences should be applied or a code of conduct can be considered. Note that a code of conduct has no legal status. It only describes the expected norms and behaviour with respect to the data.

Paragraph 3 of the IDP should be modified as follows.

Remove bullet 3

Change bullet 4: In case of a not CC0 licence, data users must respect the licence that comes with the data.

5 References

[1] <http://creativecommons.org/about>

[2] Mr. R.W. de Bruin Prof. Dr. M. de Cock Buning Mr. A. Ringnalda. Data in Publiek-Private Projecten: Juridische aspecten <http://www.cier.nl/wp->

[content/uploads/2011/10/DIPPP-Juridische-aspecten_def-1.pdf](#) (in Dutch with a management summary in English)

[3] <http://www.polarcommons.org/>

[4] <http://www.ices.dk/datacentre/datapolicy.asp>

Annex 7: Theme session proposal 2013

Theme Session on Data and Information Management Proposed for the 2013 ICES ASC

Title: Progress in data and information services supporting Marine Ecosystem Science and Advice.

Theme Session Conveners: Ingeborg de Boois (Netherlands), Daphne Johnson (USA), Helge Sagen (Norway).

Keywords: Marine Data Use Cases, Visualization, Interoperability, Data discovery, Knowledge based systems

Data services have become a very important component in the quest to provide marine scientists and ecosystem and fisheries managers with improved access to data and information. This will enable the scientific community to produce more comprehensive and timely advice. Even though there is an overwhelming amount of data accessible, there remain significant difficulties to let fishery, oceanographic, and other marine environmental data interoperate with each other. In addition, the tools to enable fishery and environmental assessments needed to respond to the requirements for ecosystem-based management initiatives are still in a state of development. Future developments will be driven both by environmental legislation and large interdisciplinary research projects.

This theme session provides an update to the community on new approaches and endeavours by inviting scientists and data managers, data specialists and decision makers, visualization specialists, and all interested end-users to present and/or demonstrate:

- New and cutting-edge “Use cases” to enhance data search, discovery, utilization and interoperability.
- Tools for visualization of geo-spatial data.
- Data publication and data citation.
- *de facto* standards, vocabularies, and ontologies, and how to get them widely accepted and utilized.
- Examples of enhanced data availability and visibility
 - Success stories and other experiences
 - 'Behind the scene' aspects of data
 - Instruments that enable discussion with stakeholders (e.g. maptables)

Justification: This theme session is proposed because the field of marine data management and informatics is progressing rapidly and it is very important that information about the developments be shared broadly within the ICES community. It is a follow up to the data management sessions at the 2006 and 2008 ICES ASC meetings. Both sessions attracted a large number of contributions.

Annex 8: Communication plan Data and Information Group

Communication is essential both internally within the group and externally:

- *Within ICES*
- Outside ICES

There is a need to increase visibility of the group within ICES

The target audiences are:

- 1) ICES Data Centre
- 2) SCICOM
- 3) ACOM
- 4) ICES assessment WG's and science EG's
- 5) Bureau
- 6) ICES Secretariat

Ad 1. ICES Data Centre has a clearly defined relationship with the group. Potential improvements are incorporated in the work description of the operational group on Data and Information (Annex 9).

Ad 2. The group reports twice a year to SCICOM. There is regular contact between the chairs of both parties, and two SCICOM representatives participate in the strategy group. Potential improvements are incorporated in the work description of the operational group on Data and Information (Annex 9).

Ad 3. Two ACOM representatives participate in the strategy group. Potential improvements are incorporated in the work description of the operational group on Data and Information (Annex 9).

Ad 4. The role of the operational group on Data and Information is not well known within ICES expert groups and generally depends on individual contacts.

Ad 5 and 6. Both Bureau and ICES Secretariat know the group exists. More communication would be beneficial.

Methods:

- Encourage other people to talk about DIG (this requires long-term investment!):
 - encourage national representatives to inform their respective working groups about the Data and Information operational group's activities
 - target a set of working groups that might inform others about the Data and Information operational group's activities
- Organise data management training courses, either during ASC or as a separate courses
- Distribute Bookmarks, leaflets, pens, etc, that advertise DIG activities.
- Use conferences to inform others about the Data and Information operational group's activities
- Publish information about the group's work in social media (LinkedIn, Facebook)
- Publish information in small bits, with a clear theme, eg. in ICES Inside Out
- Put information about the Data and Information operational group on the ICES Data Centre webpages

Products:

Two short messages for ICES Inside Out were prepared, the topics being the ICES Data Centre presentations to WGDIM, and the LinkedIn group.

It was decided that the announcement of the organisational change of WGDIM (and name change) is going to be announced via the ICES Bulletin board on the website.

Annex 9: Operational plan Data and Information Group

This document contains the scope, list of tasks, and organisation structure of the ICES Data and Information Group.

1 Mission

To provide ICES with advice on all aspects of data management including data policy, data strategy, data quality, technical issues, and user-oriented guidance.

2 Goal and tasks

2.1 Goal

WGDIM provides advice and guidance across multiple disciplines (data policy, data management, data strategy, physical oceanography, fishing surveys, plankton surveys, chemical oceanography etc). When there is a need for it, the group initiates study groups, workshops, expert groups or training courses on specific topics.

2.2 Tasks

The tasks of the group are divided into five categories: strategy, policy, user guidance, operational and technical subjects. The list of tasks reflects the widespread target audience of the Data and Information Group.

- i. Strategy
 - Provide guidance and feedback to the ICES Data Centre (continuous, pro-actively and on request)
 - Provide input to and draft the ICES Data Plan (2012)
 - Provide input to the ICES Science Plan (2014)
 - Draft the ICES Data Strategy (2015, for strategy 2016-2020)
- ii. Policy
 - Keep oversight of and provide revisions to the ICES Data Policy (2012, 2018)
 - Provide guidance on implementation of the ICES Data Policy (continuous)
 - Advise on other data regulations and their impact on ICES (continuous)
- iii. User Guidance
 - Provide guidelines for quality assurance methodologies (on request)
 - Recommend, develop, and provide advice on best practices on all aspects on data management (on request)
 - Review output of offspring groups (annual), currently DUAP, SGVMS, WKQF
- iv. Technical
 - Provide advice on data management guidelines (on request)
 - Promote new technologies and data management infrastructure development (continuous, annual overview)
- v. Operational
 - Facilitate communication between ICES Data Centre and users (on request)
 - Review priorities on the Data Centre action list (annual)

3 Organisation

3.1 Representation

The group composition will be based on national representation (similar to current situation), to optimize the international network. If required, topical experts might be added to the group or ad-hoc groups on request. The group would welcome representatives from OSPAR and HELCOM.

Group size is not limited as long as its size is manageable.

3.2 Roles and responsibilities

The group should be able to react fast to ad-hoc requests from ICES Data Centre, ACOM, SCICOM, and Expert Groups. It therefore is necessary to have group members appointed to specific topics. Table 1 shows the list of contact persons for specific subjects. It is recommended that the contact persons inform the co-chairs about new activities.

Role/Expertise field	Contact person
Co-chair	Ingeborg de Boois
Co-chair	Helge Sagen
ACOM representative	Christopher Zimmermann
ACOM representative	Ciaran Kelly
SCICOM representative	Einar Svendsen
SCICOM representative	
ICES Data Centre	Neil Holdsworth
Spatial Expertise	Sjur Ringheim Lid
Vocabulary Expertise	Jens Rasmussen
Ecosystem Expertise	
Oceanographic Expertise	
Fishery Expertise	Ingeborg de Boois
Plankton Expertise	Peter H. Wiebe
Stomach Expertise	Ingeborg de Boois
Species Expertise	Ingeborg de Boois
VMS expertise	Josefine Egekvist
User guidance	
Quality control	Lesley Rickards
Data Policy	Ingeborg de Boois

3.3 Meeting frequency, timing and location

To encourage a close relationship with the ICES Data Centre, the complete group should meet yearly at ICES, Copenhagen, preferably in the middle of the year as this fits best in the ICES Data Centre's annual cycle.

To keep close connection with ACOM, SCICOM, and to monitor progress of the continuous tasks inter-sessionally, it is recommended that the chair(s), ACOM and SCICOM representatives, head of ICES Data Centre and group members present at ICES ASC have a business meeting during the conference

WebEx meetings might be organised inter-sessionally for specific tasks, or ad-hoc issues.

3.4 Communication

The Data and Information Group will report to SCICOM twice a year, during the SCICOM meeting at the ICES ASC and during the SCICOM mid-term meeting. It is recommended that DIG also reports directly to ACOM.

ICES Data Centre reports to the Data and Information Group, oral during the group meeting at ICES, and written by sending the annual Data Centre report to DIG.

The communication channels to, from and within the Data and Information Group are:

- Email: specific requests, addressed to specific people
- Social media (LinkedIn): generic discussions
- Group SharePoint: internal group affairs
- WebEx: discussions in small groups on a specific topic
- Face to face: annual meeting for strategic issues, contact with ICES Data Centre, SCICOM, ACOM; other meetings

As travel funding is often difficult to arrange, it is highly encouraged to use WebEx for inter-sessional activity, or to combine such activity with other meetings.

3.5 Offspring

The focus of the Data and Information Group is on a strategic level, and no existing ICES expert group takes over the operational tasks. As a result, operational tasks might not be carried out. The Data and Information Group will initiate groups to take care of specific topics when required. Offspring might be:

- Study groups
- Workshops (face to face or WebEx)
- Training courses, eg. on data use, data submission
- Expert groups

4 Facilities needed

To be able to function in the proposed manner, the group need some facilities:

- Continuous SharePoint (to be arranged by ICES Secretariat)
- Small meeting room during ICES ASC (approx. 10 people) (to be arranged by ICES ASC organisers)
- Support for the organisation of WebEx meetings (ICES Secretariat)