ICES WKIELD REPORT 2015

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Report of the Workshop on the ICES Egg and Larval Database (WKIELD)

27–29 April 2015

ICES Headquarters, Copenhagen

ICES International Council for the Exploration of the Sea

CIEM Conseil International pour l'Exploration de la Mer

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

H. C. Andersens Boulevard 44–46
DK-1553 Copenhagen V
Denmark
Telephone (+45) 33 38 67 00
Telefax (+45) 33 93 42 15
www.ices.dk
info@ices.dk

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Executive summary

The Workshop on the ICES Egg and Larval Database (WKIELD) met from 27 to 29 April 2015 in Copenhagen, Denmark, to finalize the input format, prepare datasets for upload to the database and agree on output products from the database. The meeting was co-chaired by Cindy van Damme, The Netherlands, and Carlos Pinto, Denmark. In total 21 persons, representing 14 institutes from 11 countries participated in the workshop.

The workshop participants prepared an internationally agreed input format, with field descriptions and ICES vocabulary tables for the lookup tables (see section 3). With the input format a factsheet for metadata description of the surveys was also developed. Currently datasets of five different surveys are uploaded to the database. Another 15 survey datasets were presented at the workshop. At least five of these survey datasets are being transformed to the input format of the ICES Eggs and Larvae database to be uploaded to the database within the next few months or at least before the end of the year (section 4). DCF regulations for data availability to the public were also presented and discussed at the workshop.

Before uploading data to the database, a data quality control should be carried out. This is a combination of format and vocabulary checking (already carried out by the ICES data centre) with the data outlier checks (current available R code) during the upload. This will include the possibility for re-submitting data and logging the data changes in the database.

Finally, the workshop discussed possible output from the ICES Eggs and Larvae database. It was suggested producing reports such as distribution maps by station, temperature plots, egg production curves and abundance indices. The workshop also recommends creating links between the ICES Eggs and Larvae database, with other ICES databases, such as Hydrographic and Zooplankton. If possible, links should also be created with databases outside ICES, e.g. SAFHOS.

WKIELD participants, present in Copenhagen, from left to right: Anna Osypchuk, Kjell Bakkeplass, Bastian Huwer, Carlos Pinto, Richard Nash, Matthias Kloppmann, Nakula Plantener, Jens Ulleweit, Cindy van Damme, Brendan O'Hea, Maria Manuel Angélico, Andrei Makarchouk, and Maria Paz Jiménez.

1 Opening of the meeting

The meeting took place from 27 – 29 April 2015 at ICES Headquarters, Copenhagen. In total, 21 participants representing 14 institutes from 11 countries (see Table 1.1) participated in the meeting (Annex 1).

Table 1.1. Represented countries and institutes during WKIELD 2015.

Country	Institute
Denmark	ICES, DTU-Aqua
France	Ifremer
Germany	TI (Hamburg and Rostock)
Latvia	BIOR
Netherlands	IMARES
Portugal	IPMA
Norway	IMR
UK-Northern Ireland	AFBI
UK-Scotland	MSS
Ireland	MI
Spain	IEO, AZTI

2 Adoption of the agenda

The Terms of References for this meeting were:

a) Review and finalize the input and output format of the ICES Eggs and Larvae database;

b) Instruct ichthyoplankton survey participants in the format of the database and prepare their datasets for uploading to the ICES Eggs and Larvae database;

c) Prepare a list of output products and reports needed from the ICES Eggs and Larvae database.

Extra Terms of Reference from WGISUR:

In the light of ecosystem surveys check for possibilities to link the ICES Eggs and Larvae to other ICES databases, e.g. hydrographic database.

An agenda was sent round prior to the workshop. The adopted agenda can be found in Annex 2.

3 Input format of the ICES Eggs and Larvae database (ToR a)

3.1 Format tables

At the start of the meeting, the input format currently used for the Eggs and Larvae database was presented to the group. The plenary presentation went through all the fields in the haul and measurements sheets. On Monday and Tuesday individual participants reviewed the format using their own datasets. On Wednesday, the format was discussed again in plenary and some of the suggestions discussed were implemented. Tables 3.1 and 3.2 show the final agreed input format. This format will be adopted and used to submit new datasets into the database.

Table 3.1. Eggs and Larvae input format: Haul data (Fields in yellow are mandatory fields; Fields with an * have an ICES vocabulary table attached; Orange boxes denote fields for which WKIELD provided an (updated) lookup table or the table needs to be updated by the ichthyoplankton WGs)

Field	Mandatory	Units/references
Survey *	y	RECO DatasetVer
Country *	y	RECO ISO_3166
Institute*		EDMO codes Please register the missing institutes at EDMO (http://seadatanet.maris2.nl/v_edmo/welcome.asp). Contact Peter Thijsse at MARIS (peter@maris.nl) and he will help you proceed with entering any missing institutes and obtaining EDMO codes.
Campaign		The national campaign name/ Survey name (e.g. BOCADEVA)
Ship *	y	RECO SHIPC
Gear *	y	RECO SMTYP
GearDeployment*		On the WKIELD SharePoint
Meshsize	y	microns
MeshType*		On the WKIELD SharePoint
CodendMeshSize		microns
StationNumber	y	The number of the station
HaulID	y	ID of that haul
ELHaulFLAG		U (=Untrusted haul) or blank (=trusted); write in the notes why it is untrusted
SampleID		
netopening		inner diameter in metres
netopeningArea		net opening area (square metres)
FlowEfficiency		Flow efficiency factor (scaled to 1)
Clogging *		Qualitative estimate of clogging of the net. On the WKIELD SharePoint
Day	y	Start date of the haul in UTC
Month	y	Start date of the haul in UTC
Year	y	Start date of the haul in UTC
Hour	y	Start time of the haul in UTC
Minute	y	Start time of the haul in UTC

Field	Mandatory	Units/references
ShootLat	y	Latitude at shooting in decimal degrees and using + and – for North/South
ShootLong	y	Longitude at shooting in decimal degrees and using + and – for East/West
HaulDurationMinutes		minutes
HaulDurationSeconds		seconds
Distance		Distance towed in metres
AngleOfWire		The angle (in degrees) of the wire during hauling of the net in vertical tows
LengthOfWire		Maximum length of the wire shot in metres
Flowmetertype *		On the WKIELD SharePoint
Flowmeterbrand		Free text
FlowRevsInt		Internal flowmeter revolutions
FlowCalInt		Calibration factor of the internal flowmeter in Revs/m
FlowRevsExt		External flowmeter revolutions
FlowCalExt		Calibration factor of the external flowmeter in Revs/m
VolFiltint		Internal volume filtered in m3
ELVolFLAG*		Describes the validity of the flowmeter data (values are "F";"D";"X"; description on WKIELD SharePoint)
SdepthMin		Minimum sampling depth in metres
SdepthMax	y	Maximum sampling depth in metres
Bdepth		Bottom depth in metres
SurTemp		Surface or 5m temperature in degrees Celsius
Temp20m		20m temperature in degrees Celsius
Temp50m		50m temperature in degrees Celsius
Temp100m		100m temperature in degrees Celsius
Bottom temperature		Bottom temperature in degrees Celsius
SurSal		Surface or 5m salinity
Sal20m		20m salinity
Bottom Salinity		Bottom salinity
Notes		Free text

Table 3.2. Eggs and Larvae input format: Measurement data (Fields in yellow are mandatory fields; Fields with an * have a lookup table attached; Orange boxes denote fields for which WKIELD provided an (updated) lookup table or the table needs to be updated by the ichthyoplankton WGs).

Field	Mandatory	Units/references
HaulID	y	
indiv_seq_no		Number of the individual eggs or larvae measured
EggOrLarvae*	y	RECO STAGE (EG or LV)
Length		Length of the larvae or egg diameter in 0.000 mm
Species *	y	Latin name as in WoRMS
DevelopmentalStage *		So far in RECO STAGE. New to be updated list on the WKIELD SharePoint and Table 2 in Geffen and Nash 2012 and recommendation for all ichthyoplankton surveys WGs.
StageScaleReference *	y (if developmental stage is entered)	New to be updated list on the WKIELD SharePoint and Table 2 in Geffen and Nash 2012 and recommendation for all ichthyoplankton surveys WGs.
Number	y	Count
SubsamplingFactor	y	1 or raising factor
Identification *		RECO METOA method of identification
OilGlobules		Possible values Y or N
number_oilg		Number of oil globules, possible values 1,2 or many
oilg_diam		Average diameter in microns
Preservation *		RECO METFP Preservation method at the time of measurement
Notes		Free text

3.2 Metadata description

Each survey dataset should have a metadata description of the data included. It is mandatory to provide a description (in text) of the survey, to be added to the factsheet. The Eggs and Larvae factsheet was updated during the WKIELD meeting and will be uploaded to the database webpage.

It is also possible, but not mandatory, to provide an Excel sheet with extra metadata of the individual surveys. An example of this is the 'MEGS_DB 1992-2013 metadata' sheet, which is provided for the mackerel and horse mackerel egg survey dataset. There is no standard format for this sheet.

4 Datasets in the ICES Eggs and Larvae database (ToR b)

Each participant presented their survey to the group. The ICES Eggs and Larvae database currently contains data of five surveys (Table 4.1). Another 15 datasets were presented of which five survey datasets were prepared for uploading to the ICES Eggs and Larvae database (Table 4.2). During the workshop, the DCF Regulations for Data were also discussed. For DCF full or partially funded surveys the legal text has clear descriptions on data availability. For national funded surveys, the country has to decide if the data can be available in the Eggs and Larvae database.

Table 4.1. Survey datasets currently contained in the ICES Eggs and Larvae database.

Survey
1. Cod and Plaice egg surveys in the North Sea
2. Atlantic Eel surveys
3. International Herring Larvae Surveys (IHLS)
4. Mackerel and Horse mackerel Eggs Survey (MEGS)
5. Gulf of Riga Larvae Survey

Table 4.2. Survey datasets presented at WKIELD.

Survey	Upload to the ICES Eggs and Larvae database
MIK surveys	Historic data quality control needs to be carried out and the data will be ready for uploading in 2015
DEPM Horse mackerel and Sardine surveys	To be decided by the participating countries if and when data will be uploaded
Anchovy and Sardine acoustic and CUFES surveys	To be decided by the participating countries if and when data will be uploaded
Triennial Sardine survey	To be decided if the data will be uploaded
Annual Anchovy survey	To be decided if the data will be uploaded
RADIALES – Monthly transects	To be decided if the data will be uploaded
STOCA – Quarterly transects	To be decided if the data will be uploaded
ECOCADIZ – Acoustic survey	To be decided if the data will be uploaded
Baltic Gotland basin ichthyoplankton survey	Data prepared during WKIELD and will soon be ready for upload
Fish Eggs and Larvae in the northern North Sea – Norwegian spring survey	To be decided if the data will be uploaded
Rügen Herring Larvae Survey	Data prepared during WKIELD and will soon be ready for upload
The Irish Sea (ICES VIIaN) herring larvae survey	Data and metadata prepared during WKIELD and ready for upload

5 Data quality control

At present, during data upload to the Eggs and Larvae Database, ICES data centre manually checks the key values of the datasets. In future, it is planned to extend the procedure with automated data screening against format and vocabulary values. In future, it would be possible to extend the data screening with custom checks if recommended by the ichthyoplankton survey groups.

Currently, the ICES data centre does not perform data quality checking (i.e. for outliers). Mark Payne from DTU Aqua has prepared R-code to check the MEGS and MIK datasets for outliers.

WKIELD recommends extending the current R-code routine for data control to the other surveys. A data quality control routine should be created which is a combination of format and vocabulary checks (standard routine by ICES data centre) with the data outlier checks (current R code) during the upload. This should include the possibility for re-uploading data and logging of data changes in the database (including the comment field for the data submitter to note the changes done). Currently the ICES data centre keeps a log of the database, and this can be made available upon request.

6 Suggested output from the ICES Eggs and Larvae database (ToR a and c)

It is possible to download a standard version of the fields (limited number of fields) in the database or the extended version, where all available fields are downloaded.

WKIELD prepared a list of possible output formats. This list should be extended with requests from all the ichthyoplankton survey groups. WGALES should decide at the 2016 meeting, based on the requests from the ichthyoplankton groups, what the output from the ICES Eggs and Larvae database should be.

Suggested WKIELD output list:

1) Temperature/Salinity maps from survey data. Linking survey data with satellite data and distribution maps.

2) Distributions maps with data aggregated to 0.5 by 0.5 degree grid or 1 by 0.5 degree grid by time period e.g. month / sampling period,

   i) with numbers or measurement counts

   ii) with calculated values e.g. egg production by half rectangle

3) Distribution maps by station (classed bubble plots/proportional).

4) Egg Production Curves across survey periods. The ichthyoplankton groups should deliver the algorithms to the ICES data centre.

5) Abundance/Production Indices. The ichthyoplankton groups should deliver the algorithms to the ICES data centre.

Annex 1: List of participants

Name	Address	Telephone/Fax	E-mail
Andrei Makarchouk	Institute of Food Safety Animal Health and Environment (BIOR) Lejupes Street 3 1076 Riga Latvia		andrejs.makarcuks@bior.gov.lv
Anna Osypchuk	International Council for the Exploration of the Sea H. C. Andersens Boulevard 44-46 1553 Copenhagen V Denmark		anna.osypchuk@ices.dk
Bastian Huwer	DTU Aqua - National Institute of Aquatic Resources Jægersborg Allé 1 2920 Charlottenlund Denmark	+45 35 88 34 67	bhu@aqua.dtu.dk
Brendan O'Hea	Marine Institute Rinville Oranmore Co. Galway Ireland	+353 91 387 200	brendan.ohea@marine.ie
Carlos Pinto Chair	International Council for the Exploration of the Sea H. C. Andersens Boulevard 44-46 1553 Copenhagen V Denmark		carlos@ices.dk
Cindy van Damme Chair	Wageningen IMARES PO Box 68 1970 AB IJmuiden Netherlands		cindy.vandamme@wur.nl
Jens Ulleweit	Thünen Institute Institute of Sea Fisheries Palmaille 9 22767 Hamburg Germany	+49 40 3890 5217 +49 40 3890 5263	jens.ulleweit@ti.bund.de
Kjell Bakkeplass	Institute of Marine Research Nordnes PO Box 1870 5817 Bergen Norway		kjell.bakkeplass@imr.no

Name	Address	Telephone/Fax	E-mail
Maria Manuel Angélico	Portuguese Institute for the Sea and the Atmosphere (IPMA) Avenida de Brasilia 1449-006 Lisbon Portugal	+351 213027000	mmangelico@ipma.pt
Maria Paz Jiménez	Instituto Español de Oceanografía Centro Oceanografico de Cádiz Puerto Pesquero Muelle de Levante s/n E-11006 Cádiz Spain	+34 956016290	paz.jimenez@cd.ieo.es
Matthias Kloppmann	Thünen Institute Institute of Sea Fisheries Palmaille 9 22767 Hamburg Germany		matthias.kloppmann@ti.bund.de
Nakula Plantener	Thünen Institute Baltic Sea Fisheries Alter Hafen Süd 2 18069 Rostock Germany	+49 381 8116102	nakula.plantener@ti.bund.de
Richard Nash	Institute of Marine Research Nordnesgatan 33 PO 1870 Nordnes 5817 Bergen Norway	+47 48036416 +47 55 23 85 84	Richard.Nash@imr.no
Participants attending via WebEx			
Andrés Uriarte	AZTI-Tecnalia Herrera Kaia Portualde z/g 20110 Pasaia (Gipuzkoa) Spain	+34 94657400	auriarte@azti.es
Christophe Loots	Ifremer Boulogne-sur-Mer Centre 150 Quai Gambetta PO Box 699 62321 Boulogne Cédex France	+33 (0)3 21 99 56 29 +33 (0)3 21 99 56 01	christophe.loots@ifremer.fr

Name	Address	Telephone/Fax	E-mail
Finlay Burns	Marine Scotland Science Marine Laboratory 375 Victoria Road Aberdeen AB11 9DB UK	+44 1 224 29 5376	F.Burns@marlab.ac.uk
Hannes Höffle	Institute of Marine Research Nordnes PO Box 1870 5817 Bergen Norway		hannes.hoeffle@imr.no
Maria Korta	AZTI-Tecnalia Herrera Kaia Portualde z/g 20110 Pasaia (Gipuzkoa) Spain		mkorta@pas.azti.es
Paula Álvarez	AZTI-Tecnalia Herrera Kaia Portualde z/g 20110 Pasaia (Gipuzkoa) Spain	+34 943 004800 +34 943 004801	palvarez@azti.es
Norbert Rohlf	Thünen Institute Institute of Sea Fisheries Palmaille 9 22767 Hamburg Germany	+49 40 38905 166 +49 40 38905 263	norbert.rohlf@ti.bund.de
Steven Beggs	Agri-food and Biosciences Institute (AFBI) AFBI Headquarters 18a Newforge Lane Belfast BT9 5PX UK	+44 2890 255 472	steven.beggs@afbini.gov.uk

Annex 2: Agenda

Monday 27 April 2015

10:00 Start of the workshop

General announcements; Introduction; etc.

10:30 How the ICES Egg and Larval database came about (Cindy)

(10:45 ICES IT will come up)

11:00 Introduction into the ICES Eggs and Larvae database (Carlos)

Including the format proposal

13:30 Short presentations about the datasets

- Datasets already in the database (Cindy)
- Eel dataset (Henrik Sparholt)
- Each participant to present their own dataset

If time allows start working on preparing datasets for uploading to the database

17:00 End of day

Tuesday 28 April 2015

9:00 Quality checks: what do ICES check (Anna)

9:15 Quality checks of MEGS and MIK data (Matthias)

9:30 Metadata descriptions of the dataset, including datasheet from WGMEGS

9:45 Regulations concerning data of DCF funded surveys (Neil Holdsworth)

10:00 Group A: Work on the datasets to prepare for uploading into the database

Group B: participants without dataset, think about the output format

12:30-13:30 Lunch

13:30 Group A: Work on the datasets to prepare for uploading into the database

Group B: participants without dataset, think about the output format

15:00 Tea break

15:30 Finalize the input format based on the datasets

Feedback on the database

17:00 End of the day

Evening: Workshop diner

Wednesday 29 April 2015

9:00 Finalizing output format

Discussion least quality checks necessary to the data

Flagging data: is it necessary, if yes, what is wanted

Recommendations

13:00 End of the workshop

Annex 3: Recommendations

Recommendation	Adressed to
1. WKIELD recommends creating an overview of the egg and larval development scales (with descriptions of the different stages) which are used in the ichthyoplankton surveys.	WGALES, WGMEGS, WGEGGS2, WGACEGG, WGIPS, IBTSWG
2. WKIELD recommends creating a table of flowmeter types used and position of the flowmeter in the inlet in the various ichthyoplankton surveys.	WGALES, WGMEGS, WGEGGS2, WGACEGG, WGIPS, IBTSWG
3. WKIELD recommends creating the option to show all stations sampled on the overview maps and available as a table for download.	ICES data centre
4. WKIELD recommends creating a data quality control routine which is a combination of format and vocabulary checks with the data outlier checks during the upload. This should include the possibility for re-uploading and logging of data changes in the database.	ICES data centre, DTU Aqua
5. WKIELD recommends linking the ICES Eggs and Larvae database with the ICES zooplankton database and/or the ICES hydrographic database.	WGZE, WGALES, ICES datacentre
6. WKIELD recommends linking the ICES Eggs and Larvae database with databases outside ICES, e.g. SAHFOS.	WGALES, ICES data centre
7. Currently the WGEGGS dataset in the ICES Eggs and Larvae database also contains data on Nephrops larvae. The Baltic Gotland basin ichthyoplankton survey also has information on zooplankton. The database is a setup to store data on fish eggs and larvae, but not zooplankton. It needs to be decided where the zooplankton data should be stored.	WGALES, WGZE
8. All ichthyoplankton survey groups should provide WGALES with a list of possibile outputs needed for the WGs.	WGALES, WGMEGS, WGEGGS2, WGACEGG, WGIPS, IBTSWG
9. The appropriate grid for the distribution maps as output of the ICES Eggs and Larvae database needs to be defined by WGALES, based on recommendations from the ichthyoplankton groups.	WGALES, WGMEGS, WGEGGS2, WGACEGG, WGIPS, IBTSWG