

# ICES Guidelines for Biological Plankton Data

(Compiled August 2001; reviewed April 2006)

In the context of this guideline, phytoplankton or zooplankton sampling may be accomplished using either a vertical, horizontal or oblique tow of a net or from a rosette bottle.

In the case of a net, such a device would consist of frame which houses a mesh used in collecting the sample. An example maybe a square frame with multiple nets, of a single, conical shaped mesh with a circular ring opening. Typical mesh sizes would be less than 1000  $\mu\text{m}$  (microns). At the mouth end the opening may be of up to 2 m. Attached at the small end of the net would be a jar or cod-end with a typical opening of about 10 cm.

## 1.0 RECEIVING DATA

The Data Centres require the following information to be supplied by the data supplier together with the data. When receiving data, the Data Centres of the ICES community shall strive to meet the following guidelines.

### 1.1 *Data standard*

The data set should consist of header and data information in one or more standard ASCII files. Each record should consist of date and time, navigation data, and measured parameters. It is recommended that each cruise constitute a single file. The navigation data should be in ASCII and in the form of latitude and longitude in degrees and decimal minutes, or decimal degrees. (Explicitly state which format is being used. It is recommended that N, S, E and W labels are used instead of plus and minus signs). Date and time must include month, day, year, hour, and minute. It is recommended that UTC be used.

All parameters must be clearly specified and described. If parameter codes are to be used, then the source data dictionary must be specified. Parameter units must be clearly stated. Parameter scales must be noted where applicable. If computed values are included, the equations used in the computations should be stated.

All relevant calibrations should be applied to the data including laboratory and field calibrations. The data should be fully checked for quality and flagged for erroneous values such as spikes, gaps, etc. An explicit statement should be made of the checks and edits applied to the data.

Sufficient self-explanatory information and documentation should accompany the data so that they are adequately qualified and can be used with confidence by scientists/engineers other than those responsible for its original collection, processing and quality control.

A brief description of the sample and data processing procedures must be included and should

contain information regarding:

- Laboratory procedures and instrumentation
- Any species counts or mass measurements
- Description of any respiration, feeding or physiological experiments and results (e.g. carbon dioxide rates, carbon and nitrogen measurements)
- Report on corrections, editing or quality control procedures applied to the data
- Time reported in UTC is strongly recommended
- Estimate of final uncertainty in the data

Information about any supplementary/complementary data collected at the same time should also be supplied.

If a cruise/data report is available describing the data collection and processing, this can be referenced. If possible a copy should be supplied with the data.

## **1.2 Format Description**

Data should be supplied in a fully documented ASCII format. Individual fields, units, etc. should be clearly defined and time zone stated. Time reported in UTC is strongly recommended. The contents of the data and ancillary information should adhere to the Formatting Guidelines for Oceanographic Data Exchange ([http://ocean.ices.dk/formats/GETADE\\_Guidelines.aspx](http://ocean.ices.dk/formats/GETADE_Guidelines.aspx)) prepared by the IOC's Group of Experts on the Technical Aspects of Data Exchange (GETADE) and available from RNODC Formats.

## **1.3 Collection Details**

Other pertinent information to be included in the data transfer to the Data Centre includes:

- Project, ship, cruise identifier
- Country, organisation
- Date, time, latitude and longitude (for start and end if sampling via a net tow)
- Sounding, maximum and minimum pressure or depth of the tow
- Description of operational procedures such as tow orientation (vertical, horizontal or oblique), methods of position fixing (e.g. DGPS, GPS, etc.)
- Weather conditions (including sun and wind)
- Gear type (e.g. net mesh size, net mouth size, single or multi-net, etc.)
- Sample preservation method (e.g. pickling, frozen, etc.)
- Sample analysis/processing or data collection procedures (e.g. filtered size ranges, sub-sampling, etc.)

Any additional information of use to secondary users which may have affected the data or have a bearing on its subsequent use. An example field log sheet is included in [Annex A](#).

## **2.0 VALUE ADDED SERVICE**

When processing and quality controlling data, the Data Centres of the ICES community shall strive to meet the following guidelines.

### **2.1 *Quality Control***

A range of checks are carried out on the data to ensure that they have been imported into the Data Centre's format without any loss of information. These checks should include:

- General check of accompanying information (e.g. tow dates within cruise dates, correct cruise identifier)
- Plot navigation to ensure no land points; compare with cruise report/CSR track chart if available
- Flag suspicious data or correct after consultation with the data supplier
- Checks on ship speed

If the navigation data are supplied separately, they will be merged with the individual tows.

### **2.2 *Problem Resolution***

The quality control procedures followed by the Data Centres will typically identify problems with the data and/or metadata. The Data Centre will resolve these problems through consultation with the originating Principal Investigator (PI) or data supplier. Other experts in the field or other Data Centres may also be consulted.

### **2.3 *History Documentation***

All quality control procedures applied to a dataset are fully documented by the Data Centre. As well, all quality control applied to a dataset should accompany that dataset. All problems and resulting resolutions will also be documented with the aim to help all parties involved; the Collectors, Data Centre, and Users. A history record will be produced detailing any data changes (including dates of the changes) that the Data Centre may make.

## **3.0 PROVIDING DATA AND INFORMATION PRODUCTS**

When addressing a request for information and/or data from the User Community, the Data Centres of the ICES community shall strive to provide well-defined data and products. To meet this objective, the Data Centres will follow these guidelines.

### **3.1 *Data Description***

The Data Centre shall aim to provide well-defined data or products to its clients. If digital data are provided, the Data Centre will provide sufficient self-explanatory information and

documentation to accompany the data so that they are adequately qualified and can be used with confidence by scientists/engineers other than those responsible for their original collection, processing and quality control. This is described in more detail below:

- A data format description fully detailing the format in which the data will be supplied
- Parameter and unit definitions, and scales of reference
- Definition of flagging scheme, if flags are used
- Relevant information included in the data file (e.g. ship, cruise, project, net tow deployment identifiers, start and end dates and times of tows, etc.)
- Data history document (as described in 3.2 below)

### **3.2 Data History**

A data history document will be supplied with the data to include the following:

- A description of data collection and processing procedures as supplied by the data collector (as specified in Section 1.1 and 1.3)
- Quality control procedures used to check the data (as specified in Section 2.1)
- Any problems encountered with the data and their resolution
- Any changes made to the data and dates of these changes

Any additional information of use to secondary users which may have affected the data or have a bearing on its subsequent use should also be included.

### **3.3 Referral Service**

ICES member research and operational data centres produce a variety of data analysis products and referral services. By dividing ocean areas into regions of responsibility, and by developing mutually agreed guidelines on the format, data quality and content of the products, better coverage is obtained. By having the scientific experts work in ocean areas with which they are familiar, the necessary local knowledge finds its way into the products. Data and information products are disseminated as widely as possible and via a number of media including mail, electronic mail and bulletin boards.

If the Data Centre is unable to fulfil the client's needs, it will endeavour to provide the client with the name of an organisation and/or person who may be able to assist. In particular, assistance from the network of Data Centres within the ICES Community will be sought.

**Annex A**  
**Example Net Tow Log Sheet**

**General**

Project: \_\_\_\_\_ Ship: \_\_\_\_\_ Country: \_\_\_\_\_  
Cruise Number: \_\_\_\_\_ Tow Number: \_\_\_\_\_ Event Number: \_\_\_\_\_  
Location: \_\_\_\_\_  
Bottom Sounding: \_\_\_\_\_ Weather: \_\_\_\_\_  
Wind: \_\_\_\_\_

**Start Tow**

Date: \_\_\_\_\_ Time (UTC): \_\_\_\_\_ Twilight: \_\_\_\_\_  
Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ Method: \_\_\_\_\_

**End Tow**

Date: \_\_\_\_\_ Time (UTC): \_\_\_\_\_ Twilight: \_\_\_\_\_  
Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ Method: \_\_\_\_\_

Net Mouth Size: \_\_\_\_\_ Wire Angle: \_\_\_\_\_

Net	Depth Range (Wire out)	Mesh Size	Volume of Water Filtered
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