



Cruise Data Management

1. Introduction

BODC is the designated data centre for UK marine science. Funding bodies such as NERC require that all data from projects they support are deposited at BODC. This includes data collected during fieldwork cruises. BODC will integrate all data into a documented, processed data set, ensuring that maximum and long-term use of the data is possible.

The following information is necessary in order for BODC to process datasets efficiently and effectively. Much of information may be incorporated in the cruise report and BODC has prepared a guide to help with this task.

The choice of which information to include in a report and which to send to BODC separately is that of the PSO and cruise participants. The information does not need to be sent twice but can help as confirmation.

Online guidance can also be found at https://www.bodc.ac.uk/data/data_submission/

2. Information Requested from the PSO (In Collaboration with Instrument Technicians)

2.1 Log Sheets

- 1) One central log sheet detailing all instrument deployments (including profilers, nets, towed instruments, corers and so on.)
 - date and accurate time in GMT
 - latitude and longitude
 - station reference and cast number
 - instrument deployed
 - water depth (if available)
 - 'Comment' field to indicate for example test casts, problems encountered or instrument failure etc
- 2) One log sheet for all samples taken from the non-toxic supply by different scientists
 - date and accurate time in GMT
 - sample number
 - purpose of sample

A copy of both logs should be sent to BODC as soon as possible after the cruise (Digital copy if available but photocopy of the original is often very useful as an aid to resolve conflicting information). Generic log sheets (central, non-toxic samples and CTD) are available from BODC in an excel **spreadsheet**.

2.2 CTD/Sea-Soar/MVP Data and Documentation

- 1) Copy of log sheets

- 2) Configuration of instruments, including ancillary sensors and which data channels they log to in output files.
- 3) Hardcopy of technical sheets for each sensor used
 - serial numbers
 - manufacturer's calibrations
 - pre-cruise calibrations
 - post-cruise calibrations if carried out
- 4) Information about rosette configuration
 - number, type and capacity of bottles
 - distance from pressure sensor to top and bottom of bottles
 - distance from pressure sensor to reversing thermometer mount (if there is one).
- 5) Copy of the data files directly after the cruise.
 - Information about data file format (if BODC has not previously dealt with data from the same type of instrument).
 - For Sea-Bird CTD, the minimum requirements are the raw data files (.DAT) and configuration files (.CON)
If the processing has been done and no further work is required by BODC, please send the calibrated ASCII files (.CNV) and bottle rosette files (.BTL). However, please also ensure that the original raw files are also sent.
 - For BOT MVP, please send combined data files (extension ending in m1). Please define which sensors have logged to the voltage channels U1, U2 etc.
- 6) Transmissometer pathlength and air readings - preferably regular readings throughout the cruise.
- 7) Copy of any sample data used for calibration of CTD sensors (as soon as possible, depending on processing required)
 - bench salinometer data for salinity sensor cruise
 - chlorophyll-a for fluorometer
 - SPM for transmissometer or backscatter if particle concentration is required.
 - dissolved oxygen data for DO sensor.
- 8) Any information about
 - instrument malfunction
 - problems with data logging
 - bottle miss-fires
 - changes of sensors etc.
 - cleaning operations (frequency/date&time)

2.3 Underway System Data/Information

- 1) Copy of data files from ship's logging system:
 - Copy of all worked up data (best navigation, 30 second data if available)
 - Definition and units for each channel used – a clear definition of data channels is required as column headings can be difficult to understand.
- 2) Location of sensors (including anemometer height above sea level and vane orientation) and depth (below the water surface) of inlet tube to pumped system.
- 3) Copies of technical sheets for each sensor used.
- 4) Any information about :
 - instrument malfunction
 - problems with data logging
 - changes of sensors etc.

- cleaning operations (frequency/date&time)
- 5) Copy of any sample data used for calibration of underway sensors (as soon as they are available)
- bench salinometer data for salinity sensor
 - chlorophyll-a for fluorometer
 - transmissometer air readings

2.4 Information from Individual Scientists

From all scientists who will submit data to BODC, the following information noted during the cruise will be useful:

- Sampling mechanism (e.g. CTD rosette, air sampler, zooplankton net, non-toxic sample)
- Cast and station reference if relevant
- Date and time of sampling event in GMT if possible (or local time and time zone). The time is very important as it is used to fix the position of the sample against the primary navigation data record.
- See table below for more information according to type of sample

Table 1: Information about Other Sample Types Required by BODC

Data type	Information required
Water bottles from CTD rosette	CTD cast reference Depth of sample and bottle/sample reference Methodology including type of filter used (if applicable)
Other water bottle sampling	Type of water sampler and bottle used including volume Water sampling station identifier Date and accurate time Depth of sample
Incubations/laboratory experiments	Source of water samples (e.g. CTD cast) Tracer used Incubation start time and duration Light level (% light illuminating sample) if applicable Simulated depth Other experimental conditions (inhibitors, temperature etc.)
Air samples	Type of sampler Date/time in GMT and duration of sampling if not instantaneous Height of sample Any filters used
Zooplankton nets	Type of net and number of nets if more than 1 Net mesh size in microns Date/time in GMT and duration of sampling Vertical, horizontal or oblique tow Length of tow if horizontal/oblique Volume of water sampled and speed of tow Maximum and minimum depth if vertical/oblique Method of sub-sampling
Stand Alone Pumps	Pump system type, make, model and settings Start and end time of deployment Depth of sample Volume of water pumped Filter used
Core samples	Corer type, make and description Date/time in GMT Core station identifier and number of deployment per station if more than 1

	Core type analysis (whole core or subsample) Depth and vertical span of core segments used for analysis
Moored instrument time series	Details of the mooring configuration and position of each sensors on rig (relative to sea-floor or sea surface). Deployment and recovery date and time Achieved mooring position If deployment and recovery were carried out from different ships please provide ship's name and cruise ID. Individual loggers settings: start logging time, end logging time and sampling frequency Any information on rigs movements, instrument condition upon recovery, malfunction, etc.
Other samples/instruments	Make, model and description of instrument. Calibration procedures (pre-, during or post-cruise) Definition and units of any data logged. Any processing carried out on the data channels before sending to BODC. Any further calibration required – please discuss with BODC as we may be able to assist.

3. Data Submission

When data analysis has been completed, please send a copy of each data set to BODC by one of the following methods

- email your lab liaison officer or project data manager and attach files
- put data on an accessible ftp site and provide the data scientist with the address from which to collect them

BODC will accept most file formats. Excel files or text files are the most commonly used. Please ask if you are unsure whether we can deal with your file format

Please include the following information in the data files:

- Sampling mechanism (e.g. CTD rosette, air sampler, zooplankton net, non-toxic sample)
- Cast and station reference if relevant (e.g. CTD01)
- Date and time of sample in GMT (or specify local time zone with local times)
- Depth/height of sample
- Other information as detailed in Table 1 for that particular data type.
- Clear column headings and units for each parameter
- Indicate which parameters are directly measured and which are derived from a combination of measurements. For derived measurements, please include the formulae used – this may be done by leaving formulae in an Excel spreadsheet cell or by including the equations in an accompanying document.
- Any quality control comments – if you regard any of the data points as suspect, we will store a quality control flag alongside the data. Similarly, if there were problems with the whole data set, please indicate this. We will include any comments in the data documentation which will accompany the data set.

Please submit a document containing details of methods used - in Word or text document:

- Details of any instruments used
- Type of filter used (if relevant)
- Analytical procedures – sample preparation and analysis.
- Any changes to methods used in previous cruises

Please provide the name and institution of the data originator(s) and the principal investigator.