SOP Biosamplemanagement for samples from expeditions and cruises at GEOMAR

How to pre sample cruise/expedition biosamples to generate FAIR and Nagoya compliant entries in the GEOMAR biosample management system BIS

Version 0.23

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Date: July 20th 2022 Contact: biosamples@geomar.de

Purpose

The Purpose of this **S**tandard **O**perating **P**rocedure (**SOP**) is to unify the workflow of sample labelling and import into the GEOMAR **B**iosample **I**nformation **S**ystem (**BIS**), in order to provide FAIR metadata of samples for long term storage.

Scope

Description of applicable data

This SOP applies to all data that follow the following criteria:

1. Samples will be taken on a cruise
2. Sample labels have not been printed yet
3. Access to a labelprinter is given
4. Samples will be registered unprocessed e.g. the original sample taken, not an extract, selection or subs sample.

If your samples do not fit these criteria please use the flowchart "Which Biosample SOP to choose" to identify the correct **SOP**

User groups

Involved / intended users groups are:

1. **User**: Users are those that are involved in sampling and analysis of biosamples. They can be scientists, technicians, lab staff, PIs, ...

2. **Curator**: The **curator** takes care of BIS and handles the digital instances of import to BIS, i.e. metadata control, input file control and label control. Could be the same person as the **stock manager**.

3. **Stock manager**: The **stock manager** has access to the storage space and handles the physical instances of biosamples and the labels. Could be the same person as the **curator**.

4. **Nagoya officer**: The **nagoya officer** checks completeness of documentation for compliance to nagoya protocol (Contact: nagoyaprotokoll@geomar.de)

Instructions

Main steps:

1. **User** contacts **curator** via biosamples(at)geomar.de, **nagoya officer** via nagoyaprotokoll@geomar.de and **stock manager** (depending of working group and sample type) with details on planned sampling during a cruise or expedition

> In each of the following steps please provide the ticket number received in step 1 for ALL communication between the above named user groups.

2. **Curator** creates a custom input file in CSV format in **BIS** for samples and metadata according to the information given by the **user**
3. **Curator** creates internal **BIS** IDs for samples, **stock manager** creates **container** IDs
4. **User** and **stock manager** print labels following **BIS** guidelines (See "Printing official BIS ID labels")
5. **User** samples during cruise or expedition, labels samples and fills the input file
6. **User** returns input file to **curator** together with other relevant documentation
7. **Curator** checks input file and documentation e.g. compliance to Nagoya protocol and optionally assigns **IGSN** numbers
8. **User** and **stock manager** put samples in the labeled **container**s according to guidelines (See "Printing official BIS Container labels") for long-term storage
9. **Curator** uploads sample information, metadata and **container** location into **BIS**
10. **Curator** exports sample information relevant for marine-data viewer from **BIS** (See SOP Viewer).
11. **Curator** provides link to viewer and confirmation mail about succesfull upload to **BIS** and marine-data viewer

> Ticket is closed

Step-by-Step

1.1 **user** contacts **curator** under biosamples@geomar.de => Ticket number created .

> In each of the following steps please provide the ticket number received in *step 1.1* for ALL communication between the above named user groups.

1.2 **user** contacts **nagoya officer** to confirm availability of necessary ABS documentation.

1.3 **user** provides as many details as possible about the planned sampling, ideally expected sample types, number, sample containers etc.

1.3 **user** contacts appropriate **stock manager** .

1.4 **user** provides **stock manager** with information about the physical properties of the planned samples: Number of samples, sample size, sample container and packing container details(e.g. 81 samples in 2 ml Cryo tubes in a Cryobox with dimensions HxWxD for storage in -80 C) .

1.5 **stock manager** informs **curator** about number and properties of **container** IDs needed.

2.1 **curator** prepares to create custom input file for samples and metadata based on information provided in *step 1.1*.

2.2 **curator** contacts **user** for missing information and questions on data provided in *step 1.1*.

2.3 **curator** and **user** create custom input file in **BIS** for samples and metadata for **user**.

2.4 **curator** sends custom input file to **user**.

3.1 **curator** creates internal **BIS** IDs and official labels for **user**.

3.2 **curator** sends **BIS** IDs and official labels to **user**.

3.3 **stock manager** creates **container** IDs in **BIS**.

4.1 **user** prints official labels (See "Printing official BIS labels").

4.2 **stock manager** prints **container** ID labels (See "Printing container ID labels").

5.1 **user** departs for cruise or expedition with official labels and **container** ID labels (latter only if needed e.g. Cryoboxes, or other container types see *step 8.1*).

5.2 **user** labels samples with official label including internal **BIS** ID. Additionally custom labels can be used in addition to official labels.

5.3 **user** fills input file with metadata to corresponding internal **BIS** ID, following the **BIS** guidelines on each variable. If the sample is placed in a labeled **container** note **container** ID.

6.1 **user** contacts **curator** with questions concerning input formats.

6.2 **user** contacts **nagoya officer** and checks on completeness of documentation for compliance to nagoya protocol using the correct nagoya case number (See SOP Nagoya Protocol).

6.3 **nagoya officer** sends okay to **curator** if nagoya relevant documentation is complete and provides nagoya case number.

6.4 **user** checks links provided in input CSV referencing to data deposited in other repositories (Pangaea, OSIS, etc.)

6.5 **user** sends input file to **curator**.

7.1 **curator** checks compliance of data input file to **BIS** guidelines.

7.2 **curator** checks for notification *step 6.3* from **nagoya officer**.

7.3 **curator** informs **stock manager** and **user** of passed QC.

7.4 **curator** assigns **IGSN** numbers if applicable.

8.1 **stock manager** prepares **container**s with ID labels.

8.3 **user** and **stock manager** pack samples into labeled **container**s.

8.4 **stock manager** documents information of sample location in this form: sample in **container** in **container** in **container** etc in Room ID.

8.5 **stock manager** sends information in *step 8.4* to **curator**.

9.1 **curator** prepares all relevant information: input file, **container** locations and additional files for import into **BIS**.

9.2 All information is uploaded to **BIS** using the CSV input crawler.

9.3 **curator** checks successful upload to **BIS**.

9.4 **curator** assigns accession number to sample set.

10.1 **curator** exports sample information relevant for marine-data viewer from **BIS** .

10.2 **curator** deposits exported information from 8.1 in directory for next viewer update.

10.3 **curator** checks correct upload to viewer.

11.1 **curator** provides accession number and link to viewer in confirmation email about successful upload to **BIS** and viewer.

11.2 **user** may forward confirmation email with link to relevant 3rd party such as scientific journal or funding agency. This includes data not freely accessible due to embargos.

11.3 **curator** closes ticket.

Labels

Printing official BIS ID labels

When the **user** prints sample labels the following information must be on the label: -BIS ID -Sampling campaign according to the OSIS campaign name

Further the following information can be displayed on the label:

- Sampling date
- Sample contents
- Sampling station and/or Subevent (according to the OSIS station/subevent name)
- Sampling gear and haul #
- Fixation
- Responsible person
- Internal ID (from Responsible person or sample collection)

Printing official BIS Container labels

When the **stock manager** prints container labels the following information must be on the label:

- **BIS** ID
- **Container** ID created in the BIS in the official format: RD3_EV_2022_FMi_21 ResearchDevision_ResearchUnit_Year_InitialsStockmanager_RunningNumber
- QR-Code containing **BIS** URL

Glossary

Term	Definition
BIS	Biosample information system
viewer	marine data viewer
Sample	Physical object containing material for analyis OR virtual object of no longer excisting physical sample ("used up")
container	Physical object containing sample or other containers
accession number	Unique identifier for idividual samples sets in BIS

Annex

Description of document: URL to document

Revisions

Version no.	Date	Author	Comment
0.1	2022-02-10	Felix	First draft check steps with Jakob
0.2	2022-07-20	Felix	Last draft check steps with Jakob
0.2.1	2022-07-21	Felix	Updated last draft
0.2.2	2022-07-21	Felix	Added information on BIS and container labels
0.2.3	2022-07-21	Hela	comments
0.2.4	2022-07-21	Felix	Comments of 0.2.3 included
0.2.5	2022-08-18	Jakob	Fixed typos and add some links