OBIS Training Strategy 2017-2021
Suggestions towards content of training, priorities and identification of gaps

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Content:
- Target groups for OBIS trainings
- Training courses: priorities & content
- Training material
- Follow-up after a training/workshop
- Helpdesk for trainers & trainees
- Funding
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Target groups for OBIS-trainings

- **Node data managers:**
  Each node data manager needs to have the necessary data management skills related to getting data into OBIS. Depending whether the node is on TIER 2 or TIER 3 level, these skills can vary. In essence, each node data manager needs to be able to:
  - perform detailed quality control on the received data
  - transform data into the relevant DarwinCore format
  - properly document the metadata alongside the data
  - get data onto an IPT
  In addition, a node data manager needs to be able to clearly communicate with
  - the OBIS Project Office (PO) (general communication)
  - its data providers (data issues)
  - the Taxonomy Task Team (non-matching names)
  to make the data flow as smooth as possible and to allow the best quality data to go into OBIS.

- **Future OBIS trainers (train-the-trainers):**
  As OBIS is aiming to train more people, preferably through more locally organized training courses – e.g. through the OBIS nodes and/or OceanTeacher Regional Training Centres and whenever possible in the local language –, it will be necessary to train people in how to teach
their own skills to others. Specific tips and tricks can help people in organizing good trainings and workshops, making sure that all their knowledge and know-how is transferred in a good and easy-to-understand way. Volunteers will need to be identified worldwide within the OBIS network, and one or more training courses on “train the trainer” will need to be organized. Trained trainers are needed to ensure successful knowledge-transfer on all matters related to OBIS. Ideally, the trainers are able to tackle all OBIS training aspects related to OBIS (output, input, QC, analysis and visualisation e.g. through R ...), either alone or in teams of 2-3.

- **Data providers**
  Distinguish between one-time providers and regular providers. If a provider is also interested in getting data out of OBIS, they can be seen as a scientist (see below).
  One-time providers do not need training, they just need to be aware that communication between them and the node manager to make sure their data are in optimal shape before being sent to OBIS.
  It is advised that regular providers get basic training on how to send their data to the responsible node manager, to lessen the workload of the node manager. This can include learning how to work with the online quality control tools and how to work with an IPT.

- **Scientists**
  Scientists can have a double purpose with OBIS: get data into OBIS and get their data back out of OBIS. Depending on their focus, they can either be seen as a data provider (see above) or they should be very specifically trained in all the tools and functionalities of the portal and of the R-package on how they can use the data within their own research.

- **Students: through high school & university professors**
  Students should be seen as a very important target group for OBIS. Students are both future contributors to and users of OBIS and their training on what OBIS is, standard data management practices including data standards, and what OBIS can do should start within their scholarly training. To be able to do this, OBIS needs to target their professors as a potential group for training. Professors need to learn what OBIS is all about and how OBIS can be used, so they can train their students. As professors get new students each year, the outreach of such training actions is enormous.

- **Agencies & regional organizations**
  Agencies and regional organizations have been identified as major (potential) users of OBIS, in relation to information for policy. Therefore, OBIS should aim to train people within agencies on the content and potential of OBIS, so OBIS is truly valued as an important resource of data related to marine biodiversity and ecosystem status and change worldwide. Once agencies and organizations see the possibilities and benefits of OBIS, they can promote this on a wider scale and aim to get OBIS included in different legislation levels as an important repository and clearinghouse for marine data.
All training courses should be organized through targeted calls. This way, a fair selection of participants can be made, ensuring maximal attendance, participation and follow-up after the training.

Training courses: priorities and content

Different target groups have different training needs. Training priorities should focus on the first two target groups: the node data managers and the future trainers. The results of these trainings will reflect on any of the other trainings, ensuring the best quality data to go into OBIS and making sure that all other people that apply for training are trained in the best possible way, by people with active and thorough knowledge on OBIS.

1. Node data managers
   As OBIS still receives applications for new nodes, a distinction should be made between new and more experienced node data managers when it comes to training.

The training for new node data managers should be a full-blown training course, giving a detailed introduction to OBIS and how to get data into the OBIS data system. For more experienced node data managers, any unresolved issues and an update on new developments should be enough.

   Goal:
   Learn (new/experienced) node data managers how data need to be processed and uploaded to OBIS. Focus is on data input. The course will only very briefly touch on how to get data out of OBIS.

   Content:
   1. New node data managers:
      - Elaborate introduction to OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD ...), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website ...
      - Quality control: taxonomy, geography, format; use of online available tools + explaining the automated QC-steps within the database
      - Metadata & best practices
      - Data standards: DarwinCore: explain the standard data format used within OBIS and the different options (OccurrenceCore vs. EventCore)
      - Data & metadata publishing procedures: how IPT can be set up and maintained, fact that OBIS can host an IPT for a new node, how to upload and publish datasets and metadata
● OBIS-ENV-DATA: how & when this project was established, the original goals, the outcome and how this is now being implemented within OBIS
● Talk about social aspects of data management, the importance of good communication and follow-up with the data providers within their node. Explain that they can (need) to actively look for possible new providers and how they can do this.
● Only briefly touch on output: how can they get data out of OBIS, which tools and functionalities exist. They need to be able to promote this with their own network, but they do not need to become experts in the OBIS analysis tools.

2. Experienced node data managers:
   ● Focus on updates & new features since their last training
   ● Allow input before the training: are they still struggling with certain things, do they need additional training on specific features, are there certain issues they want to discuss with other node managers (= exchange experiences)?

**Training strategy:**
   ● Mix presentations with hands-on training. Try to avoid having too many presentations on one day, without time for practice. Presentations should be given per topic and are ideally 10-15 minutes.
   ● Make sure a ‘training dataset’ is available and easily accessible (e.g. through OTGA), which can be used by everyone and which the trainers can use to talk everyone through specific issues. If everyone is using the same test-dataset, it is easier for the trainers to identify who (potentially) needs additional help when they start processing their own dataset.
   ● If people need to register (cfr. LifeWatch QC-tool), make sure this is communicated beforehand. Encourage trainees to register before the workshop, or to install specific software before arriving.
   ● Send background information to trainees +/- 1 week before the training (on OBIS, links to available publications, manuals ...). Those who want, can then already start preparing
   ● Make it mandatory for each participant to bring a dataset with them. The hands-on sessions can be used to process these data and try to prepare them for upload to the IPT within the training course.

**Time frame:**
New: 4-5 days
Experienced: 1 day, possibly linked to the annual OBIS SG meeting

**Responsible organizer:** OBIS Project Office

**Priority:** Very high (cfr. transition to EventCore)

**Funding source:** Project Office + in-kind by nodes
2. Trainers

A targeted call will need to be launched:

- who is willing to commit to becoming a trainer for OBIS?
- What would they like to focus on (input or output)?
- How do they see their own commitment: one-time training, dedicated to more training sessions, for the different identified groups?
- What are they willing to contribute to compiling training material (either in English or in their local language)?
- What is their previous experience? Have they followed an OBIS training course before?

Trainers can include node managers and data providers. If they have no (or very little) experience with OBIS, it would be recommended that they first attend one of the other training courses, before becoming involved as a trainer.

Goal:
Train people so they are able to organize a training course themselves. Promote training courses in other languages, such as e.g. Spanish and French.

Content:
- As background: thorough introduction into OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD ...), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website ...
- Provide them with a schedule that explains the organization of a training step-by-step. This should include: how and when to announce a training, how to select candidates, how to prepare the workshop program (cfr. target audience), which material to use, where to store presentations (OceanTeacher) ...
- Give overview of tips & tricks for better presentations & interactions with participants, to improve their teaching/training skills
- Allow 2 days for more in-depth training on input and output to OBIS, including time to exchange experiences between participants.
- Collaborative production of training materials which can be used in future trainings. Depending on the focus of the training, particular aspects can be worked out in more detail.

Time frame: 4-5 days:
2-3 days ‘train the trainer’
2 days more in-depth training on OBIS input & output
**Responsible organizer:** OBIS Project Office

**Priority:** High

**Funding source:** Project Office + in-kind by participants (?)

### 3. Data providers

- **Focus:** get data into OBIS
- **Should be trained on a regional level, not necessarily on international OBIS level**
- **Countries & node managers need to take responsibility to organize such trainings**

**Goal:**
Learn data providers how data need to be processed and uploaded to OBIS. Focus is on data input. The course will only very briefly touch on how to get data out of OBIS.

This is a trimmed down version of the training for new node data managers (see earlier), with a specific focus on processing their own data and sending them to the responsible node.

A good approach for such a training is to focus on a specific topic, e.g. deep sea data or coral-reef data. This allows to mobilize the relevant community of scientists (=data providers) and to show them the advantages of OBIS and how their data can be made available through OBIS. In the end, the community could even decide to set up a thematic node for their data topic.

**Content:**
- Elaborate introduction to OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD ...), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website ...
- Quality control: taxonomy, geography, format; use of online available tools + explaining the automated QC-steps within the database
- Metadata & best practices
- Data standards: DarwinCore: explain the standard data format used within OBIS and the different options (OccurrenceCore vs. EventCore)
- Data & metadata publishing procedures: how to best send their data to the responsible node
- Only briefly touch on output: how can they get data out of OBIS, which tools and functionalities exist. They need to be able to promote this with their own network, but they do not need to become experts in the OBIS analysis tools.

**Time frame:** 4 days

**Responsible organizer:** Nodes

**Priority:** Average
Funding source: Nodes

4. Scientists

Goal:
Show scientists the possibilities of OBIS.

Content:
- Elaborate introduction to OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD ...), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website ...
- Demonstrate the available content and tools of OBIS through several examples: OBIS API, R package, GIS apps
- Discuss the possibilities of OBIS in answering specific scientific questions. Work out use-cases to show the relevance and importance of OBIS.

Time frame: 2-3 days

Responsible organizer: Nodes / Project Office (?)

Priority: Average

Funding source: ?

5. Students – through high school & university teachers

Goal:
Train high school and university teachers, so they can show the possibilities of OBIS to a wide range of students (=possible future scientists & data providers)

Content:
- Elaborate introduction to OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD ...), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website ...
- Teach basic data management skills, standards and tools
- Demonstrate the available content and tools of OBIS through several examples.
- Work out relevant examples and use-cases, that can be used as exercises within the classrooms
Time frame: 1-2 days

Responsible organizer: Project Office / node managers

Priority: average-high

Funding source: ?

6. Agencies & regional organizations

Goal:
Show this target group what OBIS can do and how OBIS can serve their needs. Should be seen more as a workshop with a lot of demo’s, rather than as a training.

These workshops should allow for pre-workshop input & questions by the participants: these will help prepare the workshop and make it as customized as possible.
If OBIS wants to target specific organizations with this type of workshops, then targeted invitations will need to be sent.

Content:
- Elaborate introduction to OBIS: some (“historical”) background, the data system, the portal, the 3 TIER levels, the provider network, the link with other database systems and networks (WoRMS, GBIF, CBD …), how new nodes are established, how harvesting works, which data flows from OBIS to other systems are in place, which information is available on the website …
- Demonstrate the available content and tools of OBIS through several examples. Examples can be focused on the present agencies & organizations and deal with the questions raised prior to the workshop.
- Open session to identify needs and wishes of this community. Afterwards, OBIS can check if any of these are relevant and feasible to further within the general OBIS mission & goals.

Time frame: 2 days

Responsible organizer: Project Office (?)

Priority: Average – low (?)

Funding source: ?
Training material

At this moment [November 2016], OBIS is using the following platforms to store relevant training information:

- **OceanTeacher => dedicated page per training**, storing all presentations and videos thereof (e.g. [http://classroom.oceanteacher.org/course/view.php?id=241](http://classroom.oceanteacher.org/course/view.php?id=241)).
- **GitHub => [https://github.com/iobis](https://github.com/iobis)**

Feedback from earlier trainings shows that a better link needs to be made between these 3 channels, to avoid confusion and to make sure people find all the relevant information they need on a specific topic.

A quick and easy solution is to add a link to GitHub at the start of the manual, explaining what can be found at GitHub. Similarly, an overview of previous training courses and a link to their relevant pages can be made within the manual – e.g. as a separate topic – and explaining what they can find there.

OceanTeacher would be the central platform for the training material, whereas the manual and GitHub can be seen as the books upon which the material in OceanTeacher is based. From within OceanTeacher, each piece of material will need references to the specific parts in the manual and the GitHub material so teachers and students can look up more background information if needed.

The Online OBIS manual needs updating, as it does not yet include information on EventCore (in the framework of OBIS-ENV-DATA) and how this affects the processing of a dataset. Additionally, it would be very useful if a translation in e.g. Spanish and French would be available.

Further development of training material – and access to it – can include:

- **More elaborate use of the options of OceanTeacher**:

  The range of possibilities of OceanTeacher should be investigated in more detail. Currently, OceanTeacher is only being used to store the training/workshop material. OceanTeacher has however a whole range of additional options that could help in storing, disseminating and updating relevant training and teaching material.

  The idea is to have the online manual as the ‘book’, whereas OceanTeacher will include the ‘lessons’. The manual (book) will always be dynamic, the lessons on OceanTeacher will need to be updated according to the changing information in the manual.

  OceanTeacher should include step-by-step overviews of how to process specific datasets, including how to deal with issues linked to specific data types.

- **Short guidelines document (1-2 pages)**

  This document should list the order of steps that need to be taken to process a dataset. At each step, it should refer to the relevant (online) material, where people can read in more detail how this specific step needs to be tackled.
The lack of such a document has been specifically mentioned at the last training workshop (OBIS DeepSea training), indicating that such a document could speed up the work (no need to look through all the presentations, looking for the right information) and would give the data processors (providers & managers) more confidence when they do their work.

- **Short tutorial videos ‘how to…’**
  These videos should stand alone, and can be an added-value next to the online manual and the training course material. Demonstrating specific processing steps in detail can be a great help to data processors (managers or providers). Several ideas for topics were already raised in the previous OBIS SG.

- **Webinars**
  Webinars can bring people together more quickly and easily, avoiding long travels and high organizational costs of physical trainings and workshops. Webinars could be organized on a regular basis, dealing with specific topics of OBIS (new developments or decisions related to data input or output, demonstration of newly developed tools...). They should be limited to 2 hours, including an introduction, demonstration and time for questions.

**Follow-up after a training course**

The organizers of each training/workshop should keep track of their trainees and the progress on the commitments made during the training.

This can be done very easily through email: send reminder/update mails after 1-3-6-12 months to all participants, asking for their progress. Some examples:

- training for data providers => follow-up on their actual data delivery to a node and check if they would need extra help/assistance in processing their data.
- training for teachers => check whether they have been able to ‘promote’ OBIS in their classrooms and evaluate the student feedback on this

**Helpdesk for trainers & trainees**

Currently, a dedicated support mechanism is missing. Questions on specific topics get (partly) answered through the different Task Teams, but there is no-one centrally who is keeping track of all questions or issues and the answers (or suggestions) that are given.
All this feedback is however important: if one person has a specific problem, chances are high that someone else is facing the same problem, but just doesn’t find his/her way to OBIS (or the node managers) to ask how to deal with this.

Currently, feedback goes to info@iobis.org or the OBIS data manager directly. It is suspected that node managers also receive questions and feedback from their data providers directly. It would be good to get an overview of the questions and remarks, so everyone can follow the same strategy in replying. For each training course, it should be clear to the participants to whom they can address their questions after the training, to get good feedback and to allow for quick follow-up.

Although feedback and assistance to node managers, data providers and users is an important and very valuable aspect, the amount of time needed to efficiently manage this cannot be underestimated.

**Funding**
Funding will need to be sought/made available to support all the recommended training courses and to create training material.

**Conclusions & recommendations**

There is already quite some material available with regard to training, but the trainings need to be fine-tuned towards their target audience.

Existing training material needs to be updated and new training material needs to be developed, meeting the needs of the different trainings.

Priorities need to be made towards the different trainings. For each training, there needs to be a targeted call towards participants, ensuring maximal attendance and follow-up towards the future. If OBIS or its nodes invest in training, they need to aim for people with high (dedicated) interest in OBIS and its mission and goals.

Follow-up and feedback mechanisms need to be developed: trainers need to be keep track of the commitments made during training sessions and make sure that these are carried out (e.g. promised data delivery) and trainees and users need to have easy ways to ask questions about OBIS, its data and the way they need to process data.

Training of different target groups can be seen as a major keystone towards the future of OBIS. Given its importance, it is obvious that the current Training Task Team (Leen Vandepitte – Mary Kennedy – Project Office) cannot deal with all these aspects in a good and consistent way. The Training Task Team thus needs to be expanded, so different people can take on different responsibilities. Ideally, all training-related activities are coordinated by 1 person, in close collaboration with the Project Office and the node managers (taking into account that this will take up a large amount of time).
Action items (first draft list):
- Update OBIS manual, to include section on OBIS-ENV-DATA
- Create lessons - “step-by-step” tutorials - on OceanTeacher
- Create short tutorial videos on different relevant topics
- Organize 2-hour webinars for more experienced node data managers
- Follow-up on the trainee performance after the training courses

Summary table of all proposed trainings:

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