Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

IODE Steering Group for OBIS (SG-OBIS)

Sixth Session
JAMSTEC/Global Oceanographic Data Center (GODAC), Okinawa, Japan
1-3 February 2017
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Executive Summary

The 6th session of the IODE Steering Group for OBIS took place on 1-3 February 2017 and was kindly hosted by the Japanese OBIS node based at JAMSTEC’s Global Oceanographic Data Center (GODAC) in Nago, Okinawa (Japan). The meeting was attended by 31 participants from 17 countries representing 17 OBIS nodes.

The OBIS steering group welcomed the proposed OBIS-ENV-DATA standard for combined biological, environmental, and sampling methodology (documented in https://doi.org/10.3897/BDJ.5.e10989). However, the full and timely implementation of the OBIS-ENV-DATA standard will require additional resources at IODE-OBIS to develop the infrastructure to fully exploit and expose OBIS-ENV-DATA as well as develop the necessary documentation and training so all the OBIS nodes can take advantage of the new practice.

The OBIS capacity development strategy 2017-2021 was welcomed which proposes to adapt future training courses according to the needs of different target groups, in which the OBIS nodes and OBIS trainers are currently a priority. With support from IOC’s OceanTeacher Global Academy (OTGA) and its regional training centres, at least 7 OBIS training courses will be organized in 2017. All the training material is freely available through the OceanTeacher e-learning platform. Of interest is the decision from the CBD/COP13 (decision 12, December 2016), which requests the Secretariat of the Convention on Biological Diversity (CBD) to establish a partnership with OBIS to develop training opportunities to support the future description of Ecologically or Biologically Significant Areas and to link the EBSA repository with OBIS.

The success of OBIS depends on the active role of the OBIS nodes. A dedicated webpage will characterize the data contributions (from data provider to OBIS node) as well as technical, data product development and funding contributions of each OBIS node to the OBIS enterprise. Some OBIS nodes, however, have become inactive and the OBIS Steering Group adopted the OBIS node health status check and transition strategy as a process to follow up on those nodes and support them to find a solution. In addition, the Asian OBIS nodes have developed a strategy in which the development of a regional network will strengthen the local OBIS nodes.

Important technical developments will take place during the next intersessional period, in which a complete new OBIS infrastructure and technology stack (OBIS2.0) will be developed. This will enable OBIS to: (i) achieve near real-time data integration from OBIS Nodes, (ii) the ability to upscale the system, (iii) support data types beyond species occurrences (OBIS-ENV-DATA), (iv) improve on the real-time analytics capability for research and online applications, (v) allow limited embargo on data release and (vi) improve data traceability and provenance. The OBIS2.0 reengineering will require active contributions from technical partners in the OBIS network.

A powerful OBIS system is critical to stimulate research and development in which OBIS data services are used in developing new products that inform biodiversity status and trends, conservation status, and other metrics needed for CBD (specifically Aichi Targets), GOOS, GEO BON MBON, IPBES, SDG14 and other international initiatives.
OBIS can still rely on active engagement and investment from its members in the OBIS network. However, there is a need to better balance project-based funding, which has the benefit of keeping the system moving in new and fresh ways, with the need for structural funding to ensure long-term stability.

Table of Contents

1 OPENING OF THE SESSION AND ADOPTION OF THE AGENDA AND TIME TABLE .......... 5
2 OBIS PROGRESS REPORT ......................................................................................... 5
  2.1 OBIS SECRETARIAT REPORTING ................................................................. 5
  2.2 OBIS NODE REPORTING ............................................................................... 7
    2.2.1 OBIS Node reporting tool and OBIS Node page ............................................. 7
    2.2.2 OBIS Node health status check and exit strategy .............................................. 9
    2.2.3 Asian OBIS Node strategy ............................................................................. 9
    2.2.4 Report on GBIF collaboration ....................................................................... 10
  2.3 OBIS TASK TEAM REPORTING ................................................................. 11
    2.3.1 OBIS governance task team ....................................................................... 11
    2.3.2 OBIS data task team .................................................................................. 12
    2.3.2.1 OBIS Event Data for Scientific Applications .............................................. 13
    2.3.3 OBIS capacity development task team .......................................................... 13
    2.3.4 OBIS taxonomy task team .......................................................................... 15
    2.3.5 OBIS technical task team ............................................................................ 16
    2.3.6 OBIS science advisory task team ................................................................. 17
    2.3.7 OBIS communication and outreach task team ............................................. 20
  2.4 OBIS PROGRESS STRATEGY ......................................................................... 21
3 OBIS FUNDING STRATEGY .................................................................................. 23
4 OBIS WORK PLAN 2017 ......................................................................................... 24
5 ADOPTION OF RECOMMENDATIONS, WORK PLAN AND REPORT ..................... 27
6 DATE AND PLACE OF NEXT SESSION ................................................................ 27
7 ANY OTHER BUSINESS ......................................................................................... 27
8 CLOSING OF THE SESSION ............................................................................... 27
Annex 2: OBIS Node Health Status Check and Transition Strategy ................................ 29
Annex 3: Participants of Sixth Session of the IODE Steering Group for OBIS ............. 30
1 OPENING OF THE SESSION AND ADOPTION OF THE AGENDA AND TIME TABLE

1. Mr Eduardo Klein (SG-OBIS Co-Chair) opened the 6th session of the IODE Steering Group for OBIS (SG-OBIS-VI) and thanked the local organizer JAMSTEC/GODAC for the great support during the preparations and the sponsorship for this meeting. He presented the draft agenda (annex 1) and asked if anyone wanted to propose additional agenda items. VLIZ/EurOBIS proposed to include a discussion on branding of contributions to OBIS from partners such as VLIZ on the OBIS website.

2. The SG-OBIS adopted the agenda and time table with the inclusion of the proposal from EurOBIS to discuss branding of partner contributions.

3. Dr Yoshihisa Shirayama (Executive Director of JAMSTEC) provided welcoming words on behalf of the local host. He was pleased to see such a large group and active engagement in OBIS. OBIS is, ever more, a critical component of the value chain in generating knowledge for assessment and governance. He reminded the group that he was closely engaged in the early days of OBIS, since 2001, as a member of the OBIS international committee, and is still a strong supporter of OBIS, through JAMSTEC’s commitment for the Japanese OBIS node, JAMSTEC’s investments in deep-sea biodiversity explorations and data collection as well as through advocating for ocean sciences and the importance of OBIS as a member of the IPBES multidisciplinary expert panel.

4. Mr Hosono Takashi (node manager OBIS Japan, JAMSTEC/GODAC) provided local practical details and invited everyone for a group dinner in a local restaurant.

5. The SG-OBIS thanked JAMSTEC/GODAC for hosting and sponsoring the SG-OBIS-6 session.

2 OBIS PROGRESS REPORT
2.1 OBIS SECRETARIAT REPORTING

6. Mr Ward Appeltans (OBIS project manager) welcomed two new members to the SG-OBIS, Antonio Carlos Marques who is taking over WSA-OBIS from Rubens Lopes and Fernando Felix who will manage the new OBIS node at CPPS. Also, a warm welcome was expressed to Abdolvahab Maghsoudlou from Iran (manager of PEGO-OBIS) who is attending the SG-OBIS meeting for the first time.

7. Mr Appeltans provided an overview of the Secretariat activities during the intersessional period (8 months only). In terms of numbers, 700,000 records were added to OBIS from 94 new datasets, providing 1,779 new marine species to OBIS. In total, OBIS has now 47.78 million records.
8. The new OBIS website was released in August 2016, and the R OBIS package received minor enhancements (http://github.com/iobis/robis). See also our blog on extracting and enriching OBIS Data with R (http://iobis.org/2016/11/22/sorbycollection/). The OBIS API moved to a dedicated server, resulting in performance improvement (https://github.com/iobis/api-docs). The OBIS data manager also provided user support, e.g., data queries, creation of graphs, and a script for generating DwC-A from the OBIS database and IMIS was developed for CAFF (Arctic OBIS node) to move the datasets from the previous Arctic OBIS node to the CAFF IPT. An off-line OBIS tools package based on R for data cleaning, enhancement and QC is under development (https://github.com/iobis/obistools). The OBIS data manager also developed the prototype harvester as part of the new OBIS 2.0 technology stack.

9. Through the DIPS-4-Ocean Assessments project (a Flanders’ UNESCO Science Trust Fund project), several indicators and products on OBIS are under development that should support Member States in their reporting obligations on progress towards the Aichi Biodiversity targets. Data products are summary statistics per area (e.g. EEZ, ABNJ, protected areas), a visualisation of biodiversity richness, gaps and completeness, using Belgium as a test case (http://iobis.org/2016/11/17/completeness/), and a proof-of-concept on the application of occupancy modelling to extract robust temporal trends for tracking changes in ocean biodiversity and identifying potentially at risk species (http://iobis.org/2016/11/15/occmod/). Future developments of DIPS-4-Ocean Assessments will include further enhancements of the OBIS exploration portal with inclusion of more statistics (including those listed above) and customized data portals (e.g. HAB, deep-sea, coral reef and possibly specific ones for GOOS biological and ecosystems EOVs).

10. Not less than 33 participants from 16 countries, representing 20 different deep-sea programmes and data systems attended the first International OBIS-INDEEP training workshop on 25-28 October 2016, which resulted in the revival of the OBIS deep-sea node (http://iobis.org/2016/11/14/deepsea/).

11. On 15 December 2016, GEOBON MBON, GOOS BioEco and OBIS signed a collaboration agreement to join efforts towards a sustained, coordinated global ocean system of marine biological and ecosystem observations to support management decisions and address relevant science and societal needs. Both GEOBON MBON and GOOS BioEco agreed that OBIS will play a key and central role in fostering wider data sharing, data curation and aggregation in order to streamline the feeding of integrated and quality controlled datasets into models and forecasts (http://iobis.org/2016/12/15/goosgeobonobis/).

12. In terms of outreach through social media, the OBIS Secretariat has set up an e-Newsletter which currently has 1,925 subscribers (http://iobis.org/subscribe/). A specific OBIS twitter account (@OBISNetwork) was set up, and after 45 tweets had 256 followers and on average received 17,000 impressions per month. The OBIS Facebook page and Linkedin group remain active, with Facebook being the most popular with 1,668 followers. The OBIS Secretariat made presentations at the
13. Mr Pieter Provoost (OBIS data manager) reported on the technical activities during the intersessional period. There was some bug fixing on the data harvester and IPT. Also, the latest OBIS node data harvest moved over to a harvesting system on a newer machine with less dependencies on local files and all code and configuration are now in source control (BitBucket and GitHub). The harvest reports are available on [http://iobis.org/reports](http://iobis.org/reports) and includes QC summaries for each dataset [http://iobis.org/datasets](http://iobis.org/datasets).

14. Mr Appeltans reported that the visibility and need for OBIS has never been greater with exiting new initiatives such as SDG14, IPBES, 2nd World Ocean Assessment, GOOS and MBON. However, the increasing number of requests to support international processes and initiatives, the growing OBIS network and consequently the growing need for support and training unfortunately does not yet go hand in hand with an increase in resources, and is creating scalability issues at the Secretariat, and undoubtedly ramifies through at the OBIS nodes. The in-kind support and contributions received from within the OBIS network, and the international collaboration is essential to achieve the objectives of OBIS, and Mr Appeltans expressed great appreciation to:

- All the institutions hosting OBIS nodes,
- VLIZ/EurOBIS for their support in taxonomic QC, training, IPT maintenance, IMIS and MarineRegions,
- USGS/OBIS-USA for their support in the design of OBIS2.0 and the data task team,
- The whole team of OBIS-ENV-DATA,
- OBIS-Caribbean for providing training support at CBD-SOI, CBD-COP13, SpinCam, INVEMAR and MBON,
- For presenting OBIS at meetings, e.g. MedOBIS at the UNESCO MAB Mediterranean meeting, EurOBIS presenting on OBIS-ENV-DATA at the IMDIS conference, OBIS-USA at BBNJ PrepCom-2,
- OBIS SEAMAP for their support in the CBD-EBSA process,
- J-OBIS for hosting and preparing this SG meeting.

2.2 OBIS NODE REPORTING

2.2.1 OBIS Node reporting tool and OBIS Node page

15. During the launch of the new OBIS website, which has a webpage for each dataset and data provider, there was a suggestion on our GitHub [https://github.com/iobis/obis-issues/issues/23](https://github.com/iobis/obis-issues/issues/23) to also create a web page for OBIS nodes that lists the data providers that OBIS nodes represent and the datasets they
have provided in a live summary report. Part of that request is fulfilled, e.g.,
http://iobis.org/explore/#/node/3.

16. Mr Sky Bristol (USGS/OBIS-USA and SG-OBIS co-chair) presented the proposal for an
OBIS node web page linked to a reporting tool, which was set-up during the previous
OBIS node page would provide a graphical overview (with nodes and relationships)
representing the contributions (data, funding or other) and partnerships. The page
would also provide an overview on the number of records, taxa, datasets and data
providers per country for each OBIS node. An activity report will show the following
numbers spanning the last 12 months:

- Number of new records vs total number of new records in OBIS
- Number of new species for Node vs total Number of new species in OBIS
- Number of species for Node vs total Number of species in OBIS
- Links to featured datasets
- Ongoing activities taken from http://iobis.org/survey/. The OBIS node activities
could be expanded to products, publications, meetings etc.

17. The discussion continued about the branding of the contributions from OBIS nodes
to central OBIS operations, including sponsors/funding, as well as to OBIS nodes and
the importance of presenting this on the OBIS website. It was suggested that the
graphic representation of data providers to OBIS nodes could be expanded to include
contributions to OBIS.

18. SG-OBIS agreed to develop and maintain a partner web page (labelled: who we
are) describing the technology partners, the sponsors, with a paragraph what each
institution is contributing. And to add this to the menu as well as a link to this page
in the footer.

19. SG-OBIS requested IODE-OBIS to further develop the concept and specifications for
OBIS node pages.

20. SG-OBIS recommended that IODE-OBIS proceeds with the research and
development of a graph representation of the OBIS network with the initial focus
on characterizing data contributions (Data Provider to OBIS Node) and technical,
data product development and funding contributions (OBIS Node to IODE-OBIS).

21. At the previous SG session, it was recommended that node managers use the “Data
Queue” GitHub repository (https://github.com/iobis/dataqueue) to document new
datasets identified by OBIS Nodes for future integration as a mechanism for sharing
planned and current activities and coordinating where necessary/possible. This
GitHub repository is currently under-used and it was suggested to use it as follows:

22. The SG-OBIS recommended to use the data queue GitHub repository
(https://github.com/iobis/dataqueue) to keep track of activities associated with (i)
orphaned datasets (no OBIS node assigned: http://iobis.org/explore/#/node/0), (ii) new data set assignments to OBIS nodes and (iii) marine datasets in GBIF.

2.2.2 OBIS Node health status check and exit strategy

23. Following the request from the previous SG meeting, the OBIS executive committee prepared a document on a node exit strategy for OBIS nodes that are no longer active, which was reviewed by the IODE officers. Mr Eduardo Klein (SG-OBIS co-chair) presented the draft OBIS Node Health Status Check and Exit Strategy. Mr Ward Appeltans listed the OBIS nodes that would currently fall under the inactive category based on the criteria outlined in the draft strategy. The SG then discussed the 7 criteria and decided to remove one “The OBIS node manager has not responded to a dataset in the queue within 6 months” and also proposed to change the word “exit” to “transition” strategy in the title of the document.

24. The SG-OBIS agreed on the OBIS Node health status check and transition strategy for inactive OBIS Nodes (Annex 2) and requested the following OBIS nodes: ESPOBIS, FishBase OBIS, KOBIS, MicrOBIS, OBIS China, PEGO-OBIS and WSAOBIS to submit an action plan within 3 months of notification by the OBIS Secretariat.

2.2.3 Asian OBIS Node strategy

25. The previous SG meeting requested J-OBIS and SEA OBIS to develop a strategy to strengthen the network of data providers and OBIS nodes in their region. Mr Hosono Takashi (J-OBIS) presented their proposal to revitalize local OBIS node activities in the Asian region, through (i) constructing a regional node network, which promotes cooperation between existing nodes and (ii) providing technical support to new/candidate nodes in Asia. The following actions are proposed:

26. Enhancing a regional node network at an opportunity when major Asian nodes can gather in one place
27. Identify the status of Asian OBIS nodes and identify potential new Asian nodes
28. Figure out needs or issues in the inactive nodes and examine possible support to contribute to restart the nodes.
29. Introduce OBIS Asian node activities at international meetings (e.g. IOC-WESTPAC, April 2017) to promote the establishment of new nodes in the region, and provide technical support to such new/candidate nodes.

30. The SG-OBIS welcomed the 4-point action plan put forward for coordinating and strengthening OBIS in Asia and recommended J-OBIS, OBIS China and SEA OBIS to proceed with this regional activity and report on the status at the next SG-OBIS session.
2.2.4 Report on GBIF collaboration

31. Mr Ward Appeltans (OBIS project manager) reminded that on 13 October 2014, IOC and the GBIF Secretariat signed a letter of agreement in which the two parties recognized the two initiatives (OBIS and GBIF) as complementary with common goals (in particular OBIS’s role in marine biodiversity data). Together they agreed to work towards maximizing the quantity, quality, completeness and fitness for use of marine biodiversity data, accessible through OBIS and GBIF, amongst other things.

32. At the 4th SG-OBIS session (February 2015), the SG recommended that GBIF should harvest OBIS tier-2 nodes if they could also harvest marine datasets from GBIF. It was not recommended that iOBIS set up a separate IPT for GBIF to harvest, since this would mean a duplication of effort.

33. At that time, 5 out of the 14 OBIS nodes served their data to GBIF directly. Based on a recent survey created by the OBIS Secretariat to assess the status of OBIS-GBIF collaboration, the situation is as follows: Currently 13 OBIS nodes are registered at GBIF. In addition, two tier-3 OBIS nodes serve data via their tier-2 node to GBIF and one OBIS node provides their datasets to GBIF via their national GBIF node. 12 OBIS nodes are not (yet) registered at GBIF. See status OBIS nodes in GBIF. Only two OBIS nodes indicated they have harvested marine datasets from GBIF. In the online survey, the OBIS nodes requested the following issues to be addressed at this SG meeting:

   a. GBIF enforcement of CC-0, CC-BY, CC-BY-NC
   b. Lack of visibility of OBIS (only networks can be added to datasets by GBIF directly)
   c. Replacement/removing old OBIS datasets
   d. Mismatch of OBIS vs GBIF mandatory DwC terms, such as scientificNameID
   e. GBIF direct requests to OBIS nodes without consulting with iOBIS for possible consequences (such as the removal of absence records).

34. The SG-OBIS recommended that guidance be issued advising OBIS Nodes of their ability to request endorsement by IODE-OBIS as GBIF Publishing Organisation. This would enable a clearer connection of the OBIS nodes within GBIF to OBIS.

35. The SG-OBIS recommended OBIS Nodes who participate directly in GBIF governance to lend support to the following request for GBIF to implement:

   • A method to allow publishers to be endorsed or tagged by multiple entities including OBIS
   • A programmatic method for OBIS to connect the OBIS datasets found in GBIF to the “OBIS Network” in GBIF, providing another method to show and interface with the OBIS data network within GBIF.
36. The SG-OBIS recommended that OBIS nodes already involved with GBIF create a task team that can take the lead in implementing the specifications of the Letter of Agreement between IOC/OBIS and the GBIF Secretariat.

2.2.4.1 Potentially new OBIS nodes from the GBIF network of publishers

95. The SG-OBIS-5 (May 2016) recommended the OBIS Secretariat to consider potential new OBIS nodes based on marine publishers in GBIF for areas where OBIS lacks coverage. Mr Ward Appeltans reported that there are at least 86 publishers in GBIF based on datasets with over 90% marine records that are not yet in OBIS. See potential new OBIS nodes. This list does not take into account geographic coverage. Collectively, this represents nearly 500 datasets and around 7 million records.

96. Three options were proposed (none of them are mutually exclusive):

   a. The OBIS co-chairs or OBIS Secretariat contact these GBIF publishers and ask if they would like to become involved in OBIS as an OBIS node
   b. An OBIS node establishes a data sharing relationship and harvests and processes the marine datasets of these GBIF publishers
   c. An OBIS node, after consultation, endorses the GBIF publisher and requests iOBIS to harvest the marine datasets from their IPT/DiGIR (based on the “marine, harvested by iOBIS” indication in the EML additional metadata field). The GBIF publisher is then treated as an OBIS data provider and falls under the responsibility of the OBIS node. The OBIS node should report back the OBIS QC report and arrange on how to correct any mistakes.

39. The SG-OBIS encouraged OBIS nodes to collaborate locally with GBIF nodes, publishers and data providers (option 2).

2.3 OBIS TASK TEAM REPORTING

2.3.1 OBIS governance task team

40. Mr Eduardo Klein (SG-OBIS co-chair) reported on the first OBIS Executive Committee meeting held on 8-10 November 2016 at the IOC project office for IODE, Oostende, Belgium. The OBIS EC meeting was necessary to prepare the working documents for this SG meeting and it was suggested to follow this format for all the upcoming SG meetings and have regular conference calls in between to assess progress of the OBIS work plan and intervene when necessary.

41. In addition, the OBIS EC, with input from any volunteers from the OBIS community, would like to develop a business model canvas to map current activities, identify gaps, document what OBIS is etc.
42. The SG-OBIS decided to abolish the Governance Task Team to be replaced by the OBIS Executive Committee.

43. The SG-OBIS requested the OBIS Executive Committee to present the results of the OBIS business model canvas exercise before or at the next SG-OBIS session.

2.3.2 OBIS data task team

44. Mr Philip Goldstein (OBIS-USA, chair of the OBIS data task team) reported on the OBIS data task team (OBIS data-TT) activities and in particular on (i) the compliance of the 7 required OBIS terms and (ii) the OBIS-ENV-Data pilot project results and proposed for discussion the following topics (a) make OccurrenceID a required term (as in GBIF) and (b) allow fossil data in OBIS?

45. Mr Pieter Provoost (OBIS data manager) presented an analysis of actual OBIS contents in relation to compliance. A summary per dataset is available at http://iobis.org/datasets/. Also in more recent datasets compliance is not 100% and attention to the required terms could be a focus in OBIS's future via training, to prevent future issues with compliance.

46. Regarding fossil data, there are DwC terms for fossil data that OBIS can use, relating for example to the geological time of the fossil specimen and the geologic formation in which it is found. However, more examples of such data, and how they would serve OBIS, would be required from nodes to help OBIS evaluate requirements and solutions and determine how specifically to implement it within DwC.

47. The OBIS data-TT also proposed to submit the OBIS-ENV-DATA standard to the IODE Ocean Data Standards and Best Practices project for adoption by IODE and share it on http://www.oceandatapractices.net.

48. The SG-OBIS welcomed the proposed OBIS-ENV-DATA standard for combined biological, environmental, and sampling methodology (documented in https://doi.org/10.3897/BDJ.5.e10989) and thanked the OBIS-ENV-DATA consortium for their excellent work done.

49. The SG-OBIS recommended OBIS Nodes to apply the OBIS-ENV-DATA standard in those cases that environmental and/or biological measurements and/or sampling event methodology information are available. The IODE-OBIS will maintain compatibility with Occurrence Core encoded data.

50. The SG-OBIS stressed that adoption of OBIS-ENV-DATA includes discontinuing use of dynamicProperties, samplingProtocol and other DarwinCore terms that can otherwise be encoded in the extended MeasurementorFact (eMoF) instead.

51. The SG-OBIS recommended that the OBIS Secretariat should create a GitHub repository to track and resolve issues related to OBIS-ENV-DATA, and that goals of
this repository will include providing examples of datasets and practices and assisting nodes with using the OBIS-ENV-DATA standard.

52. The SG-OBIS recommended continued development for the IODE-OBIS infrastructure to fully exploit and expose OBIS-ENV-DATA, including identifying and resolving design issues as needed to support valid Event Core datasets.

53. The SG-OBIS recommended that full and timely implementation of the OBIS-ENV-DATA standard requires additional resources at IODE-OBIS that are dedicated to this purpose. The resources should be sought through the SG-OBIS.

54. The SG-OBIS agreed with the inclusion of occurrenceID as the 8th required DwC term for OBIS data, but noted that there are significant design issues remaining, such as persistence of the ID, level of uniqueness (from dataset to global) and the precise algorithm and format for generating the ID. It was also noted that the inclusion of occurrenceID will be a necessary aspect of OBIS-ENV-DATA.

2.3.2.1 OBIS Event Data for Scientific Applications

55. Mr Sky Bristol (SG-OBIS co-chair) presented the proposal of a new IODE pilot project: OBIS Event Data for Scientific Applications, to be submitted at the 24th IOC Committee on IODE in March 2017. The OBIS Event Data pilot project will build on the success of OBIS-ENV-DATA, with the aim to validate and enhance the scientific purposes of developing and using OBIS Event Data with the aim to support data and information product development within the framework of GOOS and the Marine Biodiversity Observation Network (MBON) of GEO. No chair of this pilot project was identified at the SG meeting (but meanwhile Francisco Hernandez, VLIZ/EurOBIS, agreed to be the chair). It was suggested that the project seeks collaboration with the biodiversity data integration group of the Research Data Alliance (RDA, https://www.rd-alliance.org/groups/biodiversity-data-integration-ig.html). All OBIS nodes were invited to express interest to join this pilot project and it was noted that GBIF already expressed interest.

56. SG-OBIS welcomed the OBIS Event Data for Scientific Applications IODE pilot project proposal, and SG-OBIS recommended to focus on science questions not just a data question and requested the OBIS nodes to express interest in joining this pilot project before end of February 2017.

2.3.3 OBIS capacity development task team

57. Mrs Leen Vandepitte (chair of the OBIS capacity development task team, CD-TT) reported on the training activities during the past intersessional period and presented the draft OBIS Training Strategy 2017-2021. Due to too many other commitments, she also proposed to step down and would like to hand over the
chairmanship of this task team after the SG meeting, but wished to remain involved in the training activities.

58. In total, 110 people from 43 countries received training in OBIS through 8 training courses. During the last intersessional period, around 50 people attended two OBIS training courses, co-funded through the IOC/IODE OceanTeacher Global Academy project:

- OBIS-INDEEP deep-sea training workshop, 25-28 October 2016 in Belgium
- OBIS training course Administración de Datos Biogeográficos Marinos (Contribuyendo al Uso de OBIS), 26-30 September 2017 in Colombia

59. OBIS training was discussed at the OBIS EC meeting. It is important that we scale up the training activities and increase the impact of the training courses, possibly through partnering with other training initiatives. The OBIS EC acknowledged that different groups have different training needs and asked the CD task team to develop a training strategy that reflect this.

60. Mrs Vandepitte presented the OBIS training strategy 2017-2021 which distinguishes training needs according to different target groups: (i) OBIS node data managers, (ii) OBIS trainers (train-the-trainers), (iii) data providers, (iv) scientists, (v) Academia (students and professors) and (vi) professionals at agencies and regional organisations. For the next intersessional period, the priority groups are the OBIS nodes and OBIS trainers. The OBIS node trainings can be further split into a full training (basic + advance) for new/candidate OBIS nodes and an advanced training for existing OBIS nodes (which could be done through webinars).

61. The OBIS training strategy calls for:

- Continuous updating of the OBIS Manual, including examples on taxonomic QC, new OBIS QC and data enhancement tools and OBIS-ENV-DATA.
- Creation of lessons - “step-by-step” tutorials - on OceanTeacher
  - General topics (data formatting, metadata, QC …)
  - Specific topics (ENV-DATA, use of R, newly developed tools …)
- Creation of short tutorial videos on different relevant topics
- Organisation of 2-hour webinars for more experienced node data managers
- Follow-up on the trainee performance after the training courses

62. In addition, there is a need to better link the training material from the OBIS manual (the ‘book’) with the lessons on the OceanTeacher e-learning platform and the material on GitHub training repository. A question & answer section on the OBIS website could aid the trainers and trainees.

63. The following OBIS training courses are scheduled for 2017:

- OBIS training course (Spanish), Mexico, Feb- March 2017
- OBIS training course (Spanish), Galapagos, Ecuador, April 2017
- OBIS training course (French), Senegal, July 2017
- OBIS/HAB training course (English), Belgium, September 2017
- OBIS training course (English), Kenya, October 2017
- OBIS Asian nodes and Coral Reef training workshop (English), Malaysia, October 2017
- OBIS nodes train the trainers training course (English), Belgium, November 2017
- OBIS training course (English), Iran, December 2017

64. The SG-OBIS welcomed the OBIS Training Strategy document provided by the CD-TT and accepted it as a dynamic document to be posted to the OBIS web site, and recommended the CD-TT to (i) increase the use of the OceanTeacher e-learning platform, and develop short guides and video tutorials particularly for future training development including OBIS-ENV-DATA methodology, and (ii) form alliances with other training programmes (e.g., J. Nicholls’ simplified qualitative approaches [http://port.sas.ac.uk/course/view.php?id=73], POGO, ERASMUS programme [Former EMBC+ - International Master of Science, Marine Biodiversity and Conservation - [http://www.embcplus.org/, to become in September 2017 IMBRSea - International Master in Marine Biological Resources], Data Carpentry Foundation, etc.) to explore areas where efforts on OBIS training can be magnified.

2.3.4 OBIS taxonomy task team

65. Mrs Leen Vandepitte (chair of the OBIS taxonomy task team) reported on the activities of the Taxonomy TT. The main activity is dealing with the scientific names in OBIS that do not match with the World Register of Marine Species (WoRMS). These non-matching names currently being dealt with are from the April 2016 harvest. These have been fully processed by the WoRMS Data Management Team at VLIZ and feedback is sent to both data providers and/or OBIS node data managers and the WoRMS taxonomic editors. There was some confusion during this process about to whom the WoRMS DMT should send the feedback (data provider or node manager).

66. The Taxonomy TT proposed to set deadlines for OBIS node managers to follow-up on the feedback from the WoRMS DMT (e.g. 2-3 months) and the WoRMS LSIDs provided by the WoRMS DMT should be added to the datasets on the IPT as a matter of priority (before next harvest).

67. During the next intersessional period, the Taxonomy TT will continue working through the backlog of non-matching names in OBIS and provide support to OBIS nodes when non-matching names occur (on the condition that the OBIS nodes have used the taxon matching tools and have performed an initial cleaning exercise, e.g. correcting any misspellings).
68. The SG-OBIS reiterated (i) the decision that scientificNameID is a mandatory term in OBIS; (ii) the recommendation that node managers can contact the Taxonomy TT (by email to info@marinespecies.org) to get help in matching the taxon names and (iii) that it is the task of the OBIS nodes to perform the taxon matching through WoRMS and - if possible - extended by the LifeWatch Taxon Matching.

69. The SG-OBIS recommended the OBIS technical TT to check for options of keeping track of annotations to problematic taxonomic names.

70. The SG-OBIS thanked the WoRMS Data Management Team for providing support on resolving taxonomic name matching issues.

2.3.5 OBIS technical task team

71. Mr Pieter Provoost (OBIS data manager) and Bart Vanhoorne (EurOBIS) reported on the status of the hardware/software infrastructure and the issues encountered. The OBIS database PostgreSQL version is outdated and is showing performance issues, particularly when using multiple search criteria (spatial, temporal) and this problem will get worse with expected higher data volumes (eDNA, tracking, VPR, etc.) and with expected higher load (when OBIS is supporting regional and thematic views). In addition, the current data harvesting and indexing process is not modularized and rather monolithic with many manual actions and checks. All datasets are processed in bulk meaning that if an IPT or dataset has a problem it causes delays for all datasets. Because the harvest and indexing cycle takes so long (every 3 months), the feedback loop on errors back to the OBIS nodes is slow. Previously proposed solutions, such as vertical scaling, caching, load balancing and geo load balancing, will not solve all these problems in the long-term.

72. As a response to these technical challenges, Mr Sky Bristol (USGS/OBIS-USA) started the design of the **OBIS 2.0 - Reengineering Project**, which has six main goals:

- Achieve near real time data integration from OBIS Nodes - as soon as OBIS Nodes advertise the availability of new or updated data, the OBIS system begins automated processing to ingest data and completes integration routines in a timely manner (e.g., less than 24 hours in most cases).
- Achieve the ability to scale the system to hundreds or thousands of new datasets and millions of new records while providing timely results for queries, data access (download and streaming), and products (analytics and indexes).
- Achieve the ability to integrate environmental variables in addition to biological observations using the results of the OBIS-ENV-DATA project as a guide and to fully leverage this new type of data in queries, data access, and products.
- Improve on the real-time analytics capability of OBIS to directly inform biodiversity indices, essential ocean variables and biodiversity indicators, starting at the API level to support science end users (e.g., via R/Python packages) and custom apps/portals along with a flexible and ever evolving set of reports through the OBIS portal.
• Introduce a capability for both open, public data as well as data that are under limited embargo due to research project constraints or other factors with an authentication/authorization framework that supports secure, seamless access to private and public data.

• Improve the full visibility of the OBIS Network by persistently linking OBIS Nodes, data provider institutions, and individual contributors (data providers, authors, etc.) together such that each entity is cited and their full contribution to OBIS easily accessible.

73. Mr Bristol stressed that this OBIS2.0 reengineering project cannot be achieved through core IOC/IODE funding alone, but must also include donated expertise and technology from OBIS Nodes willing and able to help achieve the mission for this major upgrade and modernization effort.

74. The SG-OBIS recommended that the OBIS TechTT develop and implement an engineering plan that builds on the high-level objectives of OBIS2.0 for the next generation of OBIS.

75. During the OBIS EC meeting, INCOIS (India) participated remotely to discuss their offer to host a mirror of the OBIS database. The OBIS Secretariat shared the database specifications with them.

76. The SG-OBIS thanked INCOIS for their willingness to host a mirror of the OBIS technology stack. However, the SG-OBIS recommended that the OBIS TechTT should look at hosting solutions for the OBIS technology stack as part of the OBIS 2.0 reengineering effort.

2.3.6 OBIS science advisory task team

77. Mr Ward Appeltans briefed the SG-OBIS on the status of the development of a new legally-binding instrument under the UN Convention on the Law of the Sea to conserve and sustainably use marine biodiversity of areas beyond national jurisdiction (BBNJ) by a Preparatory Committee (PrepCom) and the Intersessional Working Group (IWG) on the IOC relevant issues related to the PrepCom with the tasks to examine the possible contribution of the IOC in relation to BBNJ. There is general agreement in the IWG that data management and data exchange constitute one of the areas of IOC’s potential contribution to BBNJ. IODE and OBIS are regarded to be uniquely positioned to provide expertise in data curation, data integration, standards and open and free access to data, information, data products and services. It is also pointed out that capacity development on data standards, metadata and best practices is of great importance. Nevertheless, there is a call for a seamless query of associated data from other global repositories.

78. The IWG agreed that the creation of new mechanisms or structures with similar functions and roles should be avoided. However, some IWG members pointed out that both IODE and OBIS would require additional resources both in terms of
79. During the intersessional period, the OBIS-EC in consultation with SG-OBIS also discussed the potential role of OBIS in BBNJ and concluded that OBIS could provide foundational technology and methodology for robust data integration, products, and services, and in fundamentally being a science mission can serve as a neutral party with regard to laws and regulations. However, while OBIS already provides much of the capability that a BBNJ data system can use, there are several areas that would require supplemental funding to focus on BBNJ-specific needs. The OBIS network, both applicable nodes providing data from areas beyond national jurisdiction and the international OBIS Secretariat, will need to be further expanded with new resources to address the specific requirements for using OBIS in a legal instrument context. Increased scrutiny needs to be applied to flag data appropriate or inappropriate for specific uses in consultation with legal experts and communicate uncertainty in ways consumable by non-scientist users. In addition, support for developing training packages and for organizing training workshops will also be needed. The SG-OBIS identified that the OBIS Secretariat will require up to 3 extra staff members for coordination, training and product development as well as funding to assist the deep-sea and other key OBIS Nodes through a targeted funding program.

80. The SG-OBIS strongly encouraged IOC Member States to continue supporting the national, regional and thematic OBIS Nodes, which they host, that contribute data, technical infrastructure and scientific expertise that could support the BBNJ and other relevant international processes.

81. The SG-OBIS recommended that the architectural design for OBIS 2.0 developed by the OBIS Technical Task Team considers known dynamics for how IODE-OBIS needs to operate in a legal context as part of the foundation for a legal instrument on BBNJ. For instance, this may include methodology for designating fitness for use/limitations of use, uncertainty metrics, and other value-added attribution.

82. Mr Eduardo Klein (SG-OBIS co-chair) reported on the collaboration with the Secretariat of the Convention on Biological Diversity (CBD). OBIS was presented at the CBD Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies on Accelerating Progress towards the Aichi Biodiversity Targets, held in Seoul from 26 to 28 September 2016. During the discussion, OBIS was referenced under Scientific Collaboration and Cooperation at Regional Scale and Opportunities for Future Collaboration, Information-sharing and Exchange of Experiences. The Seoul Outcome document referred to OBIS, in particular in point 11 (d) “Promoting harmonized approaches for collecting and accessing data, and exchanging scientific information produced by a wide range of
entities, including governments, universities, research institutions/partnerships, non-governmental organizations, and United Nations agencies, e.g., information on ecologically or biologically significant marine areas (EBSAs) and vulnerable marine ecosystems (VMEs) as well as from the Ocean Biogeographic Information System (OBIS) and the Global Ocean Observing System (GOOS).”

83. In 2016, Mr Klein also represented OBIS in three training workshops of the CBD/SOI:
- Sustainable Ocean Initiative (SOI) Capacity Development Workshop for East Africa. Nosy Be, Madagascar. 18-22 January 2016,
- Sustainable Ocean Initiative (SOI) / Pacific Ocean Alliance Regional Workshop for the Pacific Islands. Apia, Samoa. 31 Oct - 04 Nov 2016.

84. In both cases, a brief introduction of OBIS was presented to the participants and an exercise on Marine Spatial Planning was conducted using data derived from OBIS. The material for the course is hosted at OceanTeacher Global Academy (English or Spanish version).

85. Mr Klein also represented OBIS at three side events at the 13th CBD Conference of the Parties:
- 2nd CBD Technical Workshop on Monitoring of Marine and Coastal Biodiversity (10/DEC/2016). EBSAs, GOOS, OBIS and Capacity Building. OBIS was presented as part of a global biodiversity monitoring program along with MBON and GOOS initiatives.
- Sustainable Ocean Initiative: Global Platform for Capacity Building and Partnerships for achieving Aichi Targets and Sustainable Development Goals in marine and coastal areas (08/DEC/2016). Marine spatial planning through role-playing (OBIS-IOC/UNESCO). The exercise used in the SOI workshop where OBIS data is used was presented.
- Marine Spatial Planning in support of achieving Aichi Biodiversity Targets and Sustainable Development Goals in marine and coastal areas. Global level capacity building on MSP (OBIS-IOC/UNESCO). The OTGA site was presented and OBIS was used as an example of a global training program.

86. As a result, OBIS is mentioned in the CBD/COP13 Decision XIII/12: Marine and coastal biodiversity: ecologically or biologically significant marine areas, which requests the CBD Secretariat to partner with IOC/OBIS and GOBI in facilitating relevant training opportunities and in order to enhance the EBSA repository and information-sharing mechanism they should provide links to relevant open-access information portals, such as the Ocean Biogeographic Information System or other relevant global/regional information portals related to areas described as meeting the EBSA criteria.

87. The SG-OBIS welcomed the decision of the 193 Parties to the Convention on Biological Diversity (Decision COPXIII/12) which requested the CBD to (i) establish a partnership with OBIS to facilitate training opportunities for incorporating new
information and new consideration of existing information in future description of areas meeting the EBSA criteria, including both scientific and traditional knowledge and (ii) provide links from the EBSA repository to the data and information from EBSA areas in OBIS.

88. The SG-OBIS recommended that IODE-OBIS prioritize summarization of OBIS data to Marine Protected Areas (MPAs).

89. Mr Eduardo Klein also reported on the collaboration with GOOS BioEco and GEO BON MBON and their needs from OBIS. On 15 December 2016, OBIS signed a collaboration agreement with the Global Ocean Observing System Biology and Ecosystem (GOOS BioEco) Panel and the Marine Biodiversity Observation Network (MBON) of the Group on Earth Observations Biodiversity Observation Network (GEO-BON) to join efforts towards a sustained, coordinated global ocean system of marine biological and ecosystem observations to support management decisions and address relevant science and societal needs. Both GEO BON MBON and GOOS BioEco agreed that OBIS will play a key and central role in fostering wider data sharing, data curation and aggregation in order to streamline the feeding of integrated and quality controlled datasets into models and forecasts.

90. OBIS attended the MBON Pole to Pole of the Americas startup meeting in Cancún (September 2016). This is a pilot project that pretends to demonstrate the viability of a continental wide marine biodiversity network. It was agreed that OBIS could be the platform for data storage, integration and dissemination for the project.

91. The SG-OBIS recommended that IODE-OBIS stimulate research and development through the OBIS network to use OBIS data services directly in developing products that inform biodiversity status and trends, conservation status, and other metrics needed for CBD (specifically Aichi Targets), GOOS, GEO BON MBON, IPBES, SDG 14 and other international initiatives.

2.3.7 OBIS communication and outreach task team

92. Mr Ward Appeltans (OBIS project manager) already reported on the communication and outreach activities as part of the Secretariat report. The previous SG session recommended to work with the past Census of Marine Life outreach team to develop guidelines on communication and outreach. There is still a lot of confusion out about what OBIS is and can do vs what it is not and currently cannot do. There was general agreement that we need to invest more in explaining OBIS, its work and its network and ask other scientific communities (such as IUBS) to promote OBIS. It was proposed that the OBIS website shows statistics on:

- New or improved spatial and temporal coverage
- New or improved taxonomic coverage
- New statistical fidelity due to increased coverage or improved data quality
- New contributing institutions and PIs
• New connections to monitoring networks

93. SG-OBIS recommended the selection and promotion of the "dataset of the month" as a way to expose interesting/new datasets and requested the OBIS Secretariat to provide a template for OBIS nodes to provide this information on a regular/rotating basis.

94. The meeting continued on the role of OBIS as a data repository for journal publications. The previous SG meeting recommended the OBIS Secretariat to contact journal editors to request consideration in using OBIS standards and best practices in instructions to authors and cooperating with OBIS nodes in publishing biogeographic data, which is for example the case for the Canadian Journal of Fisheries and Aquatic Sciences. It was noted that OBIS is not a data repository for secondary derived data, and should only deal with primary data. However, a partnership with Pensoft journals (such as ZooKeys, BDJ) would be beneficial if they would recognize OBIS as one of the recommended primary data repositories.

95. Captain Mark Schrader from Project Ocean Watch expressed interest in promoting OBIS and sharing data with OBIS during his voyage around the Americas during spring 2018-fall 2019. The question was raised whether these initiatives could be called “movable” OBIS nodes or “OBIS explorers”?

96. SG-OBIS recommended to accept the denomination of "OBIS explorer" for particular research projects or programmes that wish to contribute data and promote OBIS. For that, they are required to become an IODE Associated Data Unit (ADU) and be linked with a tier-2 OBIS node.

2.4 OBIS PROGRESS STRATEGY

97. Mr Eduardo Klein (SG-OBIS co-chair) introduced this agenda item and stressed the need to increase the volume of more recent (post-2010) data in OBIS. It will be difficult for OBIS to develop biodiversity status and change indicators if it takes 5 years or more from data collection to publication in OBIS. Mr Klein suggested to look at the +100 biodiversity monitoring programmes that responded to the GOOS BioEco survey (http://goosocean.org/bioecosurvey), and asked OBIS nodes to start contacting those programmes that have expressed interest in sharing data with OBIS. It will be extremely important for OBIS to engage with continuous monitoring programmes that generate long-term time series datasets. It was also suggested that OBIS nodes would benefit from a regional approach, such as a regional alliance or network (cfr Asian OBIS strategy).

98. Mr Sky Bristol (SG-OBIS co-chair) expressed concern over the lack of active engagement in the OBIS Task Teams. There are currently vacant positions to (co)chair the Science Advisory TT, capacity development TT, communication TT and data TT. The OBIS task teams have an important task to prepare working documents, including recommendations and actions for discussion and decision at the SG
meetings. This is crucial to make progress in OBIS, especially when the SG only meets once per year. The OBIS Task Team (co)chairs are also member of the OBIS Executive Committee which is the body to review progress and intervene if necessary.

99. As was promised at the previous SG meeting, Mr Kevin MacKay (NIWA, manager SWP-OBIS) and Mary Kennedy (OBIS Canada) reported on their work with iNaturalist to provide a guideline document for citizen science data and to prepare a recommendation for SG-OBIS-VI. iNaturalist (https://www.inaturalist.org/) is a well-established global platform to publish citizen science data. The SWP-OBIS node harvests data from iNaturalist. There are, however, a number of issues for OBIS: (i) iNaturalist does not export the data in DarwinCore (but ASCII), (ii) many of the data fields (e.g. field notes) are free text and do not have standard formats, (iii) 99% of the data is terrestrial (no marine geonames), (iv) there is no taxon matching with WoRMS (but ITIS) and (v) their data license agreement does not match the 3 Creative Commons licenses adopted by OBIS and GBIF. Considering these issues, it was felt premature to promote iNaturalist as the citizen science “Node” for OBIS and it was suggested to prepare a letter signed by the OBIS nodes to ask iNaturalist to adopt some of the OBIS standards and best practices.

100. Mr Nicolas Bailly (manager MedOBIS & FishBase OBIS) introduced the topic on data archeology. At the previous SG meeting, OBIS nodes were asked to share their guidelines on data archeology projects with Nicolas Bailly (MedOBIS) and Mary Kennedy (OBIS Canada) who will then be able to provide a best-practices document by this SG meeting. Examples were given on the digitization of field records of the Fish Collection of (U)BC Institute of Fisheries, the data archeology project of EMODnet Biology and the Atlantic Ecosystem Initiatives (AEI) of COINAtlantic. OBIS Canada is testing a crowd source digitization process with volunteers to add data from old reports into excel spreadsheets. This process requires some clear guidelines, e.g. a minimum of training on taxonomy and nomenclature as well as on Georeferencing is needed, which should explain e.g. what to do when no decimal coordinates are provided but only a place name or points on a map or verbatim lat/long. This documentation could be part of the OBIS manual. A best practice document on data archeology for OBIS was not ready, but recommended reading is the following recent open-access paper: Faulwetter et al. (2016). EMODnet Workshop on mechanisms and guidelines to mobilise historical data into biogeographic databases. Research Ideas and Outcomes, 2(e9774): 1-28. doi:10.3897/rio.2.e9774.

101. A listing of the publication references collected from the IPT metadata would be a useful tool to know which reports are already digitized and available in OBIS. Each of these references could/should be associated with the OBIS node, the OBIS resourceID and the IPT identifier.

102. It was suggested that a good way to inform the OBIS network of which datasets OBIS nodes are working on, is through publishing the metadata through the IPT ahead of publishing the actual occurrence data. This is already done by MedOBIS.
SG-OBIS recommended that the OBIS Secretariat provides an online catalogue of datasets that are in progress based on metadata published through the IPT.

3 OBIS FUNDING STRATEGY

Mr Ward Appeltans introduced this agenda item and requested the SG-OBIS to review the page on [http://iobis.org/about/sponsor/](http://iobis.org/about/sponsor/).

The fact that there is no permanent solution for the OBIS data manager position, which is critical to the operation of OBIS is a concern for the sustainability of OBIS. Considering the financial situation of UNESCO, it is unlikely OBIS will receive extra funding for its core operations in the next biennium and therefore need to attract extra-budgetary funding.

We are grateful for the generous donations from Serge Martin (The Great Explorers) who again contributed not less than 10,000 CAN$ to OBIS (and promised to do this for five years between 2013-2017).

The previous SG meeting recommended the task team chairs and OBIS nodes managers to develop short concept notes of project proposals. There are currently two OBIS related concept note proposals available for sponsorship at the IOC Capacity Development fund.

- Capacity development in ocean observation data analysis and product visualisation to enhance the ocean science – policy interface (IOC-CDF-2016-002) - [download](http://iobis.org/about/sponsor/)
- Capacity development in marine science communication to enhance the ocean science – policy interface (IOC-CDF-2016-001) - [download](http://iobis.org/about/sponsor/)

OBIS is also involved in two calls for proposals that can contribute to the objectives of OBIS:

- NASA Earth Science Division call (ROSES-2016 A.50) to advance specific elements of the GEO Work Programme 2017-2019
- European Horizon 2020 (SC5-18-2017) novel in-situ observation systems to advance the in-situ component of GEOSS and the EU Copernicus programme (link with GEO BON)
## OBIS WORK PLAN 2017

### All OBIS nodes

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>The node managers to enter activities into the survey to create the network map. It will require a controlled list of partners and linkage types.</td>
<td>All node managers</td>
<td>Subject to changes to the survey page for a controlled list of partners and linkages.</td>
<td>-</td>
</tr>
<tr>
<td>Complete the design of the node page from feedback from nodes.</td>
<td>Dave Watts</td>
<td>Mid-March 2017</td>
<td></td>
</tr>
<tr>
<td>Review the list of orphaned datasets and advise iOBIS of required actions.</td>
<td>All node managers</td>
<td>May 2017</td>
<td></td>
</tr>
<tr>
<td>The data summary report for a node should show the dataset title and not just the dataset number. iobis.org/datasets/</td>
<td>OBIS data manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review institute and dataset contact details on iobis.org/datasets/</td>
<td>All node managers</td>
<td>May 2017</td>
<td></td>
</tr>
</tbody>
</table>

### OBIS Executive Committee

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete a first draft of the business model canvas to be presented to the OBIS-EC</td>
<td>OBIS-EC and others</td>
<td>May 2017</td>
<td>Costs of the platform provided by USGS</td>
</tr>
<tr>
<td>Final Canvas model</td>
<td>OBIS-EC</td>
<td>June 2017</td>
<td>0</td>
</tr>
<tr>
<td>Based on the Health status check presented at the SG-6 send a letter to the identified nodes to request an action plan</td>
<td>OBIS Secretariat</td>
<td>March 2017</td>
<td></td>
</tr>
</tbody>
</table>

### OBIS Capacity Development Task Team
<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-up on 2016 training alumni</td>
<td>iOBIS / Node Managers</td>
<td>March 2017</td>
<td>None</td>
</tr>
<tr>
<td>Identification of new chairperson CD TT</td>
<td>Eduardo Klein</td>
<td>March 2017</td>
<td>None</td>
</tr>
<tr>
<td>Summer attendance of Carolina Peralta at Oostende to generate Spanish language modules and manual (to be confirmed)</td>
<td>OBIS Secretariat &amp; Eduardo Klein</td>
<td>March 2017</td>
<td>?</td>
</tr>
<tr>
<td>Contact organisers of ERASMUS course on marine ecology to engage to train their students in use of OBIS (cfr. iMarine)</td>
<td>Nicolas Bailly</td>
<td>March 2017</td>
<td>None</td>
</tr>
<tr>
<td>Update current OBIS Manual as per “Action items” above</td>
<td>CDTT</td>
<td>September 2017</td>
<td>?</td>
</tr>
<tr>
<td>Create lessons (step-by-step tutorials) in OceanTeacher</td>
<td>CDTT</td>
<td>September 2017</td>
<td>?</td>
</tr>
<tr>
<td>Formulate general topics (data formatting, metadata, QC, etc.) into training packages</td>
<td>CDTT</td>
<td>September 2017</td>
<td>?</td>
</tr>
<tr>
<td>Formulate specific topics (OBIS-ENV-DATA, use of R, newly developed tools, etc.) into training packages</td>
<td>CDTT</td>
<td>September 2017</td>
<td>?</td>
</tr>
<tr>
<td>Organise webinars for more experienced node data managers (1-hour maximum per session)</td>
<td>CDTT / Philip Goldstein</td>
<td>September 2017</td>
<td>?</td>
</tr>
<tr>
<td>Generate a survey for node managers to identify knowledge/ training gaps</td>
<td>CDTT</td>
<td>September 2017</td>
<td>?</td>
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</tbody>
</table>

**OBIS Taxonomy Task Team**

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process non-matching names &amp; provide feedback to node managers</td>
<td>Leen Vandepitte</td>
<td>continuous</td>
<td>in-kind VLIZ/EurOBIS</td>
</tr>
<tr>
<td>Check possibilities to easily keep</td>
<td>Leen Vandepitte</td>
<td>Next SG-meeting</td>
<td>in-kind</td>
</tr>
</tbody>
</table>
### OBIS Technical Task Team

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form a non-permanent OBIS engineering team</td>
<td></td>
<td>Mid-March 2017</td>
<td></td>
</tr>
<tr>
<td>Evaluate compatible technology options</td>
<td></td>
<td>Ongoing but before The Team meeting</td>
<td></td>
</tr>
<tr>
<td>Meeting engineering team</td>
<td></td>
<td>March/April 2017</td>
<td>5000 US$ (IODE)</td>
</tr>
<tr>
<td>New draft of OBIS 2.0 goals paper finished and distributed for comment</td>
<td>Sky Bristol</td>
<td>February 28, 2017</td>
<td></td>
</tr>
<tr>
<td>Engineering roadmap</td>
<td>The Team</td>
<td>Week after The Team meeting</td>
<td></td>
</tr>
</tbody>
</table>

### OBIS Communication and Outreach Task Team

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a template for the data set of the month</td>
<td>OBIS Secretariat</td>
<td>March 2017</td>
<td>0</td>
</tr>
<tr>
<td>Create a document with the requirements to become an &quot;OBIS explorer&quot;. This explorer should be an ADU and linked to a TIER-2 OBIS node</td>
<td>OBIS Secretariat</td>
<td>March 2017</td>
<td>0</td>
</tr>
<tr>
<td>Develop a page for OBIS statistics inside the Portal</td>
<td>OBIS Secretariat</td>
<td>July 2017</td>
<td>0</td>
</tr>
<tr>
<td>Define a communication and Outreach strategy/plan</td>
<td>Chair of the C&amp;O TT</td>
<td>SG-VII</td>
<td>?</td>
</tr>
</tbody>
</table>

### OBIS Science Advisory Task Team

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsible</th>
<th>Completed by</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>To promote collaboration to provide data concerning ABNJ and MPA/EBSAs, both already established or to be proposed</td>
<td>OBIS Secretariat and Nodes</td>
<td>End of 2017</td>
<td></td>
</tr>
</tbody>
</table>
To identify and list specific demands/needs of CBD, GOOS, GEO-BON/MBON, and IPBES and synthesize this in a report describing to what extent OBIS data and tools can contribute to fulfill these demands

Volunteers of the OBIS Community organized by the OBIS Secretariat

End of 2017

To assess the achievement of Aichi targets based on OBIS data and tools, and use the results to identify missing data that should be prioritize to be searched/achieved

Volunteers of the OBIS Community organized by the OBIS Secretariat

End of 2017

5 ADOPTION OF RECOMMENDATIONS, WORK PLAN AND REPORT

109. The SG-OBIS adopted all the decisions and recommendations (in bold in the report) and action items (see work plan, agenda item 4).

6 DATE AND PLACE OF NEXT SESSION

110. When OBIS nodes offer to host an SG-OBIS session, they are asked to cover part of the costs, e.g. travel or local costs such as venue and catering. Mrs Mirtha Lewis (Argentinean OBIS) proposed to host the 7th session of the IODE Steering Group for OBIS on 12-16 March 2017 in Argentina and will submit an official proposal. The SG-OBIS thanked Mrs Lewis for this excellent suggestion.

7 ANY OTHER BUSINESS

111. No additional issues were raised.

8 CLOSING OF THE SESSION

112. SG-OBIS co-chairs Eduardo Klein and Sky Bristol closed the session on 3 February 2017 at 14:05 and thanked everyone for their active participation and expressed great appreciation to JAMSTEC/GODAC for their excellent hospitality and smooth organization of the meeting.
Annex 1. Agenda of the 6th Session of the IODE Steering Group for OBIS (SG-OBIS-VI)

1-3 February 2017
JAMSTEC, Global Oceanographic Data Center (GODAC), Nago, Okinawa, Japan

AGENDA

1 OPENING OF THE MEETING
   1.1 WELCOME ADDRESS FROM LOCALHOST
   1.2 ADOPTION OF THE AGENDA AND TIME TABLE

2 OBIS PROGRESS REPORT
   2.1 OBIS SECRETARIAT REPORTING
   2.2 OBIS NODE REPORTING
      2.2.1 OBIS Node reporting tool and OBIS Node page
   2.3 OBIS TASK TEAM REPORTING
      2.3.1 OBIS governance task team
      2.3.2 OBIS data task team
         2.3.2.1 OBIS Event Data - Scientific Applications
      2.3.3 OBIS capacity development task team
         2.3.3.1 OBIS CD Strategy
      2.3.4 OBIS taxonomy task team
      2.3.5 OBIS technical task team
         2.3.5.1 OBIS 2.0 - Reengineering Project
      2.3.6 OBIS science advisory task team
         2.3.6.1 BBNJ
         2.3.6.2 CBD/EBSA
         2.3.6.3 GOOS BioEco and GEO MBON
      2.3.7 OBIS communication and outreach task team
         2.3.7.1 Communication & Outreach Strategy

3 OBIS WORK PLAN 2017-2018

4 ADOPTION OF RECOMMENDATIONS, WORK PLAN AND REPORT

5 DATE AND PLACE OF NEXT SESSION

6 ANY OTHER BUSINESS
Annex 2: OBIS Node Health Status Check and Transition Strategy

First, OBIS nodes should operate under IODE as either IODE/ADU or IODE/NODC. As such OBIS nodes are a member of the IODE network.

The IODE Steering Group (SG) for OBIS evaluates the health status of OBIS nodes at each annual SG meeting, and considers an OBIS node as inactive when it meets any of the following conditions:

1. The OBIS node manager recurrently fails to answer the communications from the project manager or the SG co-chairs in the last 12 months
2. The OBIS node manager or a representative fails to attend (personally or virtually) the last 2 SG meetings without any written reason
3. The OBIS node does not have an IPT
4. The OBIS node has an IPT, but it has not been running for the last 12 months
5. The datasets in the OBIS node's IPT have been removed and not restored in the last 12 months (without any explanation)
6. The OBIS node has not provided new data for the last 2 years

The OBIS Secretariat prepares a health status check report of each OBIS node based on the six items above and informs the OBIS node manager on their status 3 months before the SG meeting.

At the SG meeting, the SG-OBIS co-chair will present the results of the OBIS nodes health status check report including a listing of the inactive OBIS nodes. The SG-OBIS members representing active OBIS Nodes will make one of the following decisions:

1. Request the inactive OBIS node to submit a plan with actions, deliverables and times to improve their performance, within 3 months, to the OBIS Secretariat. This plan is reviewed and accepted by the OBIS-Executive Committee

Or

2. Provide a recommendation to the IOC Committee on IODE to remove the OBIS node from the IODE network.

In either case, the OBIS Secretariat will inform the OBIS node manager of the SG-OBIS decision, with a copy to the IODE officers and the IODE national coordinator for data management of the country concerned.

The IODE Committee is requested to consider the recommendation from the OBIS Steering Group and it may either accept the recommendation or request the inactive OBIS node to submit an action plan (option 1).

When the inactive OBIS node is removed from the IODE network, the SG-OBIS will ask whether another OBIS node is interested in taking over the responsibilities of the removed OBIS node, until a new OBIS node in the country/region is established.
Annex 3: Participants of Sixth Session of the IODE Steering Group for OBIS

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