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(of UNESCO)

INFORMATION DOCUMENT

OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM (OBIS)
PROGRAMME PROPOSAL – BUSINESS PLAN

Summary. This document has been prepared by the IOC Consultant and former Past Chairman, Geoffrey Holland for consideration by the IOC Assembly at its Twenty-fifth Session (Paris, France, 16–25 June 2009).

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Executive Summary

The enormous diversity of ocean life signals the health of the oceans and is a key in sustaining them. This crucial element of our planet must be understood and factored into governmental policies in order to preserve our environment for future generations. Until recently ocean biodiversity was largely unexplored and undescribed. For nearly a decade, through the Census of Marine Life (CoML) (www.coml.org), scientists from more than 80 countries in the northern and southern hemispheres have been collaborating to assess and explain the abundance, distribution, and diversity of marine life throughout the world's oceans, past, present, and future.

The Ocean Biogeographic Information System (OBIS) was established by the Census as an evolving strategic alliance of people and organizations sharing a vision to make marine biogeographic data freely available over the World Wide Web. Any organization, consortium, project or individual may contribute to OBIS. OBIS is the data integration component of the CoML and will remain one of its important legacies. The planned "2010 Synthesis", a series of reports describing the state of the ocean, will represent important conclusions from this on-going research. OBIS is funded by the Sloan Foundation and is presently hosted by Rutgers University in New Jersey, USA, which provides the space and facilities for the activity. However, the future of OBIS is uncertain as 2010 is also the year when the funding will end. Private funds have provided the starting point for this venture, but governments and the public will be the recipients of the resulting benefits and need to ensure that the effort continues. The work is too important to allow to lapse.

It was in this context that an offer was made by the Executive Secretary of the Intergovernmental Oceanographic Commission (IOC) of UNESCO to the meeting of the OBIS Governing Board (Rome, 28–29 April 2008), to explore with IOC member States, an institutional governmental framework for the continuation of OBIS. The OBIS Governing Board welcomed the offer, but recommended that this suggestion be further elaborated and a business plan prepared. Subsequently, IOC Member States received a presentation on the subject at the IOC Executive Council (EC-XLI, 24 June–2 July 2008). The IOC/EC considered OBIS a highly attractive future component or partner of IODE and accepted the wish of the OBIS Governing Board to investigate different scenarios for a closer affiliation between IOC and OBIS and requested the Executive Secretary and the IOC/IODE to work together with the OBIS Secretariat to develop a document for submission to the 25th Session of the IOC Assembly in 2009. The Executive Council considered that such a document should describe possible scenarios for collaboration between IOC and OBIS, investigating, for different scenarios, consequences for both IOC and OBIS, and should contain estimates of budgetary implications and the results of appropriate consultations.

An initial meeting between IOC and OBIS experts was held at the IOC Project Office for IODE in Ostend, Belgium, 24–26 November 2008 and several possible scenarios were discussed. The participants examined the constitution of the two organizations and found no fundamental reason to prohibit a future arrangement between the two. The Statutes of the IOC and its accepted data management policy were consistent with the policies and objectives of OBIS. Many of the respective national data systems and the regional OBIS networks have organizational linkages and the transfer of responsibilities from present affiliations to a national or governmental status is not expected to be a problem. The Workshop participants unanimously agreed that merging the OBIS system into the IOC represented a wonderful opportunity that should not be lost. The arrangements considered for OBIS and the IOC were a formal agreement of cooperation and financial assistance between the two organizations; the adoption of OBIS as an element of the IODE, and the adoption of OBIS as an IOC programme.

The meeting considered that a mere cooperative agreement would not guarantee the desired sustainability for OBIS. The option of adopting OBIS into the IODE framework was valid and somewhat less demanding on the regular budget of the IOC than having OBIS as a separate IOC programme. However, an independent OBIS programme may better serve the ability of OBIS to interact with related international partners and the ocean biodiversity community. The initial adoption of the OBIS as part of the IODE network could facilitate the initial transfer of OBIS was

recognized, however the meeting, after lengthy discussions reached a consensus that the preferred solution was the adoption of OBIS as an IOC programme. The Summary Report of the Ostend meeting is available as IOC Workshop Report 209.

If OBIS joins the IODE (as a transitory or permanent arrangement), the decentralized IOC Office would be an IOC Project Office for OBIS, with an IOC Project Manager (which could be a UNESCO established post, UNESCO Appointment of Limited Duration, Seconded staff or other short-term contractual arrangement). The establishment would be accomplished by an IOC Governing Body through a Resolution accompanied by documentation of needs and costs, including the contribution of the host organization. The arrangements would be guaranteed for at least three years. The terms of reference for the Project Office would satisfy both the plans for the Project (OBIS plans and objectives) and the requirements of the IOC. The IODE Committee would be expanded to include relevant OBIS representatives and consideration would be given by IODE to the need for additional expert groups (IOC Group of Experts). OBIS would report to the IOC through the IODE.

A distinct IOC/OBIS programme will require the establishment of an IOC Programme Office managed by an IOC Programme Specialist (UNESCO established post). It would be expected that a Programme Office would have an extended existence. As with the Project Office the establishment would be through a Resolution by the IOC accompanied by the necessary information and agreements by the host country. OBIS would be part of the IOC/Ocean Observation and Services Section and report to the IOC governing bodies. Member States of the IOC would govern the oversight of the OBIS operation. Recommendations, developed with the guidance of OBIS technical/scientific experts would be brought to the IOC Assembly and Executive Council through an intergovernmental panel or technical committee (IOC primary subsidiary body), which would be able to establish Task Teams and Groups of Experts, subject to the availability of funds and approval of the IOC Member States.

The adoption of OBIS into the IOC will represent a significant development in the history of the Commission and a serious commitment of interest and resources from IOC Member States. The requirement for additional ocean biological science and data services to complement the existing intergovernmental activities has been a long time objective. The financial operational and staffing requirements of an OBIS decentralized IOC/OBIS Office will be substantial and need to be shared by the regular IOC budget, the host institution, extra-budgetary sources and in-kind contributions from Member States.

The results of the Ostend meeting and information from subsequent discussions and developments were presented to the OBIS Governing Board at its meeting on April 20-21, 2009. The host organization was also represented at the meeting and indicated that it was agreeable to the continuation of its present support for the OBIS Office. The Board agreed that the future of OBIS should be pursued within the intergovernmental framework of the IOC. The Board also agreed that a mere cooperative arrangement would not guarantee the sustainability and visibility needed to maintain and foster the global marine biodiversity initiative established by CoML and OBIS and would threaten the integrity of the scientific community that has begun to address this valuable and necessary area of knowledge and information. The Board concluded that the best option for the continued progress on biodiversity knowledge and information was for the Assembly to agree to the adoption of OBIS as a separate IOC programme and invited Member States to consider this request at the 25th IOC Assembly.

A different view was expressed at the IODE-XX. IODE participants, although considering it premature to make a Recommendation to the Assembly (as the business plan was not made available to IODE-XX), concluded the preferred solution was the adoption of OBIS as an IODE programme activity. Their reasons were based partly on the fulfilment of the IOC Strategic Plan for Oceanographic Data and Information Management (2009–2011), which naturally includes the biological ocean data under OBIS. Also the adoption of OBIS will promote data management in this area and would facilitate synergies and efficiencies. The full report of the IODE meeting

(Document IOC/IODE-XX/3) as well as the Executive Summary (Document IOC/IODE-XX/3s) will be made available to the Assembly.

A final exercise was to canvas the Members of the IOC Data and Information Management Advisory Group (DIMAG) to obtain the views of other partner programmes within the IOC. Only two replies have been received at the time of writing, both welcoming the possibility of having OBIS as part of the IOC.

Recognizing this important and complex issue may not be fully resolved at the Assembly and will also be influenced by the response of Member States in terms of the commitment of extrabudgetary resources, a Draft Resolution has been prepared (Annex 3) to affirm a commitment of the Member States to welcome OBIS into the IOC family; to ensure that OBIS fulfils its committed tasks for the CoML; to allow some time to assess the response of governments for the call for support and to allow a realistic framework to be developed for OBIS within the Commission, commensurate with the expected benefits to both organizations.

1. Background

The enormous diversity of ocean life signals the health of the oceans and is a key in sustaining them. This crucial element of our planet must be understood and factored into governmental policies in order to preserve our environment for future generations. Until recently ocean biodiversity was largely unexplored and undescribed. For nearly a decade, through the Census of Marine Life (CoML) (www.coml.org), scientists from more than 80 countries in the northern and southern hemispheres have been collaborating to assess and explain the abundance, distribution, and diversity of marine life throughout the world's oceans, past, present, and future. Launched in 2000 with funding from the Alfred P. Sloan Foundation among others, CoML is an unprecedented, 10-year, multi-national, scientific effort. The Census consists of several interlinked projects. Of these, 14 are field projects, covering the major habitats and groups of species in the global ocean. Eleven field projects address habitats, such as seamounts or the Arctic Ocean. Three field projects look globally at animals that either traverse the seas or appear globally distributed: the top predators such as tuna and the plankton and the microbes. Two more Census projects are the History of Marine Animal Populations, looking back at fisheries through historical time, and Future of Marine Animal Populations, predicting future change through modelling efforts.

The first phase of the Census is drawing to a close, although efforts are already underway to maintain the impetus for the important research that the Census has initiated. The planned "2010 Synthesis", a series of reports describing the state of the ocean, will represent important conclusions from this on-going research. The Ocean Biogeographic Information System (OBIS) was established by the Census as an evolving strategic alliance of people and organizations sharing a vision to make marine biogeographic data, from all over the world, freely available over the World Wide Web. It is not a project or programme, and is not limited to data from CoML-related projects. Any organization, consortium, project or individual may contribute to OBIS. OBIS is the data integration component of the CoML and will remain one of its important legacies, retaining the knowledge already contributed and possessing the potential to expand and improve its value in the years to come. However, the future of OBIS is uncertain as 2010 is also the year when the funding from the Sloan Foundation for this first decade of the Census will end.

The true value of the collected biogeographic data is to governments exercising their jurisdiction over fisheries and non-living resources in their respective coastal and Extended Economic Zones; addressing the environmental issues of ever growing maritime trade; in their deliberations over ocean health and climate change; in managing all aspects of the marine economy and through the importance of the sea to the cultural and social well-being of their populations. The work accomplished by OBIS over the past ten years, although substantial, represents only the beginning of the biodiversity information necessary for the wise management of a sustainable ocean environment. Private funds have provided the starting point for this venture, but governments and the public will be the recipients of the resulting benefits and need to ensure that the effort continues. The OBIS network of regional centres covering the global ocean represents a multi-million dollar investment in biological ocean data and knowledge. In many countries there already exists strong links between OBIS and governmental services; however the assumption of governmental responsibility would contribute both stability and efficiency to its operation. The work is too important to allow to lapse and the future of OBIS beyond 2010 has to be addressed.

At the first meeting of the new OBIS Governing Board, (Rome, 28–29 April 2008), the IOC Executive Secretary offered to explore an institutional framework for the continuation of OBIS within the IOC. The OBIS Governing Board welcomed the offer and recommended that this proposal be further elaborated and a business model prepared. Subsequently, IOC Member States received a presentation on the subject at the IOC Executive Council (EC-XLI, 24 June–2 July 2008) and recorded the following decision in para. 286 of report IOC/EC-XLI/3:

***The Executive Council recognized** the importance and value of CoML, the particular value of the OBIS component as a global repository for marine biological data, and the potential of a second phase of OBIS to expand data in this vital repository and to improve the interface for global access and exchange of marine biological data. **The Executive Council considered** OBIS a highly attractive future component or partner of IODE, and welcomed the wish of the OBIS Governing Board to investigate different scenarios for a close affiliation between IOC and OBIS, or the adoption of OBIS by the IOC. **It requested** the Executive Secretary and the IOC Data and Information Management Advisory Group to work together with the OBIS Secretariat to develop a document for submission to the 25th Session of the IOC Assembly in 2009. **The Executive Council considered** that the document should describe possible scenarios for collaboration between IOC and OBIS, concentrating on the possibility of the creation of an IOC-OBIS Programme and an IOC-OBIS Programme Office. It should, for different scenarios, investigate consequences for both IOC and OBIS, and should contain estimates of budgetary implications, and involve consultations, as appropriate, with potential donors and/or host organizations.*

The following sections describe the benefits expected from an IOC/OBIS arrangement. Then describe the scenarios, discussions and consultations that have taken place during the intersessional period. Qualitative estimates of budgetary implications are given and these are linked to the potential OBIS Work Plan. A brief description of OBIS can be found in Annex 1.

2. Anticipated Benefits

2.1 Benefits for OBIS and the Science Community

OBIS has built up an enviable network of centres dedicated to the collection, archival and use of biodiversity data. In order for this effort to continue and expand in the future, OBIS requires a stable and recognizable home. The IOC is an ideal United Nations organization to provide this security and credibility. It is the only UN body solely concerned with the ocean and has a long history of dealing with ocean data and information exchange. Many technical aspects of the IOC experience with data management and access will be available to be shared with OBIS and the efficiency and effectiveness of combining the physical, chemical and biological data will be of considerable benefit to environmental scientists, managers and decision-makers.

Within the IOC programme, OBIS will find advantages from a closer association with related programmes such as the Harmful Algal Bloom (HAB), Integrated Coastal Area Management (ICAM), and the operational data systems of GOOS and JCOMM in addition to the IODE. The IOC itself is an organization within UNESCO, which will give additional opportunities for cooperation with the related programmes of Man and the Biosphere (MAB) and DIVERSITAS and for supporting the major UNESCO priority on Climate.

OBIS will continue to cooperate with international and intergovernmental programmes that have an interest in biodiversity and its intergovernmental position within the IOC will give it enhanced status and credibility. The OBIS programme will be part of the responsibility of the Member States of IOC and will therefore report back to the respective levels of government responsible for ocean affairs.

2.2 Benefits to IOC Member States

The true value of the collected biogeographic data is to governments in exercising their jurisdiction over fisheries and non-living resources in their respective coastal and Extended Economic Zones; addressing the environmental issues of ever growing maritime trade and the

extraction of ocean resources; in their deliberations over ocean health and climate change; in managing all aspects of the marine economy and through the importance of the sea to the cultural and social well-being of their populations. The work accomplished by OBIS over the past ten years, although substantial, represents only the beginning of the biological information necessary for the wise management of a sustainable ocean environment.

Governments will not be able to work together in the assessment of the ocean environment without access to adequate marine biodiversity data. The UN has already agreed to undertake such an assessment. The same need exists in the efforts to understand and act on impacts and mitigation of climate change, where it is not only necessary to have an inventory of marine life, but to collect and maintain a record of the changes over time.

The enormous diversity of ocean life signals the health of the oceans and is a key in sustaining them. This crucial element of our planet must be understood and factored into governmental policies in order to preserve our environment for future generations. Until recently ocean biodiversity was largely unexplored and undescribed. For nearly a decade, through the Census of Marine Life (CoML) (www.coml.org), scientists from more than 80 countries in the northern and southern hemispheres have been collaborating to assess and explain the abundance, distribution, and diversity of marine life throughout the world's oceans, past, present, and future. Private funds may have provided the starting point for this venture, but governments and the public will be the recipients of the resulting benefits and need to ensure that the effort continues.

The IOC through the efforts of its Member States have worked together for almost fifty years to build up a data management and information exchange organization concentrating predominately on physical ocean data. The expansion of the IOC programmes into ocean and coastal area management, the importance of the oceans in climate and environmental discussions have already led to recognition that the intergovernmental data holdings needed to be enhanced by the addition of biological and chemical data. The OBIS network of regional centres covering the global ocean represents a multi-million dollar investment in biological ocean data and knowledge. The assumption of OBIS into the IOC would be a natural and effective way of gaining this necessary future component of the IOC programme. It would be also correct to assume that technical improvements and user access would be forthcoming to governments from the combination of their existing ocean data networks and the new biodiversity data.

2.3 Benefits to the Host Institution

There would be many varied examples of benefits to a host institution. In general a global programme such as OBIS would bring prestige and visibility would attract research, training and education opportunities. For example, from the experience of the present host institution at Rutgers University, the operations at the OBIS secretariat could lead to an Undergraduate Certificate Programme in marine biodiversity data management; the programme would serve to improve data management practices in collaborating institutions, and bring in students actively working on and improving OBIS data. Where possible, such an Undergraduate Certificate Programme would rely on existing courses, thus assisting in a tight integration of OBIS in the University community. Several courses could be created specifically for this Program, and would increase the portfolio of courses on offer.

A host institution would be able to claim as its own a very visible global network, working on international and governmental priorities of oceans and biodiversity and benefit from its close alliance with the OBIS research community and the valuable the network of Regional OBIS nodes around the world.

3. The Initial Meeting of Experts

Following the direction from the OBIS Governing Board and the IOC Executive Council, a meeting of IOC and OBIS experts was held in Ostend, Belgium (24-26 November, 2008), to

discuss possible arrangements between the IOC and OBIS and to make recommendations for further study. At this meeting the experts first looked at possible legal and administrative issues, and then considered the present interaction between the IOC and OBIS before discussing viable scenarios.

3.1. General considerations

3.1.1 Legal and Administrative Considerations

An examination of the objectives, structure and governance confirmed that no administrative or legal reason exists to prevent OBIS being adopted by the IOC. The two organizations are certainly very different; the IOC is an established intergovernmental organization of the United Nations with functional autonomy within UNESCO. It has its own Member States, Statutes and Rules of Procedure that need to be satisfied. OBIS is an international organization established by the Census of Marine Life for a specific purpose, to integrate all data generated by the Census, and to combine them with data from other sources. It is an evolving strategic alliance of people and organizations sharing a vision to make marine biogeographic data, from all over the world, freely available. It should be expected that in any change of status for OBIS, its fundamental goals and objectives would be maintained and furthered.

The IOC Statutes, clearly encompass the goals and objectives of OBIS within the statement of its purpose in Article 2.1:

“2.1 The purpose of the Commission is to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States.”

With regard to an affiliation with OBIS, the Statutes also clearly encourage such collaboration within its purpose, Article 2.2

“2.2 The Commission will collaborate with international organizations concerned with the work of the Commission, and especially with those organizations of the United Nations system which are willing and prepared to contribute to the purpose and functions of the Commission and/or to seek advice and cooperation in the field of ocean and coastal area scientific research, related services and capacity-building.”

And in Article 11 on Relations with other organizations.

“11.1 The Commission may cooperate with Specialized Agencies of the United Nations and other international organizations whose interests and activities are related to its purpose, including signing memoranda of understanding with regard to cooperation.

11.2 The Commission shall give due attention to supporting the objectives of international organizations with which it collaborates. On the other hand, the Commission shall request these organizations to take its requirements into account in planning and executing their own programmes.”

Additionally, the ability of the IOC to act in the intergovernmental sphere would clearly offer the opportunity for the OBIS programme to grow in stature and acceptability. For example from Statute 11:

“11.3 The Commission may act also as a joint specialized mechanism of the organizations of the United Nations system that have agreed to use the Commission for discharging certain of their responsibilities in the fields of marine sciences and ocean services, and have agreed accordingly to sustain the work of the Commission.”

Another general consideration is the compatibility of data management policies between the IOC and OBIS. OBIS has a policy of free and unrestricted data, which is also reflected in the IOC oceanographic data exchange policy adopted at the XXII Assembly in 2003. If OBIS becomes a programme within the IOC, then data generated from that programme will be freely available, in accordance with Clause 1 of the IOC data policy.

3.1.2 The Network of Regional OBIS Nodes (RONs)

Regional OBIS Nodes (RONs) are self-supporting organizations that have committed to a continued support of OBIS within a geographic and/or national region serving data online and developing a data provider and end-user community. Some RONs provide tools, different language versions of the OBIS website, and/or provide mirror sites for the central OBIS portal. Managers of the RONs meet in the Managers Committee (MC), to discuss such issues as overlapping geographical interest; common species lists and gazetteers; technology and tool development. Meetings have been organised once or twice a year. The Chairperson of the MC is ex-officio member of the Governing Board.

The global oceans are covered by the RON network of 14 centres, some fully matured and a few in the developmental stage. The individual centres also provide information and research opportunities to use the biodiversity data.

Subsequent to the Ostend meeting, the managers of these OBIS data nodes were asked about the status of their organization and how the potential of merging into the IOC intergovernmental organization would impact them. Obviously the situation varies across the network, with some regional centres already operating in cooperation with governmental data organizations and others based in academic institutions. Some RONs are associated with IODE NODCs. Staffing and support also vary from salaried personnel to voluntary researchers. For those centres receiving support from several countries because of their regional responsibilities the situation is further complicated in terms of what form their representation would take in under a governmental organization. Despite the complexity and diversity of the network, all centres spoke favourably of finding a more sustainable future within the IOC and were agreed that the transition could be achieved without too many problems.

3.2 Existing IOC/IODE and OBIS cooperation

To follow its interest in biological data management and ocean biodiversity, IODE-XVI (2000) created the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH; Recommendation IODE-XVI.4). During IODE-XVII (2003) an invitation was extended to OBIS to participate in the activities of this Group of Experts. The invitation was welcomed and an OBIS representative has been participating in Sessions of the Group since that time. It should further be noted that IODE revised the Terms of Reference of GE-BICH to include many of the elements relating to taxonomy and ocean biodiversity that are shared by OBIS.

The strong interest of IODE in biological data management and ocean biodiversity was further demonstrated by the “Colour of Ocean Data” Symposium in November 2002 and continued with the joint organization with OBIS of the “Ocean Biodiversity Informatics Conferences” in Hamburg, 2004 and Dartmouth, 2007.

At the regional level there has been increasingly close collaboration between OBIS and IODE, e.g. within the framework of ODINAFRICA. Two biodiversity data management training

sessions have been held, one in Ostend, Belgium (in French), one in Mauritius (in English). In these training sessions, attendees were introduced to issues in taxonomy and biogeography relevant to data managers, and to some of the tools that are used in marine biodiversity data management in general, and in the OBIS network in particular (Access, SQL Server, DiGIR). Two data logging sessions have been organized, both in Ostend. One focused on molluscs, one on sponges. Species distribution records extracted from the scientific literature during these logging workshops will be made available to AfrOBIS. At the international level, courses specific to biodiversity data management have been organized jointly between IODE and MarBEF, the EU Network of Excellence sponsoring EurOBIS.

3.3 The options for an IOC/OBIS arrangement

The expert meeting decided that the three viable options to consider were: (i.) a cooperative agreement, (ii.) to bring in OBIS as an element within the existing IOC/IODE Programme and (iii.) to adopt OBIS as a separate IOC Programme.

A cooperative agreement would be the least intrusive option on present arrangements and could be agreed upon and signed by the respective governing bodies. Administration and operation of the two organizations would remain separate and the agreement could formalize and strengthen the present informal collaboration. However such an option would not address the fundamental reason that was foremost in the minds of the governing bodies. It would not resolve the uncertainties in the future of OBIS nor promote an organizational structure that would link OBIS to a closely related intergovernmental organization with a mature and stable record. This option was therefore not pursued further.

The meeting agreed that placing the OBIS Programme under the auspices of the IOC will have mutual benefits to both organizations. OBIS will gain an intergovernmental home that will ensure its long-term stability and sustainability and increase its stature and credibility as a global biodiversity programme. The IOC will gain a prestigious programme that will support its global ocean data strategy and enhance its own objectives for the assimilation of biological ocean data. The Ostend meeting therefore considered which of the two remaining options would be preferred. Both options were considered valid and for both the endorsement of the OBIS Governing Board would be required followed by the adoption of a Resolution by the IOC Assembly together with resolving the necessary financial and administrative arrangements.

It was accepted that these two options are not necessarily exclusive. A unique IOC/OBIS Programme could very well start as an IOC/IODE Project with a decentralized Project Office and transfer into a separate IOC/OBIS Programme at a suitable later date. The requirements for a Project Office and a Programme Office are not dissimilar and a subsequent transformation relatively easy to accomplish.

3.3.1 The Option for OBIS to become part of IODE

The data components of OBIS and the IODE operate in a similar fashion and having OBIS as part of the IODE Programme was seen as a viable option. Several of the regional centres are already linked organizationally. An example of how this sort of arrangement could work is as follows.

- The OBIS RONS would become IODE NODCs, or part of their distributed national network;
- RONS could be appropriately represented at IODE Committee meetings;
- An IODE Group of Experts or Steering Group could be formed to cover the scientific and technical issues associated with the biogeographic data collection and uses;

- A decentralized IOC Project Office could be established managed by an IOC project office manager (level P-4 or P-5); The Project Office could remain in Rutgers, move to Ostend or find another suitable host location;
- The terms of reference of the Project Office would encompass the completion of OBIS plans and objectives and IOC requirements;
- Member States of the IOC would govern OBIS through IODE (which as a primary subsidiary body reports to the IOC Governing Bodies);
- Recommendations, developed with the guidance of the OBIS technical/scientific experts would be brought to the IOC Assembly and Executive Council through the action of the IODE Committee;
- OBIS would retain existing affiliations and responsibilities with external intergovernmental and international programmes under the governance of IOC Member States.

Details on the establishment of decentralized IOC offices and the respective requirements and contributions by the host country and IOC/UNESCO are detailed in Document IOC/INF-1193 prov. (Guidelines for the structure and responsibilities of the subsidiary bodies of the commission, and for the establishment of decentralized offices). The transfer of RONS from their present affiliation to a national or governmental status was not expected to generate any substantial difficulties and indeed, in some instances, linkages already exist. For a change of this magnitude, the Terms of Reference of the IODE itself may need some adjustment.

The ability of OBIS to maintain and enhance its cooperative arrangements with other international and intergovernmental partners should not be compromised and would take place with the guidance of the IODE Committee.

3.3.2. The Option for having OBIS as an independent IOC Programme

Having OBIS as a separate IOC Programme was also seen to be a viable arrangement. Many of the factors discussed in the previous option would apply. A decentralized IOC Programme Office would be established by a Resolution of the Assembly and managed by an IOC Programme Specialist. A possible arrangement under this scenario could be:

- An OBIS intergovernmental panel or technical committee (similar to IODE or IPHAB) would be required including appropriate representation from the RONS;
- OBIS would establish specific Groups of Experts or Steering Groups to examine specific scientific and technical issues;
- The Programme Office would be managed by an IOC programme specialist (level P-4 or P-5);
- The terms of reference of the Programme Office would encompass the completion of OBIS plans and objectives and IOC requirements. The Programme Office could remain in Rutgers, or find another suitable host location;
- Member States of the IOC would govern OBIS directly;
- Recommendations, developed with the guidance of the OBIS technical/scientific experts would be brought to the IOC Assembly and Executive Council through the action of the OBIS intergovernmental panel or technical committee;
- A Joint IODE/OBIS Group of Experts on Ocean Biodiversity Data would be created to ensure maximum complementarity and inter-operability between the two data systems and compliance with the IOC Data Management Strategy;

- OBIS and the IODE would cooperate through the IOC Data Management Strategy to ensure the data management arrangements and linkages amongst the other IOC Programmes were respected;
- OBIS would retain existing affiliations and responsibilities with external intergovernmental and international programmes under the governance of IOC Member States.

On a national level there could be close association between the OBIS network and the National Ocean Data Centres (NODCs) of the IODE. Efficiencies would result from closer institutional arrangements between the respective networks. OBIS and IODE would address their shared data responsibilities to avoid unnecessary duplication and take advantage of mutual technical requirements.

The recognition of OBIS as a separate programme within the Commission could enhance its stature and visibility. The other organizations outside the IOC, with links to OBIS, and the large network of biodiversity experts presently collaborating in OBIS, would appreciate a more recognizable reflection of OBIS within the Commission. A separate OBIS programme would promote the ability of OBIS to interact with related international partners, such as CBD and GBIF, on behalf of the IOC and UNESCO. OBIS would be more able to undertake science objectives associated with its users and the ocean biodiversity community and to retain its affiliations. OBIS could also assist in establishing links with other biologically related programmes within the IOC such as HAB, ICAM and GOOS. Some enhanced synergies may also be discovered within UNESCO with the programmes of DIVERSITAS, MAB and the UNESCO emphasis on climate change. There would be longer-term possibilities to re-establish closer ties with FAO and living resource requirements, especially in the realm of climate changes.

As a separate programme, OBIS would report to the IOC governing bodies through an intergovernmental body that would need to be established. This body would be able to recommend the establishment of Task Teams and Groups of Experts, subject to the availability of funds and approval of the IOC Governing Bodies.

The resources for the professional staff member would be much the same as in the previous option, however the costs associated with servicing an intergovernmental mechanism and subsidiary bodies would be higher and the coordination of these bodies and the OBIS programme would be extremely demanding on a single staff member. The work would be expected to demand additional support at the decentralized office in addition to part-time support at IOC Headquarters.

3.4. The Conclusion of the Expert Meeting

Faced with two viable options the Ostend meeting discussed the advantages and disadvantages of both. On one hand OBIS was seen as a welcome addition to the IODE and would address a notably weak part of its mandate. The addition of OBIS to the data management activities of IODE would add an important and enthusiastic new community to the IODE family and would have the advantage of being already an operational programme with a global coverage through its Regional OBIS Nodes (RONs). The ocean biodiversity objectives matched the High Level Objectives (HLOs) of the IOC and hence also those of the IODE. The addition of OBIS would expand the IODE network architecture and improve its capacity to integrate the biological data that would be complementary to its existing data sets. Although the establishment of a decentralized OBIS Programme office was necessary for both options, the costs of management and expert bodies would be less onerous for the IODE option.

However to ensure that the impetus achieved by the marine biodiversity community through the efforts of CoML and OBIS would not be lost, a strong argument was made for having the OBIS programme established at the highest level. The importance of maintaining a distinct and visible voice to enable OBIS to retain and improve its interaction with organizations outside of the IOC was also emphasized. The Ostend meeting thus reached a consensus to recommend OBIS as a

separate IOC programme together with the establishment of a joint IODE/OBIS GE and that this recommendation should be further explored and elaborated and brought before the OBIS Governing Board and the Assembly for consideration and decision. The full report of the meeting is available as IOC Workshop Report No. 209.

4. The OBIS Governing Board Meeting (20–21 April 2009)

During the second meeting of the OBIS Governing Board, held in New Brunswick, NJ, 20-21 April 2009, the Members of the OBIS Governing Board were presented with the results of the Ostend meeting which had produced valuable insights into possible future arrangements between the IOC and OBIS. The potential collaboration between OBIS and IOC was seen as a huge opportunity for both IOC and OBIS. However, it was stressed again that OBIS is much more than a collaborative data collection programme. The science components of OBIS are clearly reflected in the OBIS Work Plan. OBIS is a community of practice that engages in many activities, its database and search interface on the portal are just two of the outputs from OBIS. It is strongly science-based and is a by-product of the scientific activity of a large network of institutes and projects. Its value is measured by the uptake by the scientific community, and the services it can offer to environmental managers on the basis of its scientific content.

Additional information relating to staffing, costs and time constraints was tabled in a preliminary draft of the Business Plan. The Board agreed with the opinion of the Ostend meeting that the future sustainability of OBIS would not be ensured through a cooperative arrangement and that the adoption of responsibility for OBIS by an intergovernmental organization was required to establish a sustainable future for OBIS. The IOC was the obvious choice.

The Executive Director of OBIS informed the Board that the funding from the Sloan Foundation through the CoML would continue through 2009 and be reduced by 50% in 2010. Therefore, the support staff presently available to OBIS would not be able to be continued after the end of 2009.

Preliminary discussions have been held between the OBIS Secretariat and the authorities of Rutgers University, the present host of the OBIS Secretariat. An initial meeting was held on 26 January, attended by Fred Grassle (Principal Investigator on previous OBIS Sloan Grants and Professor at Rutgers IMCS), Edward Vanden Berghe (OBIS Executive Director), Francisco Werner (director of the Rutgers IMCS), Philip Furmansky (RU Vice-President for Academic Affairs), Jerome Kukor (Associate Dean) and Jesse Ausubel (Sloan Foundation). Rutgers hosts offices of other international programmes (e.g. the protein folding network), but, apart from OBIS, none on marine sciences. The representative of Rutgers University, Francisco Werner, confirmed to the GB that the university has a clear interest in seeing the OBIS secretariat continue operating at its premises and valued the visibility and the scientific value brought by OBIS. The university is prepared to continue housing the secretariat – providing offices, internet bandwidth and IT support, administrative infrastructure, access to library etc. The university is also willing to investigate how staff of the secretariat can be supported.

Rutgers is interested in the plans of OBIS to create an Undergraduate Certificate Programme in Biodiversity Data Management as this would be a good complement to its existing programmes. For OBIS it would be an excellent opportunity to engage in formal capacity building, and to attract students doing specific projects using the OBIS system. Creating an UNESCO Chair in marine biodiversity studies at Rutgers is a possibility that can be explored, and one that would make hosting the OBIS Secretariat even more attractive.

The Board Members heard from the IOC Executive Secretary that the IOC is interested in seeing more activities implemented through decentralized offices. This strategy is compatible with the idea of having an IOC/OBIS Programme Office hosted at Rutgers University, New Brunswick, USA, or other potential host organization. According to the IOC rules for setting up decentralized Programme Offices, IOC would become responsible for finding funding for the Programme Officer,

while the host organization would be responsible for logistics and support staff. Given the financial constraints of IOC, and the present economic situation for Rutgers University, neither of these is straightforward. The Executive Secretary stressed that no resources existed in the regular IOC budget for the present biennium (2008-2009) for staffing a programme or project officer for OBIS and that obtaining such resources from UNESCO in the future would be difficult and require a specific request from the IOC to UNESCO. The alternative would be to establish an Appointment of Limited Duration (ALD) position resourced from extrabudgetary funds (approximately US\$150K/year). These appointments are limited to 4 years (and not renewable for the same person beyond 4 years) and cost slightly less than a permanent position due to differences in the allowances provided. Sustaining OBIS operations will also require support staff. Hiring two members of staff (one data manager, one IT person) would require roughly 200KUS\$/Year. Resources for these two staff members could also be found from secondments or financial commitments from institutions other than the host institution, and/or governments. Part of the staff requirements might be filled by scientists on study attachment, or on secondment to OBIS. Rutgers University could play a role by attracting PhD and Post-Doc level scientists, which would further alleviate the need to hire staff. The staff resources and additional expenditures for related meetings and activities of OBIS beyond the capacity of the IOC regular budget could be facilitated by a multi-source IOC Trust Fund account set up for that purpose.

The Network of Regional OBIS Nodes had been asked to comment on their respective abilities to transfer their operation from an institutional framework to that of an intergovernmental responsibility. The Board was informed there were no negative responses. Some regional centres already operate in conjunction with their national ocean data management system and others saw no operational difficulty subsequent to the adoption of OBIS by an intergovernmental organization. It was pointed out that it would not necessarily be required for a node operating under an institutional arrangement to be transferred to a governmental facility, only that the future reporting role of that node would be through national representation at the IOC. With regard to the Regional OBIS network, the Governing Board considered that a meeting of RON managers was a priority and necessary to accomplish the change of status of the network. At present no funding existed for such a meeting and additional resources will need to be found.

The Board considered the arguments for merging OBIS into the IOC/IODE programme and for having OBIS adopted as a separate programme. Because of the strong scientific elements inherent in OBIS, and the potential risk of losing the capacity to maintain a scientific network if treated solely as a data management program, the GB felt definitely that the appropriate place for OBIS within IOC would be as a programme directly under IOC, not as part of IODE. This preferred option was based on the recognition that the value of the OBIS programme was predicated to a major extent by the contribution of a global science community that was supplying their knowledge and technical experience to the ocean biodiversity collection and data base. Global analysis of available data, developing standards, support of the scientific community and environmental management in their work, involvement in formal educational programmes, and organisation of international scientific conferences and workshops were cited as activities of the OBIS community that went far beyond data management. Without retaining the integrity of this related community the value of the OBIS data management and exchange programme would be seriously compromised.

The Board recognized that decisions were dependent on many factors including the availability of resources, staffing requirements, location and facilities, scheduling and the mission to be accomplished. Funding exists for a meeting of the Governing Board in 2010, which could be considered as performing the oversight for the programme in the near term and thus delaying the cost associated with the formation of an IOC oversight group for an additional year.

The Board agreed with the expert meeting that care must be taken to ensure that close cooperation should exist between the respective data management and information activities of IODE and OBIS, in particular when both were operating under governmental control. There would be many opportunities for mutual efficiencies to be gained through sharing of technical operations

and experiences. In this regard, the Board agreed that a joint IODE/OBIS Group of Experts should be considered by the Assembly if OBIS were to become an independent IOC programme.

4.1 The Conclusions of the Governing Board

The Governing Board prepared the following recommendation for the IOC Assembly:

The OBIS Governing Board is of the opinion that the IOC will provide a good home for OBIS in the future with mutual benefits to both OBIS and the IOC. The IOC will gain an operating data management network in biogeographic data and a science community that is dedicated to its interpretation and the services it can provide. OBIS will have a secure governmental base that will ensure its sustainability and visibility.

The Assembly is requested to:-

- *Accept and approve the assimilation of OBIS into its organization.*
- *Agree that OBIS completes its objectives to the CoML*
- *Consider the recommendation of the OBIS Governing Board that OBIS should become a separate programme of the Commission, with strong links with IODE and joint data management activities. If the necessary funds are not available, suggest other strategies that may be more achievable in the short-term such as a project within IODE*
- *Set up a multi-lateral element of the IOC Trust Fund to secure the necessary resources for OBIS and encourage contributions from Member States.*
- *Consider offers for a Project or Programme Office from Rutgers University or any other institute willing to host OBIS.*
- *Investigate how a UNESCO Chair for Marine Biodiversity Data Management could be established to assist in improving data management practices*
- *Investigate how the host institution could be recognised as a Category II Institution.*

5. **The IODE-XX Statement on the Future of OBIS**

A different view was expressed at the IODE-XX: The Committee stressed that funding is a major issue. As the OBIS business plan was not yet available, the Committee was not able to comment in detail on funding issues. Whatever the solution, extra funding will need to be sought. The Committee agreed that OBIS should retain the high profile and identity that it had developed, but did not see that placing it within the IODE programme should diminish this in any way. Examples of other programmes within IOC and IODE, for example GLOSS and GTSP, illustrated that this was possible. GLOSS has remained strong and focused although it has been moved around within the IOC structure and GTSP has its own identity and has retained a science element despite being a part of IODE.

The Committee saw no reason to change the structure of OBIS if it becomes part of IODE. The Regional OBIS Nodes (RONs) should remain as they are specialised data centres. They work well and there is no reason to try to move them into NODCs. In any case they are regional not national and they have the appropriate biological/biodiversity expertise available - which might not be the case if they were to be integrated with an NODC. However, increased collaboration between RONs and NODCs would be beneficial to both. The RONs do not receive any central OBIS funding, they are supported by their host organisations (in the same way as NODCs). The

Committee noted that the OBIS data are included in GBIF, but OBIS provides a valuable, well - organised and necessary marine focus and certainly should be retained.

The Committee stated that from an IODE perspective, having OBIS within IODE is an attractive option as described in the documents (IOC/IODE-XX/12.1 and 12.2), but it should be noted that there is considerably more to the management of biological data than that carried out by OBIS, as evidenced by the new terms of reference of GE-BICH. From the OBIS perspective there is much to be gained by having closer links with data, which complement the biogeographic data sets. Creating a new joint group of experts will resolve some of the issues and ensure a close working relationship. After some discussion, the Committee summarised its view that OBIS should be adopted as an element of IODE for the following reasons:

- (i) The 24th session of the IOC Assembly in 2007 approved the IOC Strategic Plan for Oceanographic Data and Information Management (2009–2011), which aims to build up a comprehensive system for the management of data from all IOC programmes, including data and information from Member States obtained through operational processes and scientific investigation. This, naturally, includes the biological ocean data that is under the management of OBIS;
- (ii) At present, IODE urgently needs to further develop biological data management and exchange. Adoption of OBIS will undoubtedly promote data management in this area;
- (iii) Establishment of a new joint IODE-OBIS Expert Group alongside GE-BICH would facilitate synergies and efficiencies in the allocation of resources (cash and in kind) in respect of the required IODE budget and human resources, avoid duplication of effort and enhance the exchange and management of ocean biological data.

However if OBIS manages to mobilise the necessary financial resources then existence of OBIS as a separate programme could be considered.

The Committee adopted the “IODE Statement of the future of OBIS”. It requested Mr Geoff Holland, Consultant, as well as the IODE Co-Chairpersons to present this statement to the 25th Session of the IOC Assembly, where this item will be further discussed and decided upon.

At its twentieth Session, the IOC Committee on International Oceanographic Data and Information Exchange (IODE) considered the two options suggested for the continuation of the OBIS programme within IOC resulting from the meeting held between IOC and OBIS in November, 2008. These were:

- (i) the adoption of OBIS as an IODE programme activity;*
- (ii) the adoption of OBIS as a new programme of the Commission.*

After considered discussion of the options, IODE came to the view that the preferred option was (i) above (the adoption of OBIS as an IODE programme activity) for the following reasons:

- (a) The 24th session of the IOC Assembly in 2007 approved the IOC Strategic Plan for Oceanographic Data and Information Management (2009–2011), which aims to build up a comprehensive system for the management of data from all IOC programmes, including data and information from Member States obtained through operational processes and scientific investigation. This, naturally, includes the biological ocean data that is under the management of OBIS;*
- (b) at present, IODE urgently needs to further develop biological data management and exchange. Adoption of OBIS will undoubtedly promote data management in this area;*

- (c) *Establishment of a new joint IODE-OBIS Expert Group alongside GE-BICH would facilitate synergies and efficiencies in the allocation of resources (cash and in kind) in respect of the required IODE budget and human resources, avoid duplication of effort and enhance the exchange and management of ocean biological data.*

Hence the Committee agrees in principle that the OBIS programme could be sensibly accommodated within IODE. However without a more finalized version of the OBIS business plan, the financial requirements and thus the financial implications for IODE cannot be fully assessed at this point in time. Thus IODE decided that it would be premature to make a Recommendation at this stage, whilst welcoming the possibility of OBIS becoming a part of IODE.

6. Future Funding level Scenarios for OBIS

Regardless of the options discussed above, OBIS has to consider its capacity and capability to operate in the future based purely on the likelihood of available resources after the present funding vanishes. In this context the following three levels of potential funding are outlined, the first pertaining to a nil or minimal level, the second to a medial or maintenance level and the third to an optimal level of continuing programme enhancement.

6.1 A Minimal (Hibernation) Level

Despite the present arguments that the IOC should be regarded as the future home for OBIS, the final decision will be predicated on the Assembly approval and on finding the necessary resources for this to take place. Therefore the option of no direct IOC funding will remain a possibility until an alternative action is decided. Even with this minimal situation it would be difficult to comprehend no involvement of the IOC in the future of ocean biological data management. It would be hoped that some level of coordination and governance would be offered by an institution or governmental organization.

Under a minimal option, the physical integrity of the existing OBIS database is nevertheless ensured. Several copies are available and the content fully documented even in the absence of “institutional memory”. If no resources are to be found the data could be accessed through the GBIF, which could also absorb additional data from marine providers. The cohesiveness and momentum of the global marine biodiversity programme would however be lost.

The iOBIS portal could be maintained if one of the data centres in the OBIS community would be willing to assume the responsibility. The network built up over the past decade may have produced several capable centres, including the present host institution at Rutgers. Hosting the portal will ensure visibility of the OBIS project and GBIF marine data could be ‘reharvested’ and made available through OBIS. The sustainability of such an endeavour would be dependent on the host rather than through intergovernmental cooperation.

6.2 A Medial (Maintenance) Level

An oversight and governance element of the programme is seen to be essential to maintain an ocean biodiversity presence amongst international and intergovernmental organizations, to maintain priorities for data ingestion, technical advancement, research and analysis. The probable source of support and governance would be under the IOC and there will be a requirement for a project/programme officer responsible for the coordination of the programme and the organization of necessary meetings and linkages. The cost of the senior staff member would form the major requirement. The cost of the programme/project officer and funds to cover essential meetings and travel associated with maintaining the programme would need to be found from within the IOC.

The costs of meetings, travel etc. would depend on how OBIS was phased into the organization. Support would be required from the host institution at least at the present level.

6.3 Optimal (Sustaining) Level

In addition to the previous scenario, on-going funding sources will be found to supply scientific and technical support. A data manager would facilitate data ingestion, and maintain quality control as presently done in OBIS. A technical information officer would ensure keeping the availability and use of the data set to modern standards. At a research institution, acting as host, there would exist the possibility of finding assistance with these responsibilities within the graduate and undergraduate ranks under the supervision of experienced university staff. The existence of a strong coordinating secretariat would attract and facilitate access to research funding not only at the host facility but throughout the global network and therefore leverage on scientific manpower could be substantial.

As with the previous option the IOC would be required to provide the resources for the senior staff member and the associated travel and meeting costs. The contribution of support staff could also be found within the commitments from IOC Member States or found from in-kind support from other sources or by the host institution. More detail setting out the costing of these options is given in section 8.

7. **The OBIS Work Plan**

The basic objectives for an optimum future OBIS programme are threefold:

- (i) to maintain the existing OBIS system and data holdings, to sustain access to those data, to continue with agreed partnerships and commitments and to fulfil the mission of OBIS under the CoML,
- (ii) To further the objectives of OBIS in maintaining the momentum and interest in biogeographic ocean data, by continuing to improve the reception and availability of data, by encouraging research and education and by widening the use and usefulness of the resulting information and
- (iii) To increase the value of biogeographic data to world governments and institutions, through the interaction with IOC Member States, by close cooperation with related intergovernmental and international ocean programmes, through increasing the efficiency and effectiveness of operations through compatible data management practices and common services, through combining research, training and education activities and by responding to identified needs and priorities of national and international ocean jurisdictions.

The OBIS Work Plan therefore is structured with the above requirements in mind and described under the following elements:

- A. Completion of the OBIS mission for CoML**
- B. Increasing the uptake of OBIS by the scientific community**
- C. Improving the Effectiveness and Efficiency of OBIS Technology**
- D. Education, Training and Outreach**
- E. Maintaining and Generating Cooperative Arrangements with Related Intergovernmental and International Organizations**
- F. Integration with IOC/IODE**

The decisions of the Governing Board and the IOC Assembly and the success of subsequent actions will determine how much can be achieved. It is obvious that the resources available will dictate the capacity and capability of OBIS in the future. A more rigorous Work Plan will be required urgently once the future of OBIS is determined to enable the costing to be reflected in the UNESCO biennium and medium-term forecasts. As this is not known for the present, the Work Plan elements are segregated into three simple funding scenarios that are independent of the source of those funds and the administrative arrangements adopted:

- I. **Achievable with little additional support** (*For example: no central OBIS Secretariat*)
- II. **Medial additional support found for OBIS** (*For example: A programme officer plus some travel and operational funds, in the range US\$ 150K – US\$ 200K p.a. Plus the space and facilities from the host institute*)
- III. **Optimal support found for OBIS** (*For example: A programme officer plus administrative, scientific and technical staff and appropriate operational funds, in the range US\$ 300K – US\$ 400K p.a. Plus the space and facilities from the host institute*)

It should be recognized that these scenarios represent three areas of a continuous spectrum of funding possibilities from zero to the maximum level and therefore the boundaries between them are rather arbitrary. To avoid repetition the paragraphs relating to priorities and schedule are appended only to Scenario III.

7.1 Scenario I (minimal support)

A. Completion of the OBIS mission for CoML

Using existing funds, OBIS will finalize its mission supporting the CoML through:

- **Contributions** to cross-project Synthesis activities and as required to Synthesis publications.
- **Ensuring** the physical integrity of the existing OBIS database
- **Making** arrangements for availability and access to existing data banks through other mechanisms, such as GBIF, which may also absorb additional data from marine providers.
- **Providing** information and summary statistics for inclusion on the CoML Website

B. Increasing the uptake of OBIS by the scientific community

- No resources for proactive work

C. Improving the Effectiveness and Efficiency of OBIS Technology

- No resources for proactive work

D. Education, Training and Outreach

- No resources for proactive work

E. Maintain and Generate Cooperative Arrangements with Related Intergovernmental and International Organizations

- The integrity of the OBIS data set is assured. OBIS has been one of the main contributors to the Global Biodiversity Information Facility and would expect that organization would continue to support the ocean biogeographic data base that is an

essential element in the world environment and of concern to many international and intergovernmental programmes and activities.

F. Integration with IOC/IODE

- With no additional resources the involvement of the IOC will more as a partner than a parent organization for OBIS. It would be expected that national ocean data networks would support the continuation of collection and data management activities for ocean biodiversity and some centres may be able to continue some of the tasks of the present OBIS. The IODE and its GE-BICH would be an obvious focus within the IOC for such data, however there would be little coordination and no global oversight for the programme.

7.2 Scenario II (moderate support)

A. Completion of the OBIS mission for CoML

- In addition to the work laid out under Scenario I, OBIS will be able to assist the CoML community in data management, quality control of data holdings and integration of data in the OBIS data system, a task that will continue beyond the end of 2010.

B. Increasing the uptake of OBIS by the scientific community

- **Work** with SCOR and IODE working group on data publication, to investigate how citations of data and data products can be made similar to citations of classical publications

C. Improving the Effectiveness and Efficiency of OBIS Technology

- **Cooperate** with IODE and other organizations with compatible data management strategies,

D. Education, Training and Outreach

- **Cooperate** in an advisory capacity with the host institution if that institution wishes to proceed with an Undergraduate Certificate Programme for marine biodiversity data management.

E. Maintaining and Generating Cooperative Arrangements with Related Intergovernmental and International Organizations

- **Continue** to support the ocean biogeographic data base that is an essential element in the world environment and of concern to many international and intergovernmental programmes and activities.
- **Support and Liaise** with programmes of the IOC (HAB, ICAM, GOOS etc.) and UNESCO (DIVERSITAS, MAB etc.) and support the high level objective of climate change.
- **Cooperate** with intergovernmental and international organizations engaged in ocean biodiversity science and data. This interaction will be vital to maintain contact with the global advances in this area when little capacity exists to accomplish this within the OBIS programme.

F. Integration with IOC/IODE

Under any foreseen scenario, a priority for OBIS will be ensuring a close working relationship with the IOC/IODE. IODE and OBIS already enjoy close cooperation and with a moderate level of support the integration of OBIS into IODE as a preliminary step would be more realistic.

- **Cooperate** with IODE to provide experts to existing IOC/IODE groups of experts to ensure adequate representation of biogeographic knowledge in IOC data management activities and, where necessary with the establishment of new advisory expert groups.
- **Further** the usefulness of biogeographic data with other IOC programmes where the OBIS knowledge and experience will be valuable.
- **Cooperate** fully with the IOC ocean information, education and training programmes (Ocean Portal, Ocean Teacher, Training Workshops and Capacity Building efforts) to improve the multidisciplinary approach and usefulness of these activities.

7.3 Scenario III (optimum support)

A. Completion of the OBIS mission for CoML

In addition to the actions given under the first two scenarios, OBIS would

- **Establish** archive systems, in collaboration with IODE, providing CoML projects with facilities to ensure continuation of data access after projects end
- **Provide** National/Regional Implementation Committees (NRICs) and field projects of CoML with customized access to data,
- **Support** requests for information products, based on OBIS data.

Priorities and schedule

It is anticipated that the OBIS input to the CoML Synthesis will be funded and completed by the end of 2010. The continuation of support to CoML related activities after the completion of Phase I in 2010 will be entirely dependent upon access to these additional resources.

B. Increasing the uptake of OBIS by the scientific community

In addition to the work under Scenario II

- **Continue** to actively solicit data contributions from scientists
- **Improve** the rate of data publication through activities such as:
 - Presentations and brochures targeted at scientists, and distributed at scientific meetings.
 - Providing feedback to scientists on data quality, and assisting in standardising data and metadata
- **Work actively** with scientists on custom data extraction and analysis, to facilitate publications based on OBIS data and to enhance the uptake of biodiversity data.

Priorities and schedule

For Scenarios II and III this represents on-going work that will concentrate on improving the communication amongst scientists and the user community through gap analysis and thematic focussed data assimilation exercises.

C. Improving the Effectiveness and Efficiency of OBIS Technology

OBIS will:

- **Improve** the availability of and accessibility to the OBIS database using the website and the provision of web services by keeping abreast of current state-of-the-art methodology and technology and the alternatives offered.
- **Maintain** technology and methodology requirements for quality control, data standards and formats, communication and the provision of statistics and information products.

Priorities and schedule

This work is an on-going requirement to maintain the value and usage of OBIS data.

Under Scenario II OBIS will work with IODE, RONS and with the GBIF Technical Team on implementing the latest technology relevant to its objectives.

Under Scenario III OBIS advisory experts will examine, on a continual basis, the specific operational effectiveness of OBIS technology and make recommendations for change as needed.

In choosing between alternative technologies, preference will be given to “Open Source”, or at least freely available tools. This will facilitate uptake of the tools developed by the greater OBIS and biogeographic community, without being hindered by the high licences that some commercial software attract.

D. Education, Training and Outreach

OBIS will be able to take a proactive role in this work by:

- **Planning and Undertaking** extra-curricular training courses for specialists and for capacity development.
- **Provision of teaching materials** on marine biodiversity data management for capacity building activities and for on-line training facilities such as IODE’s Ocean Teacher.
- Implementation of training in developing regions through collaborative activities within the framework of IODE ODINS (Ocean Data and Information Networks).
- **Continue to improve** the usage and value of its data to the public, to governments and to the scientific community through the provision of:
 - statistics of its holdings and activity
 - analysis and standard products (maps)
 - taxonomy
 - demonstration applications (e.g. global warming, harmful algal blooms, invasive species, endangered species)
 - thematic web sites and
 - responses to individual requests

Priorities and schedule

Under Schedule III, OBIS will be proactive in the access and use of OBIS data. OBIS will prepare a plan for the 2011–2012 bienniums, to establish a senior advisory group on the development of technology and methodology to improve the accessibility and usefulness of OBIS data to its clients.

E. Maintaining and Generating Cooperative Arrangements with Related Intergovernmental International Organizations

OBIS would be able to carry out a more visible and leading role in this task by:

- a. **Assisting** other external international activities requiring input from biogeographic data, such as the preparation and production of the UN Atlas of the Oceans and the Encyclopaedia of Life and the Barcode of Life.
- b. **Actively pursuing** other partnerships with intergovernmental and international organizations engaged in biodiversity issues or involved in the use of ocean biodiversity knowledge and information.

Priorities and schedule

Cooperation with international and intergovernmental partners is part of the on-going work of OBIS. The extent to which OBIS can take a leading and active role in this regard will depend on available resources. Under Scenario II, without adequate technical support within the OBIS Secretariat, the programme will have to rely on the practical and technical advances made in other organizations. With additional resources OBIS will undertake discussions within the IOC, UNESCO, with other UN Specialized Agencies and related international and intergovernmental organizations dealing with environmental issues with regard to mutual and supportive cooperation in relation to the use of biogeographic data. Special attention will be given to collaboration with other organisations such as FAO, UNEP, IUCN, WCMC and IPCC. For OBIS within the IOC, new draft agreements will be discussed with the IOC Executive Secretary before consideration and decision by the IOC Governing Bodies. Priority will be given to demonstrator applications with direct societal value in collaboration with relevant organisations.

F. Integration with IOC/IODE

Scenario III will enable OBIS to develop into an independent IOC Programme on a schedule determined by the Assembly and agreed by the OBIS Governing Board.

Under any foreseen scenario, a priority for OBIS will be ensuring a close working relationship with the IOC/IODE. IODE and OBIS already enjoy close cooperation. OBIS, as part of the IOC, will need to intensify this cooperation and bring its biogeographic data holdings and network capabilities seamlessly into the existing intergovernmental structure. One of the initial changes will require a merging of the present network of Regional OBIS Nodes into the respective national ocean data systems. In many cases this will be straightforward, but some difficulties may be expected and these should be addressed jointly by the national and institutional authorities working together.

In addition under Scenario III, OBIS will maintain and expand the designated network of Regional OBIS Nodes in consultation and collaboration with the IODE NODCs to ensure the continued global reception and coverage of all biogeographic data. OBIS and the regional centres will also continue policies for data archaeology and rescue to supplement the inventory of existing data.

It will be necessary to form an intergovernmental advisory mechanism to replace the present OBIS Governing Board and to report to the IOC Assembly and Executive Council.

As a separate programme OBIS will need to work with the IODE in establishing a Joint Group of Experts to ensure optimum effectiveness in dealing with multidisciplinary ocean data. Other Groups of experts will be required to coordinate and advise on the technical and scientific work related to the OBIS programme. OBIS will participate in the IOC Data and Information Advisory Group.

Priorities and schedule

With the agreement of the Assembly to accept OBIS and regardless of the process and framework adopted for this action, before the end of the present funding in 2011, OBIS will need to:

- *Finalise working arrangements with IODE, including, as required, designation of OBIS experts to existing committees and possibly new Groups of Experts.*
- *Prepare documentation on the membership and establishment of needed groups of experts, together with Terms of Reference.*
- *Complete the transfer of the OBIS RON network to national ocean data responsibilities, maintaining global coverage and finding new Regional OBIS Nodes where necessary.*
- *Establish cooperative arrangements with IOC programmes requiring input of biogeographic data.*
- *Prepare documentation for approval by the IOC Governing Bodies to request from UNESCO the establishment of a permanent IOC OBIS position to ensure the continuing priority for the OBIS objectives.*

8. Cost Estimates

At this juncture, the completion of OBIS responsibilities to the CoML and the 2010 Synthesis is the only part of the Work Plan that is assured. OBIS will be funded from CoML through 2009 at existing levels and this support will be halved for 2010. Any future arrangements for continuing CoML requirements will need to be negotiated and considered against existing priorities. It is anticipated that researchers will continue to apply individually for research funding associated with the ocean biodiversity data.

The remaining elements for continuing OBIS are totally dependent upon the resources to be committed by governments. It is possible but unlikely that additional sources of private funds will be found to replace the support that OBIS has received from the Sloan Foundation under CoML. The regular budget of the IOC can only be relied upon to assist with the convening of related expert and advisory groups.

If OBIS is adopted into the IOC it would be expected that national and regional savings will result from the integration of national and institutional networks of ocean data.

8.1 Financial Overview

An overview of the estimated costs is given in Table 1 indicating the expected source of the needed support.

Table I – Cost Estimates* in US\$ 1,000/year (uninflated)

ITEM	2009	2010	2011	2012 & cont.
Project/Programme Officer	150	150	150	150
Non-salary expenditures, travel etc. (Pro. Off.)	30	15	15	15
Scientific and technical OBIS staff	200	170	170	170
Non-salary expenditures, travel etc. (Sup. Staff)	20	17	17	17
Administrative support (half-time)	35	35	35	35
Office space and utilities; Facilities support, computer; library, etc.**	300	300	300	300
IOC contribution to operating costs		7.5	15	15
OBIS GB/OBIS Intergovernmental Panel	30	30	10	10
Joint IODE/OBIS GE		15	15	15
Scientific and Technical OBIS GE		5	10	15
Sub contracts and misc. fees	35	--	--	--
Total Resources Required	800	737	722	727
Source of Funding				
Sloan Foundation	500	250	Nil	Nil
IOC Regular Funds	None	17.5	30	35
Multi-source IOC/OBIS Trust Fund	None	17	237	237
Contribution from Host Institution	300	300	300	300
In-kind or other external support	None	170	170	170
Total	800	737	722	727

Notes with the table*

- The major resource requirements are for the staffing of the Programme/Project Officer and for the Scientific and Technical Support required for full continuance of the OBIS Programme. It is expected that the senior staff member position will be essential for any decision of the Assembly to adopt OBIS. The employment of the additional support staff will depend upon the amount and timing of the extrabudgetary and in-kind support received from Member States and other external contributions.
- Similarly the smaller cost of meeting support for oversight and expert advisory meetings will change depending on the decision of the Assembly; however these changes are likely to be relatively minor.
- The cost of administrative support at the decentralized office is given for a half- time position. With the separate OBIS programme option this may need to be a full-time position at double the cost.
- No costing has been made for Headquarter support, especially required for the separate OBIS programme.
- Non salary costs for personnel, travel and minor expenditures have been arbitrarily assessed at 10% of salary dollars.
- The need for an Intergovernmental OBIS Panel, Joint and other Groups of Experts will need to be more accurately calculated once the process has been determined.

The contribution from the OBIS community for the operation, staffing and facilities of the Regional OBIS Nodes is estimated at well over one million dollars.

**This is an estimate of the in-kind contribution of a host institution willing to maintain OBIS
In kind support is calculated based on the figures calculated by Rutgers University.

8.2 Facilities Cost

If other than the hibernation scenario is chosen, a host institute will need to be found to contribute the support associated with the provision of the OBIS Programme Office facilities. The total results in an estimated contribution of \$300,000 (taken as 54% of the OBIS secretariat budget, a standard overhead used in calculating budgets for NSF and other sponsoring agencies at Rutgers University)

8.3 Operational Costs

Annual office operational costs to be met by IOC will be expected to be comparable to the cost to the IOC for the operation of the IODE Ostend office, quoted in the business plan (2003) as approximately US\$15,000. There will also be the cost of meetings and associated travel requirements.

8.4 Staffing

With the adoption of an OBIS element of IODE or as a separate IOC programme, the Commission will need to find the funds for an IOC project or programme Officer. There will be a need for some additional support at the host institution for administrative support (full-time or part-time) and technical support.

Some administrative support would be needed at IOC HQ and this support would be larger for OBIS as a separate programme, probably 25% of a GS position.

If the full operation of OBIS is to be continued there would need to be found an additional staff contribution of about \$200K.

9. **Issues and Risks**

The major issue is in the sustainable resourcing of the OBIS Programme by the IOC. The IOC operates within UNESCO and receives regular funds allocated by the General Conference every biennium. The IOC is not only a relatively small organization in terms of its global mandate and the scope of its activities; it is also a relatively small element of its host agency. The competition for funds within UNESCO is fierce and the likelihood of obtaining extra staff and funding for new programmes small. Fortunately, the IOC has a Trust Fund that is made up of extra-budgetary donations from Member States and also receives in-kind support in the form of staff and facilities to assist in the operation of the intergovernmental secretariat that is essential for the programmes and activities of the Commission. The IOC is thus able to bring effectiveness and efficiency to global ocean programmes covering observations, data archival and management, research, coastal management, climate, living and non-living resources, capacity building and environmental health. The Commission has no funds for active programmes but operates through the coordination of the activities of its Member States, which collectively total many hundreds of millions of dollars.

Resources will certainly be an issue for the IOC Assembly when discussing the adoption of OBIS as an IOC Programme. From past experience, requests for additional support from UNESCO to cover the costs of new activities are unlikely to succeed in the short term and would, in any case, bring an unacceptable delay to the approval process. However, due to the clear relationship of the biogeographic data to other programmes of UNESCO, there would be benefit in developing arguments and a recommendation for support to a future UNESCO General Conference for consideration.

The split of funds between the regular budget and extra-budgetary funds is very important. There is certainly more opportunity for success based on a coordinated and firm commitment from

IOC Member States. The regular budget is not only already overcommitted, it is regulated externally by UNESCO and recommendations for increases have to follow the process of the parent organization, so there is limited scope in both available funds and in the time schedule during which those funds are required. For Member States it will be necessary to specify the amounts and timing for the respective contributions. Member States willing to announce their ability or intention to accept a portion of the costs at the time of the Assembly will certainly increase the chances of reaching an optimum decision for OBIS. Without extended commitments from Member States, there would be a risk that an adopted IOC/OBIS would atrophy over the years from lack of support and a failure of OBIS would damage the reputation of the Commission and be catastrophic for the future of ocean biodiversity data.

From the documentation produced, it is obvious that prime considerations for OBIS should cover the security of the existing biogeographic data, the completion of responsibilities to the CoML, the continuation of the existing global momentum for the programme and the completion of plans for a sustainable home for such data in the future. It would seem that the obvious answer is for the IOC to act to adopt OBIS. However, if the IOC Member States feel that they and the organization cannot absorb the programme successfully, consideration must be given at the Assembly to alternative ways in which this critical biological element of ocean science can be supported by the Commission. Such support could be in direct financial contributions from Member States or through in-kind assistance from national and regional data centres to sustain the global network and objectives. At the very least, the continued support and cooperation between IODE and OBIS should be assured.

10. The Required Assembly Decisions

The first decision is whether to pursue the proposal to bring the OBIS programme into the IOC. This seems to be straightforward. Since the early discussions at the OBIS Governing Board meeting in Rome and the consideration of the proposal by the IOC Executive Council, there has been unanimous support for the Commission as the most logical choice for the future home for OBIS. In addition there have been no legal or administrative reasons found that would prohibit such a decision being accepted.

Assuming that OBIS will become part of the IOC, the secondary consideration is how this action should be carried out. The preliminary meeting of experts in Ostend and subsequently the meeting of the Governing Board have both concluded that a cooperative arrangement between the IOC and OBIS would neither ensure a sustainable future for the OBIS nor provide the necessary global integrity of the biodiversity community that has been developed over the past decade. Therefore the remaining options are (i) the merging of OBIS into the IOC/IODE programme and (ii) the adoption of OBIS as a stand alone programme of the Commission.

The OBIS Governing Board decided that the Assembly should be asked to undertake responsibility for OBIS and to consider the preferred option that OBIS be accepted as a separate IOC programme. The lengthy debate by the Board on reaching this decision was swayed by the conviction that the biodiversity programme, although it had achieved a great deal in terms of data collection and information management, was also necessary to coordinate the world effort on the ocean biological science and technology programme that had been established to provide, understand and analyse the observations.

The Assembly has received contrary advice from its governmental representatives at IODE–XX, whose view was that the option for a future OBIS within the IODE framework was more sensible. There is also the possibility that both options are not necessarily exclusive and the IODE option could be an intermediate step towards an independent IOC/OBIS Programme.

The Assembly must therefore address the questions of administration, funding, staffing and timing in reaching a final decision. The decision will also need to balance these issues against the priorities and objectives that can be achieved within each scenario as given in the OBIS work plan

and how best to satisfy the respective requirements of the Commission and OBIS within the constraints of resources and schedule. The attached Draft Resolution does offer some flexibility for the Assembly to take the decision to accept responsibility for OBIS and develop a resource plan over the coming months, but commitments by Member States will be required.

Annex 1 A Description of OBIS

The Ocean Biogeographic Information System (OBIS) is a facility for absorbing, integrating, assessing and analysing data about life in the oceans. OBIS is aimed at stimulating research generating new hypotheses concerning evolutionary processes and species distributions. It facilitates informed management of marine biodiversity by making data freely available over the internet and interoperable with other databases.

OBIS integrates data from many sources, over a wide range of marine themes, from poles to equator, from microbes to whales. It is the largest provider of marine species distribution information, and one of the largest contributors to GBIF. OBIS was created as the data integration component of the Census of Marine Life, but any organization, consortium, project or individual may contribute.

A prime mission of OBIS is to make available, online, primary data on marine species distribution. OBIS integrate data from all data providers across taxa and marine themes. The system facilitates data discovery and research by allowing the user to search the data bank by species, higher taxa, time, location, depth and database. OBIS also provides tools for mapping, overlaying species distributions on other ocean environments and modelling activities such as potential environmental range. A primary mission element is to support the CoML synthesis in 2010. OBIS contributes to the efficient management of biogeographic data and information through the sharing of tools, formats and standards across different organizations and amongst countries. It ensures data is not lost, encourages the rescue of historic data sets and ensures repositories for new data. It promotes data discovery and links with other related organizations such as BOLD and EoL. A network of regional nodes forms the basis of a global science community focussed on biodiversity research and the supply of thematic and geospatial ocean biological data. There are 14 Regional OBIS Nodes (RONs) that together ensure a true global coverage for OBIS. These regional nodes provide closer access to the data providers and mobilise regional data. They provide local visibility, technical assistance and specialized information products. Of course all the regional data is available on the global network. The flow of data is multi-directional with regional nodes able to receive data from the central data banks at OBIS, or through its partners, and from other regions where necessary. The combined asset provided by the regional network, in its facilities and human resources, is formidable and represents an investment of experience and resources that is many times the cost of the coordinating function.

Strong ties exist with many of the important international environmental organisations and has been recognized as the marine component of the Global Biodiversity Information Facility (GBIF). The international secretariat is presently hosted by Rutgers University, New Jersey. OBI has the potential to complement the existing ocean data sources within the IOC by contributing an operational and successful component dealing with ocean biological data.

Within the OBIS community, software tools are developed for data exploration and analysis. Development is driven in part by scientific debate from a series of international conferences of which there have been three to-date. The first the 'Colour of Ocean' conference in Brussels, 2002, followed by two conferences on 'Ocean Biodiversity Informatics' in Hamburg 2004 and Halifax 2007, respectively. Smaller technology workshops have brought the OBIS community together with Google, and with the open source geospatial community in general.

Standards development and implementation is an integral part of the activities. Data integration on a massive scale, as practiced by OBIS, is critically dependent on appropriate standards for data exchange and documentation. Where possible, existing standards are used in building the OBIS infrastructure. OBIS is playing an active role in furthering development. For example, the World Register of Marine Species is developed by the OBIS community as a controlled vocabulary for species names and is an essential component of data integration in the field of biodiversity. This Register forms one of the corner stones of quality control of OBIS data. Other tools are being developed.

The international OBIS portal (<http://www.iobis.org>) is developed and maintained by the secretariat staff at Rutgers, with assistance from many in the community. It offers an on-line, user-friendly search interface to all OBIS data and facilities for downloading data, OBIS provides access to several external tools for data visualisation and analysis. The web site is well visited, with over a million hits per month, and more than 100,000 records viewed or downloaded per day. By April 2009, the integrated data contained 18.5 million records, from 633 distinct datasets, and 105,000 species. In addition many current and historical data sets exist outside OBIS and an objective for OBIS is to make these data available for re-use. OBIS works with marine scientists worldwide to mobilise all biological ocean data, including targeted campaigns of data archaeology and rescue.

In its operational role OBIS performs many useful functions. It caches species distribution data from many existing contributors and seeks out new standards for data exchange and management. Data are quality controlled and all data and tools are freely available and accessible online. OBIS is able to monitor web statistics and provide useful feedback on system access.

There are present limitations in marine biogeographical data and only a small fraction of the ocean biodiversity is known. Nevertheless the numbers of known species is growing rapidly and the OBIS contribution is significant. The present OBIS activities continue to be the development of IT infrastructure, seeking out new and historical data, improving quality control and analysis tools.

The oversight of OBIS is in the hands of a Governing Board. The Board is composed of senior science policy managers capable of providing the necessary direction and resource advice. A Managers Committee, composed of the RON managers provides a forum to discuss technical and operational issues and developments. To-date technical advice has been achieved through ad hoc expert workshops and it is envisaged that a scientific group will be formed to give credibility to the OBIS process and provide an editorial board function.

Governing Board Members include a representative of the hosting institute of the OBIS Secretariat and representatives of international end-users (e.g. IOC, UNEP, FAO, IUCN, GBIF, and GEO) and the Chair of the OBIS Managers Committee (MC). The OBIS Executive Director is an ex-officio, non-voting member and acts as secretary to the Executive Committee.

Annex 2 IODE

The International Ocean Data and Information Exchange programme (IODÉ) is obviously the part of the existing structure of the IOC most closely related to the data collection and management elements of OBIS. The IODE was established in 1961 ‘to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products’. The programme has built a global network of 80 National Oceanographic Data Centres (NODCs), as well as a growing network of Marine Libraries. IOC Member States participate in IODE through IODE National Coordinators for oceanographic data management and IODE national coordinators for marine information management who are members of the IODE Committee, which meets every two years and reports directly to the IOC. Of particular interest is the objective of the IODE to expand its activities into biological and chemical data and its creation, in 2000, of a Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH) to accomplish this. Obviously the integration of the OBIS and its network of Regional OBIS Nodes (RONs) will need close coordination with IODE. IODE currently has three Groups of Experts, one of which is a joint group with JCOMM. Figure 1 shows the current structure of IODE.

The IOC Data and Information Management System will, like that of the Global Earth Observing System of Systems (GEOSS), be a system of systems. Each of these should be an end-to-end system, handling data from the point of collection, through processing and quality control, to archival and dissemination. The major elements of the Strategy are:

- Adherence to the IOC Oceanographic Data Exchange Policy;
- Acceptance and implementation of agreed interoperability arrangements including technical standards and specifications for processing, quality control, storing and disseminating shared data and information;
- A global network of data centres and related national distributed networks, and permanent long term data archiving centre(s) for all data, which operate to agreed standards, providing seamless access to data and information;
- Capacity building through continued development of Ocean Data and Information Networks (ODINs) whilst extending the Ocean Teacher capacity building tool through cooperation with WMO, JCOMM and others as appropriate;
- Governance by an Advisory Group that brings together the various programme elements of IOC as well as of bodies and organizations collaborating closely with IOC.

The introduction of OBIS into the IOC will do much to complement this policy and make it more comprehensive.

In April 2005, IOC established the IODE Project Office in Ostend, Belgium, hosted by the Government of Flanders. The main objectives of the Project Office are (i) to establish a creative environment facilitating the further development and maintenance of IODE and partner data and information management projects, services and products with emphasis on improving the efficiency and effectiveness of the data and product/service stream between the stage of sampling and the user; and; (ii) to assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users.

**Annex 3 Draft Resolution for the IOC Assembly at its 25th Session
(Paris, 16–25 June 2009)**

Proposed draft Resolution XXV-

The Ocean Biogeographic Information System

The Intergovernmental Oceanographic Commission,

Noting the great progress that has taken place under the Census of Marine Life and that this ten-year initiative to assess and explain the diversity, distribution, and abundance of marine life in the oceans will conclude at the end of 2010,

Gratefully acknowledging the foresight shown and the support given to this global programme by the Sloan Foundation,

Recalling the expression of support at the start of the Census of Marine Life and its associated Ocean Biogeographic Information System from the 33rd Session of the Executive Council and the instruction to the IOC Secretariat to develop an appropriate mechanism for IOC involvement in the Census,

Further Recalling that subsequent Executive Councils and Assemblies have welcomed the progress achieved and called for continued interaction with this activity, in particular Resolution XXIII-3 that encouraged the integration of OBIS into the IODE and EC-XXXIX that called for continued development of the interaction between the Commission and the CoML,

Appreciating the Resolution of the UN General Assembly 63/111, that *inter alia* expresses serious concern over the current and projected adverse effects of climate change on the marine environment and marine biodiversity, and emphasizing the urgency of addressing this issue, and which encourages States, individually or in collaboration with relevant international organizations and bodies, to enhance their scientific activity to better understand the effects of climate change on the marine environment and marine biodiversity and develop ways and means of adaptation;

Recognizing that an OBIS Programme within the IOC will create a valuable source of information for the UNESCO programmes of MAB, DIVERSITAS and the High Level Objective of the organization on the impact and mitigation of climate change,

Recognizing also that OBIS has an important role to play in contributing to external intergovernmental and international organizations dealing with global fisheries, environmental and biodiversity issues and that this role should be continued and expanded in the future,

Responding to the request from the OBIS Governing Board and the decision of EC-XL to consider possible scenarios for a future home for OBIS within the IOC, by concentrating on the possibility of the creation of an IOC-OBIS Programme and an IOC-OBIS Programme Office,

Acknowledging that the Census of Marine Life, and the research, information and data it has generated, provides an important tool for the international community to use in the development of policies for ocean and coastal management and to address the critical issues related to climate change,

Acknowledging also that the commitment of the IOC and UNEP to proceed with the UN decision for an Assessment of Assessments, leading to a regular review of the state of the ocean environment, would not be feasible without access to the science, information and data on marine biodiversity, such as that accumulated under OBIS,

Noting with appreciation the agreement of the OBIS Governing Board, in April 2009, to the adoption of OBIS by the Commission and their request to have OBIS accepted as an IOC Programme.

Decides:

- (i) to accept OBIS as a programme of the Commission on a schedule that will ensure a smooth transition of the programme into the IOC as its responsibilities and funding under the CoML are completed
- (ii) to request the OBIS Governing Board to continue with their oversight of the programme until the completion of the CoML 2010 Synthesis
- (iii) to set up a multi-source component of the IOC Trust Fund to enable the progress achieved over the decade of the Census to be continued and sustained in the future within the IOC, and
- (iii) that a temporary Programme Officer position be established, as necessary, to continue the work of OBIS within the Commission and to request from UNESCO to establish an additional professional staff position to manage the Programme, if possible, commencing in the biennium 2012–2013;

Instructs the Executive Secretary:

- (i) to undertake the administrative arrangements necessary for OBIS to continue under the auspices of the Commission, including completing an agreement with a host institution to supply the necessary facilities and support for OBIS,
- (ii) to set up a multi-source fund within the IOC Trust Fund for the support of this initiative and to keep the Member States of the IOC fully informed of the commitments made and the adequacy of the resources available,
- (iii) to undertake the staffing action required for the temporary OBIS Programme Officer position and the preparation of documentation to the Director General and the UNESCO Executive Board requesting a permanent allocation for this position,
- (iv) to work with OBIS to ensure the transfer of OBIS into the IOC will foster and sustain the ocean biodiversity research community that has been established over the past decade
- (v) to recommend a framework that will provide adequate interaction between OBIS and IODE and optimise the effectiveness and efficiencies of the respective data management networks and ensure the close assimilation of the biogeographic data with the IOC objective for an ocean data system of systems.
- (vi) to consider the resource requirements for an OBIS intergovernmental oversight body to take the place of the present OBIS Governing Board after the completion of the CoML Synthesis in 2010 and prepare the required Terms of Reference for such a group.
- (vii) to consider also the resources required for a group or groups of experts to provide the on-going advice needed to sustain the research and information contributions of OBIS in the future, and
- (viii) to schedule these actions in a manner commensurate with the availability and amounts allocated to the IOC Trust Fund for this purpose and bring the necessary actions for consideration and decision to the IOC Executive Council XLIII, in 2010.

Urges Member States:

- (i) to make financial commitments to the IOC Trust Fund to enable this important programme to be sustained within the Commission,
- (ii) to consider the commitment of the necessary facilities and support for a host institution for the OBIS programme and to make a formal offer to the Commission in this regard,
- (iii) to consider financial and/or in-kind support for the OBIS programme to assist with its technical or research activities
- (iv) to facilitate the transfer of the National and Regional OBIS Nodes into a governmental organization reporting to the Commission through normal IOC channels.