The Annotated Agenda/ Action Paper will be the main working document for the 22nd Session of the IOC Committee on IODE. It includes (i) the draft introductory text that will be used for the summary report of the Meeting; (ii) (in yellow text boxes) the decisions requested from the Committee; (iii) draft recommendations and resolutions; and (iv) resource requirements. Regarding resource requirements it is noted that in Annex I a summary overview is provided of financial requirements for the inter-sessional period April 2013- March 2015.

Participants in the Session are requested to carefully read this document as well as other working documents and prepare for short plenary interventions prior to the Session.
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1. OPENING

Ms Sissy Iona and Mr Ariel Troisi, Co-Chairs of the IOC Committee on International Oceanographic Data and Information Exchange (IODE) will welcome the participants to the Twenty-second Session of the IODE Committee at 09:00 on Monday 11 March 2013. Ms Iona will also thank the members of the Committee for their agreement to use English as the only working language for the Session, taking into account the cost of interpretation and translation.

The Meeting will then be addressed by the representatives of the local hosts and the IOC Executive Secretary, Dr Wendy Watson-Wright.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Committee will be invited by the Technical Secretary, Mr Peter Pissierssens, to review and adopt the provisional agenda (Document IOC/IODE-XXII/1 prov.). The Committee will be requested to note that all working documents were made available only as on-line documents. Any new items or issues should be proposed by the Meeting will be noted here and discussed either under the related Agenda Item or under Agenda Item 9.

ACTION: review and adopt Agenda.

2.2 DESIGNATION OF A RAPPORTEUR

The Committee will be invited to elect a Rapporteur for the Session. It will be recalled that for the past three sessions the Secretariat was tasked to report on the meeting and that no rapporteur was used.

ACTION: elect Rapporteur if needed

2.3 SESSION TIME TABLE AND DOCUMENTATION

The Committee will be invited to review and adopt the Timetable (Document IOC/IODE-XXII/1 Add. Prov.)

The IODE Technical Secretary (Mr Peter Pissierssens) will then review the arrangements for the Session and present Document IOC/IODE-XXII/4 prov. (List of Documents) available on line through http://www.iode.org/iode22

He will then inform the Committee about the working hours for the Session and other details relevant to the conduct of the Session. He will remind the Committee that this Session has 4 working days to deal with the substance of the meeting and there will be one day reserved for in-depth discussions on the future of IODE. Accordingly there will be no time for extensive introductions of agenda items and participants are urged to carefully read the Action Paper and working documents in preparation for the Session.
ACTION: review and adopt Timetable

2.4 ESTABLISHMENT OF SESSIONAL WORKING GROUPS

The Technical Secretary will invite the Committee to establish sessional working groups. Suggested groups include:

(i) Sessional working group on work plan and budget;
(ii) Sessional working group on the future of IODE (Wednesday 13 March)
(iii) Sessional working group on ODINWESTPAC (proposed by China)

The Technical Secretary will remind the Committee that participants had been invited (by email) to identify the need for additional sessional working groups by email, prior to the Session (deadline 1 March 2013). He will inform the Committee of received suggestions.

He will remind the Committee that each Sessional Working Group should nominate a Chair who will report back to the Committee at the time the relevant agenda item is discussed in plenary. In exceptional circumstances the Committee may decide to re-arrange the timetable to accommodate a sessional working group.

ACTION: establish sessional working groups

2.5 LOCAL ARRANGEMENTS

Information and guidelines for participants were made available through the IODE-XXII web site http://www.iode.org/iode22.

The representative of the local host institutions will inform the Committee on local arrangements including social events and possibilities for tourist excursions.

3. INTRODUCTORY REPORTS

Under this agenda item reports will be presented that provide an overall overview of the IODE system, its activities and implementation of the programme at the national, regional and global levels.

3.1 CO-CHAIR’S REPORT

The two Co-Chairs will present their report on inter-sessional activities. They will refer to Document IOC/IODE-XXII/5 (Co-Chairs’ Report). The IODE has experienced challenging times since IODE XXI mainly related to financial constraints resulting from UNESCO’s budget cuts. The same financial constraints occurred in almost all IOC Member States thus affecting, in many cases, the activities of NODCs and ODINs. Struggling with a cut on IODE’s budget of about 80% for a good part of the intersessional period, Groups of Experts, projects and activities continued to pursue their goals at different paces. Bearing these in mind, it stands to reason that not all the goals and objectives set at IODE XXI were met, and several had to be reprogrammed. Especially the budget allocations to the ODINs were affected as there was no way providing funds to all ODINs.

Cooperation and interaction with other IOC Programmes as well as with other Organizations was maintained amidst the aforementioned difficulties, rendering appropriate
outcomes.

IODE has been actively involved in JCOMM activities and has contributed significantly in the revision of MCDS documentation (see agenda item 7).

A simple review of the activities, meetings, workshops and training courses that have taken place in the intersessional period renders a quite impressive picture in such difficult circumstances. To a large extent we have to thank the Government of Flanders for this as they have continued their substantial support to the IOC Project Office for IODE. This meant that we could continue our training programmes as well as meetings of our expert groups and several steering groups.

The progress report of the IODE programme at the 26th Session of the IOC Assembly was well received by all Member States and Resolution XXVI-10 was adopted including, inter alia, the establishment of an IODE Group of Experts for OBIS, an IODE Steering Group for OBIS, and establishing the IOC Project Office for IODE/OBIS (albeit not at Rutgers University – this will be discussed under agenda item 5.2.1). In turn, the 45th Session of IOC Executive Council approved the decision EC-XLV/Dec.4.2.1 on the establishment of a Centre for the Ocean Data Portal at RIHMI-WDC of Roshydromet in Obninsk, Russian Federation which will give a great impulse at the future ODP operation and improvement (more details under agenda item 5.2.3).

Nevertheless, in a rapidly changing environment and after more than fifty years, IODE is at a cross-road and some serious challenges must be faced:

• There is a need to take a careful view on the emergence/growth of well-funded data systems, their decision to link with data systems in some regions, jointly with our progress and achievements with, for example, ODP and ODS. Put more simply IODE NODCs are participating in other networks that are better funded and that are linking with other similar systems. If this continues then should IODE continue to exist as such?

• The level of response to IODE related emails and difficulties in having people available for IODE activities. In this regard we refer to the low level of response to the IODE national reports survey (less than half of the IODE national coordinators responded by the deadline).

• The ODIN’s developments have slowed down, something that can be explained partially due to the budget cuts.

• Individual experts have less time to spend on IODE work versus their need to focus on funded project work. This is related with the participation of the NODCs in parallel networks. Of course if you need to choose between tasks for which you get paid vs tasks that you are doing for free then the choice is easily made. But again this puts in question the future of IODE which has to rely on volunteer work that benefits the community. Is this model sustainable today?

• After adopting OBIS and issuing a Circular Letter asking Member States for funding, no contributions were received and the OBIS Project Officer position may have to be terminated by April 2014. It is easy for our Governing Bodies to make decisions on the adoption of new activities but it has to be clear that this comes with obligations, including financial.

So an important question we need to ask is: is the current volunteer based model that has allowed IODE to grow still valid today? Is there still a role for IODE while regions are embarking on projects that take over some of the coordinating role of IODE? If the answer is yes then we need to re-define the role of IODE in the new global ocean data and information management architecture.

These are fundamental questions that we need to address in this meeting. If we do not address them now then IODE will not cease to exist immediately but will die slowly over a period of 5-10 years, but die it will. So we have allotted an entire day for these discussions.
during this Session. We welcome out-of-the-box views and solutions and we ask you all to carefully think about these issues.

Closely related to this is the issue to the target community of IODE and its users. For 50 years our community was composed of NODCs: single national entities that were responsible for all ocean related data management. Is this centralized structure still the most appropriate? Today there are many ocean research and observation “entities”. They include universities, research institutions, projects and even small groups of researchers. Today’s technology allows every one of these to host a data centre and many do so. Are we reaching these as IODE? The answer must be “no”. Most of these do not even know about the existence of IODE. This does not help. We therefore need to find new ways of including these stakeholders, as they complement the work of our NODCs.

Another question is whether IODE should be involved in the development of technology. For over 10 years now we have been developing online services like OceanExpert, OceanDocs, OceanDataPortal, African Marine Atlas, Caribbean Marine Atlas, OBIS, etc. Should we continue doing so or leave these to individual member states or well-funded projects? If we decide that such services should be maintained then we also need to identify where the resources should come from that will sustain them. We then also must make sure that our own governments focus on the resource needs of our IODE rather than supporting similar parallel and competing efforts. These other initiatives should then use our IODE services.

To conclude, the past two years have been a notable period. Despite the obstacles due to the financial difficulties of IOC, IODE accomplished significant achievements and created new expectations. But we need to answer to the fundamental questions raised above before we proceed with the next steps to the future which are really very promising for our sciences and our societies.

**3.2 IMPLEMENTATION STATUS OF THE IODE-XX WORK PLAN**

This Agenda item will be introduced by the Technical Secretary, referring to Document IOC/IODE-XXII/6 (Implementation Status of the IODE-XXI Work Plan) and Document IOC/IODE-Off-2012/3 (2012 Officers Meeting: Summary Report). He will recall that the IODE-XXI Action Sheet was reviewed during the IODE Officers Meeting that took place at the IOC Project Office for IODE between 30 January – 3 February 2012. The Officers had made a comprehensive review of the status of the implementation of the action plan at that time and had recommended remedial actions for incomplete action items. Mr Pissierssens will report that nearly all action items of the work plan had been implemented and that, in response to emerging issues a number of new action items had been implemented as well.

**ACTION:** The Committee will be invited to provide guidance on action to take regarding action items that were not implemented.
3.3  **FINANCIAL AND IN-KIND CONTRIBUTION REPORT**

26  This agenda item will be introduced by the Technical Secretary. Referring to Document IOC/IODE-XXII/7 (Financial and in-kind contribution report (2011-2013))”. He will provide an overview of the financial situation of IODE during the biennium 2011-2012 and expected revenue for 2013.

**UNESCO Regular Programme funding**

27  He will recall that during the previous UNESCO biennium (2010-2011) IODE had received US$ 195,900 (including US$ 10,000 for OBIS). However, following the 36th Session of the General Conference (25 October – 10 November 2011) vote admitting Palestine as a Member State of UNESCO the United States of America and Israel have withheld their assessed contributions (22.38% of UNESCO totals), resulting in Regular Programme budget deficit of US$ 72 million for 2011 and a projected budget shortfall of US$ 146 million for 2012–2013, with a resulting financing gap of US$ 167 million. To restore cash-flow stability and to eliminate the deficits for the period 2011-2013, UNESCO effected a budget reduction of US$ 188 million or 29% of the approved budget, with all programme sectors reduced by 31%. **For the IOC this resulted in a cut of US$ 3.2 million for 2012–2013.** Even with utilizing what little flexibility there was in staff allocation, the reduction translated into a 77% cut to resources for activities. At this level of cut, the IOC risks losing its recognized leadership in ocean sciences, observations, data management, and services. Achieving our objectives will depend more and more on IOC Member States contributions.

28  US law also forced the withholding of US agency voluntary contributions to UNESCO and to IOC. This situation differs from that of 1984–2002, when the USA voluntarily withdrew from UNESCO while remaining a member of IOC, and thus was able to support the IOC through voluntary contributions. In the current situation, the USA remains a member of IOC and of UNESCO.

29  For IODE this meant a reduction of the budget obtained from UNESCO Regular Programme to US$ 30,000 for 2012 and the same for 2013. It was decided that 50% of this should be allocated to OBIS, at least for 2012-2013.

**Extra-budgetary funding: Government of Flanders**

30  In terms of extra-budgetary income the situation was more positive as the Government of Flanders decided to renew the support for the IOC Project Office for IODE. The MoU between UNESCO/IOC and the Government of Flanders was signed on 30 March 2012 and expiring on 31 December 2016. Under the agreement Flanders will continue providing the Offices, costs of utilities, and maintenance costs, and provide not less than €250,000/year (to be used as a contribution towards the operational expenses and programme activities of the Project Office) as well as not less than three FTE staff (Administrative assistant, IT system administrator and Training coordinator).

31  In addition IODE continued to benefit from the Flanders-UNESCO Trust Fund for Science through the financing of the ODINAFRICA-IV, OceanTeacher Academy and Caribbean Marine Atlas projects. Regarding the ODINAFRICA-IV project it was noted that the management and budget of this project were transferred to the Nairobi field office, together with Mr Mika Odido (March 2012). Regarding the OceanTeacher Academy project it was noted that this project funds the P-2 IT developer position held by Mr Aditya Naik Kakodkar (funds available until September 2013). Due to increased travel and per diem costs the number of courses that can be organized in 2013 from the OceanTeacher Academy project budget will be limited to two. It was noted also that the current FUST projects will all terminate on 31 December 2013.

32  A proposal has been submitted to the Government of Flanders through FUST (July 2012) requesting US$ 100,000 to bridge the 2013 budget shortfall of OceanTeacher and the salary shortfall of Mr Kakodkar. At the time this working document was prepared no reply
was received from the Government of Flanders in this regard.

**Extra-budgetary funding: other sources**

During the past biennium, no financial support was received from Member States, except for the contribution from the Government of Flanders. The Technical Secretary expressed concern about the limited number of donors contributing to IODE. It was noted that many Governments are going through a period of austerity and budget cuts following the recent financial crisis. As he had predicted during IODE-XXI this has had a serious negative impact on supporting international organizations and their activities, including IODE. This period of austerity may well continue throughout the next inter-sessional period 2013-2014 and beyond. The impact of national austerity measures has also been to affect the participation of national experts in IODE meetings such as Groups of Experts, Steering Groups and even the IODE Committee Session. Increasingly member states call on IODE to support participation in such events.

**Support to IODE/OBIS**

IODE was invited to participate, through OBIS, in the i-Marine EU FP7 project. i-Marine started in November 2011 and will end in April 2014 (30 months). This income has enabled us to hire a P-3 coordinator for OBIS. Because the funding from i-Marine only arrived in February and due to the notice period Ward Appeltans started working at IODE on 2 May 2012. The IOC Assembly in June 2009, adopted OBIS within its IODE Programme (Resolution XXXV-4), and would deliver a P-4/5 head of the OBIS project office, and the host institute would provide a data manager and IT specialist. To this end IOC established a multi-source account for the support of OBIS, within the IOC Special Account. In 2010, contributions were kindly provided by Australia, Brazil and Canada. This budget enabled us to set up a contract with Edward Vanden Berghe through Rutgers University to ensure a continuation of the OBIS operations. Because Rutgers was financially not in a position to establish the IOC project office for OBIS, it was decided to move the OBIS secretariat to the IODE project office and to split the work into a P-3 OBIS manager (Ward Appeltans) and to set up a contract with Rutgers to provide technical support to OBIS. However, due to the departure of Edward, Rutgers requested to terminate this contract by 31 August 2012. Because both a coordinator and a data manager position are critical for the central OBIS secretariat, we decided to hire a P-1 data manager for OBIS at the IODE PO (to start November 2012). However, the current budget situation will not allow us to continue in this way until the end of 2013. On 21 May 2102, we issued a Circular Letter (CL 2441) requesting IOC member states for extra-budgetary funding for OBIS. This unfortunately has not resulted in any contribution to OBIS.

**Revision of the IODE-XXI work plan and budget by the IODE Officers**

Faced with the dramatic cuts in UNESCO funding the IODE Officers, during their 2012 Session, had no choice but to completely revise the work plan and budget adopted by IODE-XXI and approved by the IOC Assembly (June/July 2011). It is noted that in order to maintain the core global strategic projects the Officers had no choice but to cut regional activities across the board. Subsequent to the Officers meeting all Project managers and ODIN regional coordinators were informed of the revised work plan and budget and to plan accordingly.

**Cooperation with European Commission: FP projects**

Unfortunately it was still not possible to resolve the administrative issues between UNESCO and the European Commission. This caused the inability of IODE to be a full partner in SeaDataNet-2 and ODIP projects. Instead IODE was only able to be a subcontractor in these projects (with a very limited budget). For similar reasons IODE could also not be a partner in two EMODNET project proposals.
This Agenda Item will be introduced by Mr Ariel Troisi, IODE Co-Chair, referring, inter alia, to Document IOC/IODE-XXII/8 (Introduction to Work Plan and Budget). He will also provide a brief presentation outlining the budget requests that have been included in the substantive working documents referring to Annex I to the Action Paper.

Mr Troisi will inform the Committee that the available budget for the next inter-sessional period was still largely unknown. This had several reasons: (i) the US decision on November 2011 to cease payment of its assessed contribution had an immediate impact on the planning process for the UNESCO biennium 2012-2013 but it was yet unclear whether this problem would continue in 2013. If it did continue then the budget from UNESCO’s regular programme would continue at its 2012 level (US$ 30,000/year); (ii) all IODE projects funded by the current Flanders-UNESCO Trust Fund for Science would end by December 2013. New project proposal could be submitted in 2013 but their success could of course not be assured. In this regard it was mentioned also that the ODINAFRICA-IV project had been transferred (with Mr Mika Odido, project coordinator) to the UNESCO Office in Nairobi. It therefore no longer operated under IODE management.

He will further inform the Committee that the Flanders Government had decided to renew the MoU with IOC until 31 December 2016. The conditions of the new MoU remained essentially the same: use of Offices and meeting rooms, an annual financial contribution of not less than €250,000/year and not less than three full-time staff equivalents.

Mr Troisi will note with concern that the call for funding for OBIS through IOC Circular Letter 2441 resulted in only one contribution (by Canada). For other activities of IODE no voluntary contributions were made. NMDIS (China) and US-NODC (USA) provided short-term secondments (local costs covered by the Project Office). The US-NODC offered, in addition, staff time (virtual secondment).

Mr Troisi will inform the Committee that the size of the IODE programme in terms of projects has made that the Secretariat was no longer in a position to manage all projects and activities by itself. In this regard it will be noted that IODE now counts 4 Groups of Experts (GE-MIM, GE-BICH, JCOMM/IODE ETDMP and GE-OBIS), 6 Steering Groups (SG-GTSPP, SG-GOSUD, SG-OceanTeacher, SG-ODP, SG-OceanDocs and SG-OBIS) dealing with 15 global projects/activities and 6 regional projects/activities. It will be noted further that each of the groups need to meet at least once during every biennium (i.e. 10 meetings/biennium for GEs and SGs + 2 meetings of the Officers + 1 IODE Session + meetings of JCOMM DMCG and JCOMM MAN + Session of the IOC EC + Session of the IOC Assembly + 16 training courses OTA/biennium) or a total of 33 events per biennium which the Secretariat either fully organizes or needs to participate in and prepare for. This does not include additional staff travel for events organized by other organizations.

Member States will need to provide assistance to manage these groups and projects to ensure full and effective management. If such support can not be provided then some projects/activities might need to be terminated or postponed.

ACTION: the Committee will be requested to:
- Consider ways and means to provide staff support to the IODE Secretariat
- Consider ways and means to expand the donor base of IODE

3.4 INTRODUCTION TO WORK PLAN AND BUDGET
4. NODC AND PROJECT OFFICE REPORTS

4.1 REPORTS OF NODCs, DNAs AND MARINE INFORMATION CENTRES

This Agenda item will be introduced by Mr Ariel Troisi, IODE Co-Chair, referring to Document IOC/IODE-XXII/9 (Report on activities of the NODCs and DNAs) and annex.

He will report that 50 of the 84 (60%) of the IODE national coordinators for data management, and 28 of the 53 (53%) of the IODE national coordinators for marine information management responded to the IODE national reports 2011-2012 survey. (for 2009-2010 the percentages were 71% and 75% for DM and MIM respectively). For 55% of the NODCs staffing levels have remained the same since 2009-2010 and for 17% it has increased. For only 5% of the NODCs staff has decreased. For 41% of the marine libraries staffing levels have increased, while for 37.5% staffing has decreased. Further analysis revealed no geographic pattern.

For 21% of the NODCs then annual operational budget is between US$ 1,000 and US$ 10,000; for 27% of the NODCs the annual operational budget is between US$ 10,001 and US$ 50,000. For 44% of the NODCs the budget has remained the same as in 2009-2010; for 23% the budget has increased, while for 21% it has decreased. So for only 1 in 5 NODCs the budget has decreased.

The majority of Member States reported that they are an IODE national oceanographic data centre (NODC) and are evenly split between being a centralized (single) and distributed (multiple) centre. An overwhelming number now provide their services online and the majority of Member States have a metadata catalogue. Most receive data from government and academic agencies and a smaller proportion also receive data from privately funded research institutions and/or from industry. Most Member States have a documented data strategy and apply the 'IOC Oceanographic Data Exchange Policy'. This includes the timely, free and unrestricted international exchange of oceanographic data and associated metadata.

The Member States continued to collect and archive all types of oceanographic data and more of these data are available online. All of the Member States agreed that quality control should be a priority including reviewing and revising existing manuals where appropriate. A limited number of Member States continue to provide data to WDCs Oceanography. A clarification on the future of the WDCs was discussed in IODE-XXI 9.5 Cooperation with ICSU.

Member States continue to increase their role in IODE activities including participation in JCOMM/ETDMP, OBIS, OceanDataPortal, the Standards Project and other IODE programmes (i.e. GE-BICH, GE-MIM, and GOSUD). There is also active participation in SeaDataNet, CLIVAR and other major science programmes.

The IODE capacity building strategy implemented through the ODINAFRICA and ODINCARSA projects had substantially increased the capacity of the participating countries.
as reflected in the national reports. The newer ODIN programmes (ODINCINDIO, ODINECET, ODINWESTPAC, and ODINBLACKSEA) continue to develop. Participation in OceanExpert is now at all time high.

Support for providing direct financial support to IODE in 2011-2012 through the IOC (confirmed) and sending a visiting expert to the IOC Project Office for IODE in 2010-2012 for a period of 3-12 months continue to be low due to the uncertain budget situations in throughout the IODE community. Member States are encouraged to provide extra-budgetary funds to support IODE activities.

**ACTION: The Committee will be invited to comment on the report**

### 4.2 REPORT OF THE IOC PROJECT OFFICE FOR IODE

This agenda item will introduced by Mr Peter Pissierssens, Head of the IOC Project Office for IODE, referring to Document IOC/IODE-XXII/10 (Report of the IOC Project Office for IODE). He will provide an overview of activities organized by the IOC project Office for IODE during the period April 2011 – March 2013.

He will recall that the IOC Project Office for IODE was established in April 2005 with the following objectives: (i) to provide a creative environment facilitating the further development and maintenance of IODE 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 (with special attention to the developing countries) and to provide ocean data and information products and services required by users. It was further decided that the IOC Project Office for IODE would further develop, strengthen and maintain IOC/IODE ocean data and information management training programmes and training tools; it would provide an environment (‘think tank’) where ocean data and information experts and students can work, meet and discuss; and it would support the development, hosting and maintenance of IOC/IODE’s ocean information systems and related public awareness tools.

Mr Pissierssens will then provide the following statistics related to events organized by the Project Office in 2011 and 2012.

| Table 1: statistics on events/participants IODE 2011-2012 |
|-----------------|-----------------|-----------------|-----------------|
|                 | 2011            | 2012            | 2011+2012       |
| Training Courses | 9 (203 participants) | 7 (154 participants) | 16 (357)         |
| Meetings, Workshops and Conferences | 3 (86 participants) | 15 (265 participants) | 18 (351)         |
| IODE events held elsewhere | 16 (479 participants) | 4 (62 participants) | 20 (541)        |
| Totals | 28 (768) | 26 (481) | 54 (1249) |

Mr Pissierssens will then show an overview of IODE events and participants between 2005-2012 (see Figures 1 and 2). He will explain that the figures clearly show that the number of courses organized in Oostende has remained fairly stable averaging about 8 per year. The number of events held in Oostende has grown steadily (except in 2011) to about 14 per year. This has mainly been due to the creation of steering groups (for the major global projects) and their meetings. He will express concern about the growing problems of members of the groups to cover their own expenses to participate in these meetings and cautioned that the growing cost of meetings and reducing budgets would cause inability to continue covering these expenses. He will call on Member States to cover the cost of their
own experts in IODE meetings.

![Figure 1: Number of events organized by IODE](image1)

![Figure 2: Number of participants in IODE events](image2)

**ACTION:** The Committee will be invited to comment on the performance of the Project Office and to consider the concerns expressed about the inability of member states to cover expenses to participate in meetings related to IODE.

### 5. PROGRAMME ACTIVITY REPORTS

#### 5.1 GROUPS OF EXPERTS

**5.1.1 IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH)**

This agenda item will be introduced by Dr Hernan Garcia, Co-Chair GE-BICH, by referring to Document IOC/IODE-XXII/11 (Report of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH)) which contains the details of GE-BICH's activities and workplan during the inter-sessional period. He will explain that the report of the IODE GE-BICH is based on outcomes of the Ad hoc
meeting of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH), 25 October 2012, Oostende, Belgium and the Second IODE Workshop on Quality Control of Chemical and Biological Oceanographic Data Collections.

He will summarize as follows: (i) GEBICH membership has been renewed following IOC Circular Letter 2369 in April 2011 with members from (Ukraine, Turkey, Belgium, Canada, Tanzania, Japan, China, and USA); (ii) the GE-BICH-V work plan has been reviewed – some planned issues have been successfully completed and reported, while several new issues have been added to the 2011-2013 GE-BICH work plan; (iii) the Second IODE Workshop on Quality Control of Chemical and Biological Oceanographic Data Collections with representatives of different marine programs and projects has been organized and it resulted, in particular, in the highly revised proposal describing a two-level quality flag scheme (QF) to be submitted to ODS.

He will inform the Committee that the GE-BICH budget requirements are limited to hold the sixth session of GEBICH in early 2014 and the third QA/QC workshop later in 2014. He will note that these could possibly be organized back-to-back.

ACTION: The Committee will be invited to:

1. consider the results of GE-BICH work and New Actions for the 2012-13 GE-BICH Work Plan
2. consider and approve the requested funds to hold the sixth session of GEBICH in early 2014 and the third QA/QC workshop later in 2014.

5.1.2 IODE Group of Experts on Marine Information Management (GE-MIM)

This agenda item will be introduced by Ms Linda Pikula, referring to Document IOC/IODE-XXII/12 (IODE Group of Experts on Marine Information Management) and to the Summary report of the GE-MIM-XII (Document IOC/IODE-MIM-XII/3). She will inform the Committee that during the inter-sessional period the Group’s membership had been renewed with four new members being selected from nominations received from the Member States. The new members included Ms Olga Akimova (Russian Federation), Mr Richard Awah Nche (Cameroon), Ms Julia Goodman (Canada) and Ms Xue Huifen (China). A few members have now also left the Group after contributing to the work of the Group during four inter-sessional periods. These include Ms. Arame Keita (Senegal), Ms Patricia Munoz Palma (Chile) and Mr Marc Goovaerts (Belgium).

Ms Pikula will inform the Committee that the 12th Session of the Group has been held in Miami, USA between 22-25 January 2013. The Group reviewed progress of the GE-MIM-X work plan and concluded that most actions had been completed: The IOC Communication Strategy for Marine Information Management has been published as IOC/INF-1288; Courses on digitization have been included in OceanTeacher; The IODE Steering Group for OceanDocs has been established and has met for its first Session in January 2012; Further development of OceanExpert has progressed by adding new technologies that will make OceanExpert information available in a more structured way through Google and will also enable linking authors with their publications in OceanDocs and other repositories; The IODE Anniversary Bibliography: 50 years of service 1961-2011 had been completed and published as IOC/INF-1278 during IODE-XXI.

The Group had noted with regret that little progress had been made with the linking of OceanExpert with SeaDataNet’s EDMO. Similarly the offer from France to make available its inventory of publications prepared after French Scientific research cruises had not been responded to. The Group recalled that it had published 4 IOC Manuals and Guides and decided that some of these should now be revised and re-issued.
Regarding the proposed changes in IODE structure and terms of reference (Agenda Item 8.3) the Group had recommended that the newly established SODCs actively and systematically collaborate and seek cooperation from the library at their host institution, taking into account that libraries have a role and skills in data management in the area of ocean data management policy and planning, controlled vocabularies, data publication/citation, data discovery/access/mining, data preservation and client training. This should be included in the terms of reference of the SODCs.

The Group had considered that the role of the IODE national coordinators for marine information management required a revision and adopted Recommendation MIM-XII-3.

Ms Pikula will then inform the Committee that, at the 2012 IAMSLIC Conference a proposal had been discussed to establish a Joint IODE-IAMSLIC Group of Experts on Marine Information Management, taking into account the obvious shared interest in MIM between IOC/IODE and IAMSLIC. The proposal had subsequently been approved by the IAMSLIC membership. Two IAMSLIC experts were invited to GE-MIM-XII to discuss this matter further and the Group adopted Recommendation MIM-XII-1 (see Annex). Ms Pikula noted in this regard that membership in the proposed Group will be shared between IODE and IAMSLIC.

Ms Pikula will inform the Committee that the Group had further decided to revise the IOC Communication Strategy for Marine Information Management (published as IOC/INF-1288). In addition the Group agreed on a number of actions to better promote ODIN activities through the IODE web site and associated mailing lists. The Group had recommended that IODE should develop a Communication Strategy or adopt the MIM Communication Strategy as the IODE Communication Strategy.

The Group had welcomed the substantial progress of the SCOR/IODE/MBL WHOI Data Publication Project (see also agenda item 5.2.4). The Group had recommended that the SCOR/IODE/MBL WHOI data publication project should be continued with a focus on promoting data publication in the ocean research community.

Regarding cooperation of OBIS with MIM, the Group had recommended that a marine information management expert should be a member of the SG-OBIS in order to e.g. provide guidance related to the citation metrics (as a performance measure) of OBIS-related publications, media, and other knowledge sources.

The Group had noted the excellent progress of MIM activities in Africa, through ODINAFRICA, but regretted the decline in entries in OceanDocs by some of the ODINs. This was associated with a lack of funding by IODE for ODINs in 2012.

Referring to the proposal to establish an “IODE Clearing House for Data and Information Practices” (see agenda item 9) the Group offered to further investigate this initiative as a GE-MIM project, in close collaboration with the SG-OceanDocs.

The Group, acknowledging the importance and success of IODE Data and Information Products such as OceanExpert, OceanDocs, OceanDataPortal, OpenScienceDirectory, OBIS, as well as its partner IAMSLIC Aquatic Commons, recommended that the “IODE OceanKnowledge Platform Pilot Project” should be established to bring together in an interactive, interoperable and dynamic environment all IODE Data and Information Products. The Group adopted Recommendation MIM-XII.

The Group also adopted its work plan for the next inter-sessional period as Recommendation MIM-XII.4.

**ACTION:** The Committee will be invited to:

- evaluate the results of the GE-MIM
- adopt Recommendations 5.1.2.1, 5.1.2.2, 5.1.2.3
DRAFT RECOMMENDATION IODE-XXII[5.1.2.1]

ESTABLISHMENT OF THE JOINT IODE/IAMSLIC GROUP OF EXPERTS ON MARINE INFORMATION MANAGEMENT (IODE/IAMSLIC GE-MIM)

The IODE Group of Experts on Marine Information Management of the IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing that the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) is non-profit volunteer association of individuals and organizations having an interest in library and information science, especially as these are applied to the recording, retrieval and dissemination of knowledge and information in all aspects of aquatic and marine sciences and their allied disciplines;

Recognizing further that there exist substantial synergies between the objectives and activities of IAMSLIC, the objectives of the IODE’s Group of Experts for Marine Information Management and the IODE’s marine information management programme activities;

Recalling the establishment of the IODE Group of Experts on Marine Information Management by IODE-IX (New York, 9-18 January 1984) through Recommendation IODE-IX.4 (IODE’s role in marine information management);

Convinced that joint work between the IODE programme and IAMSLIC in the field of marine information management will be mutually beneficial to both Organizations and to the marine research community as a whole;

Recommends establishing the Joint IODE/IAMSLIC Group of Experts on Marine Information Management with the following Terms of Reference:

1. Advocate marine information managers as essential partners in the knowledge cycle, that includes observation, management, sharing and product/service provision, contributing to the marine related decision making process;
2. Advise the IODE Committee on the policy, development and further implementation of an effective international system for scientific and technical information about the marine environment by keeping user requirements under continuing review and ensuring that these requirements can be met adequately;
3. Identify the policy, technical and financial issues involved in the development and implementation of marine information systems, and make recommendations concerning their solution;
4. Develop activities and information products to improve the capability of the marine information management community, particularly within developing countries, to benefit from and participate in marine information systems and keep the marine information management community informed on how they might best have access to such systems through the application of new technology;
5. Provide expertise to, and participate in other organizations, programmes, projects and activities where a marine information management component has been identified;
6. Foster collaboration between the marine information management community and other knowledge managers such as data managers, informaticists and archivists to create new knowledge systems.

Encourages IOC Member States and IAMSLIC to nominate experts having expertise in marine information management to the Group of Experts.

Further requests that a progress report be submitted regularly to the IODE Officers, the IODE Committee and the IAMSLIC Executive Board.

Financial implications: Cost of meetings of the GE
DRAFT RECOMMENDATION IODE-XXII.[5.1.2.2]

THE IODE OCEAN KNOWLEDGE PLATFORM PILOT PROJECT (OceanKnowledge)

The IODE Group of Experts on Marine Information Management of the IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the importance and success of IODE Data and Information Products such as OceanExpert, OceanDocs, OceanDataPortal, OpenScienceDirectory, OBIS, as well as its partner IAMSLIC Aquatic Commons,

Noting the ongoing efforts in initiating and maintaining the products and the need to expand their utilization,

Noting further the rapid development of social platforms that integrate multiple knowledge sources, such as the Virtual Open Access Agriculture and Aquaculture Repository (VOA3R), and the availability of related open source applications,

Recommends the establishment of the IODE OceanKnowledge Platform Pilot Project to bring together in an interactive, interoperable and dynamic environment all IODE Data and Information Products, with Terms of Reference attached as Annex A,

Recommends further the establishment of the IODE Steering Group for the IODE OceanKnowledge Platform Pilot Project with Terms of Reference attached as Annex B.

Annex A to DRAFT RECOMMENDATION IODE-XXII.[5.1.2.2]

Terms of Reference of the IODE OceanKnowledge Platform Pilot Project

Objectives of the Project

The OceanKnowledge Platform will offer the user a single access point to various linked IODE information and data products such as researcher profiles, publications, data, learning objects, etc. and will furthermore facilitate social networking between specialized research communities.

The strategic goal of the IODE Ocean Knowledge Platform Pilot Project:

- Combining multiple inter-linked IODE (and partner) Data and Information knowledge sources and making them discoverable and accessible through a single access point with social networking functionality;
- Linking IODE (and partner) Data and Information Products through semantic web technologies;
- Promoting IODE (and partner) Data and Information Products within the ocean research and observation community;

Duration

The duration of the Project will be two years.

Financial Implications

Staff time (Project Office and Participants) and the cost of meetings of the Steering Group, if required (i.e. approx. US$ 20,000/meeting)
Annex B to DRAFT RECOMMENDATION IODE-XXII.[5.1.2.2]

Terms of Reference of the Steering Group for the IODE OceanKnowledge Platform Pilot Project

Objectives

The SG-OceanKnowledge shall:

(i) Develop the work plan and timetable for the Pilot Project;
(ii) Identify, install and test the required technologies;
(iii) Promote the system to its target user communities and obtain feedback;
(iv) Evaluate results of the Pilot Project;
(v) Based upon the experience obtained and the evaluation, develop a detailed proposal for a sustained IODE/OceanKnowledge project, including identification of required resources;
(vi) Submit the proposal for an IODE/OceanKnowledge project to the 23rd Session of the IODE Committee

Membership

The Project will be managed by an IODE Steering Group for IODE OceanKnowledge, initially composed of....

DRAFT RECOMMENDATION IODE-XXII.[5.1.2.3]

REVISION OF THE TERMS OF REFERENCE OF THE IODE NATIONAL COORDINATORS FOR MARINE INFORMATION MANAGEMENT

The IODE Group of Experts on Marine Information Management of the IOC Committee on International Oceanographic Data and Information Exchange,

Recalling that the 7th Session (2002) of the IODE Group of Experts recommended (Recommendation MIM-VII.1) the nomination of IODE National Coordinators for Marine Information Management, in addition to IODE National Coordinators for Ocean Data Management,

Recalling further that the 9th Session (2007) of the of the IODE Group of Experts recommended a revision of the Terms of Reference of the IODE National Coordinators for Marine Information Management,

Noting the increased convergence between marine information management and data management in areas such as data publication and data citation, as well as knowledge integration,

 Recommends the revision of the Terms of Reference of the IODE National Coordinators for Marine Information Management as follows:
5.1.3 JCOMM/IODE Expert Team on Data Management Practices (ETDMP)

This Agenda Item will be introduced by Dr Sergey Belov, Chair JCOMM/IODE ETDMP, referring to Document IOC/IODE-XXII/13 (Report of the JCOMM/IODE Expert Team on Data Management Practices (ETDMP)) which contains the details of ETDMP activities and work plan during the inter-sessional period. He will note that the report of the JCOMM/IODE ETDMP is based on the outcomes of the Third Session of the JCOMM/IODE Expert Team on Data Management Practices.

He will inform the Committee that the ETDMP membership has been renewed by JCOMM-and following the IOC Circular Letter 2443 on 6 June 2012, IOC had elected additional members of the Expert Team. In accordance with the work directions the relevant ETDMP Task Teams were created and appointed at Third Session of the JCOMM/IODE Expert Team on Data Management Practices in October 2012 and their the work plans were agreed upon.

Dr Belov will recall that during the inter-sessional period the ETDMP activities were focused on fulfilling the recommendations of the IODE-XX (Recommendation IODE-XX.3), IODE-XXI (Recommendation IODE-XXI.4) and JCOMM-III (Recommendations 1(JCOMM-III), 4(JCOMM-III)). Main ETDMP activity was concentrated on the following items: (i) conducting the IODE/JCOMM Standards Process (ODS); (ii) improving the metadata management; (iii) development of the IODE Ocean Data Portal (ODP) and establishment of

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FINANCIAL IMPLICATIONS: None

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1. Act as a point of contact for marine librarians and marine information managers in their country, in order to liaise with the IODE community (via the GE-MIM) on matters of importance to MIM;
2. Act as a communicator of IOC activities and initiatives to the national MIM community and beyond;
3. Provide assistance and support to the GE-MIM on IODE programme activities at the national or international level;
4. Establish a national working group that will create a national network of marine related libraries/marine information centres for their country or participate in existing related networks;
5. Highlight and identify issues and participate in discussions of national importance relating to MIM with the GE-MIM and the national MIM community (such as capacity building and professional standards, technological innovations and policy, communications and collaboration, national and international MIM resources);
6. Liaise with the IODE national coordinators for data management, the NODCs and SODCs, taking into account the role and expertise of marine information managers in data management;
7. Provide reports to the IODE Committee (or IODE Officers), highlighting needs and issues that should be addressed by GE-MIM, for consideration by the IODE Committee or IODE Officers. The Committee or IODE Officers can then instruct the GE-MIM to deal with these needs and issues;
8. Participate in Sessions of the IODE Committee.

Invites IOC Member States to nominate experts with relevant expertise in marine information management,

Urges IOC Member States to promote active collaboration and coordination between data and information managers as well as their equitable participation in IODE Committee meetings and projects.
interoperability with WIS, SeaDataNet and other projects.

74 Dr Belov will inform the Committee about the outcomes of the progress made by the ETDMP Task Team for Ocean Data Standards (ODS): (i) best practices procedures agreed during Ad-Hoc ODS Meeting in April 2012; (ii) standard for ‘Date and Time’ has been published as an IOC/UNESCO Manuals and Guides No. 54(2); QC Flags standards submission was made by GE-BICH; additional standards (i.e. Latitude, Longitude and Altitude, Units, etc.) have been identified for submission (iii) ToRs for ODSBP drafted for consideration;

75 He will mention also about ETDMP activity in field the metadata management. He noted that progress has been made with regard to defining a structure and performing profile comparisons. The Task Team was also instructed to consider ODAS metadata and META-T. Regarding the latter this work was completed and legacy recommendations were made.

76 Dr Belov will note further that the work on the IODE Ocean Data Portal has been focused on two main aspects: to invoke new data providers from NODCs, DNAs, and other IODE related projects and development of ODP V2. During the inter-sessional period four data providers were connected. Significant contribution has been made for the GTSPP and Argo projects by NODC (USA), ISDМ (Canada). At present ODP is giving access to 100 datasets with over 1 000 000 profiles from NODCs/DNAs.

77 Dr Belov will inform the Committee that the National Oceanographic Committee of the Russian Federation adopted the decision to offer the establishment and hosting of the IOC Partnership Centre for IODE ODP at RIHMI-WDC/NODC of Russia in Obninsk. RIHMI-WDC prepared and submitted to Roshydromet the business plan for the Partnership Centre for the IODE ODP, including the budget for the creation of the centre and its operation starting in 2013. The business plan has been approved in the end of 2012. The official opening of the Office is planned for mid-2013.

ACTION: The Committee will be invited to:

- evaluate the results of the JCOMM/IODE ETDMP work
- consider the work plan for the 2012-2014

5.1.4 IODE Group of Experts for OBIS (GE-OBIS)

78 The Co-Chairs will inform the Committee that this agenda will be discussed under agenda item 5.2.1

5.2 PROJECTS

5.2.1 Ocean Biogeographic Information System (OBIS)

79 This Agenda Item will be introduced by Mr Ward Appeltans, OBIS Project Manager, referring to Document IOC/IODE-XXII/14 (IODE Steering Group for OBIS). He will explain that the previous inter-sessional period has been a transition phase for OBIS, in which IODE has successfully facilitated the transfer of OBIS from being a private foundation-led activity under the Census of Marine Life, to become part of an intergovernmental organization, as a fully operational project under IODE.

80 OBIS is governed by a Steering Group and advised by a Group of Experts. The OBIS project office (hosted by the IOC Project Office for IODE in Oostende, Belgium) is responsible for the daily operations and functions as the international OBIS node (iOBIS) within a network of 22 regional/thematic OBIS nodes. OBIS nodes operate as data assembly and quality control centres for biogeographical data from their region and/or areas of expertise. All the data is integrated and served through a global online data portal. In 2012, the data portal had 50,000 unique visitors (35% are returning visitors). A survey on the
activities of OBIS nodes demonstrated that the role of OBIS is not limited to raw data encoding but that they are engaged in a wide spectrum of activities, from developing tools and products to offering services (including capacity building) for data-science and science-policy activities on a local, regional to global scale.

During 2011-2012, 210 new datasets were collected and integrated, representing 5 million geo-referenced species distributions, and adding 5,000 marine species that were previously missing from OBIS. In total, OBIS now provides 35 millions records of 120,000 marine species from 1,130 datasets.

The marine biodiversity research community extensively used OBIS data. Google Scholar reports over 800 publications citing OBIS since 2000, of which 160 (20%) are published in the last two years.

OBIS plays a crucial role in contributing to external intergovernmental and international organizations dealing with global fisheries, environmental and biodiversity issues (e.g., the Group on Earth Observations – Biodiversity Observations Network, the Global Biodiversity Information Facility, and the Convention on Biological Diversity), and it is expected that this role will be continued and expanded in the future, e.g., to support the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Mr Appeltans (IOC) and Prof Halpin of OBIS-SEAMAP (Duke University) attended the 11th Conference of the Parties (CoP) of the Convention on Biological Diversity (CBD) in Hyderabad (October 2012). OBIS is explicitly mentioned in Decisions X/29.10,35,39 (https://www.cbd.int/decision/cop/?id=12295) and draft XI/17.16 (http://www.cbd.int/cop/cop-11/doc/2012-10-24-advanced-unedited-cop-11-decisions-en.pdf). During the 10th Conference the 193 Parties to the CBD agreed to classify a diverse list of marine areas as ecologically or biologically significant. Among the areas mentioned, some are renowned for containing 'hidden treasures', such as the Sargasso Sea, the Tonga archipelago and key coral sites off the coast of Brazil. This work is part of the Strategic Plan for Biodiversity 2011-2020, and contributes in particular to Aichi Biodiversity Target 11 to conserve and sustainably manage at least 10 per cent of coastal and marine areas by 2020. OBIS is providing scientific and technical advice to define Ecologically or Biologically Significant marine Areas (EBSAs), through a series of regional workshops in 2011, 2012 and 2013.

The OBIS work plan was defined during the 2nd Session of the IODE Steering Group for OBIS (SG-OBIS) (Oostende, 19-21 November 2012). Several informal (task) teams were formed to execute a number of activities. The staff of the OBIS Project Office takes part in all task teams, and the OBIS project manager (Mr Ward Appeltans) oversees the execution of the work plan and reports to SG-OBIS and all task teams on progress of the activities.

A major for 2013 and in the future will be on improving data and metadata quality. A new data workflow will be established in which OBIS nodes, according to their commitment as an OBIS tier II or III node will perform a number of data validation tasks to improve standardization and quality before data are harvested and integrated into the central OBIS database (the tasks of the different OBIS nodes are listed in Table 2 of SG-OBIS-2 report: http://www.iode.org/index.php?option=com_oe&task=viewEventDocs&eventID=1134).

Since 2011, the OBIS databases are running on the servers of the Flanders Marine Institute in Oostende, Belgium. In 2013, these servers will become connected to the D4Science GRID network, in order to provide access to OBIS data in applications of the D4Science data e-infrastructure (https://portal.imarine.d4science.org) developed by the i-Marine EU project. In addition, a geo-load balancing mirror will become operational at INCOIS in Hyderabad, India.

A Memorandum of Cooperation will be signed with GBIF recognizing each other as sister networks and OBIS’ focus on marine biodiversity. The GBIF Integrated Publishing Toolkit (IPT) will be introduced for data transfer between OBIS nodes and GBIF and data from OBIS will flow again to GBIF on a regular basis.
A process will be started to improve the OBIS (meta)data schema, as part of a marine extension of Darwin Core.

Within IODE’s Capacity Building activities, OBIS will become an important player to provide training in biodiversity data management. Two training workshops are already planned in 2013 (India, Barbados). Also OBIS node managers will need to be trained to become familiar with the OBIS practices, standards, data validation tools, and data transfer protocols.

By late 2013, the OBIS task teams will produce an IOC Manual and Guides for OBIS nodes that will include the terms of reference of OBIS nodes, procedure to establish OBIS nodes, standards and best practices (OBIS handbook) and a section on quality assurance, criteria and evaluation of OBIS nodes.

An OBIS business plan will be finalized early 2013 and will address OBIS’ vision and mission, objectives and key priorities, budget needs in relation to the work plan and potential funding opportunities.

Communication and public awareness is another priority for OBIS. The OBIS website and data portal are the main means to distribute information about the project, but OBIS is now also active on social media (Linkedin, FaceBook, Twitter, Google+, Google Scholar, Mendeley, SlideShare). Several OBIS node managers also contribute to the translation of the OBIS website into the following languages: English, Spanish, Portuguese, French and Japanese (others are welcome).

OBIS will need to maintain the momentum of international data sharing created by the projects and expeditions as part of the Census of Marine Life. OBIS (and OBIS nodes) will need to be kept engaged in new projects and expeditions, and further expand its network of data providers and OBIS nodes in order to keep its world leading position and ensure the best (global) coverage of marine biodiversity data in time and space.

OBIS will also need to continue (and if possible expand) providing its services to the global research community and international and intergovernmental organizations (such as UNESCO, IPBES, UNEP-CBD, UN Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects/World Ocean Assessment, IUCN’s Global Ocean Biodiversity Initiative, Encyclopedia of Life, GBIF and GEO BON).

In 2012, salary costs of the OBIS project office were approximately US$175,000, which covered the salaries of the project manager in Oostende (8 months), and a data manager at Rutgers (6 months, until 31 August 2012). These costs were covered by the EU project i-Marine and ODINAfrica. US$15,000 was provided by UNESCO’s Regular Programme, which covered the costs of the SG-OBIS meeting, and around US$10,000 was spent on travel (covered by iMarine and IOC/IODE budgets). The operational expenses (for hosting the OBIS project office) are close to US$10,000 annually and are currently provided by the IOC Project Office for IODE.

In 2013, the salary costs will be higher (around USD 225,000) because of the addition of a full-time data manager. Funding for this new position and the Project Manager will come from two EU FP7 projects (iMarine and GEOWOW), and two IODE projects (ODINAfrica and Caribbean Marine Atlas). The iMarine EU project runs until 30 April 2014. It is hoped that the UNESCO Regular Programme will again contribute US$30,000 to be allocated for the SG-OBIS meetings in 2013 and 2014.

To continue the OBIS operations beyond 2013, new financial resources are needed. There is currently US$61,000 left in the IOC special account for OBIS. A minimum of US$300,000 is needed annually to operate the OBIS project office with a minimum occupation of two professional staff (a project manager and a data manager). Based upon the current budgetary situation of UNESCO and its IOC, funding will need to come from additional extra-budgetary contributions from IOC Member States, and possibly also from project and other international funding sources. It is important to note that the full cost of
OBIS implementation includes the voluntary contributions by OBIS nodes.

The UNESCO Emergency Fund will provide US$36,000 to OBIS for contributing to the identification of EBSAs in the North Pacific and West Africa region in 2013, through the preparation of analytical material and diversity indices and by providing scientific guidance on applying the criteria for EBSAs during the regional EBSA meetings. In addition, the contribution of IOC/OBIS to the CBD will be presented in a peer-reviewed paper and at some strategic meetings.

DRAFT RECOMMENDATION IODE-XXII.[5.2.1]

The IODE Ocean Biogeographic Information System (IODE/OBIS)

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the importance of open-access, global databases on the diversity, distribution and abundance of marine species, to assist decision makers to sustainably manage our Ocean’s living resources.

Noting that the 10th Conference of the Parties to the Convention on Biological Diversity (Decision COP10/29 para 10 and 35; Nagoya October 2010) requested Member States to further enhance globally networked scientific efforts, such as the Ocean Biogeographic Information System (OBIS), to continue to update a comprehensive and accessible global database of all forms of life in the sea, and further assess and map the distribution and abundance of species in the sea, and called upon IOC/OBIS to facilitate availability and inter-operability of the best available marine and coastal biodiversity data sets and information across global, regional and national scales.

Noting with Appreciation that OBIS is extensively used by the research community and is playing a crucial role in providing scientific guidance, data and information for the identification of Ecologically or Biologically Significant marine Areas, through a series of regional workshops in 2011, 2012 and 2013, as part of the Strategic Plan for Biodiversity 2011-2020, and in particular Aichi Biodiversity Target 11 to conserve and sustainably manage at least 10 per cent of coastal and marine areas by 2020, as agreed upon by the Conference of the Parties to the Convention on Biological Diversity in Nagoya in 2010.

Noting with Appreciation the successful integration of the OBIS project in IODE and the creation of two extra-budgetary Programme Specialist positions (Project Manager and Data Manager) for OBIS.

Recalling the request to the IOC Executive Secretary to prepare documentation to the Director-General and the UNESCO Executive Board requesting a regular programme post for the OBIS Programme at the earliest opportunity.

Urges Member States to provide financial and in-kind support for OBIS to enable the IOC to fulfill the commitment it made to the continuation and further development of OBIS, as well as to fulfill its role to ensure the maintenance and further growth of marine biodiversity data to serve policy and management needs as IOC and in particular OBIS is called upon by the Conference of the Parties to the Convention on Biological Diversity.

Approves the proposal that OBIS nodes can participate as NODCs and SODCs in the IODE network, and to publish the procedures, tasks, standards and best practices associated to OBIS nodes in an IOC Manual & Guides for OBIS nodes.

Encourages Member states to share their biodiversity data and to participate in OBIS through the establishment of new and/or strengthening existing OBIS nodes.
5.2.2 JCOMM/IODE Ocean Data Standards

This agenda will be introduced by Prof Yutaka Michida (Co-Chair of the Ocean Data Standards pilot project), referring to Document IOC/IODE-XXII/15 (Report on the IODE Project: JCOMM/IODE Ocean Data Standards).

Prof. Yutaka will inform the committee that there was limited activity in the Ocean Data Standards pilot project during 2011-2012. An Ad-Hoc ODS pilot project meeting was held in April 2012 during which important issues were raised for consideration by both JCOMM and IODE. There were no standards submitted to the pilot project for ODS consideration from Member States during the intersessional period. The project had to contend with two standards proposal which were under review. These included the Common Data Index (CDI) metadata profile and the Quality Flag scheme proposals. Since the development of CDI in 2003 which was mostly compliant with ISO-19115, there has been an evolution of ISO standards. A more up-to-date standard, ISO-19139 has been developed, therefore, the authors of the CDI (Sea|DataNet), are reformulating CDI to be ISO-19139 compliant. The CDI update was to be ready in 2012, consequently, the CDI proposal (2003) was withdrawn. Since CDI (2003) was a prime example of a standard practice of a project with wide use, although it could not attain broad community acceptance, it was still a very important development and at least should be represented in a Catalogue of Best practices. The Quality flag scheme is under the community review process. It was submitted back to the authors for revision during the Second IODE Workshop on Quality Control of Chemical and Biological Oceanographic Data Collections. It will be re-submitted back as version 1.3 of the proposed standard, having addressed the areas of contention related to the primary and secondary level flags.

The committee will be informed that two standards had been reviewed and accepted by the ODS. The standards have already been published by the project office for IODE, though as yet they have not been formally recommended by either IODE or WMO. This was considered by ETDMP-III. A draft recommendation for IOC Committee on IODE (IODE-XXII) citing these two standards has been prepared for their consideration as well as by the JCOMM through their Management Team on behalf of JCOMM-V.

The ODS standards review process was also revised. The process had no instructions on how to handle revised documents and gave only the NODC an evaluation role. The standards developed by the ODS are intended for international exchange purposes and not to impact local systems and this was clearly stated in the revision. The revised version was prepared by Mr. Keeley, and will be presented to the IODE-XXII for their consideration after being considered by ETDMP-III.

Data Standards are essential for interoperability of data sets collected by different programmes. There have been challenges to agreeing on standards including a slow reception of proposals, a lack of action to seek out new submissions, and a review process that was taking too long. It was also difficult to find individuals who had the time required to

ACTION: The Committee will be invited to:

- Consider the progress report of OBIS (as part of the report of the 2nd session of the IODE Steering Group for OBIS - http://www.iode.org/index.php?option=com_oe&task=viewEventDocs&eventID=1134) and review the implementation status of OBIS in IODE as well as the proposed OBIS work plan and budget.

- Consider Recommendation IODE-XXII[5.2.1]
guide a proposal through the review process. An accepted standard required some mechanism in place to maintain or update it. This necessitates the need to convert the ODS, from a Pilot Project to a Project. The transition process from the ODS Pilot Project to a Project entails closing the Pilot Project and re-starting the activity as a Project. This requires formal recommendations from IODE-XXII to the IOC Assembly and as well as to JCOMM and WMO. Therefore a draft recommendation is proposed to formally close the ODS Pilot Project and re-establishing a new Project, Ocean Data Standards and Best Practices Project (ODSBP) that also incorporates a catalogue of best practices will be submitted to IODE-XXII for consideration. The draft recommendations will also include its Terms of Reference (TOR).

Dr Michida informed the Committee that the Steering Group of the ODSBP will be formally constituted during its first meeting during the next intersessional period. He noted that the work plan and the budget for the next intersessional period are included in the working document.

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**DRAFT RECOMMENDATION IODE-XXII[5.2.2.1]**

**THE OCEAN DATA STANDARDS PILOT PROJECT (ODS)**

The IOC Committee on International Oceanographic Data and Information Exchange,

**Acknowledging** that the issue of standards is one of the most critical elements for IODE, and the consolidation of a set of standards will benefit every member of IODE as well as the broader oceanographic and marine meteorology data community,

**Considering** existing practices in ocean data management and exchange, developed and used by IODE NODCs as well as by international projects,

**Recognizing** that interoperability between NODCs will be achieved through the use of internationally endorsed standards and best practices to allow shared use of metadata, data and products, and is key to the successful development of the Ocean Data Portal and similar systems,

**Noting with satisfaction** the work of the Ocean Data Standards Pilot Project in developing a standards process,

**Recommends** to adopt the following standards:

(i) **Recommendation to Adopt ISO 8601:2004 as the Standard for the Representation of Date and Time in Oceanographic Data Exchange**

(ii) **Recommendation to Adopt ISO 3166-1 and 3166-3 Country Codes as the Standard for Identifying Countries in Oceanographic Data Exchange**

**Urges** Member States to utilize these standards in their national data centres.
THE OCEAN DATA STANDARDS AND BEST PRACTICES PROJECT (ODSBP)

The IOC Committee on International Oceanographic Data and Information Exchange,

**Acknowledging** that the issue of standards is one of the most critical elements for IODE, and the consolidation of a set of standards will benefit every member of IODE as well as the broader oceanographic and marine meteorology data community,

**Considering** existing practices in ocean data management and exchange, developed and used by IODE NODCs as well as by international projects,

**Recognizing** that interoperability between NODCs will be achieved through the use of internationally endorsed standards and best practices to allow shared use of metadata, data and products, and is key to the successful development of the Ocean Data Portal and similar systems,

**Noting with satisfaction** the work of the Ocean Data Standards Pilot Project in developing a standards process,

**Recommends** to close the JCOMM/IODE Ocean Data Standards Pilot Project,

**Recommends** to establish the Ocean Data Standards and Best Practices Project with the Terms of Reference as attached in the Annex to this recommendation,

**Encourages** all IOC Member States, Programmes, relevant organizations and projects, to collaborate with the Ocean Data Standards and Best Practices Project, by submitting standards and best practices for consideration and contributing to the evaluation process.

**Urges** Member States to play an active role in the Ocean Data Standards and Best Practices Project and to adopt recommended standards at the earliest opportunity,

**Invites** JCOMM to join the Ocean Data Standards and Best Practices Project.
Annex to Recommendation IODE-XXII.[5.2.2.2]

Terms of Reference of the Ocean Data Standards and Best Practices Project (ODSBP)

Objectives of the Project

The objective of the Ocean Data Standards and Best Practices Project (ODSBP) is to achieve broad agreement and commitment to adopt a number of standards and best practices related to ocean data management and exchange. This will include the following main tasks:

(i) develop and manage a process for the reception, reviewing and recommending of standards and best practices, based upon the process developed by the Ocean Data Standards Pilot Project;

(ii) actively liaise with all relevant communities, programmes and projects such as Ocean Data Portal, ETDMPP Meta-Data Task Team, SeaDataNet Technical Task Team, GE-BICH, GE-MIM, SG-OBIS, GTSSP, ICUS WDS, GEO/GEOSS;

(iii) promote and monitor the usage of recommended standards and practices in the relevant communities, including those mentioned under (ii);

(iv) regularly review and revise recommended standards and best practices based upon feedback from the relevant communities, including those mentioned under (ii);

(v) maintain an online catalogue of best practices, enabling easy discovery and downloading of these documents by users (e.g. JCOMM Catalogue of practices and standards).

Management

The Project will be managed by a Steering Group with the following Terms of Reference:

(i) advise the IODE Committee on the vision, strategy and implementation of the Ocean Data Standards and Best Practices Project (ODSBP);

(ii) report to the IODE Committee (and ETDMPP, as appropriate) on the progress of submission, recommendation, publishing and revision of standards and best practices recommended through the Project;

(iii) develop a document on, and maintain the process for evaluating proposals for standards and best practices.

The Steering Group will be composed, initially, of the former members of the JCOMM/IODE ETDMPP Task Team for the Ocean Data Standards Pilot Project, experts from relevant JCOMM bodies, and representatives of IODE NODCs with a special interest in data standards. In addition representatives of major international oceanographic data management projects will be invited as relevant to the agenda (e.g. GTSSP, Argo, SeaDataNet, MyOcean, OceanSITES, IMOS,...), as well as other experts as deemed necessary by the Steering Group. The Steering Group will designate its own Chair(s). For the first Session the former members of the JCOMM/IODE ETDMPP Task Team for the Ocean Data Standards Pilot Project will Chair the meeting.

Meetings of the Steering Group

The Steering Group will work largely by email. One Steering Group meeting will be organized annually (this can be in person or by video conferencing or mixed). Cost of participation will be met preferably by the experts.

Financial implications

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5.2.3 IODE OceanDataPortal

This agenda item will be introduced by Dr Sergey Belov by referring to Document IOC/IODE-XXII/15 (Report on the IODE Projects: IODE Ocean Data Portal). It will be recalled that “The ODP is delivering a standards-based infrastructure to build and manage a distributed marine data network basing on collections and inventories of data and products of the data centers of the IODE, JCOMM and other IOC projects as well as the resources from other participating systems and also provide the discovery, evaluation (through visualization and metadata review) and access to data and products.”

He will note that during the intersession period main activities were focused on implementation of ODP V2 technology and new data provider involvement. ODP V2 architecture is based on: interoperability, network model, role of data centres and new functionality and services. Since June 2012 ODP V2 is running on the servers of NODC of Russia. NODCs and DNAs as well as other interested programmes, projects and initiatives will be welcomed to set up either national or regional/specialized node according to their roles. ODP V2 toolbox is ready for endorsement and distribution.

Dr. Belov will inform that Argentine national data system will be based on the ODP technology contributing into the IODE Ocean Data Portal. Future data providers will be presented by the Ministry’s Information Systems Department and from other centres that produce sea data such as the National Research Institute on Fishery (INIDEP), the Argentinean Antarctic Institute, and some Research Institutes and Universities with oceanographic research activity. The first Argentinean Data Provider in Patagonia (CENPAT) has been established. ODP technical team will provide all required assistance and guidance in this process. Business plan for 2013-2014 has been received from MINCyT.

During the intersession period four data providers were connected. Significant contribution has been made for the GTSPP and Argo projects by NODC (USA), ISDM (Canada). Argo data is available through ODP using GDAC Argo FTP index. At present ODP is giving access to 100 datasets from 10 NODC/DNA with over 1 000 000 profiles.

Collaboration process has been established between ODP and SeaDataNet, and ODP and WIS. The contribution to EuroGEOSS has been made in early 2012.

It will be noted that ODP plays an important role in identifying important standards

ACTION: The Committee will be invited to:

- Consider the progress report of the IODE/JCOMM Ocean Data Standards (ODS) project as well as their proposed work plans and budgets.
- Consider officially recommending the two standards that have passed through the ODS review process and submitting them to JCOMM-V for recommendation.
- Consider recommending the implementation of the revision of the ODS review process from the next inter-sessional period.
- Consider and approve the draft recommendation to formally close the ODS pilot project and establish the Ocean Data Standards and Best Practices Project (ODSBP) that also incorporates a catalogue containing information on best practices. This includes considering its Terms of Reference.
for its operation within Ocean Data Standards process. Priorities for ODS were identified by
the IODE Ocean Data Portal: (i) date, time, lat/lon; (ii) platforms, instruments,
organizations, parameter dictionary, projects; (iii) implication of OGC standards.

113 The National Oceanographic Committee of the Russian Federation has agreed to
offer to IOC/IODE to establish a Partnership Centre for the IODE Ocean Data Portal.
Funding for 2013 has been arranged including arrangements for office operation and
required staff positions. The Partnership Centre for the IODE Ocean Data Portal will:(i)
develop, host and maintain the tools and specifications of the IODE ODP for the portal and
its distributed marine data system operation;(ii) assist IODE’s Ocean Data Information
Networks (ODINs), NODCs and other IODE ODP nodes to achieve their regional and
thematic objectives;(iii) develop, strengthen and maintain the IODE ODP data management
training programmes and tools;(iv) monitor and report on the status and availability of the
IODE ODP portal, websites, tools and specifications used by the IODE ODP node;(v) provide
an infrastructure to develop and test the web-based technologies and tools, intersystem
interoperability and also to generate new ideas and perspectives of the IODE ODP;(vi)
promote collaboration between all expert levels active in integrated marine data
management.

114 The Committee will be invited to consider (i) the revision of the Terms of Reference
of the IODE Steering Group for the IODE Ocean Data Portal Project (Recommendation IODE-
XXII.[5.2.3.1]); (ii) the Terms of Reference of the Structural Elements of the IODE Ocean
Data Portal (Recommendation IODE-XXII.[5.2.3.2], and (iii) Terms of Reference of the
Partnership Centre for the IODE Ocean Data Portal.

DRAFT RECOMMENDATION IODE-XXII.[5.2.3.1]

REVISED TERMS OF REFERENCE OF THE IODE STEERING GROUP FOR THE
IODE OCEAN DATA PORTAL (SG-ODP)

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of integration of marine data and information from a network of
distributed IODE data centres,

Recalling the establishment of the IODE Ocean Data Portal project through Recommendation
IODE-XIX.4 in March 2007,

Recommends the revision of the Terms of Reference of the IODE Steering Group for the IODE
Ocean Data Portal as follows:

(i) To develop and prioritize plans for ODP related activities;

(ii) To provide guidance on delivery of the ODP work plan and to review the results project
activities under the leadership of JCOMM/IODE ETDMP and IODE Committees;

(iii) To develop and maintain the terms of reference for the structural elements of the IODE
Ocean Data Portal.

Recommends further that the membership of the Steering Group shall be as follows: Ariel Troisi
(Chair of the Steering Group), Sergey Belov (Co-Chair), ODP Project Manager (tbd),
Representative(s) of the Partnership Centre for the IODE Ocean Data Portal, Representatives of
the Data Providers, Partner programme representatives, IODE Secretariat.

Invites Member States to actively support the work of the Group by supporting members’
participation in the activities and meetings of the Group.

Financial implications

2013 US$ 10,000; 2014 US$ 10,000; 2015 US$ 10,000
DRAFT RECOMMENDATION IODE-XXII.[5.2.3.2]

TERMS OF REFERENCE OF THE STRUCTURAL ELEMENTS OF THE IODE OCEAN DATA PORTAL (SG-ODP)

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of integration of marine data and information from a network of distributed IODE data centres,

Recalling the establishment of the IODE Ocean Data Portal project through Recommendation IODE-XIX.4 in March 2007,

Recommends the Terms of Reference of the structural elements of the IODE Ocean Data Portal as follows:

The ODP global node (IOC Project Office for IODE) shall:

- Coordinate the IODE distributed data system including the monitoring of performance, system statistics and reporting;
- Manage consolidated metadata catalogues (nodes, data and services, user metadata) by accumulating metadata from associated data providers (national nodes) and synchronizing of this metadata with other nodes;
- Manage and disseminate among other nodes the common controlled dictionaries, basic electronic maps and other cross-system data and metadata;
- Provide the user access to data and services submitted by all ODP nodes. If required, it redirects users to the portal of other nodes;

The ODP regional/specialize nodes (ODINs centres, centers of other IOC/IODE programmes and projects) shall:

- Coordinate the IODE distributed data system including associated data providers of its area of responsibility;
- Manage the metadata catalogues of its area of responsibility and synchronize this metadata with other nodes;
- Provide access to the IODE distributed data system of its area of responsibility and redirects users to the portal of other nodes, if required.

The ODP national (data provider) node shall:

- Submit metadata and data sets to IODE distributed data system for shared use.
- Undergo an accreditation procedure, based upon the IODE Quality Management Framework.
- Be reviewed periodically by the IODE Steering Group for the IODE Ocean Data Portal and the IODE Steering Group for the Quality Management Framework.
DRAFT RECOMMENDATION IODE-XXII.[5.2.3.3]

TERMS OF REFERENCE OF THE PARTNERSHIP CENTRE FOR THE IODE OCEAN DATA PORTAL

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of integration of marine data and information from a network of distributed IODE data centres,

Recalling the establishment of the IODE Ocean Data Portal project through Recommendation IODE-XIX.4 in March 2007 to facilitate the seamless access to oceanographic, marine meteorology, and other data and products,

Recalling further Decision EC-XVI/Dec.4.2.1 on the Centre for the Ocean Data Portal, inviting the Russian Federation to consider entering into a partnership agreement with the IOC of UNESCO concerning this Centre with a view to exchanges of information and possible joint activities related to the Ocean Data Portal at RIHMI-WDC of Roshydromet in Obninsk.

Recommends the Terms of Reference of the Partnership Centre for the IODE Ocean Data Portal as follows:

The Partnership Centre for the IODE Ocean Data Portal shall contribute to the planning and coordination of the IODE Ocean Data Portal by:

1. Maintaining and developing the IODE ODP specifications and tools, and coordinating the use of the IODE ODP technology for the distributed marine data system based upon the IODE data network and data sources from other IOC programmes, including JCOMM;

2. Creating, in cooperation with the IOC Project Office for IODE, an enabling environment, and assisting in strengthening the capacity of the IODE ODP nodes to manage marine data and products, and to provide the IODE ODP resources and services required by users;

3. Assisting with the coordination and monitoring of the implementation of the IODE ODP work plan as adopted by the IODE Committee.

The Partnership Centre for the IODE Ocean Data Portal shall contribute to the development and implementation of the IODE Ocean Data Portal by:

- Developing, hosting and maintaining the tools and specifications of the IODE ODP for the portal and IODE data system operation;
- Assisting IODE’s ODINs, NODCs and other IODE ODP nodes to achieve their regional and thematic objectives;
- Monitoring and reporting on the IODE ODP portal tools and specifications used by the IODE ODP nodes;
- Providing an infrastructure to develop and test the web-based technologies and tools and also to generate new ideas and perspectives of the IODE ODP

Training and Promotion:

- Developing, strengthening and maintaining the IODE ODP data management training programmes and tools;
- Promoting collaboration between relevant experts in integrated marine data management in IOC programmes and projects, other organisations and systems (e.g. OBIS, WIS, GEOSS)

The IOC Project Support Centre for the IODE ODP will report to the IODE Steering Group for the IODE Ocean Data Portal and to the JCOMM/IODE ETDMP.
5.2.4 Data Citation/Data Publishing (SCOR/IODE)

This agenda will be introduced by Ms Cyndy Chandler referring to IOC Workshop Report No. 252 (SCOR/IODE/MBLWHOI Library Workshop on Data Publication, 5th Session, Woods Hole Oceanographic Institution, Woods Hole, USA, 9-10 October 2012) and IOC/IODE-MIM-XII/3 (IODE Group of Experts on Marine Information Management (GE-MIM), Twelfth Session, Miami, USA, 22-25 January 2013).

She will explain that the Marine Biological Laboratory/Woods Hole Oceanographic Institution (MBLWHOI) Library, the Scientific Committee on Oceanic Research (SCOR) and the IODE have assembled a team of librarians, data managers and scientists who are collaborating to identify best practices for tracking data provenance and clearly attributing credit to data collectors/providers.

One successful outcome of this collaborative effort includes tools and procedures developed by the Marine Biological Laboratory/Woods Hole Oceanographic Institution (MBLWHOI) Library and the Biological and Chemical Oceanography Data Management Office (BCO-DMO) that automate the ingestion of metadata from BCO-DMO for deposit with a copy of each data set into the Institutional Repository (IR) Woods Hole Open Access Server (WHOAS). The system also incorporates functionality for BCO-DMO to request a Digital Object Identifier (DOI) from the Library. This partnership allows the Library to work with a trusted data repository to ensure high quality data while the data repository utilizes library services and is assured that a permanent archived copy of the data is associated with the persistent DOI.

The assignment of persistent identifiers enables accurate data citation. The Library can assign a DOI to appropriate datasets deposited in WHOAS. We are particularly interested in working with authors to deposit datasets associated with published articles. The DOI would ideally be assigned before submission and be included in the published paper so readers can link directly to the data set, but DOIs are also being assigned to datasets that support papers that have already been published. WHOAS metadata records link the article to the data sets and the data sets to the article.

Because of the assignment of DOIs, Elsevier Publishing sought collaboration with the Library. Article records in Science Direct now contain links to datasets deposited in WHOAS that are associated with Elsevier articles.

The Published Data Library (PDL) is a project of the British Oceanographic Data Centre that provides snapshots of specially chosen datasets that are archived using rigorous version management. The publication process exposes a fixed copy of an object and then manages that copy in such a way that it may be located and referred to over an indefinite period of time. Using metadata standards adopted across NERC's Environmental Data Centres, the repository assigns DOIs to appropriate datasets. Current deposits include several datasets from water sample measurements.

SCOR, IODE, and the MBLWHOI Library have established a framework for data publication that encourages proper data citation. This framework is being shared and adopted within the marine science community. A draft version of a “Cookbook” detailing procedures to establish a repository and item level versioning for the MBLWHOI Library

ACTION: The Committee will be invited to:
- Comment on progress of the project
- Adopt recommendations IODE-XXII.[5.2.3.1], IODE-XXII.[5.2.3.2], and IODE-XXII.[5.2.3.3]
DSpace repository will be introduced at the Session and proposed for publication in the IOC Manuals and Guides series. The work plan for 2013 includes a few more technical developments but more importantly, promotion of deployment of the use cases in target communities. In this regard the 2012 Workshop had recommended that OceanTeacher should include a lecture on data publication, and that data publication should be promoted at a number of conferences.

SCOR informed the IODE Secretariat (email) that US$ 8000 would be available in 2013 to continue this joint initiative.

Associated websites:
- http://www.iode.org/datapublishing
- http://www.bodc.ac.uk/data/published_data_library/
- https://darchive.mblwhoilibrary.org/
- http://www.bco-dmo.org/

The Committee recommended that the SCOR/IODE/MBL WHOI data publication project should be continued with a focus on promoting data publication in the ocean research community.

**ACTION:** The Committee will be invited to:
- Comment on the results achieved by the project
- Decide on the continuation of the project

5.2.5 Global Oceanographic Data Archaeology and Rescue (GODAR)/ World Ocean Database (WOD)

This agenda will be introduced by Dr Hernan Garcia, referring to Document IOC/IODE-XXII/15 (Report on the IODE Projects: GODAR/WOD).

The IOC/IODE “Global Oceanographic Data Archaeology and Rescue” project (GODAR) has continued during the last intersessional period. In particular the GODAR project has received more than five thousand ocean profiles for the pre-1945 period from Germany. These include data from many countries and will be of great value in documenting the changing state of the world ocean. Historical data still exist that are not part of any electronic, digital archive. We would like to encourage all countries to continue locating and digitizing if necessary, oceanographic data not previously available. However the GODAR project no longer receives specific funding from NOAA. In light of this new reality it may be appropriate for the IODE to change the status of the “GODAR project” to “GODAR activities”.

The IOC/IODE “World Ocean Database” project continues. A new version of the World Ocean Database (WOD) called “World Ocean Database 2013” (WOD13) is in preparation. Vertical profiles will be interpolated to 102 “standard” depth levels between the sea surface and 5,500 m depth. This increased vertical resolution is made possible by increased amount of high vertical resolution CTD, profiling float, XBT, glider profiles in WOD. The additional levels will allow for improved scientific studies and assessments. The WOD, and products based on the WOD such as the “World Ocean Atlas”, are being cited approximately 400 times per month in the scientific literature which attests to the usefulness of this database. We request continuation of the WOD project by IOC/IODE.
A description of the GODAR and WOD projects has been published online. The reference, including website access is: Levitus, S., 2012: The UNESCO/IOC/IODE “Global Oceanographic Data Archaeology and Rescue” (GODAR) and “World Ocean Database” projects. Data Sci. J., 11, 46-71, published online at https://www.jstage.jst.go.jp/browse/dsj/11/0/_contents.

ACTION: The Committee will be invited to:
- Note progress of the Project and recommend future actions

5.2.6 Global Temperature and Salinity Profile Programme (GTSPP)

This agenda item will be introduced by Mr Loic Petit de la Villéon on behalf of Dr Charles Sun, GTSPP Chair, referring to Document IOC/IODE-XXII/15 (Reports of IODE Projects: Report on the Global Temperature and Salinity Profile Programme).

Mr Petit de la Villéon will inform the committee that continued to deal in greater volumes of data over past two year period. The number of real-time data handled was 4,541,361 covering the period of 2011 – 2012, an increase of about 77% from the period of 2009 – 2010; while the number of delayed-mode data added to the archive increased about 48% to 111,004 by the end of 2012. He then reported that the GTSPP continued to improve its capabilities of serving the GTSPP data for operations and climate research. The number of bytes transferred covering the period for 2011 and 2012 were 3.09 TB.

The Japan Meteorological Agency (JMA) accepted Dr Sun’s invitation to join with the GTSPP and became the GTSPP Data Product Centre (GTSPP-DPC) for the North Pacific Ocean in March 2011. Activities of the GTSPP Data Product Centre include, but are not limited to, 1) Monitoring the most recent 30-day data collections made by the vessels traveling along the SOOP lines in the past few years and 2) Providing access to both in-situ observations along the SOOP lines, model simulations, and inter-comparisons between them. The details of the GTSPP-DPC can be found at http://goos.kishou.go.jp/GTSPPDPC/index.html.

With financial support from the IOC/IODE project office, the GTSPP was able to publish the first edition of the “Global Temperature and Salinity Profile Programme – Data User’s Manual” in November 2011 (IOC Manuals and Guides, 60, 50 pp, English.) The main purpose of this manual is to describe the GTSPP data formats that are used to populate GTSPP data for the public use and document the standard conventions used therein and the goal is to provide a format that contains everything necessary to evaluate data quality, data origins and data reliability. The manual can be downloaded at the GTSPP’s Web site at http://www.nodc.noaa.gov/GTSPP/document/datafmt/MG60.pdf.

Mr Petit de la Villéon will recall that the decision for the former joint IOC/IODE and WMO-IOC (IGOSS) GTSPP Programme to become part of JCOMM was made at JCOMM-I in 2001. As such the Steering Group is now called the joint IODE-JCOMM Steering Group for the GTSPP (SG-GTSPP).

The First Session of the Joint IODE-JCOMM Steering Group for the GTSPP was held at the IODE project office for IODE in Oostende, Belgium, 16 – 20 April 2011. The objectives of the meeting were to: (i) review GTSPP data flow and operations; (ii) report on the status of the XBT BAHY to BUFR migration; (iii) revive the GTSPP infrastructure, the terms of reference and composition of the Steering Group of GTSPP; (iv) develop a strategic frame work of the next generation of the GTSPP netCDF format revision; (v) report on interaction with other projects; and (vi) adopt the work plan for 2012–2013. Report of the First Session of the Joint IODE-JCOMM Steering Group for the GTSPP is available at the GTSPP’s Web site at http://www.nodc.noaa.gov/GTSPP/document/reports/SG-GTSPP-I_3.pdf.
On behalf of the SG-GTSSPP, Dr Petit de la Villéon will request the Committee to consider the recommendation to national data centres to ask for and store profiles at instrument resolution rather than a decimated version. The request is referring to the action item no. 32 listed in the Annex III of the meeting report of the First Session of the SG-GTSSPP.

Mr Petit de la Villéon will further inform the committee that the U.S. National Oceanographic Data Center (NODC) currently supports two separate profile database systems: the World Ocean Database (WOD), which manages research-quality historic data using a custom data file system; and the Continuously Managed Database (CMD) of the GTSSPP, which manages real-time data, and matches it to higher quality “delayed-mode” data to create a “Best Copy” product using the commercial Oracle RDBMS. While making plans for the future and preparing to operate with fewer resources, the US NODC has been examining options for how they can continue to participate in the GTSSPP and has identified a proposed way forward to more efficiently manage GTSSPP data that leverages NODC’s recent technological advances in core IT infrastructure that provided enhanced data access services. The US NODC has been developing a single Integrated Ocean Profile System (IOPS) using an open-source RDBMS (i.e., PostGreSQL), which will incorporate both of these data sets to serve the data management needs of the two individual programs, while also achieving better integration and mutual support. It is anticipated that the advantages of this integration will include better ability to support and manage both systems, the elimination of redundant processing of incoming data by consolidating the processing of all “delayed-mode” data into the WOD system, and improvement of the function of the GTSSPP continuously managed database by making both the GTSSPP real-time and the complete WOD delayed-mode data sets available within a single system. It is expected that the new Integrated Ocean Profile System will improve efficiency while also enhancing the quality of the profile data products of both programs.

An ad hoc GTSSPP consultation meeting was held from 5 – 9 November 2012 in Tianjin, China. The purpose of the meeting was to discuss on the future engagement of the National Marine Data and Information Service (NMDIS) of the State Oceanic Administration (SOA) of China in the GTSSPP. Dr Suixiang Shi, Deputy Director-General, NMDIS, opened the meeting and welcomed Dr Charles Sun, GTSSPP Chair, to visit NMDIS. Dr. Shi further expressed NMDIS’ support for GTSSPP and wishes to explore the approach that would, ultimately, prompt NMDIS to become a member of the newly re-assembled GTSSPP Steering Group (SG). At the end of the meeting, Dr Shi, on behalf of the NMDIS’ senior management, agreed to allocate resources to implement a pilot project to demonstrate its capability of performing the role as a GTSSPP Global Data Products Center to produce monthly/seasonal optimal estimates of 3-D, global ocean temperature and salinity fields and provide facilities and funds for implementing training courses on the use of GTSSPP data at NMDIS. He expressed that NMDIS supports the idea of conducting the GTSSPP training course in Tianjin and agreed that the training can be conducted in conjunction with the existing capacity building framework of ODINWESTPAC (Ocean Data and Information Network for the Western Pacific Region) and IOI (International Ocean Institute), which NMDIS is one of the IOI operation centers.

Mr Petit de la Villéon will inform the committee that GTSSPP is expected to continue its operation during the next inter sessional period, 2013 - 2014.
REVISED TERMS OF REFERENCE AND COMPOSITION FOR THE STEERING GROUP ON THE GLOBAL TEMPERATURE AND SALINITY PROFILE PROGRAMME (GTSPP)

The Steering Group shall conduct the program for the collection and management of temperature and salinity data sets to support IODE (International Oceanographic Data and Information Exchange) and JCOMM (Joint Technical Commission for Oceanography and Marine Meteorology) requirements with the following Terms of Reference and general membership.

Terms of Reference

- Provide scientific and technical guidance for the program in the implementation and enhancement of the GTSPP including:
  - Near real time data (observations within 30 days) acquisition;
  - Non real time data (observations older than 30 days or data never circulated on the Global Telecommunication System) acquisition;
  - Communications infrastructures;
  - Quality control and analysis procedures;
  - Continuously managed database;
  - Ocean data and meta data standards; and
  - Data and information products.

- In conjunction with user groups and data collectors, design and implement data flow monitoring systems to ensure that the data are collected, processed and distributed according to agreed schedules and responsibilities.

- Collaborate with international projects and global scientific programs such as GCOS (Global Climate Observing System) and GOOS (Global Ocean Observing System) to assemble process and disseminate data managed by GTSPP.

- Actively promote the GTSPP and provide information to the users of GTSPP services, such as the planners of international science programs.

- Provide GTSPP status reports and other requested material to the IODE committee and JCOMM ETDMP, to international programs in which GTSPP is a participant.

General Membership

- One representative from each of the core participating countries (initially Australia, Canada, France, Japan, and USA) as identified by the countries. The core participating countries are the IOC Member States and WMO Members actively engaged in data and information exchanges with the long term archive centre of GTSPP.

- Experts from one or more Member / Member States of other programs/projects that are of relevance to GTSPP may accompany these representatives.

- Representatives invited by the SG from Member States of the IODE and JCOMM and representatives of oceanographic projects those are important to GTSPP operations.

- The Chair will be selected by the Steering Group and will be reviewed by them every two sessions.

ACTION: The Committee will be invited to:

- Consider the report on activities during the past inter-sessional period.
- Consider the proposed work plan and budget for the next inter-sessional period for GTSPP.
5.2.7 Global Ocean Surface Underway Data Pilot Project (GOSUD)

This agenda item will be introduced by Mr Loic Petit de la Villéon, GOSUD Chair, referring to Document IOC/IODE-XXII/15 (Reports of IODE Projects: Report on the GOSUD Project).

Mr Petit de la Villéon will recall that since GOSUD began, the GOSUD partners have focused their efforts on assembling together data that have been collected by various agencies around the world. Some have been regular data contributors such as SOERE SSS – former ORE (France), NOAA (USA) and Coriolis (France). Some contributors that used to provide data on non-regular basis are now sending data on a regular basis (Belgium, Japan). Some others have been simply occasional (UK, Australia, and Germany) providers. The contributions may be related to regular merchant ship lines (SOERE-SSS France) or to research vessel surveys (NOAA, IFREMER). Some contributions reach the GDAC –Global Data Centre- directly or may reach it by way of the GTS. The GDAC is operated by the Coriolis data Centre (Ifremer, France). A daily back up of the data is performed by the US – NODC (Silver Spring, USA). The quality of the data differs from one contributor to another. It is stated that the data that reach the GDAC through the GTS could be of a lower quality.

Regarding the network status, Mr Petit de la Villéon will report that 91 vessels transmitted TSG data in 2011, and 81 vessels in 2012. Until now, most of the data that have been submitted to the Project have been collected on board the research vessels and the ships of opportunity (merchant ships). The VOS-Nippon Project provides data from 2 different vessels on a regular basis. New contributors approached the Project and proposed that data could be collected on cruise or sailing ships. However, it is of the responsibility of the project to ensure that the data acquisition is done according adopted procedures. It is stated that first priority must be put on regular contributions rather than pinpoint contributions. It is also stated that the project must focus on data from identified providers. This will allow to provide some feedback on the quality of the data and enhance it.

Mr Petit de la Villéon will then briefly report on the work carried out by the Project during the inter-sessional period: (i) a new NetCDF format (version V3.) has been adapted from the 2 previous versions but this has not yet been implemented at the GDAC level. It enables to contain in a single file both data in near real-time and delayed mode, meta data (depth of intake, serial numbers of the instruments, calibration coefficients,...) and ancillary data (data used to process the delayed mode data set, e.g. Argo collocated data, water sample analysis,...); (ii) France has produced a delayed mode data set that will be made available on the web site in April 2013; (iii) the GOSUD TSG data are distributed through the GDAC (Coriolis, France) (http://www.gosud.org/Data-delivery/FTP-access) and through the backup facilities provided by US-NODC (ftp://ftp.nodc.noaa.gov/pub/data.node/iode/gosud/; http://data.nodc.noaa.gov/opendap/iode/gosud/; and http://data.nodc.noaa.gov/iode/gosud/). Real-time data are distributed through a ftp site which is updated on a daily basis. The files do not hold delayed mode data. Near real-time data are distributed through a ftp site which is updated every month. The files do not contain any delayed mode data. This has been developed to fulfil the SMOS satellite data needs for validation. Delayed mode data are distributed through a ftp site which is updated each time the data from one cruise have been processed. Those files must be considered as the reference data set and of the highest quality. Those delayed mode data sets are processed using the software CVTSG developed by IRD, France; (iv) the GOSUD web site (http://www.gosud.org) has been upgraded with content migrated to a content management system application which will allow partners to directly update the web site.

Mr Petit de la Villéon will then briefly introduce the work plan for the next inter-sessional period: (i) the progress and weaknesses of the Project must be identified (2013); (ii) contributors to GOSUD must be fully identified (June 2013); (iii) evaluate the quality of the entire GOSUD data set (September 2013); (iv) development of delayed mode data sets: contact data providers and propose the development (June 2013); (v) reinforce the role of science centre (As a software, that enables to QC data and to process a delayed mode
dataset, is available, it becomes easier to have a common approach on data processing and data control. Using common tools and procedures and taking into account the local or regional expertise of the partners, it is suitable to re-start the data centre activities. The objective should be that no GOSUD dataset should be distributed without a minimum of scientific expertise); and (vi) organize a joint GTSP/GOSUD workshop in April 2014 (at the IOC Project Office for IODE, Oostende).

**ACTION:** The Committee will be invited to:
- Consider the report on activities during the past inter-sessional period.
- Consider the proposed work plan and budget for the next inter-sessional period for GTSP.

### 5.2.8 OceanDocs, Aquatic Commons and OpenScienceDirectory

144 This agenda item will be introduced by Ms Linda Pikula, GE-MIM Chair, referring to Document IOC/IODE-XXII/15 (Reports of IODE Projects: Report on OceanDocs, Aquatic Commons and OpenScienceDirectory).

145 Regarding OceanDocs, Ms Pikula will recall that OceanDocs started in 2004 as a project in the framework of OdinAfrica. In 2007 the OdinPubAfrica repository became OceanDocs, a repository for the IODE-related communities. Future projects such as the new AFRLIB (AgriOceanDSpace) will be a federated catalogue of ODINAFRICA, and will use OAI-compatible software, including AgriOcean Dspace, making it possible to exchange metadata between the local ODINAFRICA partners, the AFRLIB catalogue and the OceanDocs repository. At present students of Hasselt University, are working on an alternative submission module and on a thesaurus plug-in for future DSpace versions (or other repository software). There is also a Windows-based version of AgriOcean DSpace, which is specifically created for small marine science libraries in developing regions of the world. She will report that as on 26th Dec 2012, OceanDocs (OD) contains 3973 items. The development of repositories in the OceanDocs network has been successful: IBBS (3150 records), CEEMAR (1184 records) and KMFRI (1687). Other institutes in ODINAFRICA and OdinPIMRIS are considering and/or preparing to set up their own repository based on the standards developed for OceanDocs.

146 Ms Pikula will further recall that the IODE Steering Group was established through Recommendation IODE-XXI.6. The first meeting of the SG-OceanDocs had taken place in Oostende, 24-27 January 2012. Mr Marc Goovaerts (Belgium) had been elected Chair of the Group. The Committee will be informed that Mr Marc Goovaerts had decided to step down as Chair of the Group and technical manager of OceanDocs, due to other commitments and responsibilities.

147 The GE-MIM, at its 12th Session, had therefore recommended that Mr Kakodkar IOC project Office for IODE) should take over the technical management of OceanDocs immediately. The GE-MIM had also noted with regret the decline in entries in 2011-2012.

148 A virtual meeting (ad hoc) of the Steering group was held in February 2013. At that occasion [……] was elected as new Chair of the Steering Group.

149 The Committee thanked Mr Goovaerts for his strong and long-term support in developing OceanDocs.

150 Regarding Aquatic Commons Ms Pikula will explain that Aquatic Commons was a document repository similar to OceanDocs but developed by the International Association of Aquatic and Marine Libraries and Information Centers (IAMSLIC). In 2010 IAMSLIC had requested for IODE to host the Aquatic Commons repository, until then hosted by the
University of Florida. Migration from University of Florida to IODE was started in October 2010 and was completed on 15th December 2010 (final redirection of URL). A database dump of 203MB and files dump of 18GB was provided by UFL. IODE supports Aquatic Commons in trouble shooting, technical user support and custom modifications to Eprints core on request from the Aquatic Commons community. An agreement was made with IAMSLIC whereby the IOC Project Office for IODE provides 1 day/month (maximum) to Aquatic Commons.

As on 26th Dec 2012, Aquatic Commons (AQ) contained 8584 items. Total number of download in the past year was 208787, with highest number of downloads from USA (41520) and least from Denmark (328). Aquatic Commons runs on Eprints 3.2.9.

**ACTION: The Committee will be invited to:**

- comment on progress of the OceanDocs, Aquatic Commons and OpenScienceDirectory Projects
- Consider the proposed work plan and budget for the next inter-sessional period

### 5.2.9 OceanExpert

This agenda item will be introduced by Ms Linda Pikula, GE-MIM Chair, referring to Document IOC/IODE-XXII/15 (Reports of IODE Projects: Report on OceanExpert).

Ms Pikula will report that on 26th Dec 2012, the OceanExpert (OE) database contained 13246 individual records from 6070 institutions, with ODINWESTPAC representing 3662 individuals, ODINCARSA with 1151, ODINAfrica with 896, ODINCINDIO with 666, ODINECET with 270, ODINBLACKSEA with 248, and ODINPI with 75. Google analytics is used to gather statistics for OE since February 2011. As on 25th Dec 2012, OE has 77,344 (unique visitors: 64,726) with 266,326 page views and 16.49% returning visitors. Maximum visits (18.01%) were from USA. It will be recalled that OceanExpert provides the expert related information to most of the IOC dynamic web sites.

In the second half of 2012 Project Office started working with “Destin Informatique” (Belgium), to implement Linked Open Data (LOD) based unique identifiers for each individual record in OceanExpert. At present we have a working model of the implementation wherein concepts from OceanDocs (OD) are indexed for each individual from OE by ASKOSI. A unique identifier is provided to each individual in ASKOSI. This is hosted on an ASKOSI demo server at Destin Informatique. We plan to install an ASKOSI server at IODE project office by the end of March 2013.

Micro-tags have already been inserted in the OceanExpert template. This is to allow machines to read these micro-tags and index information easily. These tags are called rich-snippets. To simplify accessing accurate information an schema.org was created. Wherein certain tags are created for each resource type and machines could read these micro-tags and index information easily. These tags are called rich-snippets. To create a solution to this issue, we have created sitemaps for all the records of OceanExpert people. We crawl these sitemaps using Any23, for the rich snippets we inserted in OceanExpert and retrieve individual names in the rdfxml format. The names are then indexed using ASKOSI (http://askosi.org/). This is also stored in a triple store called Sesame. The names are then indexed using ASKOSI. This is also stored in a triple store called Sesame. In the future if authors change or abbreviate their name or change part of their name or write it in a different script, it can be added to ASKOSI so that concepts matching new names can be added to authors original name.
The Committee welcomed the development of advanced functionality in OceanExpert. The Committee called on the ODINs to ensure that all national experts are included in OceanExpert and that records are updated annually.

**ACTION: The Committee will be invited to:**
- comment on progress of the OceanExpert Project

### 5.2.10 IODE International Coastal Atlas Network (IODE/ICAN)

This agenda item will be introduced by Prof Dawn Wright referring to Document IOC/IODE-XXII/25 (The IODE International Coastal Atlas Network Project (ICAN)). As one of the founders of the Network she will provide the background to the International Coastal Atlas Network (ICAN) initiative and pilot project and the proposal to adopt this as a formal IODE Project.

She will recall that ICAN began as a coastal atlas workshop held in 2006 at University College Cork, Cork, Ireland – Coastal and Marine Research Centre (CMRC), which was then repeated with a trans-Atlantic workshop in 2007 at Oregon State University, Corvallis, OR, USA. The members of this all-volunteer initiative then proceeded to fund their coastal and marine atlas development activities via international meetings in July 2008 in Copenhagen, DK, hosted by the European Environment Agency; November 2009 at UNESCO’s International Centre for Theoretical Physics (ICTP), Trieste, Italy; and 2011 at the IOC Project Office for IODE in Oostende, Belgium. To date, all activities have been self-funded. The work of ICAN directly benefits both the African Marine Atlas (AMA) and Caribbean Marine Atlas (CMA) projects, and both of these were represented in the ICAN Pilot Project. The network now has more than 50 member organisations from over 14 different countries.

Prof. Wright will then recall that the proposal to merge the ICAN initiative into an IODE Pilot Project was approved by the IODE Officers in January 2012.

Prof. Wright will further inform the Committee that, if approved, the first Session of the SG-ICAN of the new IODE/ICAN would be held in Victoria, British Columbia, Canada, in June 2013, which would then also be the 6th ICAN meeting.

**ACTION: The Committee will be invited to:**
- consider Recommendation IOC/IODE-XXII/5.2.10 as detailed below, establishing the IODE ICAN Project
The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the importance of atlases as interdisciplinary products that assist decision makers,

Noting with appreciation that ICAN has already influenced, guided and informed users on development and use of coastal and marine web atlases, through periodic workshops and international conferences held in 2006, 2007, 2008, 2009, and 2011,

Further noting that ICAN members have produced a suite of open source tools for creating integrated web atlases and a major peer-reviewed published guide,

Recommends the establishment of the IODE International Coastal Atlas Network (IODE/ICAN) Project with the Terms of Reference as attached in Annex A to this Recommendation;

Recommends the establishment of the IODE Steering group for the IODE/ICAN Project with the Terms of Reference as attached in Annex B to this Recommendation;

Urges Member States and donors to support the development of IODE/ICAN.

Financial implications

2013  US$ 10,000 (SG-ICAN-I)
2014  US$ 10,000 (SG-ICAN-II)
2015  US$ 10,000 (SG-ICAN-III)
Terms of Reference of the IODE International Coastal Atlas Network (IODE/ICAN) Project

Objectives of the Project

The strategic goal of the IODE International Coastal Atlas Network Project is to encourage and help facilitate the development of digital atlases of the global coast, based on the principle of distributed, high-quality data and information, at local, regional, national or international scale. This will be achieved by sharing knowledge and experience among atlas developers in order to find common solutions for coastal and marine web atlas development while ensuring maximum relevance and added value for users. Many of these atlases will play an important role in informing national and regional decision- and policy-making across several themes, including:

- Marine spatial planning
- Climate change impacts, coastal vulnerability
- Coastal governance (boundaries, protected areas, etc.)
- Coastal conservation and protected areas management
- Coastal hazards monitoring and planning
- Coastal disaster management and mitigation
- Population pressures
- Resource availability and extraction

The Participants in the Project

All experts previously involved in ICAN are invited to participate in the Project, as well as other relevant experts designated by IOC Member States.

Terms of Reference of the IODE Steering Group for the IODE International Coastal Atlas Network (IODE/ICAN) Project

Objectives

The SG-ICAN shall:

(i) Advise the IODE Committee on the global vision, mission, policy and strategy, including partnerships of the IODE/ICAN project with IOC and other projects/organizations;

(ii) Advise the IODE Committee on IODE/ICAN’s strategy for its sustainability and further development including resource mobilization;

(iii) Assist with the preparation and implementation of work plans, and review progress;

Membership

The Project will be managed by an IODE Steering Group for IODE ICAN (SG-ICAN), initially composed of members of the former ICAN Steering Group and Management Working Group, the project coordinators of the Caribbean Marine Atlas and African Marine Atlas, as well as representatives from other regions.
6. IODE CAPACITY DEVELOPMENT

6.1 OCEANTEACHER AND TRAINING ACTIVITIES

This agenda item will be introduced by the OceanTeacher Training Coordinator, Ms Claudia Delgado, referring to Document IOC/IODE-XXII/16 (OceanTeacher and Training Activities). She will provide an overview of activities organized by the OceanTeacher Academy (OTA) during the period April 2011 – March 2013.

She will recall that the OceanTeacher is the cornerstone of the IODE capacity building programme and its main aim is to support all IODE training activities by providing training tools for data and information management. OceanTeacher is a comprehensive web-based training system that supports Classroom training (face-to-face), Blended training (combining classroom and distance learning), online tutoring and online self-learning. The OceanTeacher Academy (OTA) (as a collection of OceanTeacher training instances) offers a programme of courses related to oceanographic data and information management and the development of related products and services. It started its first academic year in 2009-2010. The OceanTeacher project, funded by the Government of Flanders through the “Flanders-UNESCY Trust Fund for Science” will end on 31 December 2013.

Ms Delgado will report that the IODE Steering Group for OceanTeacher met in Miami, Florida, between 11-15 April 2011 for its Second Session and she referred to the Report [IOC/IODE-SG-OT-II/3 http://iode.org/index.php?option=com_oe&task=viewEventDocs&eventID=873]. During this meeting several strategic long-term decisions were agreed upon, namely: 1) focus on blended learning; 2) have/keep updated a catalogue of courses ready to be delivered at any time; 3) fully sponsor one applicant from each MS and co sponsor other participants from the same MS to attend a training course; 4) survey MS training needs yearly; 5) increase the number of accredited training courses; 6) establish one training course per ODIN; 7) achieve at least 20-30% self sponsored students and seek co-funders and 8) actively promote OT and OTA.

Ms Delgado will then provide statistics related to events organized by the OceanTeacher Programme in 2011 and 2012, which showed an increase in 2011 and slight decrease in 2012 in the number of participants. However, the number of participants is still at the same level as in 2009, averaging 180 participants each year.

Ms Delgado will inform the Committee that OceanTeacher now includes 5 trainers and 4 content contributors in data management, 11 trainers and (the same as) content contributors in marine information management, and 4 trainers and content contributors in interdisciplinary fields.

Ms Delgado will provide an overview of OceanTeacher events and participants between 2005-2012, with number of participants averaging nowadays 180 attendees per year. A detailed view of OceanTeacher participants at the IODE Project Office and elsewhere will also be provided: although the majority of the OT participants travel to Ostend to attend a training course, the number of participants on training activities elsewhere is 30% of the total participants. She will recall the growing importance of co-sponsorship, as a means to allow more participants on OT training activities, and also a way for MS to demonstrate their willingness to become active actors on their own Capacity Building. In 2011, only 4 participants found a means to co-sponsorship their attendance to an OT course, while in 2012 this number raised to 14 participants.

Ms Delgado will further report on the growing collaboration with other programmes:

(i) Between 2011 and 2012, the Harmful Algal Bloom (HAB) uploaded contents for four training course to the OceanTeacher site. Other HAB courses are expected during 2013.
(ii) The International Tsunami Information Centre (ITIC) uses the OceanTeacher platform for its Tsunami Awareness training courses.

(iii) EUMETSAT, SeaDataNet-2 and Pegaso are using the OceanTeacher facilities for their training activities.

Ms Delgado will then introduce the new concept “Global Classroom”. She will explain that while the IOC Project Office for IODE in Oostende, Belgium had been an excellent and widely appreciated venue for courses, the distance that some participants had to travel and the short duration (one week) of the courses made that they could often not participate in the best possible condition (jet lag). In addition the cost and maximum of 20 participants/course limited the number of participants/country to 1-2. It was therefore suggested to establish regional training centres that would limit travel (and cost), enabled more focus on local priorities and could also address the language problem (all courses are now taught in English). Nevertheless by using advanced video conferencing technology some courses could be taught in Oostende and then transmitted to other locations. This was conceptualized as the “OceanTeacher Global Classroom”. A first experiment was organized for the “Training course on Marine-GIS” with simultaneous participation from two locations: the IOC Project Office for IODE, Oostende, Belgium and INCOIS, Hyderabad, India. In addition on several guest lecture sessions had been organized using Webex in other courses, where the lecturer did not travel to Oostende. A small-scale project proposal was submitted to FUST for implementation in 2013.

Ms Delgado will inform the Committee that due to increased travel and per diem costs the number of courses that can be organized in 2013 from the OceanTeacher Academy project budget will be limited to two. Additional courses will be funded from the Flanders direct contribution to the Project Office in Oostende. A new proposal for the OceanTeacher Academy for the next period (2014 – 2018) will be submitted to FUST by mid-2013. Ms Delgado will call on IODE experts to contribute more actively as lecturers or content providers.

**ACTION:** The Committee will be invited to:

- review the implementation status of the OceanTeacher Academy work plan.
- contribute to OceanTeacher by making available national experts as lecturers or content providers and to make use of the OceanTeacher training materials for staff members of data and information management centres who require training. Member States are invited to consider hosting regional OceanTeacher training activities.

### 6.2 IODE’S REGIONAL CAPACITY DEVELOPMENT PROJECTS: ODIN

This agenda item will be introduced by Mr Ariel Troisi, Co-Chair, referring to Document IOC/IODE-XXII/17 (Report on the IODE’s regional Capacity Development Projects: ODIN). He will note that there will not be sufficient time to provide detailed reports on the achievement of each ODIN during the past inter-sessional period but that this agenda item will rather focus on problems that have occurred and on future plans. Looking at the overall picture of the ODINs the Chair will note with concern that, except for the ODINAFRICA project, most ODINs reported only limited activity during 2011-2012. While taking into account that this could be partially due to the limited financial resources available from UNESCO/IOC, some activities would have required no funding. He will then invite the ODIN coordinators to provide a brief report.
6.2.1 Ocean Data and Information Network for Africa (ODINAFRICA)

This agenda will be introduced by Mr Mika Odido (ODINAFRICA Project Manager and IOC Coordinator in Africa), referring to Document IOC/IODE-XXII/17 (Report on the IODE’s regional Capacity Development Projects: ODINAFRICA).

Mr Odido will inform the Committee that following the establishment of the IOC Sub Commission for Africa and the Adjacent Island States by the 26th session of the IOC Assembly, the coordination of IOC’s activities in Africa, including ODINAFRICA was transferred to the secretariat of the Sub Commission, which is based at the UNESCO Regional Office in Nairobi, Kenya. The ODINAFRICA Project Manager was appointed as the IOC Coordinator in Africa effective 1 March 2012. The ODINAFRICA funds initially foreseen for the project manager position were then re-allocated to strengthen the marine biodiversity component of the project by funding a Marine Mammals Survey in West Africa in collaboration with the Canary Current LME project, as well as providing support to the Ocean Biogeographic System – OBIS so that it can better assist in the development of the African Register of Marine Species.

The implementation of the project has progressed well with development and maintenance of products such as the Coastal and Marine Atlases, Catalogue of libraries of institutions participating in the project, the African Register of Marine Species, experts and institutions databases, projects databases, and the NODC and project websites.

Workshops and training courses have been organized to equip staff of the NODCs with the necessary skills to develop the products and to manage the data and information centres. The ODINAFRICA Scientific Symposium (30 November – 01 December 2011, Saly-Mbour, Senegal) provided the opportunity to publicize the activities of ODINAFRICA and expand and strengthen the network of institutions and experts. The theme of the workshop, which was attended by more than 9 participants from 24 countries, was the “Contribution of Ocean Data and Information to Sustainable Development in Africa”

Some of the challenges faced include the slow pace of implementation of planned activities in some of the countries, staff mobility, difficulties in accessing some of the data sets required for atlas development, delays in development of the AgriOcean DSpace software and poor internet access in some of the countries.

Mr Odido will then introduce the work plan for 2013 that was agreed upon by the ODINAFRICA Project Steering Committee, at its meeting in Swakopmund, Namibia in November 2012. The works plan focuses on finalizing the ODINAFRICA-IV products, with a final review workshop planned for 27-30 May 2013 in Maputo, Mozambique.

The Committee will refer discussions on the financial implications to Agenda Item 10

**ACTION: The Committee will be invited to:**

- Provide guidance on further development and strengthening of the network in order to ensure sustainability beyond the current phase;
- Advise on how to address the challenges faced in project; and
- Advise on additional products and services that can be implemented by the network beyond the current phase
6.2.2 Ocean Data and Information Network for the Caribbean and South America regions (ODINCARSA)

This agenda item will be introduced by Mr Ariel Troisi, referring to Document IOC/IODE-XXII/17 (Report on the IODE's regional Capacity Development Projects: ODINCARSA-LA). He will recall that regional activity was deeply affected by budget cuts at the national level to which it had to be added the impact of the decision by the USA to cease its financial contributions to UNESCO (as from November 2011) resulting in fewer external support for regional activities. Furthermore, the lack of regional funding prevented ODINCARSA-LA National Coordinators to meet during this inter-sessional period and assess the outcomes of the existing activity plan and project the next biennium.

Rotation of staff in several NODCs ended in a new landscape with fewer National Coordinators standing since the inception of ODINCARSA in 2001, requiring get up-to speed with new Coordinators and additional efforts to establish current needs and requirements.

Nevertheless, the interaction with the South Pacific Integrated Coastal Area Management Project SPINCAM, funded by the Government of Flanders, provided an unique opportunity to meet at least part of the National Coordinators as well as to promote data and information management in that sub-region. In this sense, capacity building activities were successfully carried out with a particular focus on metadata management and coastal atlas development.

During the present intersessional period, 40 trainees participated in Data and Marine Information Management capacity enhancement activities besides the ones related to SPINCAM. Additionally a big thrust was given to Data Management in Mexico, where an NODC was established in 2011 (almost 50% of the trainees come from Mexico).

The IODE OceanDataPortal was promoted in the region, with Argentina adopting the ODP infrastructure as the backbone of its new National Marine Data System. All five Member States participating in SPINCAM have committed to establish Ocean Data Portal nodes. Support in terms of ODP capacity development is needed to ensure success in the latter case, whilst in the case of Argentina expert visits were carried out in June 2011 thus creating local expertise in the establishment and operation of ODP nodes.

Regarding Marine Information Management Mr Troisi will inform the Committee that further actions were taken to promote and develop OceanDocs in ODINCARSA-LA region, with the development of a Spanish version of the OceanDocs Policy Document, the promotion of OceanDocs within the Latin American IAMSLIC Group as well as the promotion of the inclusion of gray literature in OceanDocs to increase input. Under the sponsorship of IODE, an OceanDocs Training Workshop was organized in 2012 by the Chilean National Coordinator for MIM.

Mr Troisi will call again the attention of the Committee to important challenges remaining in the region such as the development of partnerships, close interaction with OBIS as well as with different IOC Programs and other relevant organizations.

Mr Troisi will then introduce Mr Roach, Coordinator of the Caribbean Marine Atlas (CMA) project. Mr. Roach will inform the Committee that a persistent lack of institutional capacity in the region with regard to marine data management had hindered the implementation of several components of the CMA project, including the creation of national marine atlases for the participating states. However, a total of five prototype national marine atlases had been implemented as of late 2012 (Barbados, Cuba, Dominica, Jamaica, Trinidad and Tobago) and one additional national atlas (Turks and Caicos) is expected to be published by mid-2013.

In addition, the CMA map application (http://atlas.caribbeanmarineatlas.org/) has been updated with additional datasets and features, and the CMA metadata catalog (http://geonetwork.caribbeanmarineatlas.org) has been populated with both regional datasets and published datasets from the respective national marine atlases.
Mr Roach will continue by stating that during the inter-sessional period, participants in the CMA project had also received training in advanced marine data management techniques including relational database technologies for spatial data, web map services and client applications, and catalog services for the web. Furthermore, national marine atlas stakeholder meetings were conducted in both Barbados and Jamaica to sensitize local stakeholders to the goals and requirements of both the CMA and respective national marine atlas projects.

With respect to interaction with other regional projects, Mr Roach will indicate that the CMA was participating in a joint initiative with the Caribbean Large Marine Ecosystem (CLME) project to create a data-source inventory for information related to integrated coastal area management (ICAM) at both a regional and a national level. In addition, technical assistance was being provided by the CMA to the Caribbean Sea Commission (CSC) via the Scientific and Technical Sub-Commission for the initiative.

Mr Troisi will inform the Committee of the proposed work plan and budget for the next inter-sessional period. In the area of data management this includes: (i) establish and support new NODCs and continue supporting those existing; (ii) designate/update IODE national coordinators for data management; (iii) improve capabilities to access and use real time and near-real time data to generate products and provide services; (iv) Development of Ocean Data Portal within the region; (v) improve IODE NODC-OBIS interaction at the national and regional level; (vi) continuing development of the regional atlas application for the CMA; (vii) further develop national atlases within participating CMA countries and deliver data products. In the area of marine information management (MIM) the focus will be on the OceanDocs and improving ASFA metadata imports into OceanDocs.

The Committee referred discussions on the financial implications to Agenda Item 10

**ACTION:** The Committee will be invited to:
- Consider the report on activities during the past inter-sessional period, as well as the proposed work plan and budget for the next inter-sessional period for ODINCARSA-LA

### 6.2.3 Ocean Data and Information Network for European Countries in Economic Transition (ODINECET)

This agenda item will be introduced by Ms Olga Akimova referring to Document IOC/IODE-XXII/17 (Report on the IODE’s regional Capacity Development Projects: ODINECET).

Ms Akimova will report on progress made with the ODINECET work plan during the inter-sessional period. This included (i) a three-day joint ODINECET–ODIN Black Sea meeting and ODINECET Workshop on Marine Information Management was held 12-14 September 2011 in Sevastopol (Ukraine) at the Sevastopol Institute of Banking, organized jointly by the ODINECET and ODINBlackSea coordinators with financial support of the IOC/IODE Project Office; (ii) 12 students from the region participated in OceanTeacher Academy courses in 2011-2012; (iii) E-repositories were created and/or updated: IBSS, CEEMaR; (iv) A Koha e-catalogue pilot was started at IBSS; (v) a Union catalogue system, using the IMIS software developed by the Flanders Marine Institute was implemented involving 22 marine libraries in the region; (vi) working collaboration with the IODE ODINBlackSea is in progress; (vii) ASFA input centers from the ODINECET group provide links to full-text documents from CEEMaR and IBSS repositories in ASFA records; (viii) digitization of rare monographs related to marine sciences held by ODINECET partner libraries; the List of rare books was compiled, project was submitted to the Elsevier Foundation.
Ms Akimova will then introduce the ODINECET work plan and budget for the next inter-sessional period. The proposed work plan will include (i) updating of the ODINECET web site; (ii) participation in OceanTeacher training courses; (iii) organization of a joint ODINECET workshop and meeting of Russian aquatic libraries and information centers staff at VNIRO, Moscow in 2013; (iv) organization of an ODINECET coordination meeting in 2014; (v) continue submission of documents into CEEMaR and IBSS repositories; (vi) providing technical and equipment support to CEEMaR partners; (vii) installation of Koha software in ODINECET partner institutions; (viii) updating of the ECET Union catalogue including foreign titles stored in ODINECET partner libraries; (ix) continue to work on the project «Digitization of rare monographs related to marine sciences»; (x) update the ODINECET booklet/leaflet within recent programs; (xi) promote the input of the ECET-data to OceanExpert directory of marine and freshwater professionals.

The Committee will refer discussions on the financial implications to Agenda Item 10.

**ACTION:** The Committee will be invited to:

- Consider the report on activities during the past inter-sessional period, as well as the proposed work plan and budget for the next inter-sessional period for ODINECET

### 6.2.4 Ocean Data and Information Network for the Western Pacific region (ODINWESTPAC)

This agenda item will be introduced by Prof Shaohua Lin (ODINWESTPAC regional coordinator), referring to Document IOC/IODE-XXII/17 (Report on the IODE’s regional Capacity Development Projects: ODINWESTPAC).

Prof Lin will report to the Committee that China has continued to coordinate ODINWESTPAC since IOC/WESTPAC-VII held in Malaysia in May 2008. She will then report on the activities carried out by the host centre during the inter-sessional period: (i) collection of information on ODINWESTPAC contact points in 15 Member States (Australia, Cambodia, China, Fiji, France, Indonesia, Japan, Korea, Malaysia, New Zealand, Russia, Thailand, United Kingdom, United States and Vietnam); (ii) upgrade and update of the official website for ODINWESTPAC ([http://www.odinwestpac.org.cn](http://www.odinwestpac.org.cn)) with a great amount of data uploaded, and data products and/or graphic products provided; (iii) development of data processing techniques, quality control techniques, and standard operating procedures for data collection, processing and management; (iv) development of data services including Chinese coastal station data, other regional and international cooperation programme and project data, marine data products; (v) contacted with NEAR-GOOS and SEAGOOS and an official agreement to guarantee the data source from NEAR-GOOS.

Prof Lin will further report that most proposed activities were progressing slowly due to limited interest shown by the Member States. In addition Member States were slow to provide data to be made available through the ODINWESTPAC web site. Additional training also needed to be provided.

Prof Lin will noted also that it has been difficult to implement marine information management in the region since few Member States have designated MIM coordinators.

Prof Lin will then introduce a work plan to accelerate the development of ODINWESTPAC with the following elements: (i) re-confirmation of the national focal points for data and information management. In this regard she will recommend that the secretariats for both IODE and the IOC’s Sub Commission for WESTPAC assist in getting the Member States from the region to identify/confirm the national focal points for data and information management to reconstitute the coordination working group for the
ODINWESTPAC; (ii) organization of ODINWESTPAC Capacity Building workshop (second regional coordination working group meeting), to collect the training requirements for the region, to be hosted by China in early 2013; (iii) organization of training course(s) based on regional requirements, as identified during the workshop, and approved by the ODINWESTPAC regional coordination meeting, to be hosted by China in later 2013.

The Committee will refer discussions on the financial implications to Agenda Item 10.

ACTION: The Committee will be invited to:

- Consider the report on activities during the past inter-sessional period, as well as the proposed work plan and budget for the next inter-sessional period for ODIN-WESTPAC

### 6.2.5 ODIN-Black Sea

This agenda item will be introduced by Ms Olga Akimova on behalf of Dr Vladimir Vladymyrov, ODIN-BlackSea project coordinator.

Ms Olga Akimova will remind the Committee that the Ocean Data and Information Network for the Black Sea (ODIN-BlackSea) Pilot Project had been established formally during the Nineteenth Session of the IODE Committee (Trieste, Italy, March 2007) through the Recommendation IODE-XIX.10 and that all riparian Black Sea countries were participants of the project.

Ms Akimova will inform the Committee that during Fourth Session of the ODIN-BlackSea Project Steering Committee held 12-14 September 2011, Sevastopol, Ukraine it was decided to slightly change the formulation of the project objective number 6 approved at the IODE-XIX meeting in Trieste (Italy, 12-16 March 2007) from: “Undertake the activities needed for applying modern technologies for data collection, processing, storing and dissemination to achieve end-to-end data management (E2EDM)” to “Undertake the activities needed for applying modern technologies for data collection, processing, storing and dissemination”.

Further Ms Akimova will report on the activities that had been planned for the period 2011 – 2013, providing details of what had been implemented: (i) the ODIN-BlackSea web site, hosted by the IODE/IOC Project Office, had been permanently updated; (ii) due to several reasons the implementation of the planned activities on integrating Black Sea region national data centres to the ODP program had not been fully fulfilled; (iii) collaboration with the ODINECET Project in the field of marine data information in the region was ongoing; (iv) three-day joint ODINECET–ODIN Black Sea meeting was organized 12-14 September 2011 in Sevastopol (Ukraine). Participants of the both IOC/IODE programs got acquainted with each program activities and discussed the possible fields of cooperation; (v) review analysing the structure and state of the Black Sea Region National Oceanographic Data Centres and their web sites was ongoing.

Ms Akimova will then introduce the ODIN-Black Sea project work plan and budget for the next inter-sessional period. The proposed work plan will include: (i) updating of the ODIN-BlackSea web site; (ii) continued activities on involvement of each ODIN-BlackSea participant to ODP program; (iii) participation of the ODIN-BlackSea trainees in the different training courses; (iv) collaboration with OBIS in the field of providing regional biogeographical datasets.

Ms Akimova will inform the Committee that no budget requested to implement the above work plan.
6.2.6 Regional Network of Pacific Marine Libraries (ODIN-PIMRIS)

This agenda item will be introduced by Ms Linda Pikula on behalf of Ms Susana Macanawai, ODIN-PIMRIS coordinator, referring to Document IOC/IODE-XXII/17 (Report on the IODE’s regional Capacity Development Projects: ODIN-PIMRIS).

She will recall that during the 21st Session of the IODE that was held in Liege, Belgium from 23-26 March 2011, the IODE committee adopted a workplan and budget for 2012-13 including financial support for ODIN-PIMRIS. However, following the 2012 meeting of the IODE officers, which revised the workplan and budget, an amount of US$ 15,000 for ODIN-PIMRIS’s regional meeting in 2013 was retained. This decision was commended as we are unable to coordinate video conferencing in our region, due to the lack of or unreliable internet connectivity.

The ODIN-PIMRIS pilot project (2009-2010) was reviewed during a regional meeting in May 2011, which was also attended by the GE-MIM representative, Ms Suzie Davies. The meeting noted the achievement of all project objectives and acknowledged the support of the IODE Project Office in Oostende, Belgium.

Pilot project partners Cook Islands, Fiji, Kiribati, Samoa and Solomon Islands were acknowledged for their contributions. Technical and advisory support by the project office on the maintenance of e-repositories and improvement of services within these countries is ongoing.

The project review meeting confirmed the inclusion of Tonga Fisheries library in the project for the next phase (2011-2012). However, this has been deferred to 2013-2014 due to staffing issues within the Tonga Fisheries division. E-repository development, internal training and project awareness promotion for Tonga fisheries staff commences in 2013.

The meeting also recommended a regional meeting and training in 2013 in Suva, Fiji to review project progress and train participants on e-repository/database development and maintenance (Greenstone & DSpace software).

Ms Macanawai then introduced the proposed work plan and budget for 2013-2015, requesting financial support of USD 10,000 from UNESCO/IOC (for a regional meeting in 2015) and USD 25,000 from other sources.

The Committee will refer the decision on the requested funding to agenda item 10.

ACTION: The Committee will be invited to:
- Consider the report on activities during the past inter-sessional period, as well as the proposed work plan and budget for the next inter-sessional period for ODIN-PIMRIS

6.2.7 Other regions

This Agenda Item will be introduced by Mr Ariel Troisi. He will invite the Committee to discuss the need to establish ODINs in any other region. He will report briefly on the outcome of IOC Circular Letter No. 2467 (sent on 14 January 2013). In this Letter Member
States in the Persian Gulf region were invited to provide (i) information on sea and coastal research institutions, ocean data centres and marine libraries in their country; (ii) information on sea and coastal research and observation experts, data management and marine librarians; and (iii) expression of interest to participate in discussions on the possible establishment of a sub-regional Ocean Data and Information Network for the Gulf of Oman Sea region. The letter also invited Member States in the Persian Gulf region to identify training needs (short/medium-term) in subjects related to ocean research and observation, including ocean data and information (library) management.

**ACTION:** The Committee will be invited to:

Consider the needs of other regions, in particular the Persian Gulf region.

### 6.3 CONCLUSIONS FOR IODE REGIONAL CAPACITY DEVELOPMENT

This Agenda Item will be introduced by Mr Ariel Troisi. He will invite the Committee to consider progress of the ODIN projects and to address the impact of the current financial crisis on these projects.

**ACTION:** The Committee will be invited to:

- consider progress of the ODIN projects and to address the impact of the current financial crisis on these projects

### 6.4 EMERGING NEEDS IN CAPACITY DEVELOPMENT

This Agenda Item will be introduced by Mr Ariel Troisi. He will invite the Committee to discuss any emerging needs in capacity development and how IODE can address these.

**ACTION:** The Committee will be invited to:

- to discuss any emerging needs in capacity development and how IODE can address these

### 7. COOPERATION WITH OTHER PROGRAMMES AND ORGANIZATIONS

This Agenda Item will be introduced by Ms Sissy Iona, referring to Document IOC/IODE-XXII/18 (Cooperation with other Programmes and Organizations).

**Cooperation with GOOS**

Following the restructuration of GOOS, one IODE co-chair became ex-officio members of the GOOS Steering Committee. The cross-cutting nature of D&MIM determined their inclusion. After the first GSC meeting in June 2012, among the identified key issues towards future actions, was the challenge of data interoperability. The ETMC at its fourth meeting, November 2012, recognized the need, as articulated by both JCOMM-4 and the GOOS Steering Committee (GSC-1), to promote the establishment and publication of access routes to the authoritative data sets for the observing system and as a first step towards documenting the MCDS (real-time and delayed mode) data flow, an assessment will be made...
of the present monitoring and data management arrangements for the observing in situ networks coordinated by the JCOMM Observations Coordination Group (OCG).

Cooperation with ICAM

220 IODE has been actively involved together with ICAM in the development of the South Pacific Integrated Coastal Area Management Project SPINCAM, where IODE took the lead in D&IM and CB activities.

Cooperation with WMO (see also 7.1)

221 Cooperation with WMO is canalized mainly through the interaction with JCOMM. (IODE people as chairs of ETs). The recent recommendation from JCOMM IV to establish a MCDS has direct implications for IODE, some of which will be discussed under Agenda Item 8. Other activities jointly with WMO are being covered under Agenda Item 5 such as ODS and the 2012 revised version of the Ocean Data Standards and Best Practices Review Process is now available. This document explains all steps to be taken between the submission of a candidate standard (or best practice) and its approval and publication by IODE and JCOMM.

Cooperation with POGO

222 Peter Pissierssens, together with the IOC Executive Secretary, participated in the POGO-13 meeting, which was held at the University of Hawaii, East-West Center, Honolulu, between 9-11 January 2012. As a result of the IODE presentation at POGO-13 the following items were considered for future cooperation: (i) establish a formal agreement on cooperation; (ii) continued cooperation with the CoE; (iii) co-operate with CoE to “globalize” its programme; (iv) cooperate with regional training centres (e.g. ITCOcean); (v) provide training to POGO members through the OTA Global Classroom; (vi) POGO members to contribute content to the OTA Global Classroom through providing lecturers; (vii) POGO members to share training programmes through OTA Global Classroom; (viii) POGO members invited to use ODP to share and disseminate data; (ix) POGO members invited to participate in IODE activities, standards and methods; and (x) POGO members invited to participate in Data publication/Data citation (SCOR-IODE-MBLWHOI). During the discussions it was revealed that data management is still not included in graduate university curricula and thus the need for “data management literacy” courses was appreciated by POGO Members. Especially Prof. Dr Karen Wiltshire (AWI, Helgoland) expressed strong interest in closer collaboration between POGO and IODE. Also Trevor Platt supported closed collaboration.

Cooperation with SCOR

223 The fifth SCOR/IODE/MBLWHOI Library Workshop on Data Publication was convened by the Scientific Committee on Oceanic Research (SCOR), the International Oceanographic Data and Information Exchange (IODE) of the Intergovernmental Oceanographic Commission (IOC) and the Marine Biological Laboratory/Woods Hole Oceanographic Institution Library (MBLWHOI Library) on 9-10 October 2012 to evaluate progress of the two pilot projects of the activity and to discuss related topics, such as implementation of data repositories in different data centres and cooperation with related national and international efforts, and hear about how data publication is being handled in other disciplines and interactions with publishers of scientific journals. Details were covered under Agenda Item 5.
Cooperation with ICSU

224 IODE throughout its history has forged strong cooperation with the ICSU WDC system, primarily with those WDCs dealing with marine data, to secure the long term archival of oceanographic data collected by member states. The World Data System (WDS) was initiated in 2008 and the WDC system was replaced by the WDS in 2010/2011. IODE has been incorporated in the new WDS as a Network Member.

225 Ms Sissy Iona will invite the ICSU-WDS representative to provide a brief presentation on the ICSU World Data System.

Cooperation with iMarine

226 iMarine’s main goal will be to launch an initiative aimed at establishing and operating an e-infrastructure supporting the principles of the Ecosystem Approach to fisheries management and conservation of marine living resources. IOC/IODE will participate in iMarine through OBIS which will be a business case in iMarine. The project will provide €244,404 to IOC over a period of 30 months (starting 1 November 2011). These funds are mainly for personnel. The technical work related to iMarine will be carried out by Rutgers University, whereas the coordination/strategic work will be carried out by the OBIS manager in Oostende.

Cooperation with EUMETSAT

227 Two training courses on Applications of Satellite Wind and Wave Products for Marine Forecasting were successfully hosted at the IOC project Office in Oostende in 2009 and 2011. At the later, 15 weather forecasters from 13 different countries in Europe gathered from 5 - 9 December 2011 to attend the course which was focused on marine forecasting. Given the specificity of the subjects discussed - altimetry and scatterometry - 9 lecturers were in charge of both theoretical sessions and practical exercises. The course was particularly challenging regarding IT, since many of the case studies implied connecting the classroom in Oostende with the NOAA offices in the USA, and accessing weather data in real time. Everyday a session was dedicated to discuss current weather conditions, where participants had the opportunity to discuss different weather models and the confidence on each model, combined with the different levels of experience of the participants. In the end, it was unanimous that using altimetry and scatterometry tools will certainly improve marine forecasting in the future. EUMETSAT has expressed interest in collaborating with ODP. During the 2012 IODE Officers meeting, it was discussed the possibility of hosting another training course and eventually addressing topics beyond marine meteorology and integrating also oceanography, which may thus expand the collaboration into the GOOS.

Cooperation with GEO/GEOSS

228 Interoperability test between EuroGEOSS broker system and IODE ODP has been completed successfully in the beginning of January 2012. The ODP provided CSW with a number of metadata records in ISO 19139 format. Results can be found at http://www.eurogeoss-broker.eu (“IODE” tree node).

Cooperation with GEOWOW

229 The project GEOWOW (GEOSS interoperability for Weather, Ocean and Water) project was approved for funding by the European Commission under FP7 (Environment) in 2011. GEOWOW’s main challenge is to improve Earth observation data discovery,
accessibility and exploitability, and to evolve GEOSS in terms of interoperability, standardization and functionality. A particular focus will be on supporting inter-disciplinary interoperability and on the use of semantics for enhanced discovery of data in the selected SBAs’ domains. The GOOS programme manager (Albert Fischer) invited IODE to collaborate. A questionnaire was transmitted to the ODP coordinator (Nick Mikhailov) and OBIS coordinator (Edward Vanden Berghe) in 2011. Information was obtained on ODP but not yet on OBIS. Some financial support could be made available (20K$) under this project.

Cooperation with ODIP

230 **IODE participates as a subcontractor of NERC to the EU/FP7 Ocean Data Interoperability Platform (ODIP) project.** The aim is to establish an EU/USA/Australia/IOC-IODE coordination platform the objective of which will be achieving the interoperability of ocean and marine data management infrastructures, and to demonstrate this coordination through several joint EU-USA-Australia-IOC/IODE prototypes that would ensure persistent availability and effective sharing of data across scientific domains, organisations and national boundaries. IOC Project Office for IODE will organize the first ODIP Workshop, in the week of 25-28 February 2013 in Ostende, Belgium. The financial contribution of the project towards IODE will be 40000 Euros.

Cooperation with SeaDataNet

231 **IODE participates as a subcontractor of IFREMER to the EU/FP7 SeaDataNet Project which aims at operating and further improving a Pan-European data management infrastructure for providing up-to-date and high quality access to ocean and marine metadata, data and data products.** An important area of cooperation is the interoperability between SeaDataNet and ODP. Also, the SeaDataNet standards will be submitted to the JCOMM/IODE Ocean Data Standards and Best Practices Project. IOC Project Office for IODE organized the first project training course, on 2-6 July 2012 in Ostend where 51 partners were participated. The second training course is scheduled for March 2015. The financial contribution of the project towards IODE will be 67500 Euros.

Cooperation with IAMSLIC

232 **IODE continues to cooperate under an MOU with IAMSLIC to provide hosting of their online repository of marine literature: Aquatic Commons.** Two IODE GEMIM representatives are members of the Aquatic Commons Steering Committee. An IAMSLIC AC representative participated in the first OceanDocs Steering Committee workshop 23 January 2012, Ostende, Belgium. Under the MOU, IAMSLIC members are also encouraged to participate in OceanTeacher courses: IAMSLIC member Lisa Raymond was an Instructor for the OT Course Data Curation for MIM September 2012. Reciprocally, GEMIM Representatives Linda Pikula and Marc Goovaerts presented a workshop on OceanDocs for the IAMSLIC Conference October, 2011 Zanzibar. A panel “The Librarian’s Role in Data” was coordinated by IODE GEMIM for the IAMSLIC Conference August, 2012 Anchorage, Alaska. Currently a proposal for the establishment of a joint IODE-IAMSLIC Group of Experts on Marine Information Management is under discussion.

Cooperation with ASFA

233 **This item on cooperation with Aquatic Sciences and Fisheries Abstracts (ASFA) will be introduced by Ms Linda Pikula (Chair GEMIM) as part of Agenda Item 5.1.2.** together with the report on the achievements during the past inter-sessional period.
Cooperation with FAO

An IODE-FAO Workshop on AgriOcean DSpace held on 23 January 2012, Oostende, Belgium, and dealt with AgriOcean Dspace developments, AIMS – and OceanTeacher, IODE related projects (Published Ocean Data, Afrilib, OceanExpert) as well as those of FAO (Agris, Linked Open Data)

Others

Additional areas for cooperation are other IOC Programmes such as HAB and UN initiatives where IOC and IODE/OBIS contributes to, such as:

- "World Ocean Assessment"
- "The Ocean's Compact, Healthy Oceans for Prosperity"
- "UN-Convention on Biological Diversity (Aichi Targets), and contribution to Ecologically and Biologically Significant marine Areas (EBSAs) within and beyond National Jurisdiction"
- "UN-Convention on Sustainable Ocean Initiative"
- IPBES, IPCC

ACTION: The Committee will be invited to:
- to comment, and particularly to report on ongoing or proposed collaboration with other Programmes Activities or Organizations.

7.1 The JCOMM Marine Climate Data System (MCDS)

This agenda item will be introduced by the Co-Chair, Ms Sissy Iona referring to Document IOC/IODE-XXII/23 (The JCOMM Marine Climate Data System). She will provide a brief introduction on the MCDS. She recalled that the Marine Climate Data System (MCDS) had been proposed at JCOMM-4 in order to respond to the need of Members/Member States for high quality marine meteorological and oceanographic historical data / metadata from the world oceans, to address the requirements of WMO and UNESCO/IOC programmes and co-sponsored programmes including climate monitoring, and the Global Framework for Climate Services (GFCS). Secondly the MCDS would modernize the Marine Climatological Summaries Scheme (MCSS) to take into account the development of new observing systems and corresponding surface marine-meteorological data systems in recent years, new techniques for data management and quality control, and the current needs of end users for better statistical and graphical marine climatological products. Thirdly the MCDS would allow modernization of management of surface drifter data, to rationalize the roles and functioning of the former IODE Responsible National Oceanography Centre for Drifting Buoys (RNODC/DB), the JCOMM Specialized Oceanography Centre for Drifting Buoys (SOC/DB) the Global Drifter Programme (GDP) Data Assembly Centre (DAC), and the JCOMM Ocean Data Acquisition System (ODAS) Metadata Service (ODASMS) management of metadata for the surface drifters.

Ms Iona will further inform the Session that that during JCOMM-4 it was concluded that insufficient opportunity had been provided to IODE to consider the impact of the MCDS, and in particular the CMOCs, on IODE, and it was therefore requested in the adopted Recommendation 2 that “the Expert Team on Marine Climatology (ETMC), in close cooperation with IODE and other appropriate partners such as the ICSU World Data System,
to develop, review and update the MCDS strategy, implementation plan, designation criteria and performance indicators of CMOCs in the next two years for achieving the Vision for a new MCDS, based upon the results of the Workshop for a new Marine Climate Data System (MCDS1, 28 Nov.-2 Dec. 2011, Hamburg, Germany) and Ocean Data Portal technologies development”.

An extended meeting of the 4th Session of the JCOMM Expert Team on Marine Climatology and meeting of the cross-cutting Task Team on the MCDS was held at the IOC Project Office for IODE, Oostende, Belgium, 26-28 November 2012, with participation from key IODE experts, including the IODE Co-chairs. In preparation for that meeting, the IODE Secretariat had prepared a working document (JCOMM/DMPA/ETMC-4/Doc. 4(2)) entitled “Clarifications regarding Recommendation 2 (JCOMM-4). This document identified a number of unclarities in the adopted annexes to the Recommendation. During the meeting this document was reviewed and the meeting requested the IODE Secretariat to prepare a suggested revision of the Annexes which could be submitted to JCOMM-5, but which should also be used when the MCDS and CMOCs would be discussed at IODE-XXII.

She will then explain that the Vision for a Marine Climate Data System (MCDS) is to formalize and coordinate the activities of existing systems, and address gaps to produce a dedicated WMO-IODE data system operational by 2020 in the view to have compiled coherent met-ocean climate datasets of known quality, extending beyond the Global Climate Observing System (GCOS) Essential Climate Variables (ECVs). These will be of known quality collected from multiple sources to be served on a free and unrestricted basis to the end users through a global network of less than ten WMO-IOC Centres for Marine-Meteorological and Oceanographic Climate Data (CMOCs). Data, metadata and information will be fully interoperable with the WMO Information System (WIS) and the IOC/IODE Ocean Data Portal (ODP), will be compatible with, and contribute to the High Quality Global Data Management System for Climate (HQ-GDMSC) that is being developed by the WMO Commission for Climatology (CCl).

The MCDS will cover different and specific JCOMM data domains (e.g. marine meteorology, physical oceanography, historical period(s), geographical coverage, specific procedures applied to the data) and enhance international partnerships within a new JCOMM framework, taking full benefit of the existing network of IODE NODCs, in the best manner of harmonizing with the work of IODE NODCs. The primary objectives are to improve availability, recovery and archival of contemporary and historical data, metadata and products and obtain standardized quality of a high level in a more timely manner. This will ensure the long-term stability of the data management system, permit the sharing of responsibility and expertise, optimize resources and help prevent loss from technological failures. Groups of CMOCs will operate within a given data domain (e.g. global, regional, atmospheric, surface and sub-surface oceanic) and provide complimentary functions. To achieve maximum continuity, reliability and completeness of data, metadata and products, specialized CMOCs will be established that mirror the processes, data and metadata across the CMOC domain.

Governance for defining the functions and adoption of CMOC is proposed by JCOMM and endorsed by the WMO Executive Council and UNESCO/IOC Executive Council or Assembly.

During the aforementioned ETMC-4 meeting the role of IODE in the MCDS was discussed at length. The MCDS data flow diagram was revised as shown in Figure 1 (below). In this regard it was noted that a number of IODE projects such as GTSSP, WOD, GOSUD, etc could establish IODE GDACs (Global Data Assembly Centres) while NODCs, ODIN regional data centres (where established), GOOS GRA data centres (where established) and the proposed IODE SODCs (Specialized Ocean Data Centres) - see Agenda Item 8.3 – could operate at the same level as the marine meteorology DACs (Data Acquisition Centres).
Ms Iona will invite the Committee to consider the data flow diagram, the cooperation of IODE in the MCDS and the possible establishment of IODE GDACs that will contribute to the MCDS. It was noted that this would also be of relevance to agenda item 8.
DRAFT RECOMMENDATION IODE-XXII.[7.1.1]

IODE Global Data Assembly Centres (IODE GDACs)

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the importance of close collaboration between IODE and JCOMM,

Recalling the usefulness of the former IODE RNODC/DB collecting, managing and making available historical drifting buoy data and metadata to end user,

Recalling the establishment of the Marine Climate Data System (MCDS) by JCOMM-4 through Recommendation 2 (JCOMM-4), to address the WMO and IOC applications requirements for appropriate marine-meteorological and oceanographic climatological data (met-ocean climate data), and particularly address those for long term climate monitoring (GCOS), seasonal to inter-annual climate forecasts, for the Global Framework for Climate Services (GFCS), and ocean climate requirements of the Global Ocean Observing System (GOOS),

Recommends that IODE GDACs be included as structural elements of IODE with the following Terms of Reference:

(i) receive and assemble meteorological and/or oceanographic data (real or delayed-mode) and metadata from the appropriate data streams

(ii) identify duplicates and if possible resolve by keeping the best copy of dataset;

(iii) apply quality control procedures according to the international standards and methods

(iv) provide feedback to the resource on data quality issues

(v) make data accessible through IODE/ODP

(vi) make discovery metadata available to IODE/ODP

(vii) forward data and metadata to the appropriate CMOC(s) in agreed format(s) within defined timescales

(viii) contribute to WMO and IOC Applications by collecting and processing worldwide marine-meteorological and oceanographic data and metadata documented in appropriate WMO and IOC publications

(ix) report to the IODE and JCOMM Committees on its data management status and activities

Invites Member States to designate relevant IODE National Oceanographic Data Centre as IODE GDACs.
The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the importance of close collaboration between IODE and JCOMM,

Acknowledging the important and active role of IODE in the MCDS development,

Realizing the user needs for integrated data and products for climate services and applications,

Recalling the establishment of the Marine Climate Data System (MCDS) by JCOMM-4 through Recommendation 2 (JCOMM-4), to address the WMO and IOC applications requirements for appropriate marine-meteorological and oceanographic climatological data (met-ocean climate data), and particularly address those for long term climate monitoring (GCOS), seasonal to inter-annual climate forecasts, for the Global Framework for Climate Services (GFCS), and ocean climate requirements of the Global Ocean Observing System (GOOS),

Approves the Marine Climate Data System (MCDS) Strategy.

Agrees with the evaluation criteria for the WMO-IOC Centres for Marine Meteorological and Oceanographic Climate (CMOCs).

Proposes the establishment of an ad hoc team to review the draft MCDS Implementation Plan and prepare a report for the IODE Officers and for DMCG by Sept. 30, 2013

Invites Members States to collaborate and support the MCDS realization.

ACTION: The Committee will be invited to:

- consider the possible establishment of IODE GDACs that will contribute to the MCDS through Recommendation IODE-XXII.[7.1.1]

- advise on the revision of Recommendation 2 as proposed by the Secretariat and IODE Co-Chairs, for future submission to JCOMM-5.

- approve MCDS Strategy, review draft MCDS Implementation Plan and agree on CMOC Evaluation Criteria

- adopt Recommendation IODE-XXII.[7.1.2]
8. THE FUTURE OF THE IODE PROGRAMME

8.1 INTRODUCTION TO THE SESSIONAL WORKING GROUP DISCUSSIONS

This Agenda Item will be introduced by Mr Ariel Troisi, referring to Document IOC/IODE-XXII/19 (Introduction to the sessional working group discussions on the Future of the IODE Programme). He will draw the attention of the Committee to the current crisis situation in which IOC and all its programmes find themselves, including IODE. He will also note that the world has changed drastically since IODE was established in 1961. Old structures and methods may no longer serve today’s user needs and unless IODE adapts, it will perish. In order to address the changes that IODE needs to undergo to face the future, it will be proposed to establish a sessional working group, which will meet on Wednesday 13 March 2013 for an entire day. Member States will be invited to participate in the sessional working group. In order to assist the working group a number of documents have been prepared. These include the aforementioned Document 19, but also Document IOC/IODE-XXII/21 (Changes in IODE structure and terms of reference), as well as Document IOC/IODE-XXII/20 (The IOC Strategic Plan for Oceanographic Data and Information Exchange (2013-2016)), Document IOC/IODE-XXII/22 (IODE Quality Management Framework), Document IOC/IODE-XXII/23 (The JCOMM Marine Climate Data System) and Document IOC/IODE-XXII/24 (Proposals to create New Products for the benefit of the Ocean Research and Observation community).

Mr Troisi will then invite the introducers of agenda items 8.2, 8.3 and 8.4 to introduce their documents and invited the Committee to take these introductions into account during the discussions of the sessional working group.

8.2 THE IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE 2013-2016

This Agenda Item will be introduced by Mr Greg Reed (IODE Past Co-Chair), referring to Document IOC/IODE-XXII/20 (IOC Strategic Plan for Oceanographic Data and Information Exchange (2013-2016)). He will recall that the “IOC Strategic Plan for Oceanographic Data and Information Exchange (2008-2011)” was adopted by the IOC Assembly at its 24th Session (2007) through Resolution XXIV-9 and was subsequently published as IOC Manuals and Guides No. 51.

Mr Reed will recall that IODE-XXI established an inter-sessional working group with the task of updating the Strategic Plan and he will inform the Committee that the IWG met on 1-2 March 2012.

The vision for the IOC Data and Information Management Strategy is for “A comprehensive and integrated ocean data and information system, serving the broad and diverse needs of IOC Member States, for both routine and scientific use.”

The IOC Data and Information Management system resulting from this strategy will deliver:

- Assembled, quality controlled and archived data on a diverse range of variables according to scientifically sound and well-documented standards and formats;
- Timely dissemination of data on a diverse range of variables (observations and model outputs) both on real-time and delayed modes depending on the needs of user groups and their technical capabilities (automatic dissemination as well as “on demand”); and
The major elements of the Strategy are:

- Adhere to the IOC Oceanographic Data Exchange Policy;
- Ensure the long-term archival, management and services of marine data and information;
- Recommended standards and best practice for management and exchange of oceanographic data;
- Acceptance and implementation of a set of interoperability arrangements, including technical specifications for collecting, processing, storing, and disseminating shared data, metadata and products;
- Discovery, access and retrieval of data from IOC programmes, as well as from programmes and organizations collaborating with IOC, through the Ocean Data Portal (ODP);
- Continued development of Ocean Data and Information Networks (ODINs) backed up by OceanTeacher as a capacity building tool, whilst extending OceanTeacher through cooperation with JCOMM and others as appropriate;
- Development of appropriate metrics to help evaluate the data and information system;
- Provide the crucial link between data, information and the dissemination of knowledge through the management of marine information by marine librarians;
- Facilitate proper citation of datasets by providing all the required elements of a citation including an unambiguous, unchanging reference; and
- Governance by an Advisory Group represented by experts nominated by the governing bodies of IOC programmes.
DRAFT Decision of the 27th Session of the IOC Assembly

IOC Strategic Plan for Oceanographic Data and Information Exchange
(2013-2016)

The Intergovernmental Oceanographic Commission,

Recalling:

(i) Resolution XXIV-9 which adopted the IOC Strategic Plan for Oceanographic Data and Information Management (2008-2011) and also agreed that the Plan should be regularly reviewed and revised by the IODE Committee

(ii) Resolution XXII-6 which adopted the IOC Oceanographic Data Exchange Policy

Recognizing that:

(i) the IOC Oceanographic Data Exchange Policy is compatible with other international relevant data-exchange policies that promote free and open access to data, such as WMO Resolution 40

(ii) IODE has developed a global network of National Oceanographic Data Centres, information centres and related networks, representing a considerable pool of expertise in data and information management and sharing

(iii) many IOC Member States have developed national distributed networks of data management facilities involving IODE, as well as other centres, to deal with a wide variety of ocean observations

(iv) IOC and WMO have established close, efficient and effective collaboration in ocean data management

(v) the IOC Committee for IODE and JCOMM have established a number of joint mechanisms to advance ocean data management,

Noting with appreciation that the IOC Data and Information Management system resulting from this strategy will deliver:

• Assembled, quality controlled and archived data on a diverse range of variables according to scientifically sound and well-documented standards and formats;

• Timely dissemination of data on a diverse range of variables (observations and model outputs) both on real-time and delayed modes depending on the needs of user groups and their technical capabilities (automatic dissemination as well as “on demand”); and

• Easy discovery and access to data and information on a diverse range of variables and derived products (including forecasts, alerts and warnings) by users who have a broad range of capabilities.
(continued)

**Considering** that the IOC Strategic Plan for Oceanographic Data and Information Management 2013-2016 contains the following main elements:

- Adhere to the IOC Oceanographic Data Exchange Policy;
- Ensure the long-term archival, management and services of marine data and information;
- Recommended standards and best practice for management and exchange of oceanographic data;
- Acceptance and implementation of a set of interoperability arrangements, including technical specifications for collecting, processing, storing, and disseminating shared data, metadata and products;
- Discovery, access and retrieval of data from IOC programmes, as well as from programmes and organizations collaborating with IOC, through the Ocean Data Portal (ODP);
- Continued development of Ocean Data and Information Networks (ODINs) backed up by OceanTeacher as a capacity building tool, whilst extending OceanTeacher through cooperation with JCOMM and others as appropriate;
- Development of appropriate metrics to help evaluate the data and information system;
- Provide the crucial link between data, information and the dissemination of knowledge through the management of marine information by marine librarians;
- Facilitate proper citation of datasets by providing all the required elements of a citation including an unambiguous, unchanging reference; and
- Governance by an Advisory Group represented by experts nominated by the governing bodies of IOC programmes.

Endorses the IOC Strategic Plan for Oceanographic Data and Information Management 2013-2016 as given in document IOC-XXVII/2 Annex [?];

Agrees that the Plan should be:

(i) Published and distributed widely and used as a basic data strategy throughout the Programmes and Projects of the IOC; and

(ii) Regularly reviewed and revised by the IODE Committee, in close consultation with all IOC programmes.

**ACTION: The Committee will be invited to:**

**Endorse** the IOC Strategic Plan for Oceanographic Data and Information Management (2013-2016) through the proposed draft Decision of IOC-XXVII.

**Request** the IODE Co-chairs to formally submit the Strategic Plan, on behalf of the IODE Committee, to the 27th Session of the IOC Assembly (June 2013).
8.3 CHANGES IN THE IODE OBJECTIVES AND STRUCTURE

This Agenda Item will be introduced by Ms Sissy Iona, Co-Chair. She will recall the discussions on organizational reform during IODE-XXI including follow-up to the IODE review (2007), IODE arrangements for the long-term secure archival of data and information, the future of RNODCs and SOCs, IODE data and information centres quality management and certification, and implementation of the IOC strategic plan for oceanographic data and information exchange. She will then refer to Document IOC/IODE-XXII/21 entitled “Changes in IODE Structure and Terms of Reference”. She will note that the Document identified 3 important weaknesses of IODE today: (i) IODE is too closely knit and somewhat exclusive (limited to NODCs); (ii) there is little involvement of the ocean research and observation community; and (iii) users of IODE services/products are not well defined.

Ms Iona will call the attention of the Committee to two proposals formulated in the document and will invite the Committee to discuss these during the meeting of the sessional working group on strategy established under Agenda Item 8.1. She will further recall that the IOC Assembly, during its 26th Session (2011) decided to “Revise the Terms of Reference of the IOC Committee on IODE, adding a reference to compliance with the IOC Oceanographic Data Exchange Policy (Recommendation IODE-XXI.4)”.

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DRAFT RECOMMENDATION IODE-XXII.8.3.1

THE IODE OBJECTIVES

The IOC Committee on International Oceanographic Data and Information Exchange,

Recalling the revision of the IODE objectives through Recommendation IODE-XVIII.1 and Recommendation IODE-XIX.4,

Noting the importance of including the ocean research and observation community as key stakeholders of the IODE,

Noting further the importance of providing societal benefits through appropriate data services and products,

Recommends that the Objectives of the IODE Programme be modified as follows:

1. To facilitate and promote the exchange of, and access to, marine data and information including metadata, products and information in real-time, near real time and delayed mode, in compliance with the IOC Oceanographic Data Exchange Policy for the ocean research and observation community and other stakeholders

2. To ensure the long term archival, documentation, management and services of all marine data, data products, and information;

3. To promote the use of international standards, and develop or help in the development of standards and methods for the global exchange of marine data and information, using the most appropriate information management and information technology;

4. To assist Member States to acquire the necessary capacity to manage marine research and observation data and information and become partners in the IODE network; and

5. To support international scientific and operational marine programmes of IOC and WMO and their sponsor organizations with advice and data management services.
DRAFT RECOMMENDATION IODE-XXII.[8.3.2]

IODE Specialized Oceanographic Data Centres (SODC)

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the important role and success of the IODE National Oceanographic Data Centres (NODCs) as key partners in realizing of the IODE objectives,

Noting the importance of including the ocean research and observation community as key stakeholders of the IODE,

Noting further the growth of ocean research and observation programmes and projects, and the ability of these projects to establish data systems,

Stressing the need to share and provide access to all ocean research and observation data,

Noting the importance of standardization and interoperability of data and information systems across the ocean research and observation communities,

Recommends the establishment of Specialized Oceanographic Data Centres (SODC) as structural elements of IODE with the following Terms of Reference:

(i) Receive and manage data from a national, regional or international project, programme, institution or organization,

(ii) Prepare discovery metadata according to documented procedures and make these accessible, preferably through the IODE Ocean Data Portal,

(iii) Apply quality control according to documented procedures,

(iv) Make the data available, in accordance with documented procedures,

(v) Make copies of all procedures available for access through the IODE Clearing House Service for Data/Information Management practices Project.

Invites any national, regional or international project, programme, institution or organization that is willing to comply with the above-mentioned Terms of Reference to apply to join IODE as a Specialized Oceanographic Data Centre (SODC).

Invites candidate SODCs to apply to the IODE Secretariat by providing the following minimum information:

- Proposed name of the SDC (e.g. SODC for project X, SODC for institution Y)
- a comprehensive description of the candidate project/programme/institution and its expected data output,
- data management plan (if existing), including identified formats, quality control procedures, ...
- staff (e.g. principal investigator, person(s) responsible for data/information management);
- stakeholders (e.g. number of scientists involved)
- required expertise, training that IODE could contribute;
- data policy (if identified) that describes if/how data will be made available (e.g. freely, licensed, creative commons license, following national policy, ...);
- existing relationship with a NODC.

Recommends further that applications for SODCs shall be evaluated and decided upon by the IODE Officers (by email or during IODE Officer meetings).

Invites SODCs and their experts to participate in all IODE projects and activities.
DRAFT RECOMMENDATION IODE-XXII.[8.3.3]

Structural elements of IODE

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the important role and success of the IODE National Oceanographic Data Centres (NODCs) as key partners in realizing of the IODE objectives,

Welcoming the close and growing cooperation between IODE and JCOMM,

Noting with appreciation the considerable and sustained support by Member States in establishing and maintaining the National Oceanographic Data Centres,

Taking into account the considerable changes in information technology, the growth of ocean research and observation programmes and projects, and the ability of these projects to establish data systems,

Taking into consideration the adoption of the IODE Quality Management Framework through Recommendation IODE-XXII.[8.4],

Recommends the revision of the structural elements of IODE to include:

(i) Accredited National Oceanographic Data Centre (NODC)
(ii) Candidate National Oceanographic Data Centre (Candiate NODC)
(iii) Specialized Oceanographic Data Centre (SODC)
(iv) IODE Global Data Assembly Centre (IODE GDAC)

Recommends the abolishing of the Designated National Agencies (DNA), and invites former DNAs to work towards accreditation as NODCs in accordance with the IODE Quality Management Framework.

ACTION: The Committee will be invited to:

- adopt Recommendation IODE-XXII.[8.3.1] on the revision of the IODE Objectives
- adopt Recommendation IODE-XXII.[8.3.2] on IODE Specialized Oceanographic Data Centres (SODC)
- adopt Recommendation IODE-XXII.[8.3.3] on the structural elements of the IODE network
8.4 IODE QUALITY MANAGEMENT FRAMEWORK

This agenda item will be introduced by Mr Greg Reed (IODE Past Co-Chair) referring to Document IOC/IODE-XXII/22 (IODE Quality Management Framework for National Oceanographic Data Centres).

He will note that the IODE Committee has long held the view of a need for a quality management framework to ensure that NODCs are established and operate according to defined principles, including adherence to agreed standards and the requirements of the IOC Oceanographic Data Exchange Policy and to ensure NODCs can provide data of known quality to meet the requirements of a broad community of users.

He also noted that IODE has been accepted as a network member of the ICSU World Data System (WDS) and, as a contributing member of WDS, NODCs will be required to demonstrate their capability to meet ICSU certification criteria.

Mr Reed recalled that IODE-XXI established an inter-sessional working group to “identify a set of quality management criteria for IODE NODCs taking into account those defined for the WDS”.

The IWG met electronically through Basecamp to develop the IODE Quality Management Framework for National Oceanographic Data Centres document. This document has been disseminated to the IODE national coordinators for data management and to the IOC Officers for comment.

The IODE Quality Management Framework (IODE-QMF) provides the overall strategy, advice and guidance for NODCs to design and implement quality management systems (QMS) for the successful delivery of oceanographic and related data, products and services.

To ensure an NODC is able to provide quality data to meet the requirements of a broad and varied community of users, including ODP and WDS, an accreditation process was proposed based on compliance to a set of requirements that can be translated into quantitative indicators which will be part of a regular review of an NODC.

In order to obtain and maintain accreditation, an NODC will need to fulfil a minimum set of requirements to ensure compliance with IODE standards and to establish a mechanism to regularly monitor and assess the quality of data and service. These accreditation criteria are given in the IODE Quality Management Framework for National Oceanographic Data Centres document.

Taking into consideration that NODCs are at different stages of development and operation, there will be two levels of categorization:

(i) Accredited NODC. IODE National Oceanographic Data Centres that have met the accreditation requirements
(ii) Candidate NODC. IODE National Oceanographic Data Centres that are working towards accreditation

The category of Designated National Agency (DNA) will be withdrawn.

IODE capacity development, centred on OceanTeacher, will focus on providing the necessary training so that all NODCs can achieve full accreditation. Quality management will be included in the OceanTeacher training programme.

**ACTION: The Committee will be invited to:**

- adopt Recommendation IODE-XXII.? on the ESTABLISHMENT OF THE IODE QUALITY MANAGEMENT FRAMEWORK PROJECT
DRAFT RECOMMENDATION IODE-XXII.[8.4]

ESTABLISHMENT OF THE IODE QUALITY MANAGEMENT FRAMEWORK PROJECT

The IOC Committee on International Oceanographic Data and Information Exchange;

Noting the importance of the need for NODCs to provide data of known quality to meet the requirements of the ocean research community as well as other stakeholders;

Further noting the acceptance of IODE as a network member of the ICSU World Data System (WDS) and the requirement for NODCs to demonstrate their capability to meet ICSU certification criteria;

Recalling the IODE Committee (IODE-XXI) established an inter-sessional working group to “identify a set of quality management criteria for IODE NODCs taking into account those defined for the WDS”;

Recommends the establishment of the IODE Quality Management Framework (IODE-QMF) Project with the following main objectives:

(i) provide the overall strategy, advice and guidance to NODCs to establish organizational quality management systems for the delivery of oceanographic and related data, products and services,
(ii) initiate and review existing standards and Manuals and Guides with respect to the inclusion of quality management procedures and practices,
(iii) promote accreditation of NODCs according to agreed criteria.

Recommends further the establishment of the Steering Group for IODE Quality Management Framework (SG-QMF) with the following terms of reference:

(i) advise the IODE Committee on procedures, manuals and guidelines for the implementation of the IODE Quality Management Framework,
(ii) advise the IODE Committee on the accreditation of NODCs,
(iii) receive and review applications for accreditation of NODCs.

Encourages Member States to nominate experts having expertise in implementing quality management systems for management of oceanographic data to the Group of Experts;

Encourages Member States to apply for accreditation of their NODCs and former DNAs;

Invites Member States with a well-developed QMS in place to share experiences, expertise and documentation with other Member States developing or planning such systems.
9. NEW INITIATIVES

This agenda item will be introduced by Mr Ariel Troisi, Co-Chair. He will refer to agenda item 8 where the need for IODE to address a wider range of stakeholders was highlighted, with special attention to the ocean research and observation communities. The Co-Chair will note that, in order to attract these communities to IODE, it would be necessary to demonstrate the added value of working with IODE. In this regard reference was made to the core duties of the NODCs: simply put this included receiving data, adding metadata as necessary, quality control, storage and making available of data.

Within the NODCs well-oiled processes have been designed to perform these duties and in a number of cases NODCs have been able to assist project developers with the drawing up of data management plans. Added value to the ocean research and observation community could thus consist of providing expertise related to data and information management and related management plans. For the different elements of these processes (e.g. metadata schemes, QC,...) IODE has or should have developed manuals and guides. However IODE is not the only player in this field. Many national, regional or international projects or organizations have developed a wide variety of technical procedures and published associated manuals. A service provided by IODE could be to provide a “clearing house” service for documentation related to data and information management processes.

Proposal 1: Clearing House Service for Data/Information Management practices: This would enable research groups that wish to embark on a new project and need to prepare a data management plan, to look for methodology already used by other projects or data centres (”best practices”) rather than re-inventing these themselves (with the risk of interoperability problems at a later stage). The service would essentially be a repository of documents and links to related web sites. This could be developed within the OceanTeacher library (http://library.oceanteacher.org). Possibly this could be developed within the context of the OceanTeacher project and be part of the proposal for an OceanTeacher Academy (phase 2) to be submitted to funding agencies in 2013.[cost to be covered from Exb sources and conditional on approval of OceanTeacher Academy Phase 2]

Proposal 2: Expansion of OceanExpert to include ocean research and observation community: an important task required to reach a wider community will be to regularly communicate with members of that community and inform them on new tools, methods etc. related to oceanographic data and information management (if they opted in to receive this information). It will therefore be necessary to register members of the community (ocean research and observation) into OceanExpert so we can email them. Another option would be to simply create a mass mailing list. Member States will need to assist in obtaining email addresses of relevant projects and institutions. [no direct cost – in-kind support to be provided by Member States]

Proposal 3: Promotion of Data Publication: SCOR, MBLWHOI Library, BODC and IODE have collaborated since 2008 on developing practices related to data publication through 2 uses cases: (i) data related to traditional journal articles are assigned persistent identifiers referred to in the articles and stored in institutional document repositories; and (ii) data held by data centres are packaged and served in formats that can be cited: The Published Data Library (PDL) and Published Ocean Data repository (POD). The use cases phase was completed in October 2012 and a “Cookbook” will be published in 2013 guiding various user groups to publish their data. Data publication can provide career incentives to researchers through the citation by others of their data and this may urge researchers to make their data more available than today. IODE can play a role in the promotion of data publication and in providing the necessary training and technology to research groups and institutions. [e-publication of cookbook by IODE PO at no financial cost; training cost to be included in OceanTeacher programme 2013-2015; additional costs may be occurred if site visits are required].
ACTION: The Committee will be invited to:

- Consider proposal 1 through recommendation 9.1
- Consider proposal 2 as an action item for the GE-MIM
- Consider proposal 3 as an action item for the SCOR/MBL WHOI/BODC/IODE project on data publication

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**DRAFT RECOMMENDATION IODE-XXII[9.1]**

**IODE Clearing House Service for Data/Information Management practices Project**

The IOC Committee on International Oceanographic Data and Information Exchange, Acknowledging the important role and success of the IODE National Oceanographic Data Centres (NODCs) as key partners in realizing of the IODE objectives,

Noting the importance of including the ocean research and observation community as key stakeholders of the IODE,

Noting further the growth of ocean research and observation programmes and projects, and the ability of these projects to establish data systems,

Noting the importance of standardization and interoperability of data and information systems across the ocean research and observation communities,

Noting further the progress of the JCOMM/IODE Ocean Data Standards Pilot Project, but also the development of practices by other organizations, programmes and projects in the area of ocean research and observation, their related data and information management, as well as marine meteorology,

Stressing the importance of sharing of standards and practices in order to ensure interoperability and avoiding of duplication of effort,

Taking into account the establishment of Specialized Ocean Data Centres (SODCs) through Recommendation IODE-XXII[8.3.2],

**Recommends** the establishment of the IODE Clearing House Service for Data/Information Management Practices project, with the Terms of Reference as attached in the Annex of this recommendation.

**Instructs**:

(i) the IOE Group of Experts on Marine Information Management (GE-MIM), jointly with the IOE Steering Group for OceanTeacher to define the functional requirements of the Clearing House, to promote the Clearing House through appropriate channels, and to report back to the IOE Officers and IOE Committee on progress of the Project;

(ii) the IOC Project Office for IOE to develop and implement the Project in accordance with the functional requirements defined under (i).

**Invites** IOC Member States as well as other organizations, programmes and projects, to participate in, and contribute to the Project.

This Agenda Item will be introduced by Mr Ariel Troisi. He will report on the discussions of the Sessional Working Group on work plan and budget which drafted a proposed budget based upon the estimated revenue from the UNESCO Regular Programme as well as other sources of funding.

The Committee will be invited to discuss the work plan and budget for the next intersessional period. Under Agenda Item 14 the Committee will be invited to adopt the work plan and budget for the next intersessional period through Recommendation IODE-XXII.[10].

11. ANY OTHER BUSINESS

This Agenda Item will be introduced by Ms Sissy Iona. She will recall items that were suggested under agenda item 2.1.
12. ELECTIONS OF CO-CHAIRS

The IODE Technical Secretary will introduce this item by referring to the IOC Rules of Procedure (Document IOC/INF-1166), and more particularly to Rule 25, para 3. The Technical Secretary will inform the Committee that, in accordance with the above Rules, and taking into account that both Co-Chairs have completed one term (one inter-sessional periods) no new Co-Chairs need to be elected.

ACTION: The Committee will be invited to:
- Consider re-electing the current IODE Co-Chairs for a second term

13. DATE AND PLACE OF IODE-XXIII

Ms Sissy Iona, IODE Co-Chair will invite the Committee to discuss the date and venue of the twenty-third Session, taking into account the current budgetary limitations and costs, associated with organizing a Session. In this regard the Committee will be invited to consider, taking into account the cost, whether it is appropriate to plan for a next Session in two years, especially bearing in mind the expected further budget cuts at UNESCO. The Committee will also be invited to consider the possibility that UNESCO and its IOC may henceforth work with an intersessional period of 4 years for programme (C/5) and a budget cycle of two years.

14. ADOPTION OF THE SUMMARY REPORT

This Agenda Item will be introduced by both Co-Chairs. The Committee will be invited to adopt the draft Summary Report of the Session, and the Resolutions and Recommendations.

The Committee will consider requesting its Co-Chairs and the IOC Secretariat to make editorial corrections as necessary, taking into account the discussions held during the session.

The Committee will consider requesting the IODE Co-Chairs to present the Executive Summary with all Resolutions and Recommendations therein to the Twenty-Seventh Session of the IOC Assembly that will take place between 26 Jun and 5 July 2013 at the UNESCO headquarters in Paris, France.

15. CLOSURE

The Co-Chairs will address the Committee and close the Session on Friday 15 March 2013 at ...