

1ST SESSION OF THE IHO ASSEMBLY

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REPORTS ON THE WORK OF THE IHO FOR THE PERIOD 2012 - 2016

**WORK PROGRAMME No. 1
CORPORATE AFFAIRS**

TABLE OF CONTENTS

Introduction

Element 1.1 Co-operation with International Organizations and participation in relevant meetings

Element 1.2 Information Management

Element 1.3 Public Relations

Element 1.4 Work Programme & Budget, Strategic Plan and Performance Monitoring

Element 1.5 Management of the Secretariat

Element 1.6 International Hydrographic Conferences or Future Assemblies

Actions required of the Assembly

Introduction

1. IHO Work Programme 1 - *Corporate Affairs* covers the provision of the services of the Secretariat of the IHO and, through the Secretariat, the management and fostering of relations with other international organizations. Work Programme 1 was executed primarily by the Directing Committee, now Secretary-General with the assistance of the Directors.

Element 1.1 Cooperation with International Organizations and Participation in Relevant Meetings

2. This element covers liaison and cooperation between the IHO and other international organizations – particularly those with which the IHO has a formal relationship or agreement, such as sister intergovernmental organizations and other international organizations with interests in hydrography and marine geospatial information and services. A full list of visits and details of participation in meetings has been provided in the monthly IH Bulletin and the Annual Report of the IHO. The IHO was represented in most cases by the President (now Secretary-General), a Director or an Assistant Director. In a small number of cases, representatives from Member States also participated in the same meetings representing their own countries.
3. Notable highlights resulting from cooperation with relevant organizations during the period of this report are described hereinafter.

Antarctic Treaty Consultative Meeting

4. The IHO is an invited expert to the Antarctic Treaty Consultative Meeting (ATCM) which is a permanent diplomatic meeting that meets annually to consider measures, decisions and resolutions to give effect to the principles of the Antarctic Treaty and the Environment Protocol and to provide regulations and guidelines for the management of the Antarctic Treaty area. The IHO was represented at all meetings during the reporting period.
5. In 2014 the ATCM adopted a new Resolution: *Strengthening Cooperation in Hydrographic Surveying and Charting of Antarctic Waters*. The Resolution provided a clear message that all States and Organizations involved in the ATCM acknowledge the currently less than acceptable situation regarding hydrography and nautical charting and appreciate that coordination, collaboration and the sharing of resources are key to improving the situation in Antarctica. The Resolution also recognizes that the IHO Hydrographic Commission on Antarctica (HCA) is the coordinating authority for nautical charting and hydrographic surveying in the region.

Comité International Radio Maritime

6. The Comité International Radio Maritime (CIRM) is an accredited Observer Organization to the IHO. CIRM is the principal international association for marine electronics companies and several of its members are key contributors to standards development, particularly in relation to ENC and digital data transfer standards. During the period, CIRM played a significant part in assisting the IHO to engage with industry to resolve issues related to several operational anomalies in ECDIS equipment that affected safety of navigation because of the way that the relevant IHO standards had been implemented by different ECDIS manufacturers.

European Union Initiatives

7. A Memorandum of Understanding (MoU) on establishing cooperation on maritime affairs between the IHO and the European Commission (EC) was signed on the occasion of the 18th International Hydrographic Conference (IHC-18). The MoU provides a framework ensuring a continuing liaison between the IHO and the European Union (EU) in the various areas of common interest. The EC Directorate General for Maritime Affairs and Fisheries (DG MARE) acts as the contact point on the Commission side. The IHO-EU Network WG (IENWG) was

established as a working group under IRCC to act as the IHO contact point. Relations with the EU progressed well during the reporting period, in particular through the development of the Coastal Mapping Project in relation with the bathymetry portal of the European Marine Observation and Data Network (EMODnet). The Coastal Mapping project was the first significant success for a consortium of Hydrographic Offices (HOs) taking the lead in an important EU project. The objectives of the project were to assess the current availability of digital coastal maps in the EU, to disseminate this information by EMODnet, to share experience of coastal mapping in the EU, to develop standards for best practices and to propose how a future Joint European Coastal Mapping Programme (JECMaP) could operate (see <http://coastal-mapping.eu/>). Contributing to the further development of EMODnet, supporting the EU directive on Maritime Spatial Planning and contributing to the EU initiative on “Marine Knowledge 2020” to support blue growth were also considered during the period. Further details are provided in the report of the IENWG under programme 3.

International Association of Aids to Navigation and Lighthouse Authorities

8. The International Association of Aids to Navigation and Lighthouse Authorities (IALA) maintained a particularly productive relationship with the IHO throughout the reporting period.
9. IALA continued to move towards changing its status from an international organization to an intergovernmental organization. In doing so, it sought advice from the IHO Secretariat and made use of much of the constitutional model of the IHO in setting out its own future constitution.
10. IALA also adapted the philosophy and administrative model of the IHO Capacity Building programme as the basis for its IALA World Wide Academy – which is the IALA Capacity Building programme. The establishment of the IALA Academy resulted in increasingly close cooperation between the two organizations in order to deliver complementary basic awareness training and also technical assessments to States that require assistance.
11. IALA continued to take a leading role in influencing the implementation of the IMO e-Navigation concept. As a result, IALA began work on several information exchange protocols related to aids to navigation services that are based on IHO S-100 and are intended as services under the e-Navigation concept.

International Electrotechnical Commission (IEC)

12. The International Electrotechnical Commission (IEC) is an NGIO that publishes consensus-based international standards and manages conformity assessment systems for electric and electronic products, systems and services. The primary IHO contact is the Technical Committee 80 (TC80) that is responsible for maritime navigation and radio-communication equipment and systems and produces the testing standards required to implement the performance standards adopted by the International Maritime Organization (IMO).
13. TC80 is responsible in particular of the testing standard for ECDIS, IEC 61174 which is the reference standard for ECDIS type-approval. In response to a number of ECDIS anomalies that had been identified by the IHO and IMO in 2012, IEC-TC80 established a maintenance team to revise the 3rd edition of IEC 61174 in order to address these issues. As reported under Programme 2, the revision of IEC 61174 was closely coordinated with the revision of IHO ECDIS related standards which are normative references in IEC 61174.
14. Further cooperation with the TC80 is ongoing to deal with IEC standardization issues related to e-navigation. The TC80 established in 2015 a dedicated working group, WG17 - Common Maritime Data Structure (CMDS), to contribute to the development of the CMDS based on the S-100 framework (see IMO section).

International Organization for Standardization (ISO)

15. The IHO is a class A liaison member of the ISO Technical Committee 211 (ISO/TC211) and has contributed towards the development of the 19100 series of standards and technical

specifications for geospatial information. These ISO standards have been used for the development of the S-100 - *IHO Universal Hydrographic Data Model*, the IHO Geospatial Information (GI) Registry and S-100-based product specifications.

16. In 2012, the IHO and ISO agreed a MoU declaring mutual recognition and cooperation between the two organizations to continue to develop relevant contemporary standards and avoid duplication of effort. The Secretariat monitors and participates in the ISO/TC211 standards development work and report on relevant activities to IHO committees and working groups.

United Nations

17. The Secretariat has progressively raised the profile of the IHO in several United Nations (UN) bodies during the reporting period.
18. **UN Committee of Experts on Global Geospatial Information Management (UN-GGIM).** The UN-GGIM reports to the UN Assembly via the UN Economic and Social Council (ECOSOC). The principal purpose of the UN-GGIM is to play a leading role in setting the agenda for the development of global geospatial information management and to promote the use of geospatial information in addressing key global challenges.
19. The Secretariat represented the IHO in the annual meetings of the UN-GGIM and several of its inter-sessional high-level forums.
20. With the assistance of the IHO Marine Spatial Data Infrastructures Working Group (MSDIWG), the IHO Secretariat co-authored with the ISO/TC 211 and the Open Geospatial Consortium two reference documents that were subsequently adopted by the UN-GGIM. These documents provide advice on the implementation of geospatial standards.
21. More generally, the UN-GGIM increasingly acknowledged the need to consider the maritime geospatial information domain as part of its work. This is likely to result in a specific working group being established in 2018. This, in turn, may encourage more than the two or three national Hydrographers that are currently represented directly in the UN-GGIM to participate.
22. The UN-GGIM is now in the course of developing a list of fundamental data themes. Hydrography has been reflected in the provisional list of themes using a number of terms, including: *hydrography, depth, elevation and depth, and water*.
23. **International Seabed Authority (ISA).** The IHO established a MoU with the ISA. This MoU enables the IHO to provide advice and comment to the Secretariat of the ISA, particularly in relation to improving access to bathymetric data upon which the ISA manages its contracts in The Area. The President (now Secretary-General) attended the Assembly of the ISA in 2016, at which the IHO was formally recognised as an Observer organization.
24. **UN Division of Oceans and Law of the Sea (UN-DOALOS).** The Secretariat provided to UN DOALOS the IHO contribution to the annual Report of the UN Secretary General to the UN General Assembly on Oceans and Law of the Sea. Liaison was also maintained through the IHO-IAG Advisory Board on the Law of the Sea (ABLOS) as reported under Programme 2. DOALOS expressed a strong interest in the development of the S-100-based product specification on maritime limits and boundaries (S-121) to form the recommended format for States to deposit data in support of maritime limits and boundaries with the United Nations in accordance with the provisions of the UN Convention on the Law of the Sea (UNCLOS).

International Maritime Organization

25. Active liaison and cooperation with the IMO continued during the reporting period. The IHO and IMO Secretariats communicated regularly and effectively on numerous matters of mutual interest. A new agreement of cooperation between the two organizations was drafted to emphasise the close and cooperative arrangements that now exist between the two organizations and ensure even greater synergies. The agreement was approved and signed in 2013 and replaced a previous text signed in 1962.

26. The Secretariat represented the IHO at all significant meetings of the IMO where hydrographic and chart related issues were discussed. Meetings attended by the Secretariat included meetings of the Assembly, the Maritime Safety Committee (MSC), the Sub-Committee on Safety of Navigation (NAV) and the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR), which were merged into the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) in 2013, and the Technical Cooperation Committee (TCC). The many items of relevance to the IHO included the continuing development and implementation of an IMO e-Navigation strategy, the development of an IMO Polar Code - both of which have significant underlying charting aspects, the implementation of ECDIS as a carriage requirement, capacity building programmes, and the World-Wide Radio Navigational Warning Service (WWNWS), in relation with the operation and modernization of the Global Maritime Distress and Safety System (GMDSS). In addition to the items reported under the relevant elements of Programmes 2 and 3, the following matters were progressed during the period.
27. In 2012, the MSC endorsed the IHO S-100 standard as the baseline for creating a framework for data access and services under the scope of e-Navigation and the relevant parts of the Convention for Safety of Life at Sea (SOLAS), identified as the Common Maritime Data Structure (CMDS). This recognition by IMO placed S-100 in an important position that goes well beyond the use of the standard principally for charting purposes. In addition, MSC authorised the establishment of a joint IMO/IHO Harmonization Group on Data Modelling and approved its terms of reference. The principal objectives of the group are to provide the overarching coordination to ensure the creation and maintenance of a robust and extendable CMDS. The group is currently dormant but is expected to be activated in 2017 in relation with the implementation of the IMO e-navigation strategy.
28. In accordance with the directive agreed by the IHC-18, the IHO continued to monitor the implementation of ECDIS to ensure that issues identified with regard to the anomalous operation of some ECDIS are collated, analysed, communicated and resolved as speedily as possible to maintain safety of navigation and to assist the smooth transition from paper to digital navigation. In particular, the IHO Secretariat monitored ship reports on the IHO ECDIS Data Presentation and Performance Check issued in 2011 and reported annually to NAV and then to NCSR on this item. The IHO contributed to developing a consolidated IMO guidance termed “*ECDIS - Guidance for Good Practice*” (Circular MSC.1/Circ.1503 dated 24 July 2015) that replaced seven IMO circulars which had been developed in an incremental manner over the years.
29. In 2014, the MSC approved and adopted the text of a mandatory *International Code for Ships Operating in Polar Waters* (the Polar Code - Resolution MSC.385(94)) and a new chapter XIV to SOLAS on “*Safety measures for ships operating in polar waters*”. As recommended by the Secretariat, the Polar Code refers to the poor state of charting in the Polar Regions and the precautions necessary to mitigate some of the related risks.
30. In the capacity building domain, the IHO invited the TCC to consider ways and means to improve the efficiency of capacity building activities under the UN theme of “delivery as one” such as sharing information available in the IMO Country Maritime Profiles and identifying a number of common objectives, particularly in relation to helping coastal States to meet their obligations as set out in Chapter V of the International Convention for the Safety of Life at Sea (SOLAS). In 2013, the Assembly agreed the transition from the IMO Voluntary Member State Audit Scheme to a Mandatory Audit Scheme. The scheme includes the assessment of the provision of national hydrographic services in the countries being audited.

Intergovernmental Oceanographic Commission of UNESCO

31. The IHO continues to cooperate with the Intergovernmental Oceanographic Commission (IOC) in areas of common interest. Due to on-going financial constraints in IOC, a number of

restrictions have been impacting on the delivery of the IOC programmes which have slightly affected IHO activities during the period 2012-2016, in particular Ocean Mapping matters. As a result, this important programme, which, recently has been given a significantly higher priority by the IOC, did not receive sufficient resources to fund the minimum requirements. Nevertheless a closer engagement between the two Secretariats over the latter part of the period has ensured that the General Bathymetric Chart of the Oceans (GEBCO) and International Bathymetric Charts (IBC) projects have been able to progress. This includes approval of the Terms of Reference and Rules of Procedure for the Sub-Committee on Regional Undersea Mapping (SCRUM) and agreement on the much revised Terms of Reference and Rules of Procedure for the GEBCO Guiding Committee, which have significantly improved the governance and oversight of this committee. The IOC adopted the GEBCO Cook Book – *IHO Publication B-11* – as IOC Manuals and Guides 63.

32. At the instigation of the new IOC Executive Secretary, Dr Vladimir Ryabinin, the IOC established a Review Group which undertook a review of the IOC Role in Support of the GEBCO Project. The Group comprised representatives of IOC Member States and one expert each from the GEBCO Guiding Committee and relevant IOC technical and regional subsidiary bodies and chaired by Dr Alexander Postnov (Russian Federation), Vice-Chair of the IOC. The Review Group reported that the majority of the IOC technical and regional subsidiary bodies used GEBCO products and found them to be significant enablers for their activities, noting that this is also the case for World Meteorological Organization (WMO) activities and modelling. Taking this into account, the Review Group recommended that IOC should continue its involvement in the GEBCO project and collect and integrate the IOC user requirements for GEBCO products on a regular basis. The IOC Executive Council expressed concern that the level of active involvement by the IOC in the GEBCO project has diminished and noted that the project relies mainly on support from the IHO. Considering the outcome of the review, the IOC Executive Council decided to enhance IOC involvement with a proposal to allocate funding in the next biennium, it also established a working group of representatives of IOC technical and regional subsidiary bodies to identify IOC user requirements and potential contributions to GEBCO products tasking it to collect, integrate and assess the user needs and requirements and potential contributions to GEBCO data and products.
33. Tsunamis have received great attention during the period. The IOC decided to continue working on the strategy to handle tsunami threats in the most efficient and effective way. The IHO has been actively involved in raising awareness and providing training especially to countries in the Indian Ocean tsunami affected area, but also in other regions also threatened by this type of natural hazard. Capacity building matters are given very high priority by both organizations. The IOC has also attended meetings of the World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC) to explore improvements with warning information distribution through the WWNWS; a number of exercises have been held which have included the involvement of the respective NAVAREA Coordinators. The IHO has consistently confirmed its readiness to fully cooperate with IOC in the development of inundation maps and related coastal bathymetric activities required for the regions, in particular the Indian Ocean.
34. The IHO has continued to highlight the importance of comprehensive bathymetry to contribute to tsunami modelling and mitigation, as well as the importance of public awareness, and has recommended IOC to take advantage of the IHO's regional structure, contacting the appropriate IHO Regional Hydrographic Commissions to obtain available bathymetry to support the work. Of particular significance to the IHO are the discussions on the IOC's capacity development strategy, the International Polar Partnership initiative and the 50th anniversary of the International Indian Ocean Expedition.
35. The IHO, through the IHO Secretariat and members of the IHO Tides, Water Level and Currents Working Group (TWCWG) (formerly the TWLWG), has attended meetings of the IOC GLOSS Group of Experts. GLOSS has also been represented at meetings of the TWCWG. The IHO has continued to support GLOSS in increasing the tidal data input to GLOSS and the

recovery of historical tide gauge records into the databank for the study of long-term sea level change.

36. In addition to the various delegates from the Hydrographic Offices for a number of IHO Member States, the IHO has been represented at all IOC Assemblies and Executive Council meetings by the IHO Secretariat.

World Meteorological Organization

37. In 2011 the IMO Assembly had adopted Resolution A.1051 - *IMO/WMO World Wide Met-Ocean Information and Warning Service (WWMiWS) – Guidance Document*, which established METAREA Coordinators mirroring the NAVAREA Coordinators of the WNWNS. As a result of this development the WMO has had increasingly closer engagement with the provision of Maritime Safety Information (MSI) and the GMDSS infrastructure. The WMO has been fully involved with the revision process of the MSI documentation and attended all the WNWNS Sub-Committee and Document Review Working Group meetings. There have been regular IMO/IHO/WMO Secretariat meetings focused on the provision of MSI and the unpinning services. In 2015, the IHO and the WMO Secretariat established a MoU that formalised the already strong cooperation between the two organizations, particularly in the provision of MSI and the development of S-100 based product specifications for sea ice (S-411) and met-ocean forecasts (S-412). The knowledge gained from the WMO development of the Voluntary Observing Ship scheme was identified as a very useful input to the development of the IHO led Crowd-Sourced Bathymetry initiative.

Pacific Community and Organization of Eastern Caribbean States

38. The Secretariat, on behalf of the IHO, established a Memoranda of Understanding with the Pacific Community (SPC) and with the Organization of Eastern Caribbean States (OECS) in 2011 and 2015 respectively. These MoU are intended to formalise the liaison arrangements between the IHO and these regional intergovernmental organizations to ensure that IHO capacity building and related hydrographic development in the regions are appropriately coordinated. The respective Regional Hydrographic Commissions are nominated as the operational points of contact. As a result, SPC has played an increasing role in the South West Pacific Hydrographic Commission (SWPHC) in developing a regional hydrographic capability as part of the SPC Applied Geoscience Division. Meanwhile, the OECS Secretariat participated in several meetings of the Meso-American and Caribbean Sea Hydrographic Commission (MACHC) and is playing a central role in seeking donor funding for an OECS hydrographic improvement programme.

Maritime Organization of West and Central Africa

39. The Maritime Organisation of West and Central Africa (MOWCA) is an intergovernmental regional organization established by the Maritime Charter of Abidjan, whose mission is to promote the development of cost-effective maritime transport services with the highest safety and security standards, and to protect the marine environment.
40. Further to a joint IHO-MOWCA workshop held in Pointe-Noire (Republic of the Congo) in 2013, the Eastern Atlantic Hydrographic Commission developed a MoU on cooperation between MOWCA and the IHO which was signed in 2016. The MoU aims at consolidating and strengthening the process of regional cooperation and ensuring the efficient and effective development and coordination of hydrographic and nautical charting programmes in accordance with the obligations of international treaties.

Group on Earth Observations

41. GEO, the “Group on Earth Observations”, is a voluntary partnership of governments and international organizations. It was launched in 2003 in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading

industrialized countries. GEO is coordinating efforts to build a Global Earth Observation System of Systems (GEOSS) in order to exploit the growing potential of Earth observations to support decision-making in an increasingly complex and environmentally stressed world. GEO's Members include 102 Governments and the European Commission. In addition, 106 intergovernmental, international, and regional organizations with a mandate in Earth observation or related issues have been recognized as Participating Organizations. The IHO was recognized as a Participating Organization in 2006. GEO meets annually in plenary session.

42. Starting from 2014, the IHO has been represented at GEO plenary, regional and ministerial meetings by the Secretariat and the relevant Member States. The IHO has also provided statements at the recent GEO meetings which highlights the importance of global efforts to improve data availability for the oceans and to recognize the IHO-IOC GEBCO project, the IHO Data Centre for Digital Bathymetry (DCDB) and the IHO Working Groups on Marine Spatial Data Infrastructures and Crowd-Sourced Bathymetry as essential contributors to the maritime component of Global Earth Observation System of Systems (GEOSS).

International Cable Protection Committee (ICPC)

43. The International Cable Protection Committee (ICPC) is a non-profit corporation that represents the international submarine cable industry and promotes the security and safeguarding of submarine cables against man-made and natural hazards.
44. Through routine contacts related to the provision of cable data for charting purposes, the IHO Secretariat and the ICPC Executive Committee identified the need to foster cooperation between both organizations on matters related to submarine cable operations. The ICPC participated in the 7th meeting of the IHO Hydrographic Services and Standards Committee (HSSC), where the HSSC acknowledged the areas of common interest between the IHO and the ICPC. As a result, an MoU was agreed between the Secretariat, on behalf of the IHO and the ICPC Executive Committee. The objective of the MoU is primarily to assist in facilitating and harmonizing the timely depiction of submarine cables on nautical charts and products through appropriate standards and procedures and therefore to contribute to the protection of submarine cable infrastructure. The MoU also encourages the development of procedures that will facilitate the provision of survey data, or metadata, collected as part of cable laying or maintenance activities, to the IHO DCDB and to GEBCO.

Open Geospatial Consortium (OGC)

45. The Open Geospatial Consortium (OGC) comprises more than 500 industry, government and academic members dedicated to advancing interoperability among information technology systems that process geo-referenced information. An MoU between the IHO and the OGC was agreed by IHO Member States in 2016. This provides an overarching framework for the long-standing cooperation that has existed between the IHO and the OGC in relation to work under the ISO/TC211 related to harmonizing their various geographic and related standards.

Non-governmental international organizations with observer status to the IHO

46. IHO Resolution 5/1957 - *IHO relations with other international organizations*, as amended, required that the Directing Committee (now the Secretary-General) "review from time to time the list of non-governmental international organizations to which IHO has granted observer status, in order to determine whether or not the continuance of their status in any particular case is necessary and desirable."
47. In addition to the non-governmental international organizations (NGIO) with which the IHO established specific arrangements as reported above, the following NGIOs were accredited as observers to the IHO during the reporting period:

- Baltic and International Maritime Council (BIMCO): BIMCO is the largest of the international shipping associations representing ship-owners;
- International Association of Independent Tanker Owners (INTERTANKO): INTERTANKO represents independent tanker owners and operators of oil, chemical and gas tankers;
- Professional Yachting Association (PYA): the PYA is the professional body for yacht crews and the luxury yacht industry;
- The International Harbour Masters' Association (IHMA): the IHMA is the professional body for Harbour Masters from around the world;
- The Institute of Marine Engineering, Science and Technology (IMarEST): the IMarEST is an international membership body for marine professionals operating in the spheres of marine engineering, science or technology;
- The Hydrographic Society of America (THSOA): THSOA is composed of individual members and corporate members supporting worldwide marine businesses, governments and academia in hydrography and related activities;
- The World Ocean Council (WOC): the WOC has been established as an international multi-industry business leadership alliance on ocean sustainability, science and stewardship;
- The Association of Arctic Expedition Cruise Operators (AECO): the AECO is composed of expedition cruise operators operating in the Arctic and other entities with interests in this industry.

48. There are currently 32 NGOs accredited as observers to the IHO. Most organizations are actively involved in IHO activities and provide valuable input and opinion. Liaison is maintained with others through joint participation in meetings of mutual interest. During the reporting period, there has been no contact with only one organization, the International Geographical Union (IGU).

Element 1.2 Information Management

49. The information management infrastructure of the Secretariat and the IHO has been progressively developed and improved over the reporting period.

50. The IT infrastructure continues to rely on a combination of one dedicated member of staff and approximately a third of the time of an Assistant Director, together with assistance and services provided by several service providers under contract terms.

51. In the face of evolving new requirements, particularly in relation to adopting an increasingly complex digital data and information environment, resources remain stretched to meet all the requirements. This, therefore, requires the careful and continuous balancing of priorities against resources. The scope and complexity of the IHO IT infrastructure should not be underestimated, serving, as it does, a significant archive of reference documents, an extensive and dynamic website that includes the following online applications: a meeting registration system, the IHO ENC catalogue, the INT chart catalogue, an online hydrographic dictionary, a stakeholders database, an S-62 producer code database and an index of downloadable GEBCO charts.

52. Several on-line web services have been introduced to support the mobile computing environment for the senior members of staff who are required to travel frequently. These include mail services and secure access to the Secretariat internal network services.
53. An independent audit and evaluation of the IHB IT infrastructure was conducted in late 2014 resulting in an action plan to further improve the IT infrastructure including revisions to maintenance contracts, and rationalizing the server architecture. A new dedicated backup environment for internal workstations and servers was established and new WiFi access points were added to improve the coverage within the Secretariat premises. The capacity to stream video content during meetings in the Secretariat conference room has been added in order to allow remote viewing for some meetings. The mail server infrastructure was upgraded and the external web server applications were moved to a new service provider.
54. The work of two officers seconded by Japan and the Republic of Korea enabled several important capabilities to be implemented that might otherwise not have been possible within existing resources; these include a GIS environment to capture, maintain and display geo-information; an on-line meetings registration system, and a second-generation S-100 registry. Meanwhile a seconded officer from Peru has been instrumental in rationalising the IHO on-line dictionary.
55. A replacement digital document management and system was implemented in 2013 for the processing, managing and storing of Secretariat documentation and correspondence. This has assisted in handling an ever increasing volume of documentation that requires processing.
56. There continues to be a backlog of documents that should be provided in both official languages, but cannot be done because they exceed the capacity of the two full-time French translators, even with the addition of limited contract support.

Element 1.3 Public Relations

Relations with the Government of Monaco

57. Maintaining relationships with the Government of Monaco and the diplomatic corps accredited in Monaco is currently included in the IHO work programme as part of Element 1.3 - *Public Relations*. It will be included as part of the element covering relations with governments and international organizations in the forthcoming work programme.
58. Communications with the Government of Monaco, in particular the Department of External Relations and Cooperation, was regular and productive throughout the reporting period. The Department of External Relations and Cooperation, itself stretched to meet its very heavy schedule of commitments, has taken on the additional load of addressing the many consequential actions required as a result of the entry into force of the revisions to the Convention on the IHO, such as formally informing all existing Member States, informing the UN of the changes to the Convention and necessary adjustments to the Host Agreement, and the reciprocal recognition between the governments of Monaco and France related to the status of the Organization and the secretariat.
59. Her Excellency Mme Isabelle Picco, Permanent Representative of the Government of Monaco to the United Nations provided particularly good support in assisting the President (now Secretary-General) during his attendance at meetings in the UN Headquarters.

World Hydrography Day

60. World Hydrography Day was celebrated each year during the reporting period. The Secretariat organised various events in Monaco, in conjunction with *Monacology*, a marine science based event to raise children's awareness about the environment and sustainable development. The

Secretariat was honoured by the presence of His Serene Highness Prince Albert at several of the World Hydrography Day events.

Other Outreach Activities

61. The Secretariat maintained a record of the principle IHO activities in the monthly publication of the IH Bulletin, as well as providing a quarterly article in the journal *Hydro International*.
62. Specific IHO stakeholder forums were held in conjunction with the following meetings:
 - 4th meeting of the HSSC, Taunton, UK, September 2012;
 - 4th meeting of the MSDIWG, Copenhagen, Denmark, February 2013;
 - 5th meeting of the MSDIWG; Silver Spring, Maryland, USA, February 2014;
 - 5th Extraordinary International Hydrographic Conference (EIHC-5), Monaco, October 2014;
 - 6th meeting of the MSDIWG, London, UK, March 2015;
 - 7th International Conference on High Resolution Surveys in Shallow Water (Shallow Survey 2015), Plymouth, UK, September 2015;
 - 7th meeting of the HSSC, Busan, Republic of Korea, November 2015;
 - 7th meeting of the MSDIWG, Tokyo, Japan, January 2016.
63. In addition, IHO led stakeholders' sessions were included in the following events organized by partner organizations:
 - Conference of The Hydrographic Society UK - *Digital Hydrography on the Maritime Web / Embracing the Challenges and Opportunities*, Southampton, UK, October 2013;
 - Hydro14, Aberdeen, UK, October 2014;
 - Hydro15, Cape Town, South Africa, November 2015.

Element 1.4 Work Programme & Budget, Strategic Plan and Performance Monitoring

64. This element of the work programme concerns the execution of the IHO work programme, the future structure and organization of the IHO and its capacity to meet future requirements.

Financial situation

65. As reported in the Finance Report, the finances of the Organization remain healthy. The Secretariat pursued a conservative budget and closely monitored expenditure, making several adjustments during the reporting period that minimised expenditure, such as the renegotiation of several insurances, and support contracts, and the incorporation in the revised Staff Regulations of a reduction in travel allowances in line with other comparable organizations. The report on the finances of the Organization is submitted separately for the consideration of the Assembly (see Assembly document A.1/F/01).

Staff Regulations

66. The adoption by Member States of a new edition of the Staff Regulations in 2016 marked the end of a protracted revision process originally intended to be undertaken by a working group made up of Member States. After more than seven years' of very limited progress, and as agreed by the EIHC-5, the task was completed by the Secretariat in 2015 under the oversight of the working group. The new edition of the Staff Regulations entered into force on 1 January 2017.

Programme management, performance monitoring and risk assessment

67. The processes for programme management, performance monitoring and risk assessment described in the current edition of the Strategic Plan have been difficult to implement in a meaningful way. This was reported to Member States regularly and resulted in the EIHC-5

deciding that the Directing Committee increase the frequency of reporting by collecting and compiling bi-annual reports from all the IHO and associated bodies. However, this did not make a significant difference to the original problem of obtaining the necessary input from the various IHO bodies, particularly obtaining reports from the Chairs of Regional Hydrographic Commissions (RHCs).

68. Annex A provides the values of the strategic performance indicators for the period 2012-2015. At the time of writing, the values for 2016 were not available.
69. As a result of the above and other factors related to minimising the workload on all those involved, the Secretariat sought and has taken into account input from Member States, the IRCC and HSSC with regard to the current Strategic Plan and associated reporting mechanisms. As a result, the Secretariat is proposing a number of changes to the Strategic Plan adopted in 2009 in order to make the programme management, performance monitoring and risk assessment process more meaningful and easier to implement in future (see Assembly document A.1/WP1/03).
70. In addition to several editorial amendments that reflect the revised Convention, a number of new topics, including *the blue economy, an open data environment, crowd sourcing, and disaster preparedness and response* have been introduced in the revised Strategic Plan. The description of the implementation of performance indicators has been clarified. The description of the risk management framework has been generalised, and the specific example relating to the risk analysis provided in Annex A to the Strategic Plan, adopted by the IH Conference in 2009, has been removed. An updated risk analysis for 2017, based on the methodology described in the Strategic Plan is being submitted separately for the consideration of the Assembly, in support of the proposed 3-year work programme 2018-2020 (see Assembly document A.1/WP1/02).
71. The Secretariat is also proposing a number of revisions to IHO Resolution 12/2002 – *Planning Cycle* in order to reflect the planning and reporting requirements and timetable resulting from the changed arrangements under the revised Convention and the establishment of the Council. The version approved by EIHC-4 is composed of two cycles addressing respectively the maintenance of the Strategic Plan and the preparation of the 3-year Work Programme. In order to facilitate the implementation of the process, the revised text proposes to refine and re-arrange the provisions according to two cycles addressing respectively Assembly years on the one hand and non-Assembly years on the other hand (see Assembly document A.1/WP1/04).

Element 1.5 Management of the Secretariat

72. This element covers the provision of a range of secretariat and other services required by Member States and relevant stakeholder organizations.

Staff Numbers

73. For the majority of the reporting period, the Secretariat comprised 19 Members of Staff, supplemented by three officers seconded by Member States to work on specific projects otherwise beyond the resources of the Secretariat. An additional permanent position was established in 2016, in accordance with the approved IHO Budget, for the post of Technical Standards Support Officer in relation with the implementation of Programme 2.

Seconded Officers

74. One officer each from the Korea Hydrographic and Oceanographic Agency and the Hydrographic and Oceanographic Department of the Japan Coast Guard have been posted to the Secretariat throughout the period. The officer from Korea has been replaced every year, whereas the officer from Japan has been seconded for longer periods of between two and three years. The longer secondments are less disruptive both to the personnel involved and the staff

of the Secretariat. An officer from the Directorate of Hydrography and Navigation of Peru was seconded to the Secretariat from March 2015 to December 2016.

Retirements

75. Several long-standing members of the Secretariat staff retired during the reporting period. Ms Pascale Bouzanquet, French Translator, retired at the end of August 2015, having joined the Secretariat in 1989. Ms Perrine Brieda joined as her replacement. Assistant Director Michel Huet retired in June 2014 after 24 years' service and was replaced by Assistant Director Yves Guillam, formerly from the French Hydrographic Service (SHOM). Ms Barbara Williams, Head of Registry, retired at the end of April 2016, having joined the Secretariat in 1979. Ms Lorène Chavagnas joined the administrative staff upon the retirement of Ms Williams.

Workload

76. The principal tasks of the administrative staff in the Secretariat involve the management and production of IHO documentation. The Secretariat continued to translate key documents into French and Spanish through the use of its translation staff, who were employed primarily on the translation of Circular Letters and other correspondences of the Secretariat. The volume of this work continued to rise, particularly because of the technical complexity of some of the required translations and the need to ensure a very high equivalence of meaning. This meant that no significant progress was made on the backlog of active IHO publications that await translation into the French and Spanish languages other than the maintenance of those publications that have already been translated.
77. The workload of the President, Directors and Assistant Directors remained at a very high tempo throughout the reporting period. This has been caused by a combination of increases in administrative and reporting requirements, greater levels of liaison with other international organizations and stakeholder groups, together with the already significant number of meetings and visits involving the Secretariat Staff. As a result, the senior staff are fully stretched.

The need for additional permanent staff in the Secretariat

78. Taking into consideration the very high workload placed upon the senior personnel in the Secretariat, consideration will need to be given during the period 2018-2020 to increasing the number of locally recruited employees in the Secretariat by up to two, particularly if funds become available as a result of new Member States joining the Organization.
79. The introduction of an annual session of the Council, the increased frequency of meetings of the RHCs, the increased activity of the representational roles of the Secretary-General and Directors, and the, planning, reporting and risk analysis responsibilities explicitly placed upon the Secretary-General all point to a requirement for an additional locally recruited managerial member of staff to undertake the role of Chief of Staff and assistant to the Secretary-General.
80. The ability of the Secretariat to provide full administrative support to the IHO Capacity Building Programme and to the International Board on Standards of Competence (IBSC) has been raised consistently by the relevant bodies and the provision of additional staff has been endorsed in principle by the IRCC. The recruitment of an experienced administrative assistant to support the clerical, reporting and administrative aspects of the CB and IBSC tasks is warranted.

Element 1.6 International Hydrographic Conferences or Future Assemblies

81. The 5th Extraordinary International Hydrographic Conference (EIHC-5) was held in Monaco from 6 to 10 October 2014. As a result of the entry into force of the revised Convention on the IHO on 8 November 2016, planning for the XIXth International Hydrographic Conference was

adjusted to enable the First Session of the IHO Assembly to take place, on the same dates and at the same venue as previously planned for the Conference.

Actions required of the Assembly

82. The Assembly is invited to:

- a) **note** the report on the execution of programme 1;
- b) **approve** the proposed revisions to IHO Resolution 12/2002 – *Planning Cycle*;
- c) **approve** the proposed revisions to the IHO Strategic Plan;
- d) **note** the requirement to increase the permanent staff in the Secretariat as soon as finances allow.

Report on Strategic Performance Indicators – 2012-2015

No PI	Designation	Source	Status 31 Dec 2012	Status 31 Dec 2013	Status 31 Dec 2014	Status 31 Dec 2015	Status 31 Dec 2016
SPI 1	Number and percentage of Coastal States providing ENC coverage directly or through an agreement with a third party.	WEND WG through RHCs	No suitable information available at the Secretariat	No suitable information provided by RHCs. IHB estimate ~60%	No suitable information provided by RHCs. IHB estimate ~64%	No suitable information provided by RHCs IHB estimate:~66%	<i>Information not available when this report was compiled (January 2017)</i>
SPI 2	Growth in ENC coverage worldwide, as reported in the IHO on-line catalogue, relative to the existing gap in adequate coverage (as defined by IMO/NAV) from the benchmark 01 Aug. 2008.	WEND WG and IHO on-line catalogue of coverage	Small scale: ~ 100% Medium scale: 88% Large scale: 95%	Small scale: ~ 100% Medium scale: 90% Large scale: 96%	Small scale: ~ 100% Medium scale: 91% Large scale: 97%	Small scale: ~ 100% Medium scale: 92% Large scale: 97%	<i>Information not available when this report was compiled (January 2017)</i>
SPI 3	Percentage of Coastal States which provide hydrographic services, directly or through an agreement with a third party, categorized by CB phases, as defined by the IHO Capacity Building Strategy.	CBSC through RHCs	No suitable information available at the Secretariat	No suitable information available at the Secretariat	No suitable information available at the Secretariat	No suitable information available at the Secretariat	<i>Information not available when this report was compiled (January 2017)</i>

No PI	Designation	Source	Status 31 Dec 2012	Status 31 Dec 2013	Status 31 Dec 2014	Status 31 Dec 2015	Status 31 Dec 2016
SPI 4	Percentage of "acceptable" CB requests which are planned. <i>(Percentage of submitted CB requests that were approved)</i>	CBSC	97%	75%	97%	93%	<i>Information not available when this report was compiled (January 2017)</i>
SPI 4 bis	Percentage of planned CB requests which are subsequently delivered.	CBSC	73%	86%	82%	79%	<i>Information not available when this report was compiled (January 2017)</i>
SPI 5	Number of standards issued (including new editions), per category ¹ : - hydrographic standards to enhance safety of navigation at sea, - protection of the marine environment, - maritime security, - economic development.	HSSC	9 <i>Safety of navigation: 8 Protection of the marine environment: 1 Maritime security: 0 Economic development: 1</i>	4 <i>Safety of navigation: 2 Protection of the marine environment: 2 Maritime security: 0 Economic development: 1</i>	5 <i>Safety of navigation: 4 Protection of the marine environment: 0 Maritime security: 0 Economic development: 1</i>	4 <i>Safety of navigation: 4 Protection of the marine environment: 0 Maritime security: 0 Economic development: 0</i>	<i>Information not available when this report was compiled (January 2017)</i>

¹ Versions of standards developed originally in English, which are issued in other languages later on, are not accounted.

No PI	Designation	Source	Status 31 Dec 2012	Status 31 Dec 2013	Status 31 Dec 2014	Status 31 Dec 2015	Status 31 Dec 2016
SPI 6	Number of potential new IHO MS (indicated by the start of the application process) relative to the number of "non-IHO" IMO MS.	Secretariat through the Government of Monaco	8 / 89 <i>Number of IMO MS: 170</i> <i>Number of IHO MS: 81</i>	7 / 88 <i>Number of IMO MS: 170</i> <i>Number of IHO MS: 82</i>	7 / 88 <i>Number of IMO MS: 170</i> <i>Number of IHO MS: 82</i>	8 / 86 <i>Number of IMO MS: 171</i> <i>Number of IHO MS: 85</i>	<i>Information not available when this report was compiled (January 2017)</i>
SPI 7	Increase in participation / membership in RHCs.	IRCC through RHCs	No suitable information provided by RHCs Secretariat estimate: MS participation: 91% Non MS participation: 47%	No suitable information provided by RHCs Secretariat estimate: MS participation: 83% Non MS participation: 25%	No suitable information provided by RHCs Secretariat estimate: MS participation: 75% Non MS participation: 29%	No suitable information provided by RHCs Secretariat estimate: MS participation: 84% Non MS participation: 60%	<i>Information not available when this report was compiled (January 2017)</i>
SPI 8	Percentage of available / agreed ENC [production] schemes.	WEND WG through RHCs or International Charting Coordination Working Groups (ICCWG)	No suitable information provided by most RHCs	No suitable information provided by most RHCs	Secretariat estimate for UB1, 2 and 3 based on existing coverage: ~80%	Secretariat estimate for UB1, 2 and 3 based on existing coverage: ~82%	<i>Information not available when this report was compiled (January 2017)</i>