INTERNATIONAL HYDROGRAPHIC ORGANIZATION

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INTERNATIONAL BOARD ON STANDARDS OF COMPETENCE FOR HYDROGRAPHIC SURVEYORS AND NAUTICAL CARTOGRAPHERS (IBSC) - REVISION OF THE STANDARDS

References:
A. IHO Publication S-5 Standards of Competence for Hydrographic Surveyors (Ed. 11.0.1)
B. IHO Publication S-8 Standards of Competence for Nautical Cartographers (3rd Ed.)
C. Report of Proceedings XVIIIth International Hydrographic Conference, Vol. 2 (Rev.1)
D. CL 98/2012 dated 16 November - *Finalised IHO Work Programme for 2013*
E. IHO Resolution 2/2007 - *Principles and Procedures for Making Changes to IHO Technical Standards and Specifications*

Dear Hydrographer,

1. Among its tasks, the International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) revises the recommended minimum Standards of Competence for Hydrographic Surveyors and Nautical Cartographers.

2. The Board has recognized the need for the Standards to continue to evolve in order to meet contemporary and future requirements. The Board believes that a fundamental change to the structure of the Standards is now required. A proposed new structure will have separate Standards for Category A and for Category B programmes, both in S-5 (Reference A) and in S-8 (Reference B). The need for this was recognized by the XVIIIth International Hydrographic Conference that noted the Report of the IBSC Chair and approved Task 3.3.9 in the 2013-2017 IHO Work Programme and 3.3.9.1 in the 2013 IHO Work Programme (References C and D respectively):

> *3.3.9 IBSC to develop a new Standards framework to separate competency requirements for Cat A and Cat B hydrographers and nautical cartographers by developing two discrete parts in the standards S-5 and S-8 and update their content to comply with the scientific and technological developments in the fields of Hydrography and Nautical Cartography.*
>
> *3.3.9.1 IBSC to develop a new Standards framework to separate competency requirements for Cat A and Cat B.*

3. In line with the IHO policy concerning the revision of established technical standards (Reference E), the Board recognizes the benefit of feedback and contributions from the broad range of stakeholders in order to ensure that any revision of the existing standards take into account the requirements and expectations of the stakeholders.

4. In order to promote discussion and obtain feedback on the nature of the next round of changes being proposed by the IBSC, its Chair has provided a White Paper entitled "*Towards New Standards of Competence for Hydrographers and Nautical Cartographers*". The paper explains the principal reasons for the next review of the S-5 and S-8 Standards and the underlying thinking. A summary of the key points in the White Paper are shown in Annex A to this letter. The White Paper is available from the IHO website in the IBSC web page:

www.iho.int/IBSC > IBSC36 > Doc. IBSC36-03

5. Member States and other stakeholder organizations are invited to review the proposals set out in the IBSC White Paper and to provide comments and suggestions, if any, to the IHB **no later than 27 March 2013**. This will enable any feedback to be considered at the 36th meeting of the IBSC in Lisbon (Portugal) in April 2013.

6. Member States are encouraged to distribute the information contained in this letter to all relevant stakeholder institutions and organizations seeking their views and input. Any input from these stakeholders may be forwarded directly to the IHB and will be passed to the IBSC, together with any input from Member States. It is particularly important to obtain the views of any Member State or stakeholder organization that is not in agreement with the way ahead proposed by the IBSC. Such objections should be supported by reasons.

On behalf of the Directing Committee
Yours sincerely,

Mustafa IPTES
Director

Annex A: Key Points from IBSC White Paper

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KEY POINTS FROM IBSC WHITE PAPER

- *New use of the seas has shifted the hydrographic products from those intended mainly for navigation safety to a wide variety of deliverables, motivated by emergent fields like energy production (wind farms, marine turbines, etc.), marine environment understanding and protection (habitat mapping, coastal erosion monitoring, coral reef mapping, etc.), remote sensing bathymetry (using bathymetric LiDAR, AUVs, ASVs, or satellite data). Field operations are and will be conducted in the near future at a wide variety of scales: from detailed port infrastructure inspection survey to regional satellite bathymetry.*
- *To respond to these new challenges, equipment and software are becoming more and more sophisticated and automated. We are now dealing with hydrographic systems (being by essence kinematic mapping systems), composed of complex sensors incorporating a high level of technology and embedded software.*
- *The increasing complexity of field operations with added requirements for skills such as project management, financial acuity and broader professional aptitude with greater cross discipline experience and exposure - in some cases without actual seamanship skills (LiDAR operations perhaps or port based operations) requires consideration and definition.*
- *The increasing amount of data that are collected need to be processed (cleaned, controlled, generalised), and integrated in marine geospatial data management systems. Data processing and management systems incorporate advanced numerical methods enabling the hydrographer access to high-level models built from multi-sensors raw datasets. These stretch the knowledge required by hydrographers.*
- *Technology in the field increasingly requires better qualified technicians and operators who may not be required to go further than a consolidated Category B programme. This apparent conflict is compounded by the increase in demand for competent hydrographers. More and more there is little time available as busy individuals attempt to balance their work and leisure life. The challenge in its broader sense is to be able to provide adequate technical foundations combined with appropriate practical exercises but without removing the individual from their work environment for too long a period or requiring the educational organization to invest in complex and expensive equipment that may only be used a few weeks per year.*
- *The influence of blended, direct and distance learning initiatives is beginning to have an impact. The growing perception now is that modular, educational courses coupled with intensive time on practical and field work may offer a solution that combines the desires of individual and course providers through a flexible approach to the selection, completion and assessment of course elements making up. For the Board these must be of adequate time and rigour as well as accumulating into a comprehensive cover of any minimum Standards.*
- *In the framework of these new challenges the Board has decided to strengthen the importance of programme review as a process for evaluating and continuously enhancing the quality and currency of programmes. The evaluation will be conducted through a combination of self-assessment, followed by peer on-site consultation by members of the Board, for the mutual benefit of all parties. In addition, a visit will serve to raise the profile of hydrography and nautical cartography nationally and regionally.*
- [Both Categories A and B syllabuses] *…will be designed and developed independently. The rationale behind the separation of the Category A and Category B requirements and the intended outcome of Category A and Category B education/training is as follows:*

    a. ***Category A*** *hydrographic surveyors and nautical cartographers, with appropriate experience, will be project leaders. They will design and plan the survey or the cartographic product, choosing appropriate technology, appropriate scale, and will select and supervise the team competing the survey. They should be completely familiar with the underlying physics and mathematics of the survey or cartographic systems employed, and should be able to evaluate results against expectations. In the Navy, this would be the hydrographer in charge of a major survey unit, or a supervising cartographer. In*

industry, this would be the lead hydrographer for a major project. Category A trained surveyors will most likely have completed a technical degree (surveying, math, physics, computer science, earth science, etc.).

b. ***Category B*** *hydrographic surveyors and nautical cartographers, with appropriate experience will be watch leaders on a survey vessel or cartographic team leaders. In the Navy, this might be a junior officer who is in charge of a survey launch or a senior petty officer who manages the data for a survey unit. In the private sector, it might be a team leader in charge of a small survey vessel for harbour or localized surveys, or a watch leader on a large survey operation. They will typically report to a Category A project leader. Category B trained surveyors may have technical degrees, but a technical degree is not necessary. Technical diploma, business degree, or liberal arts degree should provide satisfactory preparation.*

- *A Category A program will introduce the topics from the beginning at the underlying principles level. A Category B program will introduce the topics from a practical level. According to the above, Category B standards will be aimed at the basic educational and training requirements for hydrographic technicians and field hydrographers (S-5), and nautical cartographers (S-8). Category A standards will be aimed at the theoretical educational and foundational background necessary for Hydrographers/Nautical Cartographers-In-Charge and hydrographic/cartographic managers who will develop specifications for surveys and charts, establish quality control and quality assurance systems, and respond to the specific requirements of a full range of hydrographic/cartographic projects.*

- *For both Category A and Category B standards, the ability to conduct or operate hydrographic surveys in the field or utilize hydrographic/cartographic databases to compile and produce charts, remains an essential competence, and thus an essential part of education and training through the necessity of practicals (field exercises/projects).*

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International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)
International Association of Geodesy (IAG)
International Association of Ports and Harbours (IAPH)
International Cartographic Association (ICA)
International Federation of Hydrographic Societies (IFHS)
International Federation of Surveyors (FIG)

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