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FIG Commission 4
Working Group 4.1
Hydrographic Standards and Guidelines Review Submission

WG 4.1 Submission/Response Reference #: 1/16
(WG 4.1 use only)

Contributor(s) From:	**Received by: FIG Working Group 4.1 Chair:**
SSSI Hydrography Commission National Committee (HCNC) SSSI/NZIS Australasian Hydrographic Surveyors Certification Panel (AHSCP)	Simon Ironside
Date(s): 30 Mar- 4 Apr 2016	Date: 4 Apr 2016

Submission related to Standard #/Guideline #: S5A

Organisation Responsible (Owner/Coordinator): IHO

IHO Working Group or Committee Responsible (Owner/Coordinator): IBSC

General Comments/Overview of Standard/Guideline:

WG 4.1 reviewed the draft standard. WG members consider the content of the draft to be a fair and reasonable representation of the minimum level of competencies required of a practicing hydrographic surveyor.

S5B/S5A Consistency. Some concerns were raised regarding the level of consistency between this draft standard and S5B (eg. in terms of the way the syllabus is defined). In S5B subjects are defined in terms of Essential and Basic whereas in S-5A reference is made to Basic, Foundation Science, and Hydrographic Science.

Comment was also made on the grouping of subjects. For example, Trigonometry is reflected in **topic** B1.3 in S-5B but as **element** F1.6a in S-5A.

Course Timeframes. There appears to be an issue regarding timeframes. The minimum duration of programmes is not as clear as it could be. Some courses are run with **elements** every day, each day of the week until complete whereas universities or colleges may run the same **elements** across one to three years. The use of the term '1 academic year (ie. two full semesters) (of 15 weeks including assessments) or equivalent' is ambiguous. To which academic facility is IHO/IBSC benchmarking and how are the 15 weeks timetabled? The duration of **topics/elements** need to be clearly defined/stated at the start of the document (ie. on P. 3). An explanation might be considered along the following lines:

> "If the course was to be run in a continuous manner until completion (eg. 6 hrs per day) it is expected the minimum course duration would be **XXX** weeks or approximately **XXX** hours of classroom, practical and assessment."

The timeframes also neglect to consider Recognised Prior Learning (RPL) which may allow a course to run for less time. RPL may include someone who had previously completed a Cat B/S5B course or survey degree etc.

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This is obviously a matter for the institution to resolve in terms of how they might realise a timetable cognisant of students demonstrating RPL. Notwithstanding, it is recommended the issue of RPL should be mentioned within the current draft Standard as a clarifying point and as a potential means of reducing course duration.

Recommendations. Most of these issues are considered minor in nature that generally do not detract from the document in its current form. While it is recommended the issue of timeframes and RPL be considered and addressed in the current draft edition **prior** to IRCC endorsement and publication, he remaining consistency issues noted by the WG might be considered and if necessary addressed in future iterations of the Standard.

Specific Comments (*include separate page(s) if required*)

Clause or Paragraph	Page #	Recommended Change, Amendment or Comment
General – various clauses	7	Confusion between spelling of *centre* & *center* eg. B3.2 Gravity. Majority of document uses *centre,* suggest this is the accepted spelling. Document need general tidy up for consistency – table centring/font size/spelling etc.
Definitions *Topics and Elements*	3	Should read …. 'Each Foundation, Hydrographic Science or Basic subject comprises a list of *topics* …..'
Definitions *Learning Outcomes and List of Content*	3	Should read 'an intended *learning outcome*, that a student should be able to achieve on completion of …'
Basic Subjects *B1.4 Probability and Statistics*	5	In terms of sequential numbering, should this topic read B1.3 with the associated elements reflecting B1.3a and B1.3b? Preceding topics reflect B1.1 and B1.2.
H1.5 *Subsea Positioning*	19	Subsea positioning is a major IOS function, agree with the inclusion of systems/principles/error analysis of LBL/SBL/USBL etc. systems but H1.5 appears as an afterthought. Suggest this is expanded to include an overview of subsea positioning application, particularly an introduction to metrology
H3.1c *Terrestrial LiDAR*	24	This element needs to be separated from Airborne LiDAR for bathymetry and terrain. Terrestrial LiDAR from a vessel has become a significant commercial capability and is within the financial capability of many smaller companies. Vessel based LiDAR is used to provide above water analysis for engineering and environmental purposes and needs to be correctly integrated into the bathymetric dataset. H3.2c does not cover the topic with respect to methodologies. The syllabus should cover 'Vessel based LiDAR for shoreline and construction' as a separate module: a. methods of calibration and validation for vessel based LiDAR systems; b. establishing shore control for vessel LiDAR;

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		c. accuracy and errors (it is also recommended there be a qualitative expectation of a realistic and achievable level of uncertainty written into S44); d. differentiation between setups of MBES and vessel LiDAR identifying the important changes required in physical positions of equipment and software setups. (As a case in point, many would only have one MRU/INS and therefore how does this change your setup and why?); and e. simultaneous acquisition of MBES and vessel LiDAR. How is this achieved? What are the methodologies?
H8.1a *Responsibilities of the hydrographic surveyor*	38	The content for this element might also include the importance of certification (which is not mentioned/referenced). This would cover off on any concerns regarding the competency of the hydrographic surveyor in particular hydrographic disciplines. While the content mentions legal issues and liability associated with hydrographic products, and additional area of responsibility for the hydrographic surveyor that could be considered is 'Liability and types of insurance; personal liability, professional indemnity, and public liability'.

Submission reviewed, endorsed, and forwarded to Commission 4 Chair for consideration by: HSSC, HSSC WG or IBSC (*circle appropriate body/area of responsibility*)

WG 4.1 Chair: L.S. IRONSIDE Date: 4/4/16