



FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:
Resilient Environment
and Sustainable
Resource Management
for All

Presented at the FIG Working Week 2024,
19-24 May 2024 in Accra, Ghana

Hydrographic and Cartographic Competency Standards - updating the FIG/IHO/ICA S5A and S5B Standards, Challenges and Opportunities

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Role of the IBSC

Maintaining International Hydrographic Organization Publications S-5A and S-5B (Hydrography) and S-8A and S-8B (Cartography) See:

<https://iho.int/en/standards-and-specifications> plus for documents

https://iho.int/uploads/user/pubs/standards/s-5/S-5A_Ed1.0.2.pdf or

https://iho.int/uploads/user/pubs/standards/s-5/S-5B_Ed1.0.1.pdf and guidelines here

https://iho.int/uploads/user/pubs/standards/s-5/S-5_S-8-Guidelines-Ed_2.1.4_final.pdf

Review syllabi and delivery of programmes from education and training institutions (Recognition)

Review and recognise individual recognition schemes (since 2012)

Provide guidance to IHO and institutions on the establishment of new programmes

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IBSC Membership

12 Board members: 4 FIG, 4 IHO, 4 ICA

Chair: Capt. Nickolás Roscher (IHO)

Vice-Chair 1: Sobri Syawie (FIG)

Vice-Chair 2: Emeritus Prof. Dr. Lysandros Tsoulos (ICA)

FIG – Gordon Johnston; Adam Greenland and Prof. Dr. Harald Sternberg

IHO – Capt. Andrew Armstrong; CDRE Rod Nairn & CDR(R) Felipe Barrios

ICA – CDRE J Gurumani; Pablo SÁNCHEZ Gámez; Dr. Manuela Milli





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Mr Sobri Syawie , Dr Paulo Sánchez Gámez, CAPT Leonel Manteigas (Secretary), Mr Adam Greenland, Capt. Andrew Armstrong, Dr. Manuela MILLI, BSH Director Helge Heegewaldt, CDRE Rod Nairn, Prof. Dr. Harald Sternberg, Mr Gordon Johnston, CAPT Nickolás Roscher (Chair), Felipe R. Barrios Burnett, Prof. Dr. Lysandros Tsoulos,

Missing: CDRE J Gurumani



IBSC – Hamburg Germany, April 2024





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Recent Activities

Expansion of the Board

From 10 to 12 (additional 2 carto) to spread workload

Recognise individual subjects from the S-5A and S-5B syllabi

(Guidelines currently being drafted)

Following implementation an institution may offer Full Subject “Short courses”

Institutions may apply to combine Subject modules from multiple institutions to enable completion of a full S-5A or S-5B programme - details

WHY?

to make quality Hydrographic education more obtainable – and economically viable

To support Individual Professions Certification scheme – fill gaps in individual’s

knowledge

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History of Revision of the Standards

- 1972 – need for international standards for hydrographic surveyors identified
- 1978 – First edition of the Hydrographic competency published at A and B levels – endorsed by FIG and IHO

These standards incorporated need for practical experience before award of qualification

1994 Edition 7th Edition removed the specific requirement for practical experience from the M-5 standards – *now purely academic*.

This led to the formation of AHSCP and other individual surveyor competency schemes

2014-17 – Full revision of the standards resulted in separate standards for S-5A and S-5B

Level of knowledge for each element of the standard substantially different between Cat A and Cat B

Cat B programme could no longer be used as a credit towards Cat A

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The Case for Revision of Standards – S-5A & S-5B

Since 2017 - Massive changes impacting the field of hydrography:

Survey/Sensor Technology

MBES, frequency agile, ping rate, CHIRP, ACDP, autonomy, remote operations, SDB, Satellite Lidar...

Data volumes

sounding density, water column data, statistical data processing methods, hydrographic data management challenges...

Information Technology

processing power, visualization, transfer speeds, cloud storage, cloud computing...

Products - S100 HDM and multiple product specifications...



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Challenges - Revision of Standards – S-5A & S-5B

S-5A syllabus is already challenging – Most educational institutions can't make the programme any longer and fit into academic schedules

Lots of things to add – we all agree ... but what **MUST** we add?

WHAT CAN WE TAKE OUT? - no agreement here! –

some want more maths, physics and computer science – some want less

Can we remove traditional survey techniques? Sextant, Theodolite, sun azimuths...

Should a Category S-5A mean you know everything about hydrography, to what level of knowledge?

Or should there be additional syllabi for deep specialisms such as:

Hydrographic data management, Statistical processing methods, Cloud computing methods

Autonomous survey methods, Space based hydrography...



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Revision Plan

The IHO executive group, the IRCC, endorsed a plan to review the S-5A Timeline – aim to have a revision by **Mid 2026**

First consultation workshop took place in London Nov 2023 and a second Consultation Workshop took place in Hamburg April 2024

IHO Circular Letter will go to Member States this Semester

FIG Commission 4 discussions at Working Week, Ghana - May 24

Expect further consultation workshops – or discussions at hydrographic conferences – drafts circulated for comment 2025

FIG Working Week Brisbane – 6-10 April 2025

2026 Draft submitted for approval of IHO member states / FIG / ICA

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IBSC Industry Consultation Workshop –
London November 2023



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Key Questions - Revision of Standards - S5A & S5B

So, some questions:

How much foundation theory is needed? – more computer science, less maths?

Does the Hydrographic surveyor need to go to sea?

Does the S5A programme need to teach Nautical Skills?

Does the surveyor still need to know about traditional survey methods?

Should the syllabus be more theory and less practical or vice versa?

What new technologies need expanded theory cover?

Should we introduce specialisms above and beyond Cat A level?

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Final Words

Member States, Industry Partners and Submitting Institutions

Support your institutions providing Category A and Category B Programmes

Take an interest in the revision of the standards

Provide feedback either directly to IBSC or via your National Hydro Office

Tell us what we need to change – and what we should keep





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Thank You!

Please send any thoughts or feedback to:
IBSC (at) iho.int and
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Commission #4 Hydrography

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