Hydrography and Cartography education: New challenges, new standards

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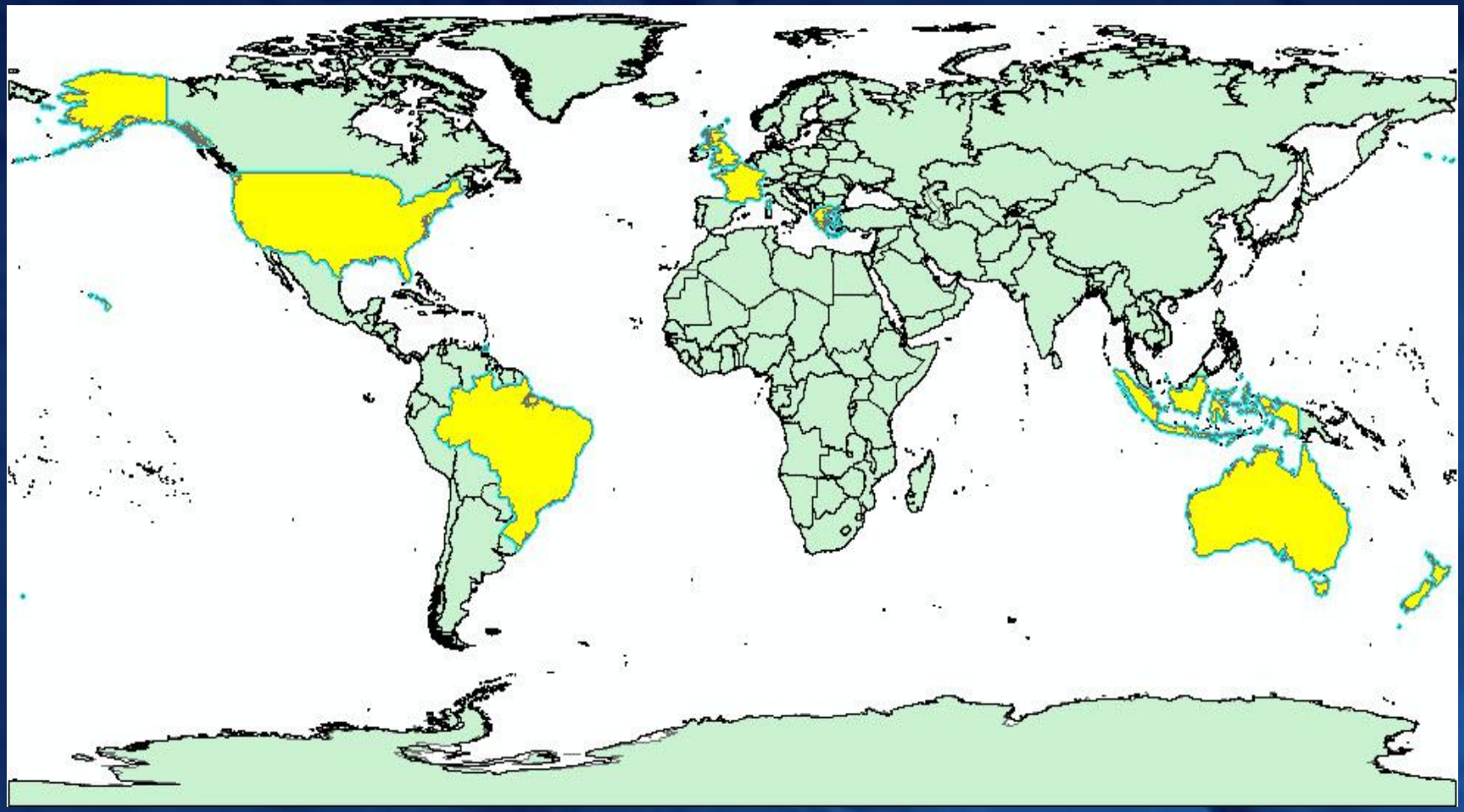
FIG/IHO/ICA International Board for Standards of Competence (IBSC) for Nautical Hydrographers and Cartographers

The International Board for Standards of Competences

- 10 members from parents organisations (4 FIG, 4 IHO and 2 ICA), from governemental, educational and civil sector;
- Experienced professionals in education, hydrography and cartography, from various areas of the world (Australia, Brazil, France, Caribbean, Greece, Indonesia, New Zealand, UK, USA)

IBSC Members Distribution



The role of the Board

- **Review** syllabi of programmes and individual recognition schemes from education and training organizations (50 recognized programs, around 15-18 submissions in Dec. 2015);
- **Maintain IBSC publications**
- **Provide guidance** to education and training institutions;
- **Supports the IHB in the establishment of new hydrographic programs where regional training capacity does not exist.**

S-5: Standards of Competence for Hydrographic Surveyors

S-8: Standards of Competence for Nautical Cartographers

S-5 and S-8 Categories

Both S-5 and S-8 currently define standards of competence at 2 levels:

- **Category A**
- **Category B**

IBSC is now drafting new Standards that

- **Separates each of the standards at the two levels to offer fours standards: S-5A, S-5B, S8A and S-8B.**
- **Updates content of the standards to comply with the scientific and technological developments in the fields of Hydrography and Nautical Cartography.**
- **Realises that there have been technological developments to support teaching and learning**
- **Uses a framework aligned with modern educational practice.**

Mobile mapping systems

Environment

Acoustics, LiDAR

Geodesy and Inertial measurements

Positioning (surface, subsea)

Acquisition devices and software

Data processing and visualization tools

ADDED COMPLEXITY

Hydrographic education

Processing

Analysis

Sounding selection, generalization

WIDE VARIETY OF COMPETENCES

Physics

Applied mathematics

Information Technologies

Cat. A/B level

Reactivity

Autonomy

Independent thinking

Hydrography/Cartography Education and Training

Hydrographic Services

Hydro/Carto systems and processing tools

Industry

Category A

Cat A standards are aimed at *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;
- respond to the specific requirements of a full range of hydrographic/cartographic projects.

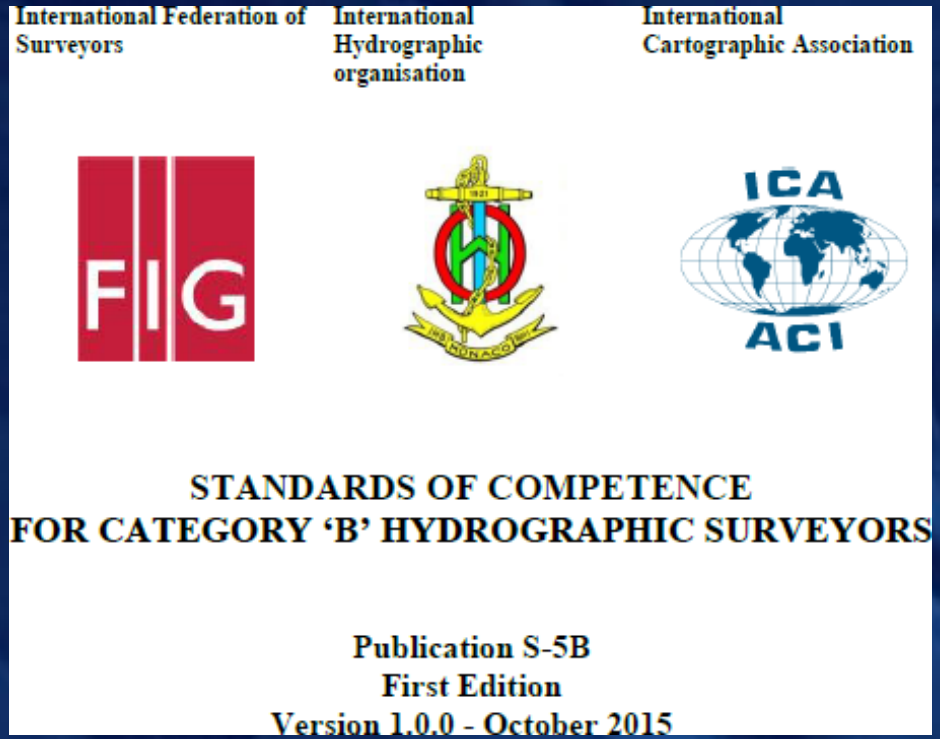
Category B

Category B:

- Watchleader : reports to a category A project leader
- Should be familiar with fundementals and practical aspects of hydrographic surveying and/or cartographic works
- In the Navy : junior officer in charge of a survey launch
- In the Industry: team leader in charge of localized surveys

Standards are aimed at the *Basic educational level and training of survey technicians*

New Category B Standards: S-5B, in force by January 2016



International Federation of Surveyors

International Hydrographic organisation

International Cartographic Association

STANDARDS OF COMPETENCE
FOR CATEGORY 'B' HYDROGRAPHIC SURVEYORS

Publication S-5B
First Edition
Version 1.0.0 - October 2015

- S-5A, January 2017
- S-8B, January 2018
- S-8A, January 2019

Practical components

For both categories, the ability:

- to conduct or operate hydrographic surveys in the field;
- to utilize hydrographic/cartographic databases to compile and produce charts,

remains a fundamental competence, and thus an important part of education and training through **practicals** (field exercises and/or projects).

Competencies are achieved through Education

- **Training** courses = system use;
- **Education :**
  - Methodology and concept understanding;
  - Ability to make appropriate usage of a sensor, data processing technique, etc…
- Hydrography and Cartography requires practical skills, as well as competences;
  - Fieldwork without training is not possible;
  - **Project work without hydrography education is not efficient**.

The standards apply to Educationnal programmes

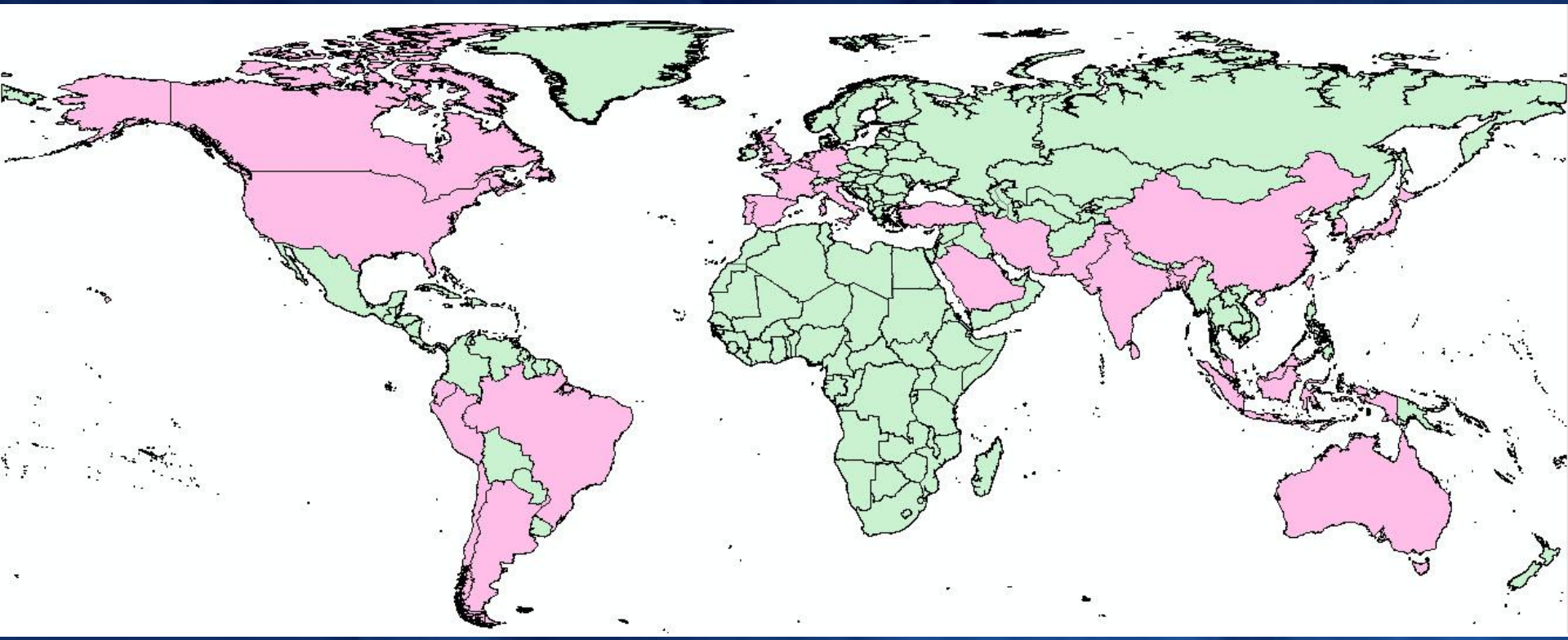
Two of the Port of London Authority vessels used by MSc students for practical work – the Galloper is generally used in near-shore surveys, while the Verifier is capable of operating in the Thames Estuary.

ENSTA Bretagne survey launch

The launch from CCOM UNH

Field training

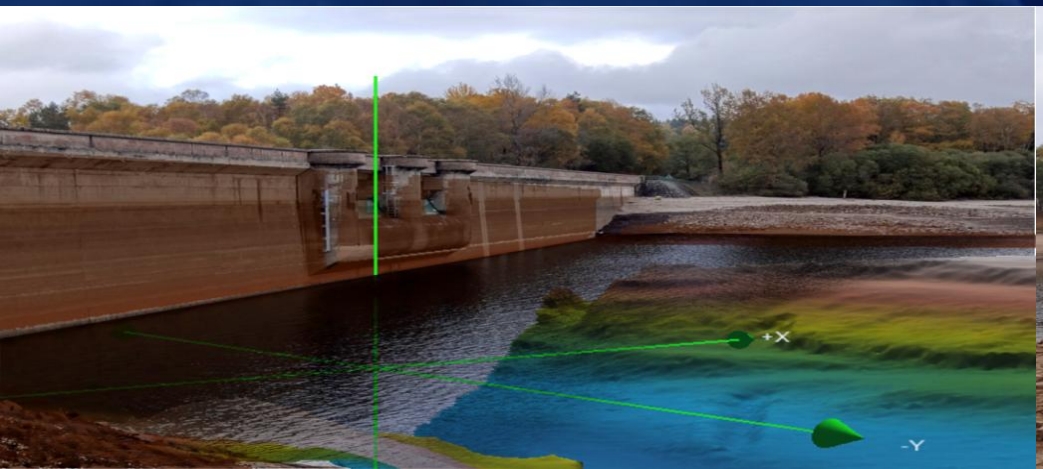
Recognized Course Distribution



Educational Establishments

- Programmes offered to military personnel, typically where the Navy is responsible for hydrography and nautical cartography at national level;
- Commercial organisations;
- Educational establishments such as universities and colleges;

The Board recognises Programmes, not individuals, with recognition being awarded for 6 years.



Recognised Programmes In the Wider Caribbean

There are currently none.

- A programme offered by Columbian Navy to Navy Officers lost recognition (expired) in 2011, there has been some interest in a new offering.
- Programme(s) exist in at least Mexico and Venezuela, but these have not sought recognition;

These programmes may be suited for recognition by the IBSC

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QUESTIONS ?