HSSC5-07.4A

5th Meeting of Hydrographic Services and Standards Committee (HSSC)
5-8 November 2013, Shanghai, China

Status Report on Inland ENC Development and Standardization

Submitted by:	International Inland ENC Harmonization Group (IEHG)
Executive Summary:	This paper describes the activities of the IEHG as it relates to Inland ENC development/implementation in Europe, North and South America, Russia and Asia. In addition to describing the legal authority, structure, organization, and procedures, an explanation is provided about the activities of IEHG in regard to the S-100 GII Registry, S-99 and IHO Working Groups.
Related Documents:	IHO S-57 Edition 3.1 → IHO S-100 → IHO S-101; S-99
Related Projects:	HSSC and TSMAD Work Plans

Objective of IEHG

To develop and to maintain a harmonized standards for an Inland Electronic Navigational Charts (IENC) suitable for inland navigation that are based on the standards of the International Hydrographic Organisation (IHO) for 'maritime' Electronic Navigational Charts (ENC).

Guiding Principles

a. Goal - To agree upon specifications for Inland ENCs that are suitable for all known inland ENC data requirements for safe and efficient navigation worldwide, including Europe, North and South America, Russian Federation, and East Asia inland waterways.

b. The framework for Inland ENC standards includes:

1. Use of **IHO S-57** (Edition 3.1), including:
   - 'Maritime' ENC Product Specification (Appendix B.1)
   - Object Catalogue (Appendix A)
   - Use of Object Catalogue (Appendix B.1, Annex A)
2. A minimum **Inland ENC Product Specification** that includes mandatory requirements for safety-of-navigation on inland waterways, worldwide.
3. An **Inland ENC Encoding Guide** that provides guidance on recommended object classes, attributes, and attribute values for encoding IENC data.
4. Inland ENC **Feature Catalogue**.
5. Establishment of an **Inland ENC Domain** for additional real-world, IENC features, attributes, and enumerations that are not already contained in IHO S-57 Edition 3.1 Object Catalogue in the S-100 Registry.
6. Use of a e-mail based discussion forum as a means of communication.
7. Align with the **IHO S-100** Standard for Geospatial Data, the **IHO S-99** Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry, and **IHO S-101** ENC Product Specification.

Recognition

As the competent international technical group on Inland ENC technical standards development, implementation and maintenance, IEHG is recognized by:

Europe - European Union, Central Commission for Navigation on the Rhine, UNECE, and the Danube Commission.

North America – US Army Corps of Engineers

Russian Federation - Russian Ministry of Transport

South America – Directorate of Hydrography and Navigation of the Brazilian Navy (DHN), Hydrographic Service for Navigation on the Amazon River (SEHINAV) of Peru, and Directorate of Hydrography and Navigation (DHN) of the Venezuela Navy.

East Asia - The Ministry of Transport of the Peoples Republic of China, and the Republic of Korea Hydrographic and Oceanographic Administration (KHOA).

On 14 April 2009, IEHG became recognized as a Non-governmental International Organization (NGIO) of IHO. IEHG supports, advises and provides input to IHO regarding Inland ENC matters. Specifically, IEHG attends:

- Hydrographic Services and Standards Committee (HSSC)
- Transfer Standard Maintenance and Application Development (TSMAD) WG

Composition, Organization, and Membership

a. Composition - IEHG is a combined government/non-government technical group that works towards the development of international standards meant to facilitate the implementation of inland electronic charting and navigation, worldwide.

b. Regions – IEHG regions are comprised of countries within a continent (e.g., South America) or a recognized social-economic region (e.g., Europe, Russian Federation, East Asia).

c. Organization – By simple majority vote, chairpersons, vice-chairs and technical coordinators are elected.

1) Chair – Two persons (co-chairs) each from a different region. Only representatives of waterway authorities can become chairpersons.

2) One vice-chair from each region which is not already a chair.

3) Technical Coordinators - One technical coordinator for each region.

4) Core Group – The two Co-Chairs, the Vice-Chairs and Technical Coordinators.

d. Membership

All the members of IEHG should have current expertise in the field of Inland ENCs.

1) Participants – Anyone who is involved in the production of Inland ENCs or the production of Inland ENC applications, and representatives of user groups can participate in IEHG, make proposals and take part in the discussions.

2) Members - Representatives of competent authorities involved in the provision of Inland ENCs are entitled to become members. If proposed by a competent authority, membership can also include expert contributors, such as representatives of:

- International governmental organizations in the area of inland navigation and members of the working groups of these organizations that are dealing with Inland ENCs
- Inland navigation user groups
- Private companies that are producing Inland ENCs or applications for Inland ENCs.

As of October 2013, membership and/or participation in the work of IEHG includes:

- 39 government authorities
- 66 participants
- 6 international organizations

Efforts continue to encourage more competent authorities of inland waterways to participate.

Current Activities and New Procedures

2013 Annual Meeting

The 11th Meeting of IEHG was held on 15-17 October 2013 in Secaucus, New Jersey, USA. Nineteen (19) persons attended including representatives from four major regions (Europe, North and South America, Asia). Key topics for discussion included updates on IENC activities in the various regions, review and acceptance of change requests, status of IHO S-100, S-99 and S-101 development, IEHG participation in S-100 Registry, and future alignment with IHO S-100 based standards..

Alignment with new IHO S-100, S-99 and S-101

The Inland ENC domain within the S-100 registry is up-to-date. IEHG continues to follow the development of S-101 and intends to align the Product Specification for Inland ENCs with the new Product Specification for 'maritime' ENCs. IEHG will also follow the developments of the Portrayal Register, and intends to establish an Inland ENC Portrayal domain once the final specifications become available. Pending acceptance of HSSC5.05.1E, IEHG plans to name the future Inland ENC Product Specification: **IEHG-101**.

Producer Identifier	IEHG
Organization	Inland ENC Harmonization Group
Identifier	IEHG-101

Change Requests

At IEHG11, eleven (11) Change Requests were reviewed, most of which were adopted. Changes which do not affect the feature catalogue will go into effect in January 2014. Changes which affect the Feature Catalogue will go into effect with the release of the next edition of the IENC Product Specification. There was also discussion with new Member administrations about future change requests that may be needed to accommodate their national requirements.

Effective Dates of IENC Standards

The following table provides a summary of editions, version numbers, and effective dates of the various IENC related standards.

Feature Catalogue & Product Spec	Date effective	**Encoding Guide**	Date effective	**Validation Checks**	Date effective
2.0		1.0	Oct 2005		
	---	1.1	Oct 2006		
	---	1.2	Dec 2006		
2.1		1.3	Feb 2008		
	---	1.3.1	May 2008	2.1	Jun 2010
2.2	Feb 2010	2.2.0	Feb 2010		
2.3	Feb 2011	2.3.5	Mar 2013	2.3	Jun 2013
		2.3.6	[Jan 2014]	2.3 corr 1	[Dec 2013]
IEHG-101 (to be aligned with S-101)	[tbd]				

Alignment of IEHG-101 with IHO S-101

At IEHG11 meeting, several IHO S-101 development-related matters were discussed:

1) Since the new complex attributes should be able to provide better information, and a partially automatic conversion of the existing simple attributes is possible, there are plans to use these complex attributes for the future Inland ENCs.
2) The 'new' S-101 information type could be used to provide accuracy information about different features.
3) Composition type could be used instances where it would be of clear benefit to inland navigation. However, this assumes that chart production software has an option not to delete all information contained in the full composition.
4) The development of an IENC Portrayal Domain will be based on the portrayal domain for an S-101 ENC being developed by DIPWG.
5) IEHG intends to use the S-100 Feature Catalogue Builder.

Based on the release of draft IHO S-101 (Dec 2013), work on alignment with IHO S-101 will begin in 2014.

Inland ENC Website

All Inland ENC publications and functions are hosted at a consolidated Inland ENC site: [http://ienc.openecdis.org].

Key publications include:

IENC Product Specification, Ed. 2.1/2.2/2.3 (May 2011)
Feature Catalogue, Ed. 2.1/2.2/2.3 (May 2011)
Encoding Guide, Ed. 1.3.1/2.2/2.3.5 (March 2013)
Recommended Validation Checks for Inland ENCs, Ed. 2.1/2.3 (June 2013)

The site also contains:

- Information about the work of the IEHG (Terms of Reference, Meeting Minutes, presentations, etc.)
- Status of IENC coverage and availability (as reported)
- Papers related to Inland ENC matters
- Links to authorities who are producing Inland ENCs
- Companies who are providing Inland ENC applications.

Date/location for 12th Annual IEHG meeting

6-10 October 2014, Berlin, Germany

Submitted by:

Co-Chairs:

Bernd Birklhuber, Federal Ministry of Transport - Austria (Bernd.Birklhuber@bmvit.gv.at)

Denise LaDue, U.S. Army Corps of Engineers (Denise.LaDue@usace.army.mil)

Vice Chairs:

Flavia Mandarino, Directorate of Hydrography and Navigation - Brazil (flavia@chm.mar.mil.br)

Weijun Fei, Waterborne Transport Institute of the Ministry of Transport of the Peoples Republic of China (fwj@wti.ac.cn)

Technical Coordinators:

North America

Lee Alexander, Univ. of New Hampshire (lee.alexander@unh.edu) [until 31 Dec 2013]

Brian Tetreault, US Army Corps of Engineers (brian.tetreault@usace.gov) [beginning 1 Jan 2014]

Europe - Pieta Kluytenaar, Serendipity, Unlimited. (peter@serendipity.nl)

Russian Federation - [currently vacant]

South America - Angel Terry, Jeppesen Marine (Angel.Terry@jeppesen.com)

Asia - Yong Baek, Korean Hydrographic and Oceanographic Administration (ybaek@korea.kr)

Action Required of HSSC

HSSC5 is invited to:

- Note the activities related to Inland ENC standards development and implementation.

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