7th IHO-HSSC Meeting

Report of the Surface Currents Working Group

Submitted by:	Chairman, SCWG
Related Documents:	Report of SCWG 3 meeting (available from IHO web site).
Related Projects:	None

Chair:	Kurt Hess, USA
Vice-Chair:	Louis Maltais, Canada
Secretary:	David Wyatt, IHB
Member States:	Canada, France, Japan, Republic of Korea, Netherlands, Spain, USA
Expert Contributor:	Briana Sullivan (Center for Coastal and Ocean Mapping, University of New Hampshire, Durham, NH, USA)
Organisations:	Edward Weaver (SPAWAR Atlantic), Eivind Mong (Jeppesen), Emma Fowler (SevenCs/Chartworld)
	see Annex A for full details

Meetings Held During Reporting Period
SCWG3 13-15 May 2015, Tokyo, Japan

Next Meeting
TWCWG1 25-29 April 2016, Brazil

Work Program
The 3rd meeting of the SCWG took place at the Office of the Hydrographic and Oceanographic Department, Japan Coast Guard (JHOD) in Tokyo, Japan, from 13 to 15 May 2015. The meeting was attended by 16 representatives from 7 IHO Member States, and included the IHB and expert contributors from the Center for Coastal and Ocean Mapping at University of New Hampshire (UNH), SPAWAR Atlantic, Jeppesen and SevenCs/Chartworld.

The SCWG received presentations covering the JHOD current information service, the current prediction software and the S-111 - Surface Current Data Product Specification - test-bed software developed by the Korean Hydrographic and Oceanographic Administration (KHOA), the oceanographic forecast service of the Service hydrographique et océanographique de la marine (SHOM), surface current rendering and development work on S-111 and visualization by SPAWAR Atlantic, and bridge systems and external data provision to support EDCDIS and ENCs by Jeppesen.

The majority of the meeting was devoted to the revision and further development of the draft S-111 Product Specification document. The SCWG devoted significant time to the revision of the metadata and harmonization with ISO and S-100 standards. It was agreed that trial S-111 compatible datasets should be produced later this year for further testing and evaluation.
Participants were briefed on the activities and the work progressed at the 7th meeting of the Tides and Water Level Working Group (TWLWG), much of which was of relevance to the work being progressed by the SCWG. As a result of the reorganization of the subordinate bodies of the HSSC, the 3rd meeting was the last meeting of the SCWG before its work is taken forward as part of the expanded Tides, Water Level and Currents Working Group (TWCWG). The impacts of the integration with TWLWG and the resultant broadening of work items beyond the single issue development of S-111 were highlighted. The participants of the now disbanded SCWG were encouraged to take part in these additional tasks.

A number of amendments to the TWCWG Terms of Reference were proposed by the SCWG members for submission to HSSC7 for endorsement, see Annex B. The TWCWG Work Plan for the period 2016-2017 was also presented and a number of changes were proposed for submission to HSSC 6 for endorsement, see Annex C.

The delegates considered that the TWCWG should meet as a single WG for its first meeting, where it can address all its work items before considering whether to establish Project Teams for some of the work. TWCWG1 is planned for 25-29 April 2016 in Brazil at a location yet to be confirmed.

Progress on HSSC Action Items
N/A

Problems Encountered
N/A

Any Other Items of Note
N/A

Conclusions and Recommended Actions
N/A

Justification and Impacts
N/A

Action Required of HSSC
The HSSC is invited to:

a. note this report
b. approved the proposed amendments to the TWCWG Terms of Reference at Annex B
c. appoint the TWCWG to commence its work under the revised Terms of Reference
d. endorse the draft Work Plan at Annex C

IHO Surface Current Working Group (SCWG)

MEMBERSHIP and CONTACTS

Member State	Organization	Name	E-mail
Canada	Canadian Hydrographic Service	Bodo de Lange Boom	Bodo.deLangeBoom@dfo-mpo.gc.ca
Canada	Canadian Hydrographic Service	Louis Maltais (vice-Chair)	Louis.maltais@dfo-mpo.gc.ca
France	Coastal Hydrodynamic Department - SHOM	Gwenaele Jan	Gwenaele.jan@shom.fr
France	Coastal Hydrodynamic Department - SHOM	Ronan Pronost	ronan.pronost@shom.fr
Japan	Japan Hydrographic and Oceanographic Dept.	Hiroyuki Yoritaka	ico@jodc.go.jp
Japan	Japan Hydrographic and Oceanographic Dept.	Satoshi Yamao	ico@jodc.go.jp
Japan	Japan Hydrographic Association	Hideo Nishida	nishida-vu2@jha.jp
Japan	Japan Hydrographic Association	Tomotaka Ito	ito-tka@jha.jp
Japan	Japan Hydrographic Association	Harumi Taka	taka-hr3@jha.jp
Republic of Korea	Korea Hydrographic and Oceanographic Administration	Huh Yong	tideman@naver.com nori@korea.kr
Republic of Korea	Korean Research Institute of Ships and Ocean Engineering (KRISO)	Sewoong Oh	osw@kriso.re.kr
Republic of Korea	Korea Hydrographic and Oceanographic Administration	Park Sung Yong	yong0528@korea.kr
Netherlands	Netherlands Hydrographic Service	Ronald Kuilman	RB.Kuilman@mindef.nl
Spain	Oceanography Division, Instituto Hidrográfico de la Marina (IHM),	Salvador Moreno Soba	smorenos@fn.mde.es
USA	National Oceanic and Atmospheric Administration	Carl Kammerer	carl.kammerer@noaa.gov

USA	National Oceanic and Atmospheric Administration	Kurt Hess (Chair)	kurt.hess@noaa.gov
USA	National Geospatial-Intelligence Agency	Mark Opdyke	mark.r.opdyke@nga.mil
IHB	IHB	David Wyatt (Secretary)	adso@iho.int
Expert Contributor	Centre for Coastal and Ocean Mapping, University of New Hampshire, Durham, NH, USA	Briana Sullivan	Briana@ccom.unh.edu
Expert Contributor	SPAWAR Atlantic	Edward Weaver	eweaver@wrsystems.com
Expert Contributor	Jeppesen	Eivind Mong	eivind.mong@jeppesen.com
Expert Contributor	CARIS	David Brodie	David.brodie@caris.com
Expert Contributor	SevenCs/Chartworld	Emma Fowler	emma.fowler@chartworld.com

Tides, Water Level and Currents Working Group (TWCWG)

Terms of Reference and Rules of Procedure

Reference: *6th HSSC Meeting (Viña del Mar, Chile, November 2014)*

1. Objective

a) To provide technical advice and coordination on matters related to tides, water levels, currents, relevant physical oceanographic data and vertical datums, including ~~integrated~~ water level~~/~~ and current ~~data~~ models.

b) To support the development and maintenance of related specifications in liaison with the relevant IHO bodies and non-IHO entities;

c) To develop and maintain the IHO publications for which the WG is responsible.

2. Authority

This WG is a subsidiary of the Hydrographic Services and Standards Committee (HSSC). Its work is subject to HSSC approval.

3. Composition and Chairmanship

a) The WG shall comprise representatives of IHO Member States (MS), Expert Contributors (EC), observers from accredited NGIO, and a representative of the IHB ("IHB" to be replaced by "IHO Secretariat" when the IHO Secretariat is established). A membership list shall be maintained and posted on the IHO website.

b) EC membership is open to entities and organizations that can provide a relevant and constructive contribution to the work of the WG.

c) The Chair and Vice-Chair shall be a representative of a MS. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the Conference (Conference to be replaced by Assembly when the revised IHO Convention enters into force) and shall be determined by vote of the MS present and voting.

d) If a secretary is required it should normally be drawn from a member of the WG.

e) If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.

f) ECs shall seek approval of membership from the Chair.

g) EC membership may be withdrawn in the event that a majority of the MS represented in the WG agrees that an EC's continued participation is irrelevant or unconstructive to the work of the WG.

h) All members shall inform the Chair in advance of their intention to attend meetings of the WG.

i) In the event that a large number of EC members seek to attend a meeting, the Chair may restrict attendance by inviting ECs to act through one or more collective representatives.

4. Procedures

a) The WG should:

(i) monitor and develop the use of tidal, water level, ~~and~~ current information and relevant physical oceanographic data including ~~integrated~~ water level~~/~~ and current ~~data~~ models;

(ii) advise on the use of vertical datums;

(iii) advise on tidal, water level and current observation, analysis, forecast and prediction;

(iv) advise on matters concerning exchange, distribution and use of tidal, water level , ~~and~~ current information and relevant physical oceanographic data and

related ~~data/~~information;

(v) study principles and contribute to the development of improved methods for conveying tidal, water level , ~~and~~ current information and relevant physical oceanographic data to mariners and other users;

(vi) keep under review the relevant IHO publications and resolutions in order to advise HSSC on their updating;

(vii) draft or revise guidance document(s), resolutions and specifications as appropriate and as instructed by HSSC; and

(viii) consider new related topics as instructed by HSSC and advise HSSC accordingly.

b) The WG should work by correspondence, teleconferences, group meetings, workshops or symposia. The WG should meet about once a year. When meetings are scheduled, and in order to allow any WG submissions and reports to be submitted to HSSC on time, WG meetings should not normally occur later than nine weeks before a meeting of the HSSC.

c) Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, only MS may cast a vote. Votes at meetings shall be on the basis of one vote per MS represented at the meeting. Votes by correspondence shall be on the basis of one vote per MS represented in the WG.

d) The date and venue of group meetings shall normally be announced by the Chair at least six months in advance.

e) The draft record of meetings shall be distributed by the Chair (or the secretary) within six weeks of the end of meetings and participants' comments should be returned within three weeks of the date of despatch. Final minutes of meetings should be posted on the IHO website within three months after a meeting.

f) Sub-working groups and project teams may be created by the WG or proposed to HSSC to undertake detailed work on specific topics. The terms of reference and rules of procedure of the sub-working groups and project teams are determined or proposed by the WG as appropriate.

g) The WG should liaise with other IHO bodies, international organizations and industry to ensure the relevance of its work.

h) The WG should prepare annually a report on its activities and a rolling two-year work plan, including expected time frame.

TWCWG WORK PLAN 2016-17

Objective

a) To monitor developments related to tidal and water level observation, analysis and prediction and other related information including vertical and horizontal datums;
b) To develop and maintain the relevant IHO standards, specifications and publications for which it is responsible in liaison with the relevant IHO bodies and non-IHO entities;
c) To develop standards for the delivery and presentation of navigationally relevant current information; and
d) To provide technical advice and coordination on matters related to tides, water levels, currents and vertical datum.

Tasks

A	Maintain the list of standard tidal constituents (IHO Task 2.7.2.3)
B	Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software
C	Develop, maintain and extend a Product Specification for digital tide tables (IHO Task 2.7.3)
D	Develop, maintain and extend a Product Specification for the transmission of real-time tidal data (IHO Task 2.7.4)
E	Develop, maintain and extend a Product Specification for the transmission and portrayal of navigationally significant current surface data (S-111 - IHO Task 2.13.3)
F	Develop, maintain and extend a Product Specification for dynamic tides in ECDIS (IHO Task 2.7.5)
G	Liaise with S-100WG on tidal and current matters relevant to ECDIS applications
H	Liaise with industry experts on the development of product specifications for tides and currents
I	Prepare and maintain an inventory of tide gauges and current meters used by Member States and publish it on the IHO/TWLWG web site (IHO Task 2.7.2.4)
J	Review feedback of on-line real time water level observation document
K	Maintain and extend the relevant IHO standards, specifications and publications as required (IHO Tasks 2.7.2 and 2.13.2)
L	Conduct the 2016 and 2017 meetings of TWCWG and its sub-group(s) and project team(s) (IHO Tasks 2.7.1 and 2.13.1)
M	Develop and maintain material for course on Tides, ~~and~~ Water Levels and Currents

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
A.1	Maintain the list of standard tidal constituents	M		-	Permanent	O	Chris Jones*		Review current list of published tidal constituents
B.1	Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software.	M		-	Permanent	O	Hilda Sande * All		Select Common data set Analyze using different software Predict common set of tides Compare results
C.1	Develop, maintain and extend the standard for digital tide and tidal current tables	H	Prepare draft Standard	2009	2016	O	Peter Stone* Chris Jones Zarina Jayaswal		
D.1	Develop and maintain a standard for the transmission of real-time tidal data (S-112)	H		2009	2017	O	Chris Jones* All		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
E.1	Develop and maintain a product specification for the transmission of surface current data (S-111)	H		2013	2017	O	Kurt Hess* Louis Maltais Mark Opdyke		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
E.2	Develop and maintain a product specification for the portrayal of navigationally significant surface currents	H		2013	2017	O	Louis Maltais* Kurt Hess Mark Opdyke		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
F.1	Develop and maintain a product specification for dynamic application of tides in ECDIS	H	Prepare draft Product Specifications (S-1xx) for tidal data in S-100. Prepare draft Portrayal model for tidal data in S-100.	2009	2017	O	Zarina Jayaswal* Glen Rowe Jimin Ko Peter Stone* Zarina Jayaswal		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
G.1	Liaise with S-100WG on tidal and current matters relevant to ECDIS applications	H		-	Permanent	O	Gwenaële Jan Kurt Hess Louis Maltais		Establish joint project teams as required.
H.1	Liaise with industry experts on the development of product specifications for tides and currents	H		-	Permanent	O	All		
I.1	Maintain an inventory of tide gauges and current meters used by Member States and publish it on the IHO/TWCWG web site.	H		-	Permanent	O	David Wyatt* All		Initial inventory from TWCWG members available on IHO web site.
J.1	Review feedback of on-line real time water level observation document	L		-	Permanent	O	Zarina Jayaswal* All		
K.1	Maintain and extend the relevant IHO standards, specifications and publications	M M	Review wording of IHO Resolution 3/1919, as amended, in light of revised definitions for MSL and LAT	- 2014	Permanent 2015	O O	Gwenaële Jan	IHO Resolutions in M-3 S-60 User's Handbook on Datum Transformations involving WGS 84	
M.1	Develop and maintain material for course on Tides and Currents	H	Delivery in 2015	-	Permanent	O	Ruth Farre* Louis Maltais Peter Stone Zarina Jayaswal		Adapt currently available course material to create a course suitable for delivery in support of CBSC requests

Meetings (Task L)

Date	Location	Activity
25-28 Mar 2014	Wollongong, Australia	TWLWG-6
3-5 Jun 2014	Quebec City, Canada	SCWG-2
21-24 April 2015	Silver Spring, Maryland, USA	TWLWG-7
13-15 May 2015	Tokyo, Japan	SCWG-3
25-29 April 2016	Tbc, Brazil	TWCWG-1

Chair: Gwenaële Jan (France) Email: gwenaele.jan@shom.fr
Vice Chair: Louis Maltais (Canada) Email: Louis.maltais@dfo-mpo.gc.ca
Secretary: David Wyatt Email: adso@iho.int