

1st Tidal and Water Level Working Group Meeting

30 March to 1 April 2009, Offices of DHN, Niteroi, RJ, Brazil

Report to the 1st meeting of the Hydrographic Services and Standards Committee

(Paragraph numbering is the same as the Agenda Item numbering and does not necessarily reflect the order in which matters were discussed.)

1 Opening

1.1 Mr Stephen Gill (USA), Chair, opened the meeting at 0900 and thanked all participants for coming, particularly those attending for the first time. He also thanked Brazil for hosting the meeting and providing excellent support and facilities.

1.2 Captain Luiz Torres (Brazil), on behalf of Admiral Palmer Fonseca, welcomed the participants and wished the meeting a productive outcome. He expressed Brazil's pleasure in being able to host the meeting and their willingness to provide any support needed. He particularly noted that Brazil had benefitted significantly from having attended the 8th meeting of the IHO Tidal Committee in Halifax, Canada, in 2007 as the contacts made during that meeting had led to a lot of support and advice being received from other attendees which had significantly assisted Brazil's development of tidal matters.

1.3 Stephen Shipman (IHB), on behalf of the Directing Committee thanked Brazil for hosting the meeting and providing a high level of support and excellent facilities. He commented on this being the first meeting of the Working Group (WG), formerly the IHO Tidal Committee, and anticipated that during the meeting he, along with others, would inadvertently refer to "the Committee" rather than the Working Group.

2 Administrative Arrangements

Lt Cdr Rosuita Helena Roso (Brazil) outlined some administrative arrangements for the meeting and offered assistance with any matters that participants might have. The Chair then invited all present to introduce themselves. The list of participants is at Annex A.

During Tuesday afternoon the TWLWG were given a tour of the museum on Ilha Fiscal (Fiscal Island), the former headquarters of the Brazilian Directorate of Hydrography and Navigation, now a museum. It remains the home to the Brazilian Primary Tide Gauge.

Admiral Palmer Fonseca hosted a reception for delegates in the DHN museum on Tuesday evening.

2.1 The Chair briefly introduced the Agenda which was adopted. See Annex B.

2.2 The draft timetable was introduced, it was explained that this was intended for guidance only and was not intended to be a rigid structure. Where necessary time spent on individual topics would be amended to allow an appropriate discussion.

2.3 The report on intercessional activities was included under Agenda Item 2.5 (Matters Arising).

2.4 The minutes of the 8th session of the IHO Tidal Committee (IHOTC8) were accepted.

2.5 Steve Shipman (IHB) reported on the action items from IHOTC8. One action is continuous and the remainder were complete. (See document TWLWG1/2/5/1)

3 National Presentations

The Chair indicated that delegates from the following 10 Member States had expressed a wish to make a national presentation: Brazil; Canada; Chile; Finland; France; Norway; Portugal; Spain; UK and USA regarding Tide and Water Level matters / developments within their countries. Details of the presentations made are at Annex C and the presentations can be downloaded from the TWLWG section of the IHO web site.

4 Programme matters

4.1 IHO Committee Structure and Revised ToR

Steve Shipman (IHB) reviewed the revised Committee Structure of the IHO and explained where the TWLWG resided within the new Hydrographic Services and Standards Committee (HSSC). He described the decision by the Committee on Hydrographic Requirements for Information Systems (CHRIS), now the HSSC, at its 20th and final session to change the name of the Tidal Working Group to the Tidal and Water Level Working Group following a proposal from Finland. He briefly reviewed staffing at the IHB indicating responsibilities related to HSSC and TWLWG. He reported on the upcoming 4th Extraordinary International Hydrographic Conference (EIHC4) in June and its consideration of a revised Strategic Plan based on the report of the IHO Strategic Plan WG. (See document TWLWG1/4/1/2)

Steve Shipman (IHB) then reviewed in detail the ToR for the TWLWG as approved by CHRIS20. He indicated that meetings of the TWLWG might now be required annually, in order to ensure an efficient interchange with HSSC and other HSSC WGs. (Previously the IHOTC had met at approximately 18 month intervals.) This revision would of course have budget implications for all members. There was also a need to elect a Vice-Chair. The Chair emphasised the role expected of a Vice-Chair: supporting and assisting the Chair; possibly deputising for the Chair; and leading task groups within the WG. He asked all members present to consider whether they felt able to take on this role prior to further consideration on Wednesday. (See document TWLWG1/4/1/1)

Steve Shipman (IHB) then explained the desirability of the Chair, or Vice-Chair, attending the annual meeting of HSSC which was normally held in November. This

would of course also have budgetary implications for the incumbent as there had not been a similar requirement for the Chair of the IHOTC.

The Chair asked how the IHB envisaged dialogue occurring between the TWLWG and the Capacity Building Sub-Committee (CBSC) which came under the Inter-Regional Co-ordination Committee (IRCC). Steve Shipman considered that whilst this would normally be via the HSSC and IRCC pragmatism required some direct dialogue between groups whilst keeping parent bodies fully informed of activities. Finally on this matter Steve Shipman (IHB) briefly outlined progress with ratification of the amendments to the IHO Convention.

4.2 Update on Standard Constituent List

Chris Jones (UK) provided some background information on the development of the Standard Constituent list and reported that no updates had been received since the IHOTC8 meeting. The list is available from the IHO web site. (See document TWLWG1/4/2/1)

4.3 Format for the Exchange of Harmonic Constants / Predictions

Chris Jones (UK) reported on the latest developments regarding the XML exchange format for harmonic constants. He indicated that there had been some minor changes to the initial plan that it should be fully web based. Submission can be made online but the validation process will now be an offline activity. With regard to this Australia asked whether the current XML schema was compliant with ISO standardisation and in view of this whether there was unlikely to be a need for any further changes. This information was desirable before undertaking any work using the current schema.

Chris Jones agreed to consult on this matter as appropriate and report back. He reported that there had been no changes to the existing arrangements for predictions however he considered that a more appropriate format may be required in the future and that this matter was likely to be considered under Agenda Item 4.11 on the application of dynamic tides in ECDIS. (See documents TWLWG1/4/3/1 and TWLWG1/4/3/2 and presentation TWLWG1/4/3-UK)

4.4 Digital Tide Tables

Steve Shipman (IHB) reported on the results of the questionnaire which the IHB had circulated to Member States following the IHOTC8 meeting. Comments had been received from 48 MS regarding their current and future plans for Digital Tide Tables (DTT). By DTT the TWLWG mean tide tables that have functionality built in not simply pdf copies of the paper tide tables. A lengthy discussion took place with Australia and France demonstrating their DTT. The XVIIth International Hydrographic Conference (IHC) had tasked the Tidal Committee to prepare standards for DTT. It was acknowledged that there was no requirement on MS to produce DTT but that there should be a standard to ensure a minimum quality of prediction where DTT were produced. It was agreed that lessons learned from the development of existing DTT should be used as the basis for developing the necessary standards. Australia, France, UK and USA agreed to join a Task Group (TG) led by France to further this work by correspondence and report back to the TWLWG. The Chair

invited any other MS wishing to participate in this TG to contact Lucia Pineau. (See documents TWLWG1/4/4/1 and TWLWG1/4/4/2)

4.5 Vertical Reference Framework Update on IAG 1.2

Steve Shipman (IHB) provided an update on the work of this International Association of Geodesy (IAG) Project and noted that following the Project's report to the IAG Congress the WG had been re-established with new ToR. Steve Shipman continues to participate, mainly by correspondence, in order to ensure that the "hydrographic" interests in Vertical Reference Frames are not overlooked. **Steve Shipman agreed to keep the TWLWG informed of any developments.** See document TWLWG1/4/5/1)

4.6 Update on IOC/GLOSS Program

Steve Shipman (IHB) reported that he continued to participate in the GLOSS Group of Experts (GE). There had been no meetings since IHOTC8 but the GE (XI) meeting was taking place at the IOC in Paris in May. Steve Shipman will attend the meeting and make a presentation outlining the revised IHO structure and the work of the TWLWG since the GE (X) meeting. **Steve Shipman would report back to the TWLWG on the outcome of the GLOSS GE (XI) meeting and associated workshop.** (See document TWLWG1/4/6/1)

Marcelo Fricks Cavalcante, the Brazilian representative to the GLOSS GE made a presentation on GLOSS activities. In particular he demonstrated the overlap between GLOSS and TWLWG activities and requirements. He reported that Lt Cdr Rosuita Helena Roso, the Brazilian member of the TWLWG, would be replacing him as the Brazilian representative to the GLOSS GE thereby further strengthening the relationship between GLOSS and TWLWG. The Chair commented that it was good to note that standards are now taking account of both long and short term sea level issues such as Mean Sea Level change and Tsunami warning systems. Steve Shipman reported that he had regular communications with Dr Thorkild Aarup, the IOC GLOSS secretary, aimed at increasing the number of HO tide gauges that could contribute to the GLOSS programme, especially in North Africa. The Chair considered, and the meeting supported the proposal, that it would be useful to maintain a list of tide gauge types used by IHO Member States. Many States were seeking to introduce new technology systems and the ability to easily identify other States that had experience of those gauges would be very useful. **The HSSC is requested to approve the inclusion of a new WP item for TWLWG to prepare and maintain an inventory of tide gauges used by Member States and to publish it on the IHO/TWLWG web site.** (See presentation TWLWG1/4/6-GLOSS)

4.7 Global Sea Level Rise Effects

Chris Jones (UK) gave a presentation regarding the research initiated by his predecessor, Cdr John Page of the UKHO, with respect to analysing the trends in HAT-LAT tidal ranges around the UK over the period 1998-2010. The UKHO is collaborating with the Proudman Oceanographic Laboratory (POL) in this task. Studies so far have not provided any conclusive results but it is hoped that POL will have further input in the near future. POL will be looking at this within the wider

remit of the GLOSS study on sea level trends. Lucia Pineau (France) and Jose Quijano (Spain) reported that research on this matter was also being undertaken in their countries. **It was agreed that Chris Jones, Lucia Pineau and Jose Quijano would keep the TWLWG aware of any future results from this work.** (See document TWLWG1/4/7/1 and presentation TWLWG1/4/7-UK)

4.8 IHO Capacity Building Programme

Steve Shipman (IHB) provided a short review of IHO Capacity Building (CB) structure and activities. He noted that at IHOTC8 it had been decided not to prepare training material until there was a specific request from a Regional Hydrographic Commission (RHC). During an extensive discussion it was noted that significant training / CB activities took place within the TWLWG as had been reported during the Brazilian welcoming address (paragraph 1.2). Australia also reported that they provided training for neighbouring countries. The United States reported that they have recently provided training for international partners from the Rep of Korea and the Caribbean. France noted that they provided tidal training courses, some places on which could be made available to the Capacity Building Sub Committee (CBSC). **It was agreed that Steve Shipman would draft a letter for the Chair to send to the Chair of the CBSC outlining the CB activities undertaken within the TWLWG and by some of its members.** (See document TWLWG1/4/8/1)

4.9 Review of relevant IHO Technical Resolutions

Steve Shipman (IHB) summarised the work carried out over the last 3 years and noted that all TRs relating to tides and water levels had been reviewed and updated. It was agreed that no further review was currently required but that this would remain on the agenda for future meetings. However following discussion of Agenda Item 4.14 it was agreed that a further review was required as described in section 4.14 below. (See document TWLWG1/4/9/1)

4.10 Review of relevant IHO Charting Specifications

Steve Shipman (IHB) reported that all the recommendations made by the IHOTC regarding tide and water level aspects of the Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO (IHO Publication M4) had been passed to the CSPCWG and had either already been or were awaiting inclusion. (See document TWLWG1/4/10/1)

4.11 The dynamic application of Tides in ECDIS

Steve Shipman (IHB) provided a brief introduction to the origin of this work item which was raised at CHRIS20 in November 2008. It was considered that the application of dynamic tidal information within ECDIS was potentially an important safety enhancement and should be developed further. CHRIS20 agreed that TWLWG, the Transfer Standards Maintenance and Application Development WG (TSMAD), the Standardisation of Nautical Publications WG (SNPWG) and the Digital Information Portrayal WG (DIPWG) should be invited to work on this matter. He also introduced the notes of a meeting held at the IHB and attended by the Chair of

TSMAD and Dan Pillich, expert contributor to TWLWG. Dan Pillich showed a simulation of existing capabilities.

Following a wide ranging discussion on this topic it was agreed that the WG needed to remain focussed on those items within the competence of the TWLWG. It was agreed to set up a Task Group, led by Stephen Gill, to prepare the “tidal” input on this matter. Delegates from Australia, Canada, UK, IHB and Dan Pillich agreed to participate in the work. (See documents TWLWG1/4/11/1 and TWLWG1/4/11/2)

4.12 French Manual of Tides

Steve Shipman (IHB) reported on the status of the translation of the French Manual of tides. Translation had progressed very slowly but the IHB had, in the last 48 hours, been made aware of the concern of the translator that the text had been delivered several years late and was considerably larger than that envisaged when the initial contract was placed. It seemed that there were two options, either stop the translation and recover the money not yet paid to the translator or provide additional funding to expedite the translation. Whilst the TWLWG do not have any control over the funding it was their considered view that this was a very valuable manual and that they would like to see the translation completed. **Steve Shipman was asked to convey this opinion to the Directing Committee of the IHB.** (See document TWLWG1/4/12/1)

4.13 TWLWG Work Plan (WP)

The draft WP, document TWLWG1/4/13/1, prepared by Steve Shipman (IHB) was considered and amendments proposed. One item, C1, on monitoring Tidal Predictions vis-à-vis climate change and global sea level rise, was removed. It was considered that this was a matter for monitoring only. Two new items, as reported in sections 4.6 and 4.14 were included for HSSC1 approval. The revised draft WP is at Annex E.

4.14 Baltic Sea Water Level actions report from Finland

Jukka Varonen (Finland) made a presentation regarding the work of the Baltic Sea Hydrographic Commission Chart Datum WG (BSHC-CDWG). He explained the non-tidal nature of water level change in the Baltic Sea which was the reason Finland had proposed a change in the name of the WG at CHRIS 20. He explained that the BSHC-CDWG considered that the definition of Mean Sea Level (MSL) and IHO TR A2.5 did not adequately cover the situation in areas such as the Baltic. There was a considerable discussion on this matter and in particular with respect to TR A2.5 section 2 note ii. Canada showed some PowerPoint slides demonstrating the concept behind this note. Discussion during the meeting considered that the existing provisions may be adequate but that this matter deserved a more detailed consideration. **It was therefore proposed that it be included as a new WP item for approval by HSSC1.** See document TWLWG1/4/14/1 and presentations TWLWG1/4/14-Canada and TWLWG1/4/14/1-Finland)

5 Election of a Vice-Chair

Mme Lucia Pineau-Guillou was unanimously elected as Vice-Chair of the TWLWG.

6 **Any Other Business** Correspondence with Jerzy Graff

Steve Shipman (IHB) introduced the discussion that had taken place between Mr Jerzy Graff and the IHB. The IHB had concluded that it would not be appropriate for the IHO to support the proposal made by Mr Graff but wished the TWLWG to consider the matter and provide any thoughts they had on the matter. The WG concluded that tidal modelling (ocean forecasting) was important and that many HOs were already doing this. Tidal prediction was an important element within any such modelling. The WG agreed that it was not appropriate to recommend that IHO endorse a paper of the nature being proposed by Mr Graff. (See document TWLWG1/6/1/1)

7 **Review of Action Items**

The list of Action Items from the meeting were reviewed and agreed. These are shown in bold text in this report and are collected together at Annex D. New proposed items for the WP which are also shown in bold text in this report and included in Annex E are NOT included in the list of action items.

8 **Venue and dates of the 2nd TWLWG Meeting**

The IHOTC had traditionally met every 18 months; however it was agreed that, given the new committee structure and the revised ToR, it would be more appropriate if necessary for the TWLWG to meet annually. There was a general agreement that April would be a convenient time of the year to meet. Tor Torresen (Norway) offered to seek approval to host the next meeting in Stavanger Norway during April 2010. Zarina Jayaswal (Australia) indicated that Australia could host the meeting and Steve Shipman (IHB) indicated that meetings could always be hosted at the IHB. As the IHOTC had met in Australia in 2006 it was agreed to accept the offer from Norway. **Post meeting note – Norway have confirmed their willingness to host the meeting in Stavanger in April 2010 on dates to be confirmed.**

9 **Draft Report to the HSSC / Draft Agenda for TWLWG2**

The draft report would be circulated to all attendees by Monday 6 April. Attendees were requested to provide any comments by Monday 20 April. If comments are only of an editorial nature the draft report will be amended accordingly and then published. If any comments were of a substantive nature then the amendments would be circulated for further agreement.

Several delegates commented on the difficulties they have in relation to tides and datums in rivers / estuaries. It was agreed that this was a matter that the TWLWG should consider and an item has been included on the Agenda for TWLWG.

Delegates are requested to submit relevant papers for consideration at TWLWG2. The draft agenda for TWLWG2 as amended is attached at Annex F.

10 **Closing remarks**

Lt Cdr Rosuita Helena Roso (Brazil) thanked everyone for coming to the meeting and for all the support and help that she had received from members of the WG.

Captain Luiz Torres, on behalf of Admiral Palmer Fonseca, thanked everyone for coming to Brazil and expressed his pleasure in being able to host the meeting. He trusted that the arrangements made had been satisfactory.

Steve Shipman (IHB) on behalf of the Directing Committee thanked Brazil for their excellent support and facilities for the meeting which had undoubtedly contributed to a successful outcome.

Stephen Gill (Chair) thanked Brazil for their support and the delegates for coming and contributing to the meeting. He thanked Steve Shipman (IHB) for his support in preparing the agenda and documents, and Chris Jones for taking notes and assisting with the drafting of the report. He had enjoyed chairing his first meeting and looked forward to working intersessionally on the important work items and to meeting everyone again in Norway next year.

Annexes:

- A. List of participants.
- B. Agenda of TWLWG1
- C. List of presentations made
- D. TWLWG1 – List of Actions
- E. TWLWG Draft Work Programme
- F. Draft agenda for TWLWG2

LIST OF PARTICIPANTS

COUNTRY	NAME AND ADDRESS	TELEPHONE AND FAX NUMBERS
AUSTRALIA	Ms Zarina Jayaswal Manager of Tidal and Geodetic Section Australian Hydrographic Service Locked Bag 8801 Wollongong NSW 2500 AUSTRALIA	Tel : +61 2 4223 6654 Fax : +61 24223 6657 e-mail: Zarina.jayaswal@defence.gov.au
BRASIL	Lt Cdr Rosuita Helena Roso, MSc Tides Section Rua Barao de Jaceguai, s/nº Niteroi – Rio de Janeiro 24048-900 BRAZIL	Tel: +55 21 2189 3238 Fax: +55 21 2189 3237 e-mail: rosuita@chm.mar.mil.br
CANADA	Phil MacAulay Head of Tides and Water levels Canadian Hydrographic Service Atlantic 1 Challenger Dr. Dartmouth, Nova Scotia, B2Y 4A2 CANADA	Tel: +1 902 426 5017 Fax: +1 902 426 1893 e-mail: macaulayp@mar.dfo-mpo.gc.ca
CHILE	Juan Fierro Head, Physical Oceanography Section Hydrographic and Oceanographic Service of the Chilean Navy Errázuriz 254, Playa Ancha, Valparaíso, CHILE.	Tel: +56 32 2266676 Fax: +56 32 2266542 e-mail: jfierro@shoa.cl
FINLAND	Jukka Varonen Finnish Maritime Administration Hydrographic Department Box 171 FI-00181 Helsinki FINLAND	Tel: +358 2 0448 4302 Fax: +358 2 0448 4620 e-mail: jukka.varonen@fma.fi
FRANCE	Mme Lucia Pineau-Guillou SHOM Head of Coastal Hydrodynamics 13 rue du Chatellier CS 92803 29228 BREST CEDEX 2 FRANCE	Tel : +33 2 98 22 12 74 Fax : +33 2 98 22 08 99 e-mail: lucia.pineau-guillou@shom.fr

LIST OF PARTICIPANTS

COUNTRY	NAME AND ADDRESS	TELEPHONE AND FAX NUMBERS
IHB	Lt Cdr Stephen Shipman, MBE International Hydrographic Bureau 4 Quai Antoine 1er BP445 MC 98011 Monaco Cedex MONACO	Tel: + 377 93 10 81 06 Fax: + 377 93 10 81 40 e-mail: sshipman@ihb.mc
NORWAY	Mr Tor Torresen Head of Tidal Group Norwegian Hydrographic Service Lervigsveien 36, N-4014 Stavanger NORWAY	Tel: +47 51858815 Fax: +47 51858701 e-mail: tor.torresen@statkart.no
SPAIN	Lt Cdr Jose Manuel Quijano Spanish Hydrographic Office Plaza San Severiano 3 11007 – Cadiz SPAIN	Tel: +34 956599401 Fax: +34 956545347 e-mail: jquide@fn.mde.es
PORTUGAL	Miss Leonor Martins Chief, Tidal Section Instituto Hidrográfico (Portuguese Hydrographic Service) Rua das Trinas, 49 1249-093 Lisboa PORTUGAL	Tel: + 351 21 094 30 33 Fax: e-mail: leonor.martins@hidrografico.pt
UNITED KINGDOM	Mr Chris Jones Head of Tides The U.K. Hydrographic Office Admiralty way Taunton, Somerset, TA1 2DN UNITED KINGDOM	Tel : +44 (0) 1823 337900 ext. 3504 Fax : +44 (0) 1823 284077 e-mail: christopher.jones@ukho.gov.uk
UNITED STATES	Mr Stephen Gill Chief Scientist for the NOS Center for Operational Oceanographic Products and Services NOAA 1305 East-West Highway, Station 6515, Silver Spring, Maryland USA 20 910	Tel: +1 301 713 29 81 ext 139 Fax: +1 301 71 343 92 e-mail: Stephen.gill@noaa.gov

LIST OF PARTICIPANTS

COUNTRY	NAME AND ADDRESS	TELEPHONE AND FAX NUMBERS
VENEZUELA (Armada de Venezuela)	Mr Carlos Murillo Direccion Hidrografia y Navegación 1A P/Anicie 23 de Enero Observatorio Naval Cagigal VENEZUELA	Tel: +85 212 5558000 Fax: e-mail: dhn@ifxnw.com.ve carlosmurillo@hotmail.com
VENEZUELA (Armada de Venezuela)	Mr Bill Ramon Abrew Direccion Hidrografia y Navegación 1A P/Anicie 23 de Enero Observatorio Naval Cagigal VENEZUELA	Tel: +85 212 5558000 Fax: e-mail: jocendoc@dhn.mil.ve jbbill@hotmail.com
VENEZUELA (Armada de Venezuela)	Mr Edward Méndez Araujo Direccion Hidrografia y Navegación 1A P/Anicie 23 de Enero Observatorio Naval Cagigal VENEZUELA	Tel: +85 212 4518666 Fax: +85 426 517 8157 e-mail: mendezaraujo@gmail.com
GLOSS	Cdr Marcelo Fricks Cavalcante Information Oceanographic Division Rua Barao de Jaceguai, s/n° Niteroi – Rio de Janeiro 24048-900 BRAZIL	Tel : +55 21 2189 3025 Fax : +55 21 2189 3226 e-mail : marcelo@chm.mar.mil.br
Expert Contributor	Bohdan (Dan) Pillich Center of Maritime Technology, Hamburg, GERMANY	Tel : +48 170 3084164 Fax : e-mail : dan_pillich@t-online.de
Host Nation Observer	Maria Fernanda Rezende Arentz Tides Section Rua Barao de Jaceguai, s/n° Niteroi – Rio de Janeiro 24048-900 BRAZIL	Tel: +55 21 2189 3252 Fax: +55 21 2189-3237 e-mail: maria.fernanda@chm.mar.mil.br
Host Nation Observer	Alexandre Moreria Ramos Geodesy section Rua Barao de Jaceguai, s/n° Niteroi – Rio de Janeiro 24048-900 BRAZIL	Tel : +55 21 2189 3324 Fax : e-mail : moreria.ramos@chm.mar.mil.br

LIST OF PARTICIPANTS

COUNTRY	NAME AND ADDRESS	TELEPHONE AND FAX NUMBERS
Host Nation Observer	Geraldo Nogueira da Silva	Tel: +55 21 2622 8377 Fax: e-mail: gnsilva2002@yahoo.com.br
Host Nation Observer	César Henrique de Oliveira Borba Tides Section Rua Barao de Jaceguai, s/n° Niteroi – Rio de Janeiro 24048-900 BRAZIL	Tel: +55 21 2189 3227 Fax: +55 21 2189-3237 e-mail: borba@chm.mar.mil.br

Tidal and Water Level Working Group
(1st Meeting 30 March – 1 April 2009 – Offices of DHN, Niteroi, RJ, Brazil)
Agenda – (TWLWG1)

1 Opening

- .1 Opening address by the Chairman
- .2 Welcome address by Admiral Palmer Fonseca
- .3 Welcome by the IHB

2 Administrative Arrangements

- .1 Adoption of the Agenda
- .2 Conduct of the Sessions
- .3 Report on Intercessional Activities
- .4 Minutes of the VIIIth IHO TC Meeting (IHOTC8)
- .5 Matters arising from the VIIIth IHO TC Meeting / Review of Action Items

3 National Presentations

- .1 Presentations by delegates on “National Tidal Issues”

4 Programme Matters

- .1 IHO Committees Structure and Revised ToR / RoP (IHB)
- .2 Update on Standard Constituent List (UK/France)
- .3 The format for the Exchange of Harmonic Constants / Predictions (UK)
- .4 Digital Tide Tables (IHB)
- .5 Vertical Reference Framework Update on IAG 1.2 (IHB)
- .6 Update on IOC/GLOSS Program (IHB)
- .7 Global Sea Level Rise effects (UK)
- .8 IHO Capacity Building Programme (IHB)
- .9 Review of relevant IHO Technical Resolutions (IHB)
- .10 Review of relevant IHO Charting Specifications (IHB)
- .11 The dynamic application of Tides in ECDIS
- .12 French Manual of Tides (IHB)
- .13 TWLWG Work Plan
- .14 Baltic Sea Water Level actions report from Finland

5 Election of a Vice-Chair

6 Any Other Business

- .1 Correspondence with Jerzy Graff

7 Review of Action Items

8 Venue and dates of the 2nd TWLWG Meeting

9 Draft Report to the HSSC / Draft Agenda for TWLWG2

10 Closing remarks

Tidal and Water Level Working Group

National Presentations

Brazil:

Lt Cdr Rosuita Helena Rosso: Tidal activities and projects at DHN
Lt Maria Fernanda Rezende Arentz: Hydrodynamic modelling in the Amazon Estuary
Lt Cdr Alexandre Moreria Ramos: GPS for tides
Cdr Marcelo Fricks Cavalcante: Tidal modelling issues

Canada, Phil MacAulay: Canadian “Atlantic” perspective on tidal science and data collection.

Chile, Juan Fierro: Chilean sea level network current state and future plans.

Finland, Jukka Varonen: Sea Level sites in Finland.

France, Lucia Pineau-Guillou: BATHYELLI (BATHYmetry with reference to the ELLipsoid) project: set-up of Chart Datum using altimetry and kinematic GPS.

Norway, Tor Torresen: Tidal activities at the Norwegian Hydrographic Service.

Portugal, Leonor Martins: Portuguese tidal matters; GLOSS activities; and tidal data filter development.

Spain, Lt Cdr Jose Manuel Quijano: Digital Tide Table development and Tidal/Current Modelling in the Straits of Gibraltar.

UK, Chris Jones: Vertical Offshore Reference Framework (VORF).

USA, Stephen Gill: Overview of recent tidal projects in the US. See also www.tidesandcurrents.noaa.gov

Tidal and Water Level Working Group

Actions from TWLWG1

The numbering of action items relates to the final report paragraph numbers

- 4.3 Chris Jones (UK) to confirm that the XML Schema for the exchange of Harmonic Constants is ISO compliant.
- 4.5 Steve Shipman (IHB) to keep the TWLWG informed of any developments within IAG ICP 1.2.
- 4.6 Steve Shipman to report back to the TWLWG on the outcome of the GLOSS GE (XI) meeting and associated workshop.
- 4.7 Chris Jones (UK) to keep the TWLWG aware of any future results from the UKHO/POL study on HAT-LAT trends. Lucia Pinneau (France) and Jose Quijano (Spain) to report on research conducted in France and Spain respectively.
- 4.8 Steve Shipman (IHB) to draft a letter for the Chairman to send to the Chair of the CBSC outlining CB activities undertaken within the TWLWG and by some of its members.
- 4.12 Steve Shipman (IHB) to convey the opinion of the TWLWG regarding the desirability of completing the translation of the French Manual of Tides to the Directing Committee of the IHB.
- 9 All to consider submitting papers for consideration at TWLWG2 meeting on issues related to tides and datums in rivers / estuaries.

1. TWLWG Work Plan

1.1 TWLWG Tasks

- A Maintain Standard Tidal Constituent List (IHO Work Programme 3.2.4 refers)
- B Prepare a Standard for Digital Tide Tables (IHOTC Report to the XVIIth IHC as adopted)
- C Respond to TSMAD on tidal matters relevant to the Dynamic Application of Tides in ECDIS (CHRIS Action 20/6)
- D Monitor and assist in the preparation of English translation of the Tidal Manual prepared by the Institut Océanographique and SHOM (IHO funded the translation from French to English)
- E Review the various definitions of MSL and their relevance to Hydrographic Offices and review the IHO tidal resolutions to ensure that they are compatible with the requirements of non tidal areas such as the Baltic Sea.
- F Prepare and maintain an inventory of tide gauges used by Member States and to publish it on the IHO/TWLWG web site.

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard
A1	Maintain Standard Tidal Constituent List	H		Continuous		O	Chris Jones* Lucia Pineau	
B1	Identify current availability of DTT and future plans for their introduction by MS.	H	Circulate questionnaire to MS and assimilate responses. .	2007	2008	C	Steve Shipman*	
B2	Prepare a Standard for Digital Tide Tables	H	Prepare draft Standard	2009	2011	P	Lucia Pineau* Stephen Gill Chris Jones Zarina Jayaswal	

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard
C1	Respond to TSMAD on tidal matters relevant to the Dynamic Application of Tides in ECDIS	H		2009	2009	P	Steve Gill* Zarina Jayaswal Chris Jones Phil MacAulay Dan Pillic Steve Shipman	
D1	Provide advice to the translator preparing the English text of the Tidal Manual prepared by the Institut Océanographique and SHOM	H	Completion of translation into English.	2003	2009	O	Steve Shipman*	
D2	Proof read the English translation of the Tidal Manual prepared by the Institut Océanographique and SHOM	H	Approval of the English text.	2009	2010	P	Steve Shipman*	
E1	Review the various definitions of MSL and their relevance to Hydrographic Offices and review the IHO tidal resolutions to ensure that they are compatible with the requirements of non tidal areas such as the Baltic Sea.	H		2009	2010	P	Jukka Varonen* Tor Torresen Lucia Pineau Steve Gill Steve Shipman	
F1	Prepare and maintain an inventory of tide gauges used by Member States and to publish it on the IHO/TWLWG web site.	H		2009	2010	P	Steve Shipman* Steve Gill	

1.2 TWLWG Meetings (IHO Task 3.1.11 refers)

Date	Location	Activity
30 Mar – 1 Apr 09	Niteroi Brazil	1 st Meeting
April 2010 (dates tbc)	Stavanger, Norway	2 nd Meeting
April 2011	tbd	3 rd Meeting

Chair: Stephen Gill Email: Stephen.Gill@noaa.gov
Vice-Chair: Lucia Pineau-Guillou Email: lucia.pineau-guillou@shom.fr
Secretary: Steve Shipman Email: sshipman@ihb.mc

Tidal and Water Level Working Group
(April 2009- dates tbc – Stavanger, Norway)
Draft Agenda – (TWLWG2)

1 Opening

- .1 Opening address by the Chairman
- .2 Address by host nation
- .3 Welcome by the IHB

2 Administrative Arrangements

- .1 Adoption of the Agenda
- .2 Conduct of the Sessions
- .3 Report on Intercessional Activities
- .4 Report of the 1st meeting of the TWLWG (TWLWG1)
- .5 Matters arising from TWLWG1 / Review of Action Items

3 National Presentations

- .1 Presentations by delegates on “National Tidal Issues”

4 Programme Matters

- .1 Standard Constituent List
- .2 Exchange of Harmonic Constants / Predictions
- .3 Digital Tide Tables
- .4 Vertical Reference Framework Update on IAG 1.2
- .5 Update on IOC/GLOSS Program
- .6 Global Sea Level Rise effects (UK, France and Spain)
- .7 IHO Capacity Building Programme (IHB)
- .8 Dynamic Application of Tides in ECDIS
- .9 Definitions of MSL and relevance of IHO TRs to non-tidal waters.
- .10 Review of relevant IHO Technical Resolutions (IHB)
- .11 Review of relevant IHO Charting Specifications (IHB)
- .12 French Manual of Tides (IHB)
- .13 Tides and datums in rivers and estuaries.
- .14 TWLWG Work Plan

5 Any Other Business

6 Review of Action Items

7 Venue and dates of the 3rd TWLWG Meeting

8 Draft Report to the HSSC / Draft Agenda for TWLWG3

9 Closing remarks