INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ORGANISATION HYDROGRAPHIQUE INTERNATIONALE

THIS CIRCULAR LETTER REQUIRES YOU TO VOTE

IHB File No. S3/1400

CIRCULAR LETTER 17/2014
11 February 2014

PROPOSED REVISIONS TO IHO RESOLUTIONS ON TIDES, WATER LEVELS AND TIDAL PUBLICATIONS

Reference: A. IHO CL 08/2014 dated 20 January - *Outcome of the fifth meeting of the Hydrographic Services and Standards Committee (HSSC)*
B. IHO Publication M-3 - *IHO Resolutions,* 2nd Edition - 2010, updated to January 2013

Dear Hydrographer,

1. As reported in Reference A (paragraph 10), a number of revisions to IHO Resolutions on tides, water levels and tidal publications were considered by the Hydrographic Services and Standards Committee (HSSC) at its 5th meeting in November 2013. These revisions, prepared by the Tidal and Water Level Working Group (TWLWG), are included in Annex A. They were all endorsed by the HSSC.

2. The specific Resolutions proposed for revision, as promulgated in Reference B, are as follows:

- Resolution 3/1919 as amended - *Datums and Bench Marks*
- Resolution 2/1977 as amended - *National Tidal Constituent Banks*
- Resolution 27/1919 as amended - *Time to be used*
- Resolution 1/1977 as amended - *Collection and Publication of Tidal Data*

3. Except for Resolution 3/1919 which has been extensively redrafted, the proposed revisions are shown in track change mode in Annex A.

4. The IHB is now seeking the approval of Member States in accordance with the instructions of HSSC (action HSSC5/50 refers).

5. Member States are requested to indicate their decision by returning the Voting Form, provided in Annex B, by **15 April 2014**.

On behalf of the Directing Committee
Yours sincerely,

Gilles BESSERO
Director

Annex A: Proposed revisions to IHO Resolutions on tides, water levels and tidal publications
Annex B: Voting Form

PROPOSED REVISIONS TO IHO RESOLUTIONS
ON TIDES, WATER LEVELS AND TIDAL PUBLICATIONS

I. Resolution 3/1919 as amended

Existing text

TITLE	Reference	Last amendment (CL or IHC)	1st Edition Reference
DATUMS AND BENCH MARKS	**3/1919 as amended**	**19/2008**	**A2.5**

1 It is resolved that heights on shore, including elevations of lights, should be referred to a HW datum. Heights should be referred to Mean Sea Level (MSL) where the tidal range is not appreciable. The datum used should be clearly stated on all charts.

2

a) It is resolved that the datum for tide predictions shall be the same as chart datum (datum for sounding reduction). It is further resolved that the Lowest Astronomical Tide (LAT), or as closely equivalent to this level as is practically acceptable to Hydrographic Offices, be adopted as chart datum where tides have an appreciable effect on the water level. Alternatively the differences between LAT and national chart datums may be specified on nautical documents. If low water levels in a specific area frequently deviate from LAT, chart datum may be adapted accordingly.

b) It is resolved that Highest Astronomical Tide (HAT) be adopted as the datum for vertical clearances where tides have an appreciable effect on the water level. Alternatively the differences between HAT and national datums for vertical clearances may be specified on nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly. It is further resolved that a HW datum be used for vertical clearances in non-tidal waters.

Notes:
i) LAT (HAT) is defined as the lowest (highest) tide level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions. It is recommended that LAT and HAT be calculated either over a minimum period of 19 years using harmonic constants derived from a minimum of one year's observations or by other proven methods known to give reliable results. Tide levels should, if possible, reflect the estimated error values obtained during the determination of these levels.

ii) In non-tidal waters, in order to allow the development of regional solutions, it is recommended that an appropriate long term range of low/high water definitions of the lower/upper 94-100 percentile be adopted.

3 It is resolved that chart datums (datums for sounding reduction), the datums of tide prediction and other tidal datums shall always be connected with the general land survey datum, and, in addition, with a prominent and permanent fixed mark in the neighbourhood of the tide gauge, station, observatory etc.

4 It is resolved that ellipsoidal height determinations of the vertical reference marks used for tidal observations should be made, in order to support the production of seamless data sets; i.e. to allow the translation between data sets with differing vertical datums. It is further resolved that such observations should relate to a geocentric reference system, preferably the International Terrestrial Reference System (ITRS) or one of its realizations e.g. the World Geodetic System 1984 (WGS84).

Proposed revised text

TITLE	Reference	Last amendment (CL or IHC)	1st Edition Reference
DATUMS AND BENCH MARKS	**3/1919 as amended**	**xx/2014**	**A2.5**

1 It is resolved that the datum of tide/water level observations and predictions for mariners shall be the same as chart datum (datum for sounding reduction).

2 It is resolved that chart datum and other tidal/water level datums used should be clearly stated on charts and all other navigational products.

3 It is resolved that chart datums (datums for sounding reduction), the datums of tide/water level prediction and other tidal/water level datums shall always be connected with the general land survey datum, and, in addition, with a prominent and permanent fixed mark in the neighbourhood of the tide gauge, station, observatory etc.

4 It is resolved that ellipsoidal height determinations of the vertical reference marks used for tidal/water level observations should be made, in order to support the production of seamless data sets; i.e. to allow the translation between data sets with differing vertical datums. It is further resolved that such observations should relate to a geocentric reference system, preferably the International Terrestrial Reference System (ITRS) or one of its realizations e.g. the World Geodetic System 1984 (WGS84).

<u>In oceans and geographical areas connected to oceans</u>

5 It is resolved that heights on shore, including elevations of lights, should be referred to a HW datum.

6 It is resolved that the Lowest Astronomical Tide (LAT), or as closely equivalent to this level as is practically acceptable to Hydrographic Offices, be adopted as chart datum. Alternatively the differences between LAT and national chart datums may be specified in nautical documents. If low water levels in a specific area frequently deviate from LAT, chart datum may be adapted accordingly.

7 It is resolved that Highest Astronomical Tide (HAT) be adopted as the datum for vertical clearances. Alternatively the differences between HAT and national datums for vertical clearances may be specified in nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly.

Note: LAT (HAT) is defined as the lowest (highest) tide level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions. It is recommended that LAT and HAT be calculated either over a minimum period of 19 years using harmonic constants derived from a minimum of one year's observations or by other proven methods known to give reliable results. Tide levels should, if possible, reflect the estimated uncertainty values obtained during the determination of these levels.

<u>In geographical areas with limited connection to oceans and negligible tidal range (< 30 cm)</u>

8 It is resolved that depths, and all other navigational information should be referred to Mean Sea Level (MSL) or other level as closely equivalent to this as is practically acceptable to Hydrographic Offices.

Note: The adopted level may be a well-defined geodetic datum as used for heights in land survey applications or an observed local Mean Sea Level (MSL) based on long series of water level observations.

9 In order to support other non-navigational applications as UNCLOS and also to indicate the characteristics in the area, it is recommended to adopt the mean of yearly lowest/highest water levels observed over a long time period.

Inland Waters

10 It is resolved that depths, and all other navigational information should be referred to an appropriate level practically acceptable to Hydrographic Offices or if needed LW as a reference level for depths and HW for vertical clearances. The selection of which one of the alternatives to be used is a difficult issue which can only be determined locally and which will be largely dependent on seasonal hydrological conditions. LW and HW are defined preferably as the mean of lowest/highest water levels, or as a suitable percentile of lowest/highest water levels, observed over a long time period.

II. Resolution 1/1977 as amended (*changes* highlighted)

TITLE	Reference	Last amendment (CL or IHC)	1st Edition Reference
COLLECTION AND PUBLICATION OF TIDAL DATA	**1/1977 as amended**	**xx/2014**	**A6.7**

It is recommended that Member States gather tidal data from as many locations as feasible and maintain sets of harmonic constants in National Tidal Constituent Data Banks.

It is recommended that Member States make public, using their ~~**WEB**~~ **web** site or other suitable means, **tidal and tidal stream predictions and** a list of locations included in their own Tidal Constituent Data Banks.

III. Resolution 2/1977 as amended (*changes* highlighted)

TITLE	Reference	Last amendment (CL or IHC)	1st Edition Reference
NATIONAL TIDAL CONSTITUENT BANKS	**2/1977 as amended**	**xx/2014**	**A6.8**

It is resolved that the National Tidal Constituent Banks should store the following information for each location:

a) Location identification by number, name, country, body of water, and geographic coordinates;

b) Source, date, time zone, and duration of data used in analysis;

c) Identification of geodetic levelling datum, and date of reference to this datum, elevation of mean sea level and, where applicable, the connection to and identification of the appropriate bench mark(s); and

d) Listing of values for tidal constituents giving amplitudes in metres and Greenwich phase lags in degrees and designation of organization responsible for analysis. (Tidal constituents used should form part of those in the Standard List prepared by the ~~**IHOTC**~~ **TWLWG** and published on the IHO website.)

See also *9/1919 (A 6.1)* and *10/1919 (A 6.2)*.

IV. Resolution 27/1919 as amended (*changes* highlighted)

TITLE	Reference	Last amendment (CL or IHC)	1st Edition Reference
TIME TO BE USED	**27/1919 as amended**	**xx/2014**	**G1.2**

It is resolved that the time system employed **in printed Tide Tables** shall be ~~**that actually used**~~ **Standard Time as observed** at the port.

It is resolved that daylight saving time shall not be used in the predictions in the **printed** Tide Tables but that a notice or caution relative to its use and the period of its application shall be included therein.

It is strongly recommended that the time system employed in Digital Tide Tables (DTT) published in web sites shall be Standard Time as observed at the port, without daylight saving time application. A notice or caution relative to its use and the period of its application shall be included therein. Additionally, DTT can offer to the user the possibility to set automatically another time system.

Annex B to IHO CL 17/2014
IHB File N° S3/1400

VOTING FORM
(to be returned to the IHB by 15 April 2014
E-mail: info@iho.int - Fax: +377 93 10 81 40)

Member State:	

Contact:		**E-mail**:	

ADOPTION OF REVISIONS TO IHO RESOLUTIONS
ON TIDES, WATER LEVELS AND TIDAL PUBLICATIONS

Do you approve the revisions to IHO Resolutions, as included in Annex A?

a. Resolution 3/1919 as amended

YES ☐ NO ☐

b. Resolution 1/1977 as amended

YES ☐ NO ☐

c. Resolution 2/1977 as amended

YES ☐ NO ☐

d. Resolution 27/1919 as amended

YES ☐ NO ☐

Comments (if required)