

Resolutions of the IHO – Repertory of Resolutions (M-3)

Review of TWCWG resolutions

IHB was replaced with IHO throughout the resolutions.  
TWLWG was replaced by TWCWG throughout the resolutions.

A6.10 10 - Metadata for Tide recordings and A6.11 - Metadata for Current recordings are newly proposed resolutions

The resolutions of relevance to TWCWG that have been amended/updated are as follows:

The relevant pages from M-3 2<sup>nd</sup> Edition are attached below with the amended or new text inserted is underlined.

**SECTION 2.2 – TIDES AND WATER LEVELS**

- A2.8 [Use of terms "Tide", "Tidal Stream" and "Tidal Current"](#)
- A2.9 [Description of currents and tidal streams](#)
- A6.1 [Exchange of tidal information](#)
- A6.3 [Issuing authorities for tidal predictions](#)
- A6.4 [Extension of world network of tidal observations](#)
- A6.5 [Study of mean sea level](#)
- A6.6 [Geographical positions of tide stations](#)
- A6.8 [National Tidal Constituent Banks](#)
- A6.10 [Metadata for Tide records](#)
- A6.11 [Metadata for Tidal Stream / Current records](#)

TITLE	Reference	Last amendment (CL or IHC)	1 <sup>st</sup> Edition Reference
<b>USE OF TERMS "TIDE", "TIDAL STREAM" AND "TIDAL CURRENT"</b>	4/1919 as amended	18/1955	A2.8

It is resolved that the term "tide" or its equivalent in another language shall be used for designating the periodical vertical movement of large bodies of water, and the terms "tidal stream", "tidal current", or their equivalents for designating the consequences of the periodical horizontal movement of large bodies of water.

<b>DESCRIPTION OF CURRENTS AND TIDAL STREAMS</b>	5/1919 as amended	19/2008	A2.9
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- 1 Tidal stream: The alternating horizontal movement of water associated with the rise and fall of the tide caused by tide-producing forces. Also called tidal current. (IHO dictionary).
- 2 Current: Water or other fluid in essentially horizontal motion. A non-periodical movement of water, generally horizontally, due to many causes such as different temperatures and prevalent winds. Some may be temporary, others permanent. (IHO dictionary).
3. It is resolved that a current shall be described by the direction towards which it is running.
4. It is resolved that tidal streams shall be defined by the direction towards which they flow.
  - a) If desired, the terms "flood stream" and "ebb stream" may be used for designating the horizontal movement of the water when the tide is respectively rising or falling, but to avoid any ambiguity, in the case of streams which do not turn at about the time of local high or low water, an indication shall be given of the direction towards which the stream flows.
5. It is resolved that information relating to tidal streams shall be referred to the time of high or low water at a port for which tidal predictions are given in the Tide Tables.
6. It is strongly recommended that the port selected for reference be preferably a port for which daily predictions are given in Tide Tables (standard ports) and where the tides have similar characteristics to those of the currents under consideration.
7. The rules of the above paragraphs 5 and 6 would not be applicable for those countries which publish Current Tables giving daily information relating to tidal streams with reference to the hours of the day. In such instances, it is recommended that the reference be made to the time of slack or maximum current at a place for which daily tidal stream predictions are given in such Tables.
8. It is resolved that velocities shall be given in knots to 1 decimal place.
9. It is resolved that directions shall be given in arc-degrees.

10. It is recommended that the effect of prevailing winds or long-continued weather conditions on local currents be recorded in Sailing Directions.

<b>EXCHANGE OF TIDAL INFORMATION</b>	<b>9/1919 as amended</b>	<b>42/2000</b>	<b>A6.1</b>
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It is resolved that published tidal information shall be freely exchanged between Member and Associate Member States. The exchange of tide and tidal current observations and predictions, as well as any relevant metadata, shall be made, as far as possible, in a form directly usable in electronic computer operating systems, and according to standards approved.

<b>ISSUING AUTHORITIES FOR TIDAL PREDICTIONS</b>	<b>2/1947 as amended</b>	<b>IHC 10</b>	<b>A6.3</b>
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In the general interests of navigation, it is resolved that tidal predictions to be used for any important commercial port or approach areas within a country's territorial waters shall be those established by the appropriate authority in which the port or the approach area is situated or is being maintained. It may be necessary to establish the authority for predictions if such predictions are made on a regional co-operative basis where several narrow stretches of water separate States. In this context, it is strongly recommended that Member States extend their tidal observations to those areas and prepare and publish their predictions under the coordination of the established authority.

<b>EXTENSION OF WORLD NETWORK OF TIDAL OBSERVATIONS</b>	<b>5/1932 as amended</b>	<b>19/2008</b>	<b>A6.4</b>
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1. It is recommended that the world network of tide stations be extended, that some well-distributed stations operate continuously, and that special efforts be directed towards the establishment of stations on the outer sea-coast of the continents and oceanic islands.

2. It is recommended that governments which do not possess departments organized for this purpose be advised by the IHO as to the desirability and means of undertaking the installation of tide gauges, the analysis of the resulting records and the preparation of Tide Tables. This work, carried out for selected stations, is of importance both in the interests of navigation and of science. It is possible that such work might be financed by commercial corporations or by other institutions if they were brought to appreciate its utility.

3. It is recommended that tide stations be combined with continuous GNSS measurements. It is noted that GNSS information can be used to measure the vertical crustal motion of the Earth with respect to the center of the Earth, making it a useful technique to distinguish relative sea level rise from absolute sea level rise. Additionally, GNSS positioning of tide station benchmarks allows for the determination of ellipsoid to tidal datum separations which are imperative for ellipsoid-referenced hydrographic surveys

4. Concerning the extension of the world network of tidal stations with a view to improving co-tidal line charts, it is recommended that Hydrographic Offices give increased attention to the need for additional observations of tides and tidal streams in many areas not now adequately examined. It is noted that in certain regions observations extending over 29 days of tides and tidal streams are sufficient.

<b>STUDY OF MEAN SEA LEVEL</b>	<b>6/1932 as amended</b>	<b>20/2012</b>	<b>A6.5</b>
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1. It is recommended that the IHO encourage Member States to carry out systematic, long-term tidal observations, records of typically 40 years or longer, in view of the importance of monthly and secular variations of mean sea level in connection with tidal prediction and for the purpose of informing climate change studies.

2. It is recommended that Member States make such data available for publication to the Permanent Service for Mean Sea Level (PSMSL) of the International Council of Scientific Unions, since that service publishes regular monthly and annual values of mean sea level for tidal stations throughout the world.

3. It is recommended that Member States pursue long-term sea level data to improve the quality, quantity, and availability of long-term sea level data series. Recovering long-term historical sea level data is important for climate studies, oceanography, geodesy, geophysics, geology, and several other disciplines.

<b>GEOGRAPHICAL POSITIONS OF TIDE STATIONS</b>	<b>1/1967</b>		<b>A6.6</b>
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It is recommended that when giving tidal information about stations whose identification on the chart is not obvious, the approximate geographical coordinates (latitude and longitude) of such stations be indicated.

<b>NATIONAL TIDAL CONSTITUENT BANKS</b>	<b>2/1977 as amended</b>	<b>42/2000</b>	<b>A6.8</b>
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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, latitude and longitude;
- b) Source, date, time zone, and duration of data used in analysis;
- c) Method of analysis (e.g. harmonic, 'non-harmonic' [time and height differences], other);
- d) 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 benchmark(s); and
- e) Listing of values for tidal constituents giving amplitudes in metres and Greenwich phase lags in arc-degrees and designation of organization responsible for analysis. (Tidal constituents used should conform to those in the Standard List prepared by the TWCWG and published on the IHO website.)

See also [9/1919 \(A 6.1\)](#) and [10/1919 \(A 6.2\)](#).

<b>Metadata for Tide recordings</b>			<b>A6.10</b>
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1. It is recommended that Hydrographic Offices should store the following metadata information for each location for which tide data is recorded and stored:

- a) Location identification by number, name, country, body of water, and latitude and longitude;
- b) Equipment make and model, date installed, time zone, and duration of data collection;
- c) Sampling rate and averaging interval;
- d) 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 benchmark(s); and
- e) Periods of data available and periods of missing or unusable data

<b>Metadata for Current recordings</b>			<b>A6.11</b>
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1. It is recommended that Hydrographic Offices should store the following metadata information for each location for which currents data are recorded and stored:

- a) Location identification by number, name, country, body of water, latitude and longitude, and depth, including which datum it is applied to;
- b) Equipment make and model, including frequency, date installed, time zone, and duration of data collection;
- c) Sampling rate and averaging interval;
- d) Periods of data available and periods of missing or unusable data;
- e) Orientation (upward, downward, or horizontal); and
- f) For profiles, the size and number of data cells.