

MS 15 – Real-time hydrographic and environmental information services

15.1 Water level information for navigation

15.1.1 Submitting organization

IHO

15.1.2 Coordinating bodies

IMO and IHO

15.1.3 Description of the Maritime Service

Oceanic and inland water level information is essential for determination of under-keel clearance required for safe navigation. Real-time water level information is important for applications such as route planning port entry and the determination of tidal prediction. Water level information consists of:

- .1 observed and/or forecasted time series at one or more fixed stations;
- .2 forecasted gridded forecasts of water level for one or more regions; and/or
- .3 a gridded hydroid surface.

15.1.4 Purpose

The development of electronic navigation systems that use high resolution bathymetric data are demanding the provision of real-time water level data. The IHO water level specification provides a standardized mechanism to digitize and transfer water level data.

15.1.5 Operational approach

Water level data is usually provided by hydrographic organizations, or on their behalf by an approved authority. Datasets are based on an internationally harmonized model and data encoding specification. Water level datasets will be provided via online Internet services or distributed by appropriate distribution networks used for other navigational products and services.

15.1.6 User needs

Tidal and/or tidal water information is intended for activities such as situational awareness, hazard avoidance, works on offshore renewable energy installations and route planning. A knowledge of water levels and under-keel clearance water along a planned route, and for some time in the future, can help planners select the most efficient time and safest route for transit.

15.1.7 Information to be provided

Digital water level metadata and catalogue information is encoded using the eXtensible Markup Language (XML). The Hierarchical Data Format (HDF5) is used for water level surface coverage data.

15.1.8 Associated technical services

(To be further developed)

15.1.9 Relation to other Maritime Services

This product may conflict with simplified information on water levels that are included with many nautical charts. The data from this product should have "display priority" over older simplified water level information.

Maritime Service	Examples of information related to MS 15
MS 11 – Nautical chart service	Underlying chart layout, simplified water level information
MS 12 – Nautical publications service	Description of long-term tidal observations
MS 14 – Meteorological information service	Information on storm surges
MS 16 – Search and rescue (SAR) service	Tidal influences on rescue operations

15.2 Surface water currents for navigation

15.2.1 Submitting organization

IHO

15.2.2 Coordinating bodies

IMO and IHO

15.2.3 Description of the Maritime Service

This Maritime Service provides digital information on surface current speed and direction to land-based and ship-board ECDIS. The information consists of:

- .1 time series at one or more fixed stations;
- .2 gridded forecasts of surface currents for one or more regions; and/or
- .3 time series at a moving (i.e. drifting) station.

Surface current information is portrayed as colour-codes vector lines, with additional information available via mouse pick command.

15.2.4 Purpose

This Maritime Service includes:

- surface current vector and tidal information, intended for situational awareness;
- hazard avoidance;
- works on offshore renewable energy installations; and
- route planning.

The implementation of this service should result in improved safety and cost reductions due to time and fuel efficiencies. The associated product specification implemented update mechanism to ensure that the latest data is available to the mariner and other users.

This Maritime Service includes:

- information traditionally provided within nautical publications such as tide and surface current information necessary for the route planning (link with SOLAS);
- surface current vector and tidal information, intended for situational awareness, hazard avoidance, works on renewable marine energy and route planning;
- information derived from observations and/or from numerical model;
- a service to allow users to determine what is available in their area of interest (geographic and context);
- an ordering service to allow users to order the information required from the service providers identified; and
- a delivery service to allow the user to receive the information required.

The service provides information on current and tide in complement to ENCs/nautical charts.

15.2.5 Operational approach

Data are created by hydrographic organizations and are disseminated via Internet or other available channels.

One evolution of the marine service is the provision of datasets information based on an internationally harmonized and appropriate model. The datasets will be distributed by appropriate methods for use by onboard navigation equipment.

15.2.6 User needs

Surface current vector information and water level are intended for situational awareness, hazard avoidance (storm surge forecast, analysis, marine submersion) and route planning. Upon entering a harbour or other confined body of water, knowledge of currents is essential to pilots to avoid hazards. Knowledge of currents and under-keel clearance water along a planned route, and for some time in the future, can help planners to select the most efficient time and route for transit.

15.2.7 Information to be provided

Data is contained in XML files that consist of metadata and HDF5 data files containing arrays of speed and direction information, tidal amplitude, tidal water level and water level. This Information and all other necessary information is provided in various IHO Standards (e.g.: S-111, S-104 IHO recommendations).

15.2.8 Associated technical services

(To be further developed)

15.2.9 Relation to other Maritime Services

This product may conflict with simplified information on tidal currents, chart datum, tidal water level, that are included in nautical charts. The data from the new product must have display priority over the older simplified information.

Maritime Service	Examples of information related to MS 15
MS 11 – Nautical chart service	Underlying chart layout, simplified water movement information
MS 12 – Nautical publications service	Description of long-term current observations
MS 14 – Meteorological information service	Information on storm surges
MS 16 – Search and rescue (SAR) service	Current influences on rescue operations