



Pêches et Océans  
Canada

Fisheries and Oceans  
Canada



# National Tidal/Water levels Issues in Canada.

Louis Maltais  
Canadian Hydrographic Service

TWLWG7, Silver Spring, USA

Canada



# Items to be presented

- Hydrographic Vertical Separation Surfaces
- Web Services for Tides / Water Levels / Currents
- Enavigation initiatives
- World Class Tanker Safety System (WCTSS)

# Hydrographic Vertical Separation Surfaces

## *HyVSEPs*

CHS products which map Chart Datum and tidal levels between gauges and offshore, for all charted waterways.

- Reduction of hydrographic surveys through the ellipsoid
- Integration of hydrographic and terrestrial data on a national scale:
  - coastline(s)
  - maritime boundaries (UNCLOS, marine cadastre)
  - define intertidal zone
  - baseline for sea level rise
  - climate change adaptation
  - coastal infrastructure





**On the water****Marine Conditions****Tides, Currents, and Water Levels**

## General Information

[Tides and Currents](#)[History](#)[Vertical Datums](#)[Phenomena](#)

## Data Available

[Predictions](#)[Observations](#)[Oceanic Forecast](#)[Archives](#)[Web Services](#)[Index of Sites](#)[Glossary](#)[Water Levels at Your Fingertips!](#)[Vertical Control Benchmarks](#)[Sites of Interest](#)[Frequently Asked Questions](#)

## Three web services providing access to official water level data


### [Technical specifications](#) for accessing these services

This document provides the technical specifications for accessing three web-based water level services: predictions, observations and forecasting. To access these services, you must request a username and password from the Canadian Hydrographic Service at [chsinfo@dfo-mpo.gc.ca](mailto:chsinfo@dfo-mpo.gc.ca).

### Description

The Canadian Hydrographic Service (CHS) has developed three web-based water level services, and they are available free of charge under [licence](#). Specifically, these three web services provide access to water level predictions, water level observations, and SPINE (Service de Pr vision et d'Interpolation des Niveaux d'Eau), a water level forecasting and interpolation system.

1. The **predictions** web service gives access to coastal water-level predictions for all of Canada. These predictions are published annually and are similar to what is published in the Canadian Tide and Current Tables.
2. The **observations** web service gives access to real-time water level observations made by the network of permanent water level recorders on the St. Lawrence between Montreal and the Magdalen Islands. Other network stations across the country will be added over time. When available, recorded observation data for the past 12 months can be accessed.
3. The **forecasting** and interpolation web service (commonly called SPINE) is a system used to forecast water levels at a specific time and position up to 30 days in advance for the St. Lawrence ship channel between the Port of Montreal and Saint-Joseph-de-la-Rive. This system is based, in part, on water level forecasts derived from a hydrodynamic model that takes various weather conditions into account and, in part, on real-time observations made by the network of permanent water level recorders. To increase their accuracy, digital model forecasts are adjusted according to water level observations for the entire area. A precision matrix is also provided for forecast data.

To access these web services, simply follow the steps described in these  [technical specifications](#).

### Access and restrictions

Please take a moment to read through the [licence](#).

### Data

All three web services use SOAP and XML as their communication protocol and the English language for method calling and data exchange. Each service has an XML description readable in WSDL (i.e. <https://ws-shc.gc.ca/dfo-mpo.gc.ca/predictions?wsdl>). This description is useful for automatically generating code (with tools such as WSDL2Java from Apache Axis) to communicate with the services.



## Hydro/Meteo Data

Summary

Water Level

### Montreal Jetee 1

20Apr2015 1000

**1.26 m**

Water Level

### Mtl Rue Frontenac

20Apr2015 1000

**1.24 m**

Water Level

### Virtual Point aux Trembles

20Apr2015 1020

**1.34 m**

Water Level

### Varenes

20Apr2015 1000

**1.35 m**

Water Level

### Contrecoeur

20Apr2015 1000

**1.45 m**

Water Level

### Sorel

20Apr2015 1000

**1.59 m**

Water Level

La



Passages

Hydro/Meteo

Day

Mr Louis Maltais



## Hydro/Meteo Data

Summary

Water Level

### Water Level - Deschaillons

#### Deschaillons

20Apr2015 1000

**3.76 m**

Water Level

20/1051 3.90m

HW

20/2000 2.30m

LW

### Batiscan

20Apr2015 1000

**2.42 m**

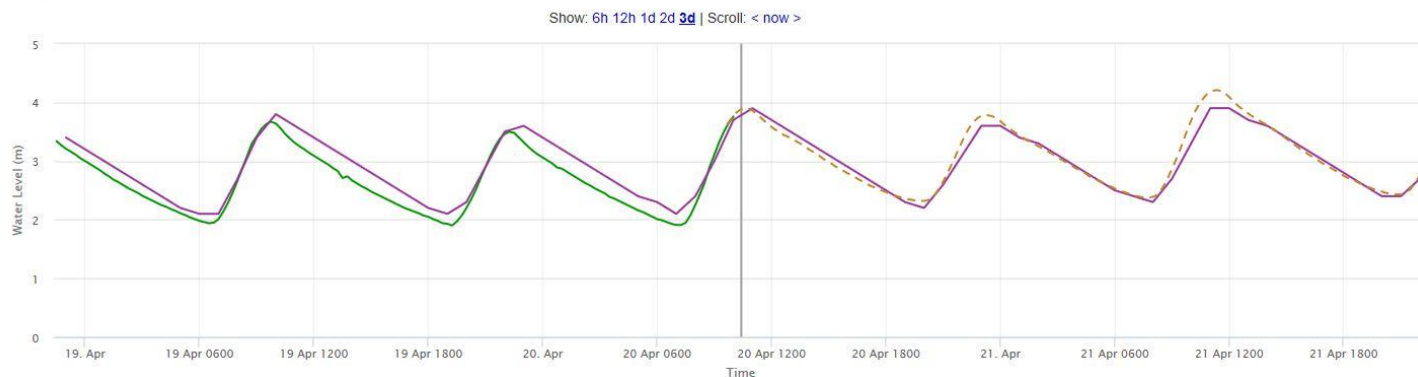
Water Level

20/1136 2.90m

HW

20/2048 2.00m

LW



— Observed Water Level — Residual — Astronomical Predicted Water Level - - SPINE Forecast Water Level - - Forecast Residual

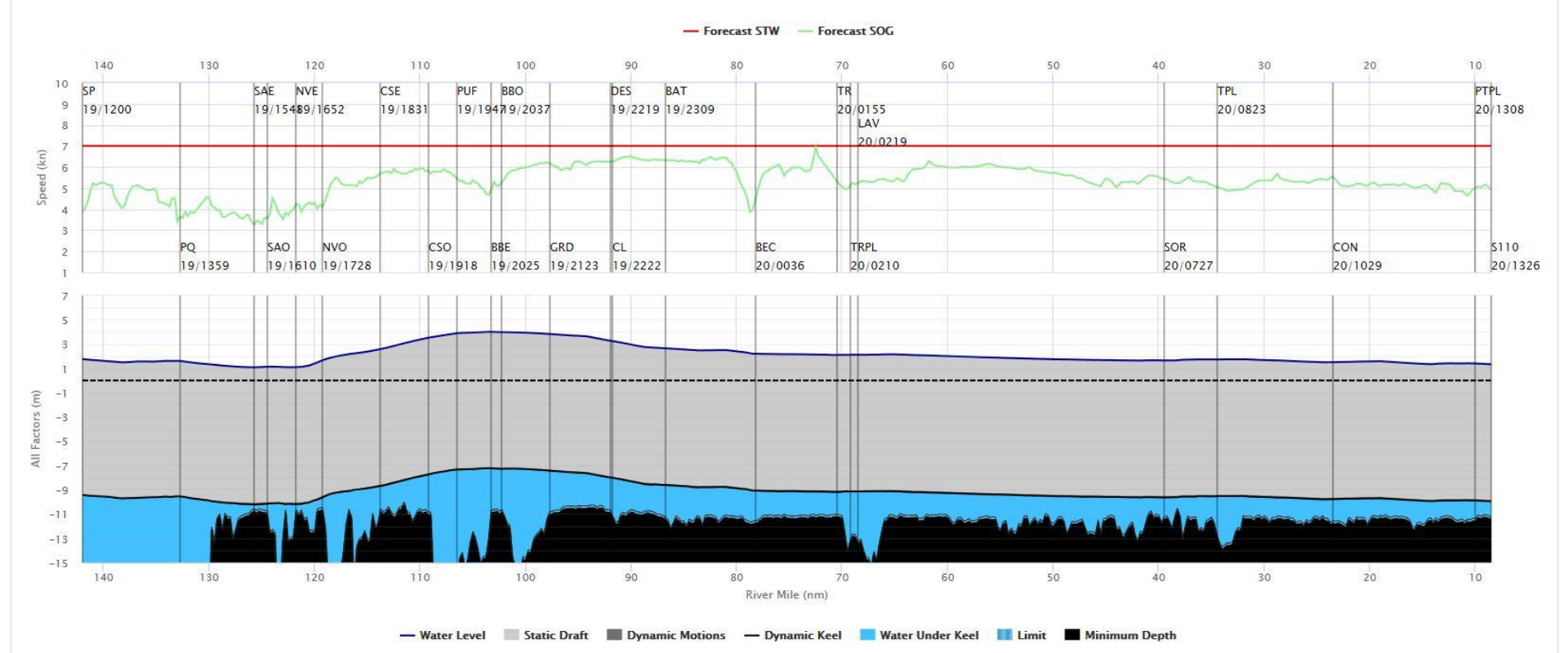
Draft vs Time 19/1200 - 22/1200 

UKC 19/1200 11.10 m Gates 19/1200 11.10 m ADC 19/1200

River Mile Time

Optimise Speeds - Experimental Edit Speeds

Speed And UKC Chart





# World Class Tanker Safety system

- National project with many aspects
- ENC Gaps
- Two Pilots projects for Enavigation(East/West)
- Tides / Currents (operationnal oceanography)
- Timing looks good to use S-100 new standards