



Pêches et Océans
Canada

Fisheries and Oceans
Canada



St-Lawrence River, the Expressway for Enav.

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Canadian Hydrographic Service

Canadian Hydrographic Conference

April 15-16-17 - St-John's Newfoundland and Labrador

Canada



- Introduction
- Why use data services ?
- Water Levels
- Surface Currents (S-111)
- High Definition Bathymetry (S-102)
- Projects underway
- Next steps
- Conclusion



Introduction

- E-Nav is the buzz word
- We need fuel if we want E-nav
- Expectations are high, resources are thin
- Connectivity is here now
- Better data, informed decisions
- From static to dynamic information



Success of Web services for water levels

- One service, many clients
- Development is minimal
- Support one pipe instead of many custom solutions
- Modifications can be done to the infrastructure without any impact on the service

The screenshot shows the Fisheries and Oceans Canada website. The header includes the Government of Canada logo and navigation links. The main content area is titled 'Three web services providing access to official water level data'. It features a sidebar with a navigation menu and a main text area with technical specifications, a description of the services, and access restrictions.

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 Level 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.

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 Prédiction 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.



Clients

- Groupe Ocean
- St-Lawrence Global Observatory
- Ministère Sécurité Publique Québec
- Ports
- OMC International
- Canadian Coast Guard
- ...



Case study: Ministère Sécurité Publique

Publié le 14 avril 2014 à 00h00 | Mis à jour à 08h30

Laval craint des inondations



Le niveau élevé de la rivière des Mille-Îles inquiète les riverains.

PHOTO: ROBERT SKINNER, LA PRESSE

After:

- Specification to access the service
- The client grab the information he wants, no CHS intervention needed
- Dynamic link
- Secure transfers



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PORT MONTREAL

Search

BUSINESS

COMMUNITY

CRUISES

TRADING WITH THE WORLD



2013/11/27 - Tariffs modified as of February 1, 2014 [Read on](#)

Port of Montreal



3D Video

WATER LEVEL:

2014/04/07 09:20 .71 M/02'04"

relative to chart datum

[Check the water levels map](#)

ARRIVALS AND DEPARTURES

[Check the Port's vessel traffic](#)

[Check vessel traffic on the St. Lawrence River](#)

OUR PUBLICATIONS

PORT
INFO

LOGBOOK

WEATHER



Check
Montreal's
weather forecast

[Environment Canada](#)

MAP OF THE PORT



Map of the Port
with vessels in
real time

NEWS

Mozambican MiGs stuck in Germany
[Suite](#)

2014/04/07

HHLA brings forward parking space expansion at Container Terminal

PORT
QUÉBEC

HOME CAREERS CONTACT US FRANÇAIS

BUSINESS ACTIVITIES AND RECREATION CRUISES ABOUT THE PORT COMMUNITY

Search



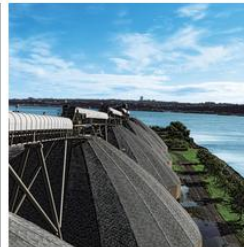
ECONOMIC HUB

The Port of Québec is positioned as a strategic connector to international markets as it maintains business relations with over 300 ports and 60 countries. The value of cargo that passes through Québec exceeds 20 billion dollars per year.



SUSTAINABLE DEVELOPMENT

The Port and Québec City are a leading couple where municipal urban and commercial spaces are concerned. As a good corporate and urban citizen, the Québec Port Authority takes a partnership-oriented approach with the community and to further integrate the principles of sustainable development in all its activities.



MARINE TRAFFIC MAP

The Port of Québec welcomes each year over 1 400 ships from all over the globe. Today, the Port of Québec has captured a special place in this highly competitive international industry. Check maritime traffic in Port with our new live traffic map to see the ships currently in Port.



CLIMATIC CONDITIONS

Last Received Data :
2014/04/07 at 08:04

LOCAL HOUR

QUÉBEC
8:54¹¹

TIDES

MONTANTE



NEXT TIDE

HAUTE

12:45

BASSE

20:42

WEATHER



MONDAY 7 APRIL

CURRENT TEMPERATURE

0C

Partly Cloudy Day

MAX / 4 MIN / -2

Sunrise 06:15 AM Sunset 07:22 PM



TUESDAY 8 APRIL

Rainy

MAX / 3 MIN / 2

Sunrise 06:11 AM Sunset 07:22 PM

WIND

W 2 km/h
(1 kts)

HUMIDITY

82%

PRESSURE

102.1kPa

WATER TEMPERATURE

0.4C (32.8F)

LATEST NEWS

01/13/2014
ADVISORY COMMITTEE TO...

John R. Porter will chair the advisory committee whose mandate is to recommend to the Port the best way to ensure the harmonious visual integration of the two domes of the new wood pellet terminal in Anse au Foulon....

01/08/2014

TRUE SUCCESS FOR THE...

Over 200 people gathered today for the 2014 edition of the Gold-Headed Cane held at Port of Québec cruise terminal...



Port de Québec
@PortQuebec

Belle innovation pour l'industrie maritime !
Apprenez en vidéo actual... via @e_uqo
[Show Summary](#)

1 Apr



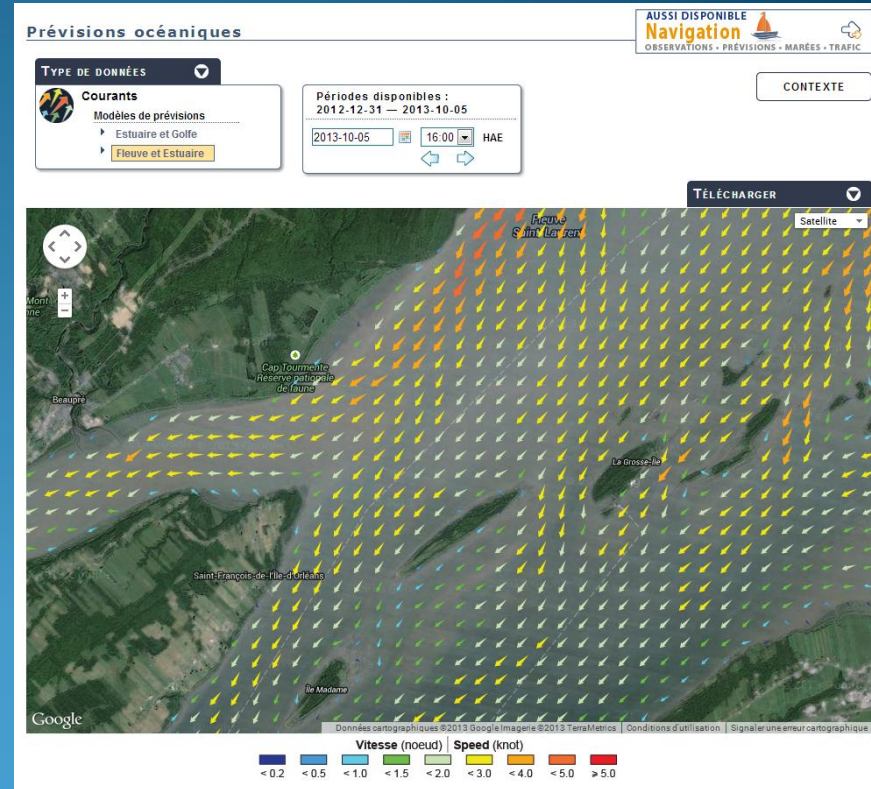
CHS Servox system

- Phone system to access water level predictions and observations. **1-877-775-0790**
- Need to update the technology toward Interactive Voice Response(IVR) system.
- COST software solutions are able to connect to web services.
- Even for internal needs we found out, Web services are a good solution.



Surface Currents

- Currents Models
- Outputs in XY, direction, intensity, time
- Observation, Forecast, Prediction
- Resolution, spatial, temporal
- Improved ETA
- Squat Calculation (SOG-Surf Cur = SOW)
- Model can continue to improve without change to the service





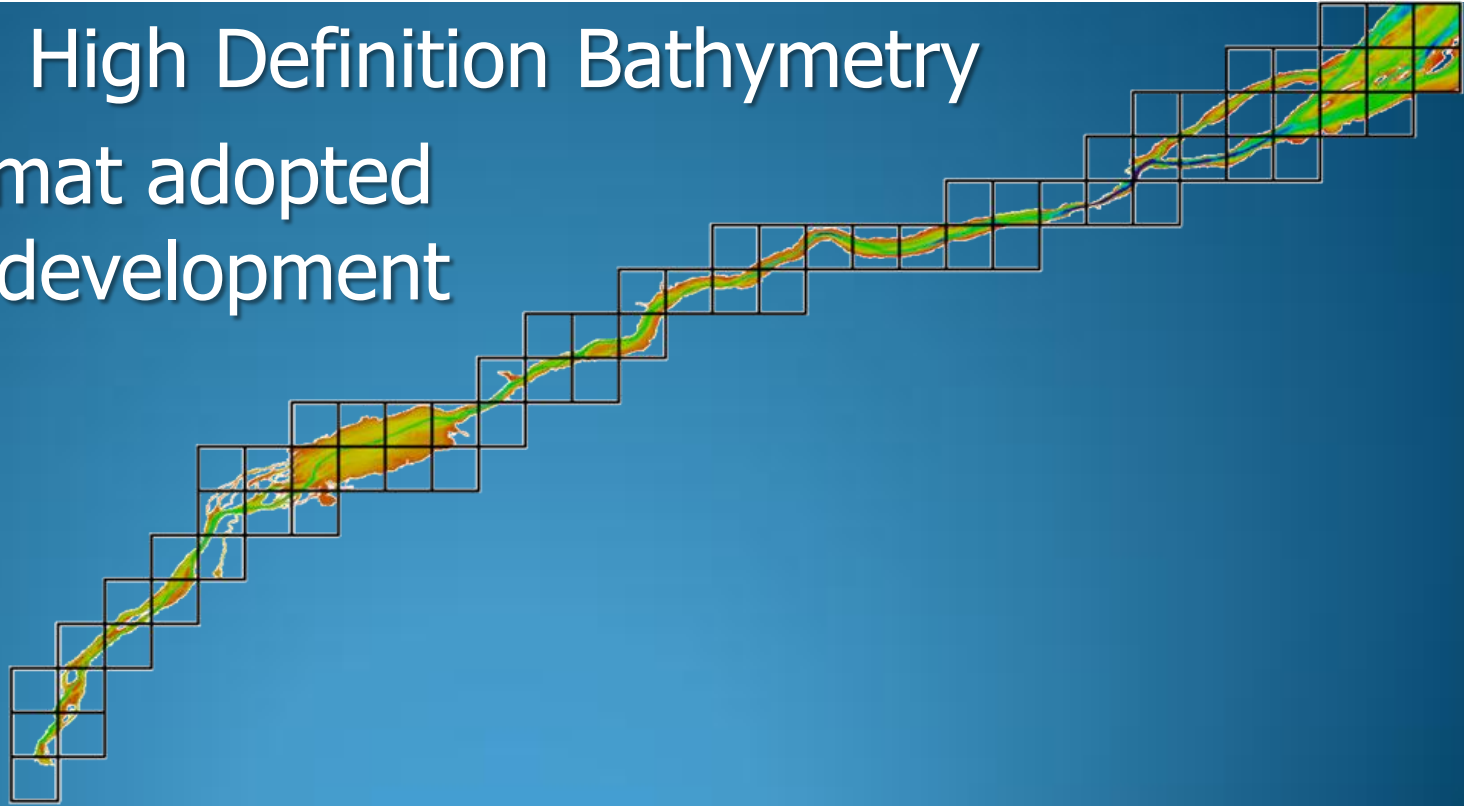
Surface Currents S-111

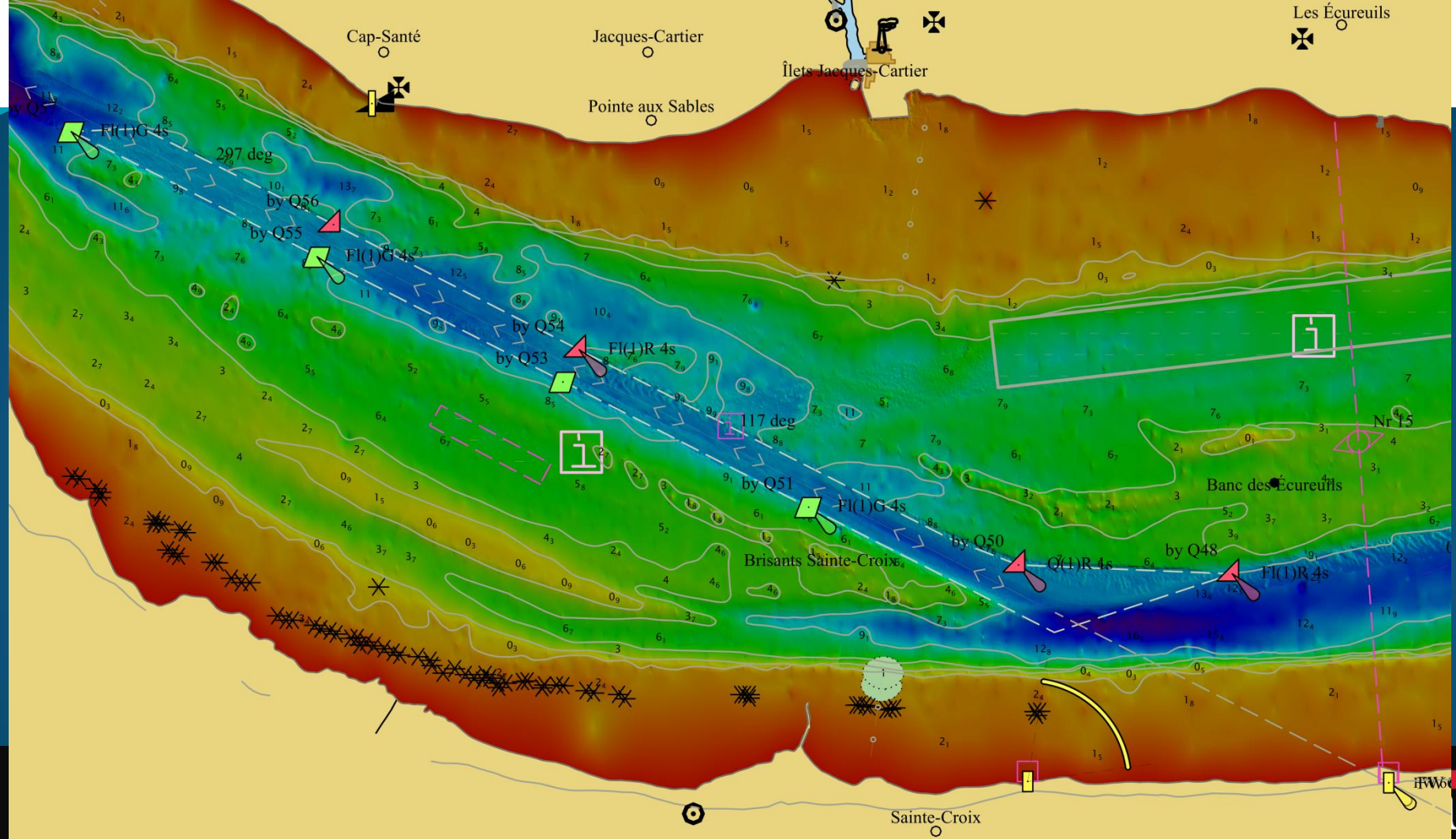
- IHO Working Group (SCWG)
- To develop standards for the **delivery** and **presentation** of **navigationally significant** surface current information. This information will be used with Electronic Navigational Charts (ENCs) in an Electronic Chart Display and Information Systems (ECDIS) or in an Electronic Charting System (ECS) as an aid to navigation.



High Definition Bathymetry

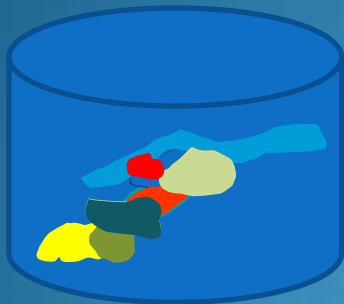
- S-102 format adopted
- Software development
- Delivery
- Updating



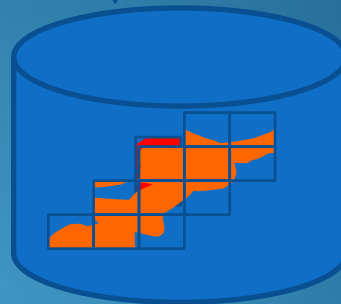
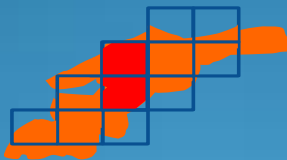




HD bathymetry S-102 cells Creation-Maintenance- Distribution



Source
DB



Product
DB





Enav projects

- Simulation Center
- Seaway Draft Information System DIS
- St-Lawrence Pilots
- Port of Montreal OMC international
- Canadian Coast Guard



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Navigation By Location Data Catalog About this Portal Participate News

Home > E-Navigation > Maritime Information Portal

Navigation By Location



View all the available maritime information for every canadian main waterways. The viewable content is supplied directly from official source agencies.

Connect to Services



Make a direct connection to many of our maritime services using popular Geospatial software. These services are provided using the Web Map Services protocol.

Download Datasets



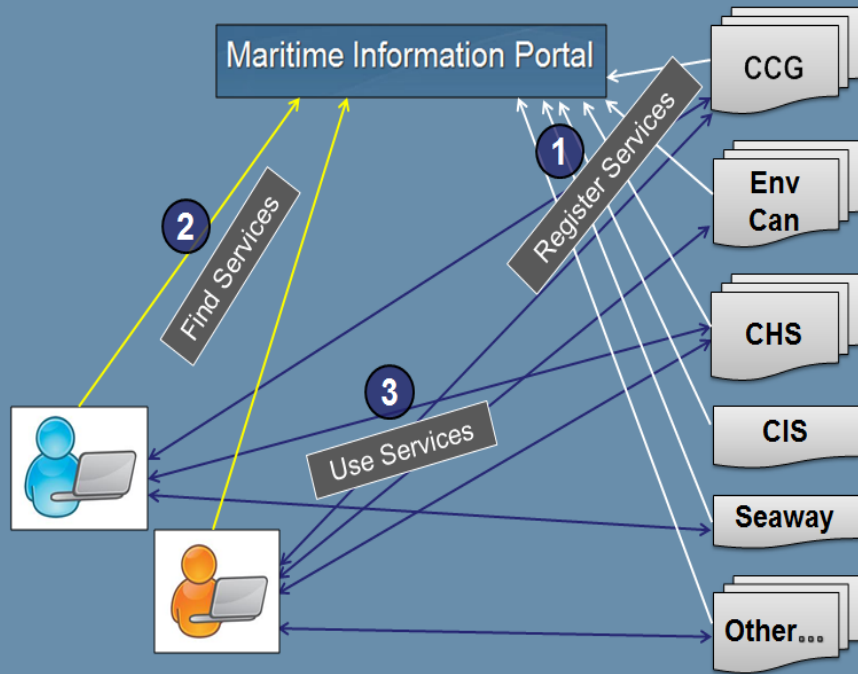
Select and download datasets directly from the portal's extensive Data Catalogue. Datasets are available in many different formats, for most maritime services across Canada.

View Interactive Map

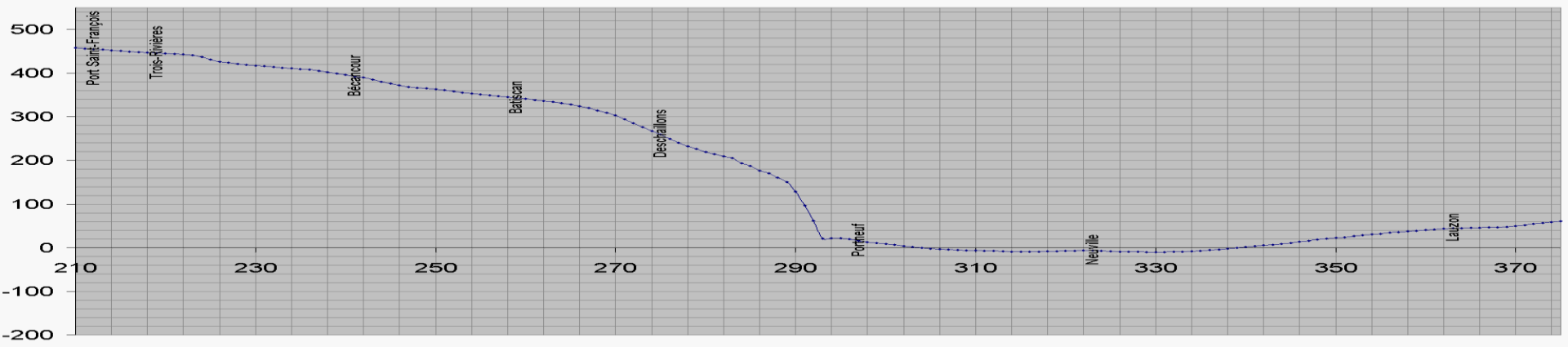
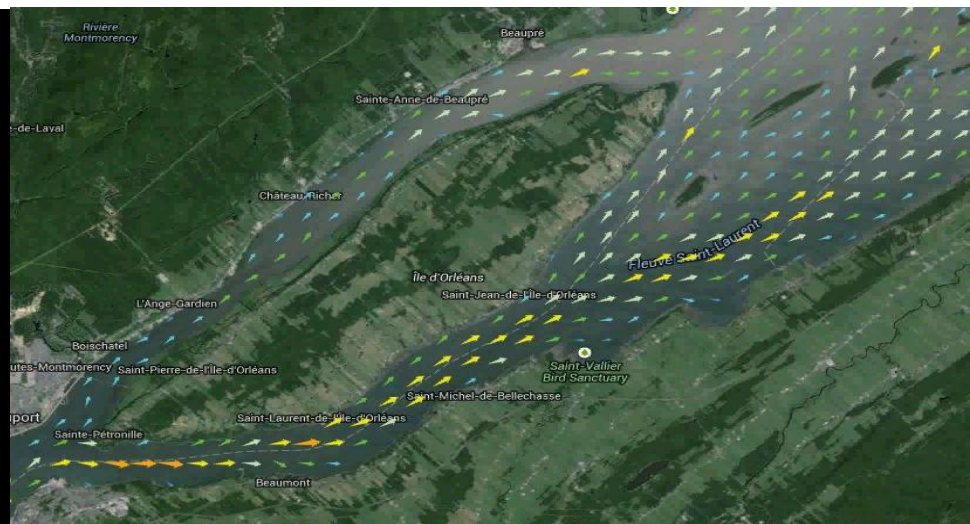


Interact and visualize maritime services directly on our interactive map. You can zoom, pan, show or hide layers, and query data directly using the portal's Geographic Information System.

Web Services Registry (Catalog)



Canada





Conclusion

- Standards and services are in development now and Canadian Hydrographic Service is part of it.
- The marine community must get involve so we will are relevant services that are inline with the needs.
- Technology and especially broadband will completely change the way we exchange data.
- From Static to Dynamic information