



Canada WCTSS “Canadian Hydrographic Service (CHS) Activities & Dynamic Currents and Tides”

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TWCWG1

Brazil



Purpose

- Inform TWCWG members of CHS targeted activities in Canada
- Seek TWCWG members endorsement to recommend adoption of Currents standard to HSSC





Plan

- Introduction
- Partners
- Demonstration sites
- Challenges
- Tools
- Results
- Conclusion



Introduction

WORLD-CLASS TANKER SAFETY

This is an important role, since each year over 700 tankers arrive at Canadian ports and 80 million tonnes of oil move along Canada's East and West coasts. While our current system meets today's needs, shipments of oil and other substances, such as liquefied natural gas are growing significantly. This is why Canada is developing a world-class tanker safety system as part of its plan for Responsible Resource Development.

New measures will strengthen Canada's tanker safety system by preventing oil spills, improving response and cleanup if a spill happens, and making sure polluters pay for the cleanup and pay compensation for damages.

TANKER SAFETY EXPERT PANEL

In November 2013, this independent panel submitted its first report, '*A Review of Canada's Ship-Source Oil Spill Preparedness and Response Regime—Setting the Course for the Future.*' The measures in this brochure responds to some of the report's 45 recommendations for strengthening oil tanker safety.

MODERNIZED NAVIGATION SYSTEM

With modern technology, it is possible now to make navigational information such as charts, buoy status, weather, and ice conditions, electronically available to vessels in real-time.

Using modern data-sharing and communications technologies makes Canada's current navigation system safer and more efficient, reducing the risk of collisions and other at-sea incidents.

The Canadian Coast Guard, Environment Canada's Meteorological Services of Canada, and the Canadian Hydrographic Service will use a system that shares real-time electronic marine safety information and data with mariners in a format that integrates with their on-board systems.

New funding will allow Oceans Network Canada to research and develop a system that provides up-to-the-minute information about navigation hazards. Transport Canada will fund the creation of a centre of excellence in British Columbia to promote the research and development of best practices for the safe and environmentally responsible transport of oil and liquefied natural gas.



Partners

- Département of Fisheries Oceans Canada (science)
 - Oceanographers, hydrographers.
- Transport Canada(WCTSS program)
- Environment and Climate change Canada (operationnal modelling)
- Canadian Coast Guard (marine information portal)
- Port Authorities (infrastructures)
- Pilots
- ...



Demonstrations sites

East Coast, Port St-John



West Coast, Port of Vancouver





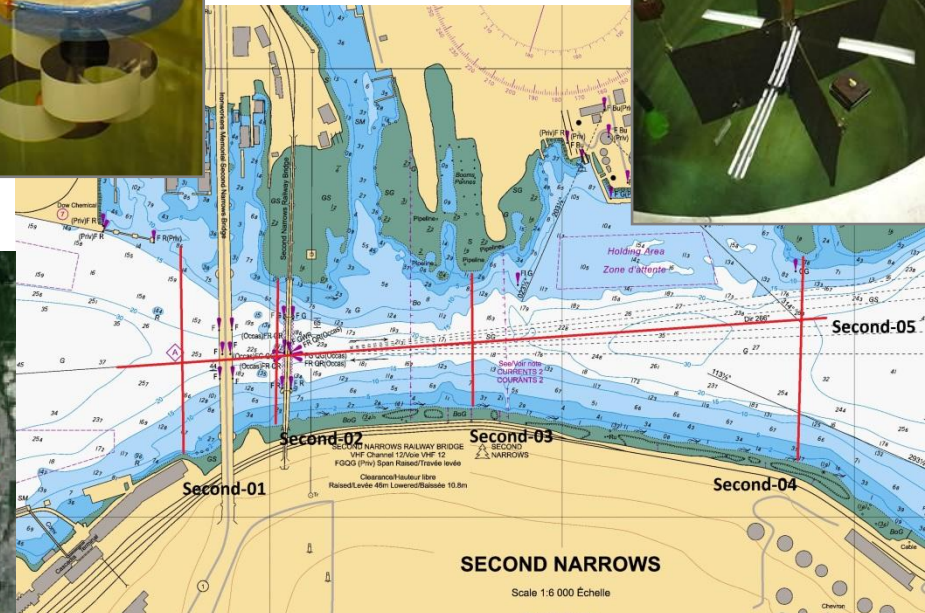
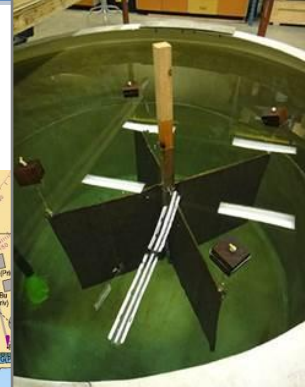
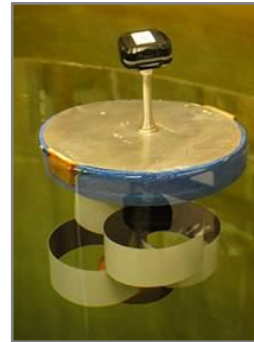
Challenges

- Existing tide stations
- Temporary current meters
- Modelling
- Processing power
- Formats (sensors, datums, models)
- Observations, predictions, forecasts



Tools

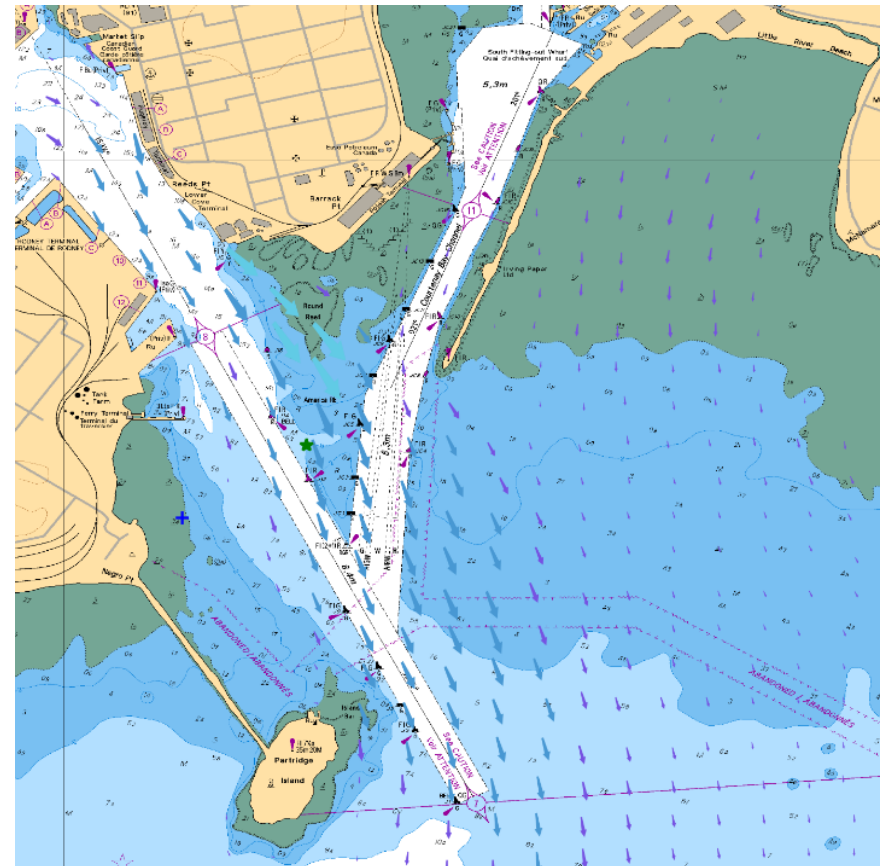
- Sontek instrumentation
- ADCP profiles
- Permanent and temporary stations





Results

- Overview
- Coastal
- Harbour Entry

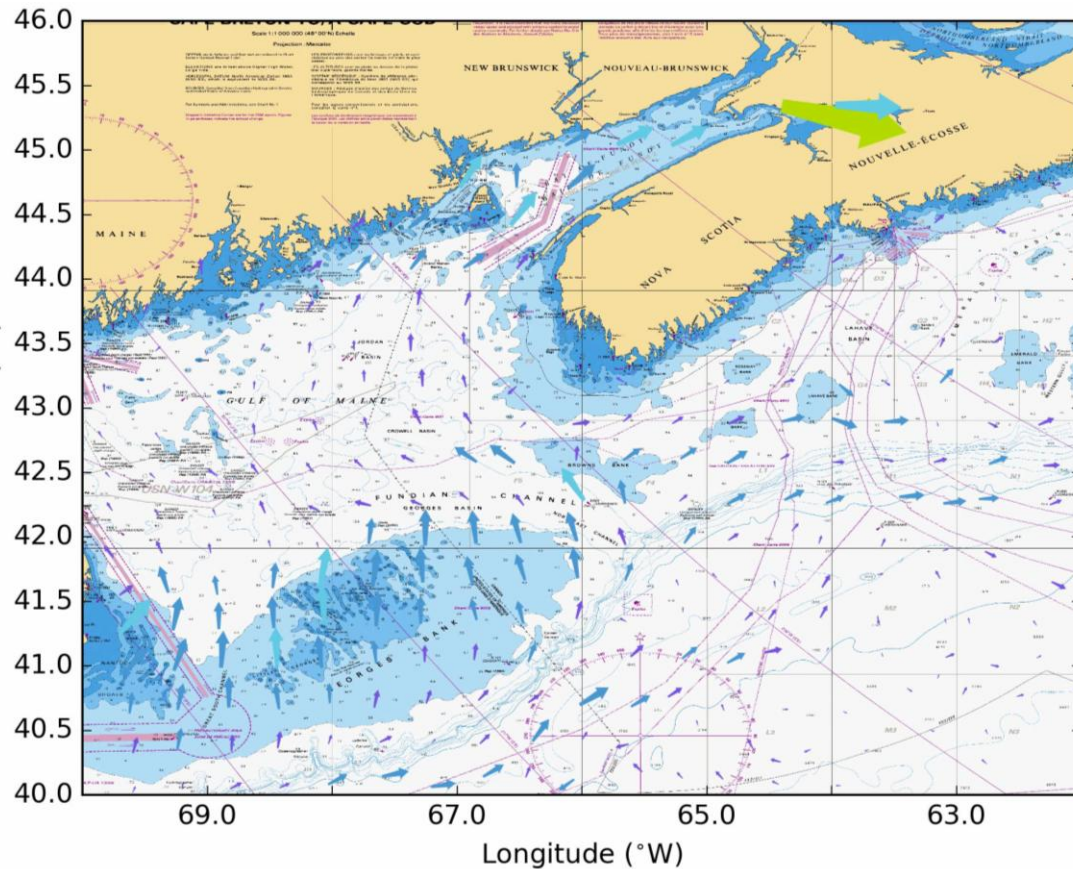




- St-John Overview

OBS ON

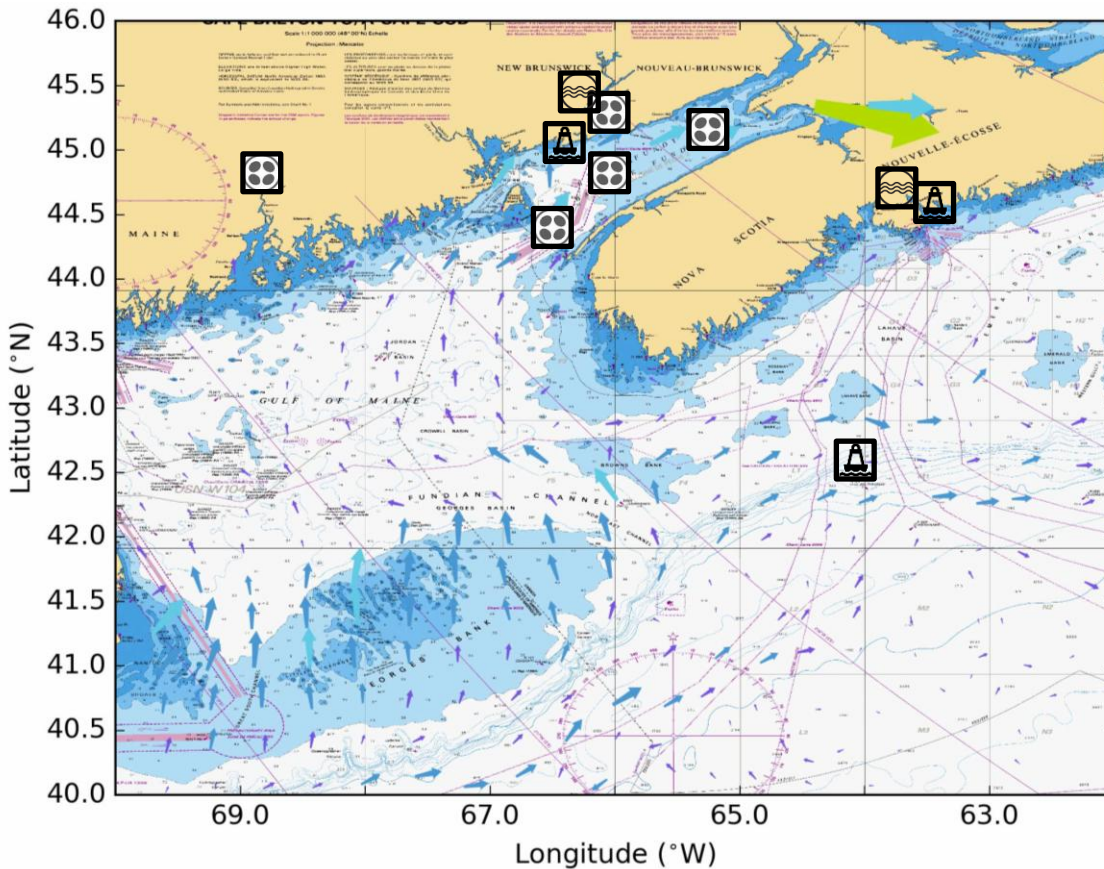
CURRENTS OFF





• St-John Overview

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ADCP

Smart Buoy

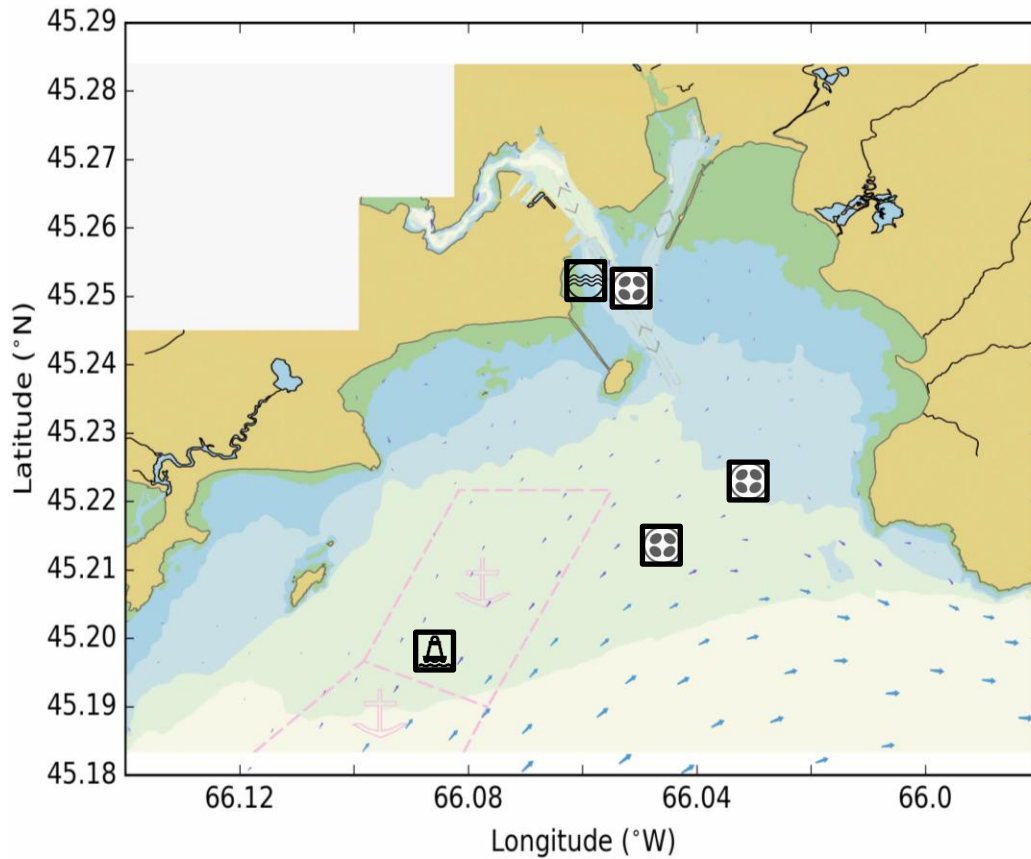
RTWL (Real Time Water Level)



• St-John Approach (Coastal)

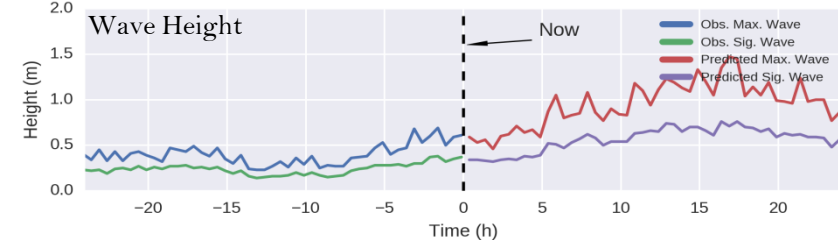
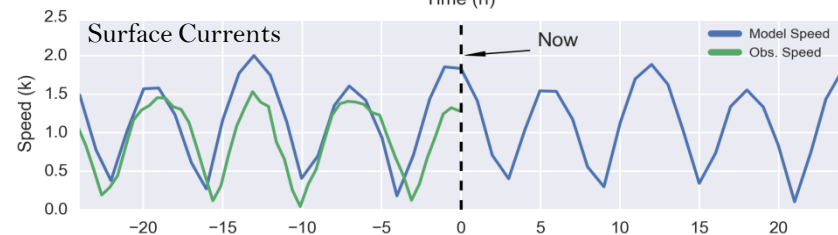
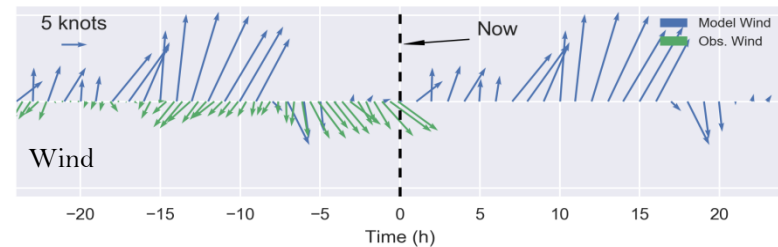
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CURRENTS ON



GALE WARNING ISSUED (Mon. Feb. 8 2016 AST)

Strong northeasterlies this morning as an intense low approaches from the southwest, then freshen to gales this evening under the low. Winds diminish to light Tuesday afternoon, and persists into Wednesday morning as the low departs northeast toward Newfoundland. Good visibility falls to fair to poor this evening into Tuesday morning in moderate to heavy snow. Improves to good Tuesday evening. Seas between 0.5 and 1.0 metres this morning through Monday morning build to near 2.0 metres Monday evening, then subside to near 0.5 metres Wednesday morning. Light freezing spray expected to persist into this evening.

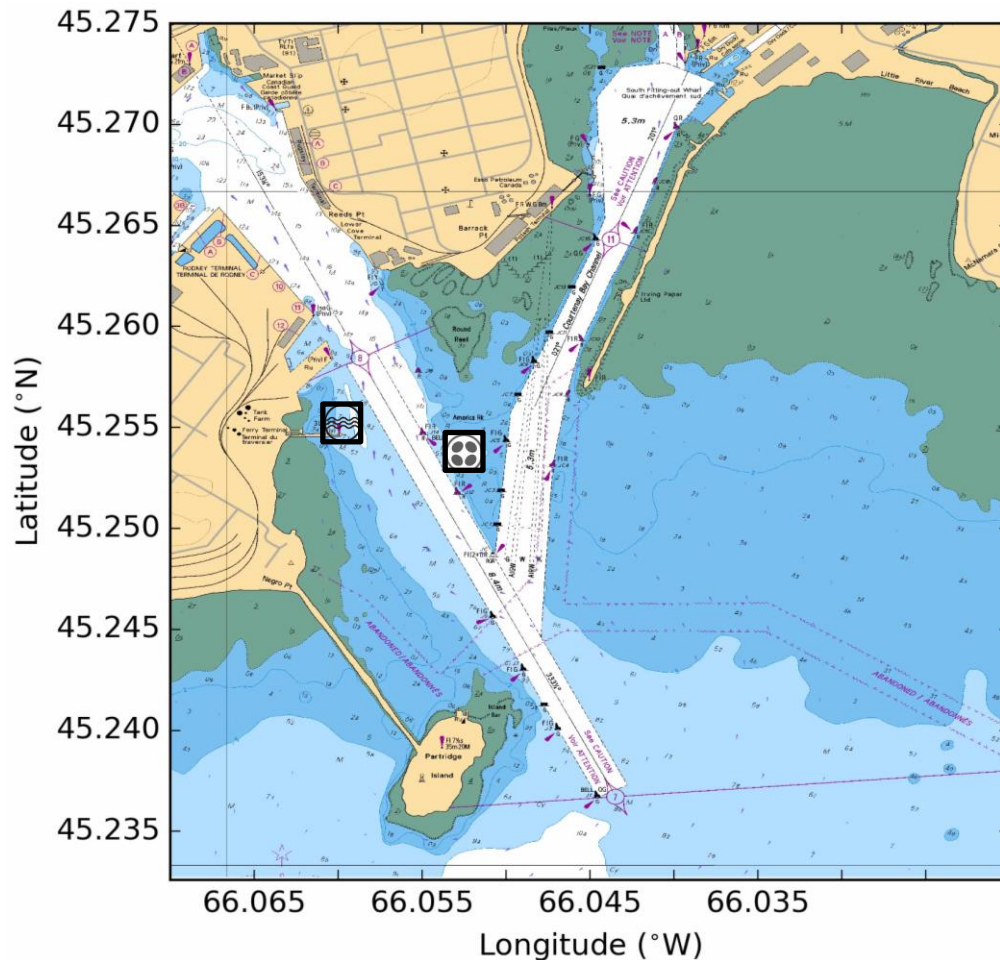




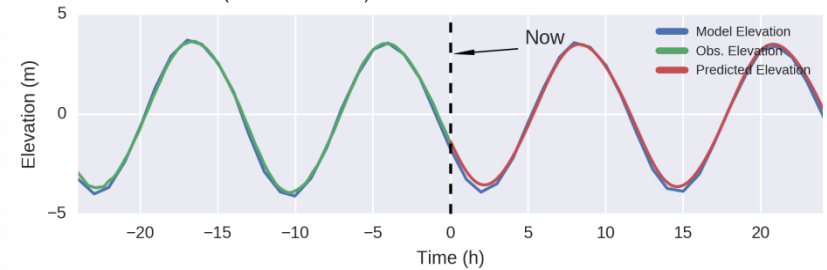
• St-John Harbour entry

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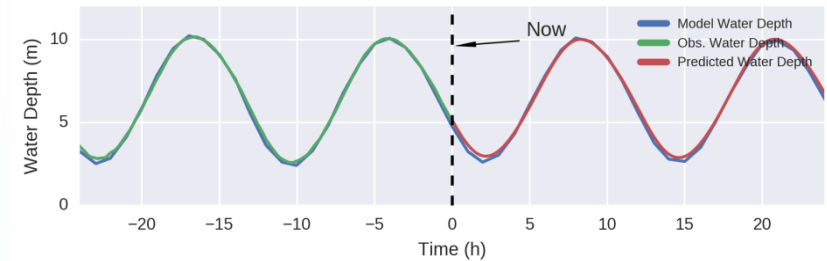
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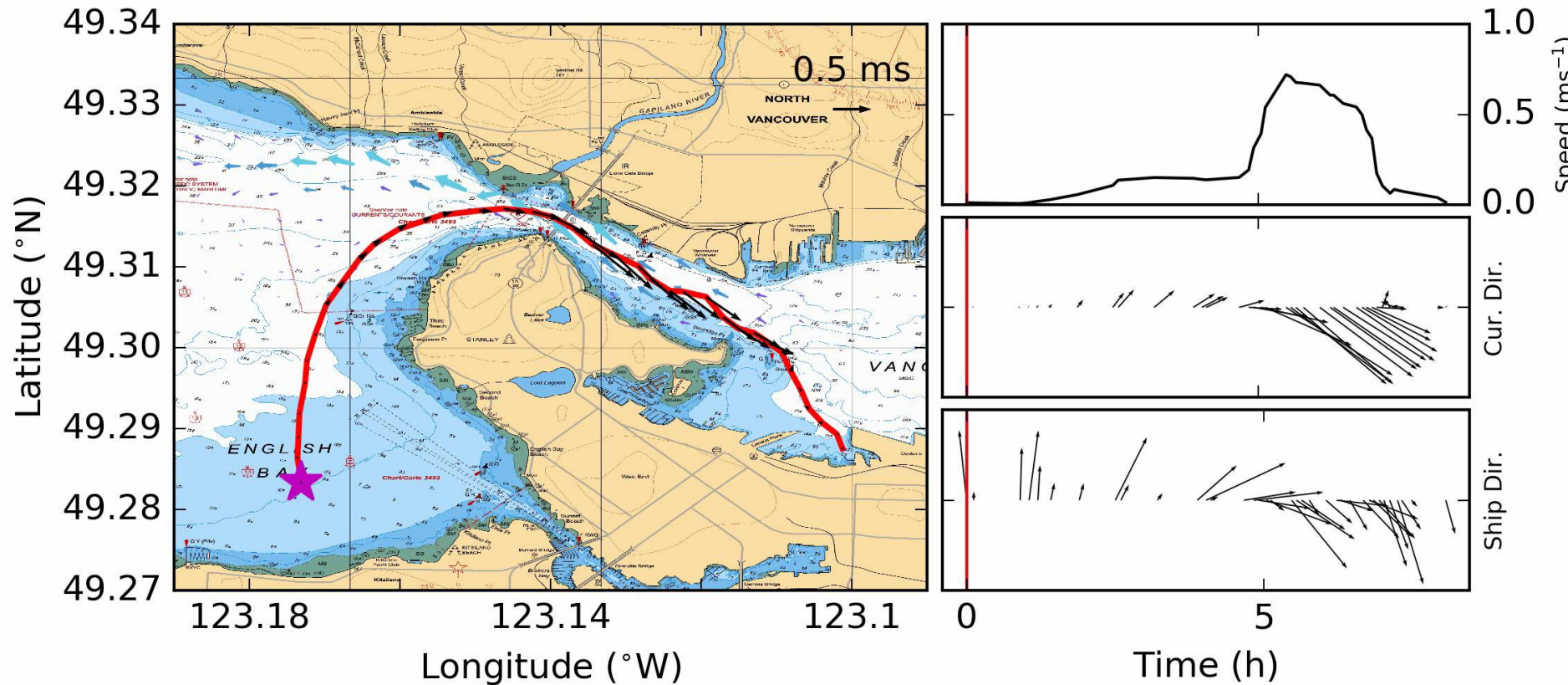
Water Level (from MWL)



Depth to Bottom



Results, Vancouver harbour





Conclusion and recommendations

- 2 demonstration sites demonstrated feasibility
- Top 20 ports could be in next phase
- Timing with S-111 and S-112 is critical in order to avoid effort duplication
- Canada seeks TWCWG members to support the concept and ask TWCWG to recommend HSSC to adopt S-111 (and S-112) as a Standard