# Developing the Vessel Movement Module: Rules that may affect vessel movements


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**How you can help:**

We are looking for feedback on this draft approach from all stakeholders, especially those with expertise and interest in:

- Specific Salish Sea navigation rules and restrictions whose impact is not necessarily apparent in historical data
- Vessel decision making around specific Salish Sea navigation rules and restrictions

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Special accommodations

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## Introduction

This focus sheet describes our approach to modeling rules that may affect vessel movements within our oil spill risk model. We're seeking your input on this draft approach.

Our draft list of rules to include in the model are shown on page 2, along with questions that may help you provide your thoughts.

You can provide feedback using our eComment system. We are also hosting a technical discussion of rules affecting vessel movements October 27, 2020.

To learn more about the model we are building, and how rules that may affect vessel movements relate to the Vessel Movement Module (VMM) please review our Modeling Approach focus sheet.

## Rules that may affect vessel movements

Vessels operating in the Salish Sea are governed by many international, US and Canadian regulations. These rules, in addition to other factors, result in the patterns of vessel movements that we see in historical AIS data. For instance, larger vessels generally operate within established traffic lanes, and avoid separation zones. Vessel operators use collision avoidance rules to guide their decision making when negotiating passing arrangements.

Our Vessel Movement Module is based on historical AIS data. By incorporating the tracks vessels have taken, the model implicitly includes the results of vessels following rules governing how and where vessels operate. Our model will include multiple years of AIS data, which makes it likely that we will also incorporate some examples of vessels that are not following the rules.

*Figure 1Photo of shipping vessel*

### Draft list of rules that may affect vessel movements:

- Turn Point Special Operating Area
- Eastern San Juan Island Archipelago VTS Special Area Regulations
- ECHO Program Voluntary Vessel Slowdown for Haro Strait and Boundary Pass
- ECHO Program Strait of Juan de Fuca Voluntary Inshore Lateral Displacement
- Transport Canada Interim Sanctuary Zones
- Swiftsure Bank Voluntary Ship Slowdown Trial
- "WG" Hazardous Area

Beyond implicitly including the effects of rules on vessel movements, some rules need to be modeled explicitly to ensure we accurately reflect specific situations. Types of rules we need to model include:

- New rules that might not be apparent in the historical data
- Rules that only come into effect during certain times of the year
- Rules based on vessel interactions, i.e. only come into play under specific circumstances. For example, rules governing vessels operating in the Turn Point Special Operating Area (Turn Point SOA).

## Incorporating rules into the Vessel Movement Module

We need your help identifying the decisions vessel operators make based on these rules.

For example, in the Turn Point SOA, certain vessels shall not enter the area when another large vessel is already located within the SOA, unless following astern. To incorporate a rule representing the behaviors produced by the Turn Point SOA rule, we need to approximate which vessels might slow down to facilitate an appropriate meeting, which might speed up, and where the speed and/or course changes might take place.

## How to provide input on how these rules will affect the simulation of vessel movement?

We welcome feedback and input on this topic at our upcoming technical discussion session as well as in writing. All feedback is welcome, but you may find the following questions helpful in guiding your comments:

- What comments do you have on our draft list of rules, shown on the left?
- Are there additional rules you think need to be considered for inclusion?
- What strategies would you suggest for modifying simulated vessel behavior to represent compliance with these rules?
- In your understanding or experience, how do vessels change their behavior when faced with the circumstances described in these rules?

Register for our October 27th, 2020 Discussion Session
Provide written feedback via eComment