

**Vessel Movement Module: Movements associated with the movements of other vessels**  
**Technical Discussion**  
**10/29/20**

**Ecology Staff:**

Brian Kirk, *Prevention Section Manager*  
Adam Byrd, *Research and Information Technology Unit Supervisor*  
Alex Suchar, *Expert Model and Analysis Scientist*  
Melba Salazar-Gutiérrez, *Model and Analysis Scientist*  
JD Ross Leahy, *Maritime Risk Modeling Specialist*  
Justine Asohmbom, *Shorelines and Stormwater Education Manager*  
Rachel Assink, *Washington Sea Grant Hershman Fellow*

**Participants:**

Amber Carter, <i>Amber Carter Government Relations</i>	Kelly Baughman, <i>Crowley</i>
Blair Bouma, <i>Puget Sound Pilots</i>	Lovel Pratt, <i>Friends of the San Juans</i>
Bob Poole, <i>Western States Petroleum Association</i>	Mike Moore, <i>Pacific Merchant Shipping Association</i>
Chris Wills, <i>Port of Longview</i>	Rein Attemann, <i>Washington Environmental Council</i>
Christopher Burns, <i>Jamestown S'klallam Tribe</i>	Ross McDonald, <i>Sause Bros</i>
Dan Morrison, <i>Centerline Logistics</i>	Sadie Donovan, <i>Transport Canada</i>
Felix Kristanovich, <i>Ramboll</i>	Sol Kohlhaas, <i>Marathon Petroleum</i>
Fred Felleman, <i>WAVE Consulting</i>	Sven Titland, <i>Centerline Logistics</i>
John Veentjer, <i>Marine Exchange of Puget Sound</i>	Todd Hass, <i>Puget Sound Partnership</i>
John Wright, <i>Polar Tankers</i>	Tom Ehrlichman, <i>Swinomish Indian Tribal Community</i>

The following summary notes are not intended to be a transcript but rather a review of the discussion session. Participant questions and comments are shown in bold text followed by Ecology responses.

**Discussion of vessel movements associated with other vessels**

JD Leahy: Let's start by discussing pilot vessels specifically. Where are they normally traveling? Victoria, Fraser River, and how those movements take place?

**The pilots move around on hired commercial launches as well as pilot boats. Any time a piloted vessel anchors anywhere in Vendovi or Anacortes, a commercial launch, coming out of Anacortes, would come out to take the pilot off the ship. That's probably a fairly easy rule, there will be a launch coming from Anacortes, that's for the whole district too. For Seattle, Yukon harbor, and Tacoma, they use Arrow Launch. That's how we get around if we aren't in Port Angeles. (Blair Bouma)**

JD Leahy: Do pilots ever disembark a vessel with their attending tugs?

**We used to do that a lot, but now with COVID, we disembark with tugs much less often. If we do use tugs to disembark, it would be down in Seattle or Tacoma primarily. Logistics in the north are less predictable. Your escort tug is not necessarily originating from same place as the pilot may be. The tug might be coming from**

**Ferndale down to Vendovi, for instance. The pilot almost always takes a launch in Anacortes. Down in Seattle and Tacoma there are a few other variables. In Canada, the pilots have dedicated pilot boats for Fraser River. They use commercial launches for the Gulf Islands anchorages that they use when they get busy. I don't think they use helicopters. Pilots travel to nearest town of with the required facilities and take a launch from there. In Vancouver Harbor, we are sometimes there on 2-pilot jobs and they are almost always using commercial launches up there. Fraser River has actual pilot boat, the rest are commercial launches as I understand it. (Blair Bouma)**

JD Leahy: The PPA does talk about helicopter use. Do they use helicopters to deliver pilots to vessels off the coast?

**They use helicopters to move pilots to one station to another. Not sure if they use helicopters to put pilots on ships, but I don't think so at this point. They might do it north of Vancouver Island. They mostly use helicopters to get around and not necessarily for boarding. (Blair Bouma)**

**I suggest you include boom boats – the small boats that maneuver boom around larger vessels as part of preparing for bunkering operations. Suggest also that you include the seine skiffs that are part of seining operations. They're small but they may get in your way. (Fred Felleman)**

JD Leahy: We've come at a lot of these questions through examining AIS data. One weakness of this approach is that we are less likely to identify dependent vessels that are not transmitting AIS information. These are both good examples of dependent vessels, and while vessels this small are not likely to be carrying AIS they both may be deduced based on the presence and activity of other boats.

**I recently talked to Kevin Obermeyer at PPA about operations, they fly 5 pilots at a time up to Prince Rupert. He has a group doing nothing but dispatch, if you called and talked to them, they should answer your questions pretty quickly. (Mike Moore)**

**We have a fair number of submarine traffic and they usually have a flotilla of 2 -4 escort vessels with them that could be considered as dependent. (Blair Bouma)**

JD Leahy: Let's switch to talking about escort vessels and the vessels they are assisting. What locations are they meeting up and where do they go?

**I spend most of my time monitoring Haro Strait, so majority of the time, we are dealing with a laden export, heading southbound. When I check on the origin of the tug and tank vessel, they are originating in the Burnaby area. Very unlikely to see the tug joining from another place for the most part. ORCA being one of the most common escort tugs that I see. (Fred Felleman)**

JD Leahy: Perhaps one way to break this down is to recognize that some escort jobs might be able to be represented in a fairly simple manner, while others might need more complex representation.

**On the US side, there are many variables with escort and assist, so it's pretty hard to put a pattern to it. We have a pretty high tug usage rate, meaning that our pool of tugs is quite busy. As a result they usually don't do**

**a job and then sit for multiple days waiting for the next job. In times past, some tugs stayed in north and Seattle tugs stayed in Seattle, but that isn't really a pattern anymore. This could be particularly hard to model because of the complexity of the system. There are a small number of tugs doing a lot of different jobs all over. (Blair Bouma)**

JD Leahy: We have assist tugs as the next vessel type we are considering, I'll open this up for discussion. Any comments on strategies to model assist tugs?

**I have an office overseeing Elliot Bay, I just saw a tug come down from Seattle to meet a tanker in Rosario for an escort to Port Angeles. I'd be hard pressed to imagine an easy pattern to identify there. Be aware there are tugs that do assist work, but are also escort capable. Quite a bit of moving around, haven't noticed a pattern yet, in contrast to what seems to be the case in BC. (Fred Felleman)**

Adam Byrd: We are considering using speed as a possible way to differentiate between tug behaviors. Does anyone have thoughts on whether this could help determine whether a tug is engaged in escorting, assisting or is just traveling?

**There are speed limits for escorts and Rosario Strait has a speed limit, though some go slower than the speed limit. In eastern Juan de Fuca and south there aren't speed limits. For vessels just traveling, their speed depends on the level of urgency. If they have extra time they would travel at "eco speed" to save fuel, if they are pinched for time they might run full speed. Might be hard to identify their occupation based on speed. (Blair Bouma)**

JD Leahy: Let's talk about vessels engaged in providing bunkering services. Through Advance Notice of Transfer (ANT) data, we can identify the locations of bunkering and receiving vessels. This ANT data means that we have a better window into bunkering practices that we do for some of the other vessel types that we have discussed today. That said, we still need help figuring out patterns around why some vessels take bunkers while visiting these waters, and some may not.

**I think it depends on the market. As we see with what COVID has done, it's pretty slow right now. Prior to that, the US was booming economically. To try to get identify a pattern to that right now is pretty tough. If cruise ships call here, then they usually bunker. (Dan Morrison)**

**When you are looking at a pattern, there's a lot of things that have happened with the Jan 1<sup>st</sup> change [\[International Maritime Organization's Low Sulfur Fuel Mandate\]](#). We've seen some changes in port call rotations and we have had the lowest number of arrivals since I've been following the numbers. We can probably get you an easy answer on cruise ship activity if you want to model more normal patterns and not the disrupted visits we have seen during COVID. If you want to incorporate the peak of cruise ship travel, that would be 230 or 232 visits. They were scheduled for 232 this year. Grain ships would bunker at anchor, where container ships and cruise ships will do it at the dock. (Mike Moore)**

**I can attest that every time the cruise ships are in town there is some bunkering going on and it's always on the dock. Other observation is that it's not uncommon to have bulkers sitting off the grain terminal waiting**

**for their turn. Pilot launches go back and forth to those vessels within the bay as well. I don't see it all the time. (Fred Felleman)**

JD Leahy: I assume some of those launches are agents or crew or something like that?

**That's true, for the grain ships there's the agent, cargo inspectors. Not every launch run is a pilot run. (Blair Bouma)**

**That's true. Grain is really seasonal, not as much as logs where there could be 330 or 0 depending on the year. When they are at peak, more anchorages would be used. If you look historically, you can get the fluctuations, 1380 container ship may visit in peak year, but that was an outlier. More normal container ship numbers would be 900-1000 roughly each year. Tankers used to have 580, but are now down to 350. Some of these sectors fluctuate but not as much year to year as others. Grain is a good example of a fluctuating sector. (Mike Moore)**

**Besides trade wars and economic global collapse, the advent of larger ships is an interesting factor which has been happening for a while. I've seen really large vessels heading to Vancouver recently. These larger ships definitely use more assist tugs when docking. (Fred Felleman)**

### **Strategies for modeling these movements**

**How will Ecology document the input/assumptions for the model? (Lovel Pratt)**

JD Leahy: We will produce a written document for each module. The document will cover the details and assumptions for a given module. There are a lot of pieces and details going into this, which we will discuss at webinars, but we are also writing them down so they are reviewable.