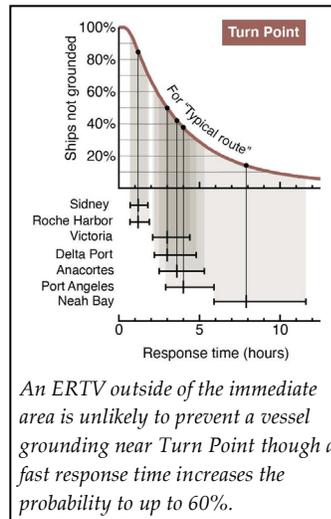


# PUGET SOUND National Estuary Program

## INLAND WATERS VESSEL DRIFT AND RESPONSE ANALYSIS— Strait of Juan de Fuca to the Southern Strait of Georgia

San Juan County contracted with [Nuka Research & Planning Group, LLC](#) to analyze the time available to rescue a disabled vessel adrift in the inland waters extending from the Strait of Juan de Fuca to Burrard Inlet before it grounds, and the time that it would take for an emergency response towing vessel (ERTV) to rescue ships adrift on the north and west sides of the County, thus reducing the risk of an oil spill. Nuka Research previously conducted a vessel drift and response analysis for Canada’s west coast and this study extends the modeling to inland waters.



Area That Vessel Drifts From Typical Shipping Route	Percent of Vessels Potentially Rescued From Grounding	
	Neah Bay	Sidney Roche Harbor
Boundary Pass	30%	75% - 80%
Turn Point	15%	85%
N Haro Strait	40%	90% - 95%
S Haro Strait	65%	90% - 95%

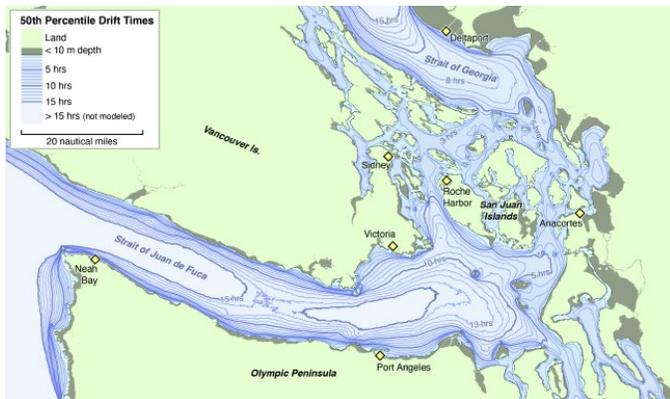
An ERTV stationed in Sidney or Roche Harbor providing the mid-range response time modeled may be effective in preventing 75-95% of disabled vessel groundings in these waterways, significantly improving the rescue capability from Neah Bay.

## Project Outcomes

The project team combined Nuka Research’s Zone of No Save model and the Puget Sound Institute [Salish Sea Modeling Center](#)’s current and wind models to estimate how long it would take a drifting containership to ground based on the winds and currents measured from 2014-2017. Project Contributors represented:

Dept of Ecology Spills Program	Clear Seas Centre for Responsible Marine Shipping
Port Gamble S’Kallam Tribe	Marine Exchange of Puget Sound
Wave Consulting	Friends of the San Juans
San Juan County Council	SJC marine & clean water committees

Project Contributors provided input to the analysis but may not concur with the approach, parameters, or results.



More than 6,500 model runs yielded 15.6 billion estimates of drift times. The wind and currents producing the median (50th percentile) and bad case (95th percentile) drift times were further analyzed.

The ERTV response analysis focused on the shipping route through Haro Strait, Turn Point, and Boundary Pass. Rescue times were calculated for a hypothetical ERTV positioned at six locations: Sidney, Roche Harbor, Victoria, Delta Port, Anacortes, and Port Angeles, plus Neah Bay. The study contemplated the response time of a dedicated ERTV with the power, equipment, and trained crew to save a large ship. The only such ERTV in the region today is stationed at Neah Bay. Other towing vessels in the area may not have this capability or may be engaged in other duties.

Based on a range of travel speeds and distances, rescue times were bracketed as fast, mid-range, and slow. Analyzing drift times relative to rescue times determined the percent of disabled vessels that may be rescued before grounding. An ERTV located in Sidney or Roche Harbor would have the best chance of a successful rescue for over 75% of mid-range and over 90% of fast response cases modeled. An ERTV outside the immediate area would have a lower probability of arriving in time to rescue a vessel transiting this shipping route.



**FOR MORE INFORMATION**  
Marta Green  
Puget Sound Recovery Coordinator  
[martag@sanjuanco.com](mailto:martag@sanjuanco.com)  
(360) 370-7587  
Project Based on Near Term Action 2018-0863

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