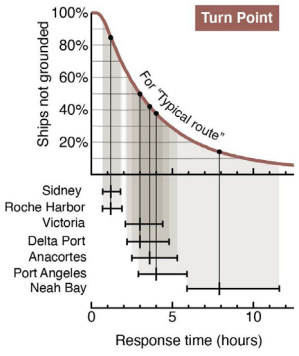
PUGET SOUND
National Estuary Program

INLAND WATERS VESSEL DRIFT AND RESPONSE ANALYSIS— Strait of Juan de Fuca to 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.



An ERTV outside of the immediate area is unlikely to prevent vessel grounding near Turn Point without a fast response time, which improves the probability to up to 60%.

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%

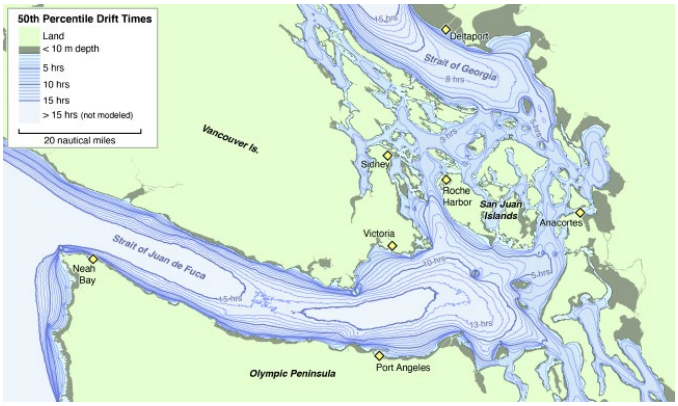
An ERTV stationed in Sidney or Roche Harbor providing the mid-range response time modeled may be effective in preventing 75-95% of disabled vessel groundings in these waterways, significantly improving the rescue capability from Neah Bay.

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
(360) 370-7587

Project Based on Near Term Action 2018-0863

PUGET SOUND
National Estuary Program

SAN JUAN COUNTY VESSEL DRIFT AND RESPONSE ANALYSIS

The San Juan Ecosystem Protection and Recovery Plan identifies investment in an emergency response towing vessel (ERTV) to reduce the risk of an oil spill on the north and west sides of San Juan County as a priority risk mitigation measure. This measure also has been recommended by the Governor's Southern Resident Orca Task Force, Department of Ecology's October 2016 Salish Sea Workshop, and Puget Sound Partnership Ecosystem Coordination Board and Leadership Council.

What we're doing

San Juan County is conducting a Vessel Drift and Response Analysis of the inland waters around the San Juan Islands, including Boundary Pass, Haro Strait, the southern Strait of Georgia and the Strait of Juan de Fuca. The analysis will improve our understanding of the potential for an ETRV to prevent a disabled vessel in these waters from grounding. And it will build upon the spill consequences study that demonstrated a cost-benefit business case for an ERTV to be positioned in this area.

How we're doing it

San Juan County has partnered with Nuka Research & Planning Group, LLC and the UW Puget Sound Institute Salish Sea Modeling Center to apply the Zone-of-No-Save modeling methodology that has previously been implemented for western Canadian waters. The model and inputs will be enhanced to include the effects of currents, important in the waters around the San Juan Islands, wind conditions in the region, and hypothetical ETRV locations. Project Contributors will provide input to the research questions and model parameters prior to the analysis.

WHY THIS ISSUE IS IMPORTANT

Protection against a major and catastrophic oil spill is the highest environmental priority for San Juan County.

*The **Atlantic Eagle** is one of two state-of-the-art emergency response towing vessels positioned off the coast of British Columbia.*

This project will generate information that can be used by others to gain a better understanding of the potential for an ETRV to enhance protection of the marine environment.

WHAT YOU CAN DO

Those with environmental, economic, and cultural interests in the region are encouraged to review the results of this analysis and engage in the legislative process and related initiatives to inform decisions that protect the San Juan Islands and regional ecosystems, communities, and businesses from the consequences of a large oil spill.

ABOUT SAN JUAN COUNTY

San Juan County waters have sustained the Coast Salish for generations and the regional economy depends on clean marine waters and wildlife. Protecting these ecosystems is vital to Puget Sound Recovery.

- 428 islands with ***408 miles of shoreline***
- ***80 miles of forage fish*** spawning beaches
- ***22 stocks of Salish Sea Chinook*** migrating through the nearshore
- ***One-third of all kelp*** in the Puget Sound

FOR MORE INFORMATION
Marta Green
Puget Sound Recovery Coordinator
martag@sanjuanco.com, (360) 370-7587

Project based on NTA 2018-0863