Research Vessel Operations

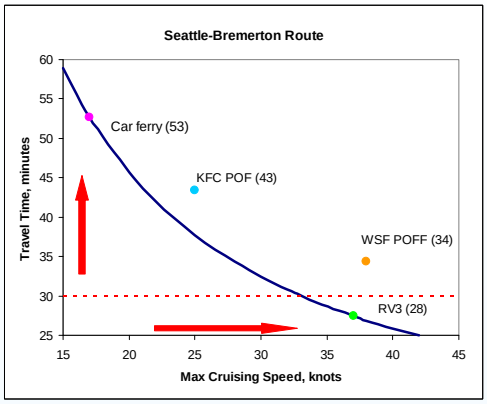
Travel Time and Demand

A simple travel time analysis provides the basis to develop an operations schedule for the new research vessel, and for comparison of alternatives including car ferries and slower POF operations.

Proposed Trail Operation Schedule

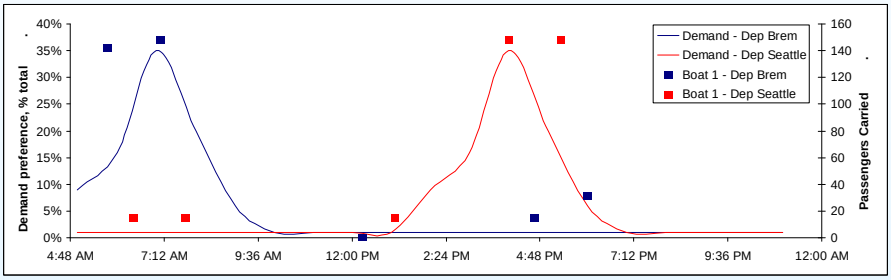
	Arrival	Load/Unload	Departure
Bremerton			5:45 AM
Seattle	6:12 AM	6:22 AM	6:25 AM
Bremerton	6:52 AM	7:02 AM	7:05 AM
Seattle	7:32 AM	7:42 AM	7:45 AM
Bremerton	8:12 AM	8:22 AM	
Bremerton			12:15 PM
Seattle	12:42 PM	12:52 PM	1:05 PM
Bremerton	1:32 PM		
Bremerton			4:00 PM
Seattle	4:27 PM	4:37 PM	4:40 PM
Bremerton	5:07 PM	5:17 PM	5:20 PM
Seattle	5:47 PM	5:57 PM	6:00 PM
Bremerton	6:27 PM	6:37 PM	
Number of Departures			10

A high speed POFF operation on the Seattle-Bremerton route would potentially result in a reduction in crossing time of more than 25 minutes relative to existing car ferries and approximately 17 minutes faster than previous POF vessels that were required to reduce speed to 12 knots in the Rich Passage area.



Travel time for four vessels operating at their maximum cruising speeds, taking into account slow down in Rich Passage for KFC POF and WSF POFF.

Based on demand preference curves it is estimated that a single 149-passenger vessel would carry just over 600 passengers per day at an estimated operating cost of approximately $8.00 per passenger. Based on current labor and fuel costs, a single vessel operating the proposed schedule would have an estimated annual operating cost of $1.3 M to $1.6 M.



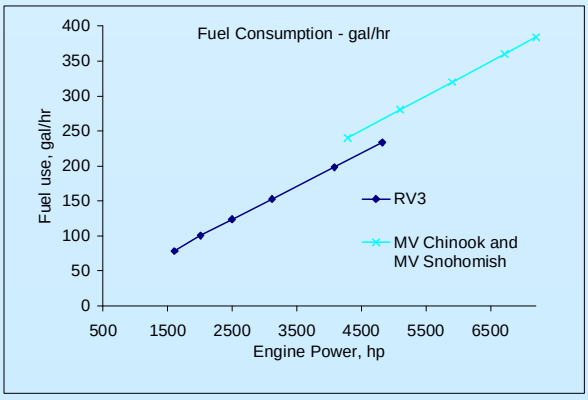
Rider demand preference curve expressed as a percentage of all passenger departures on the Seattle-Bremerton route based on WSF Origin Destination Onboard Surveys.

Transport Efficiency and Fuel Consumption

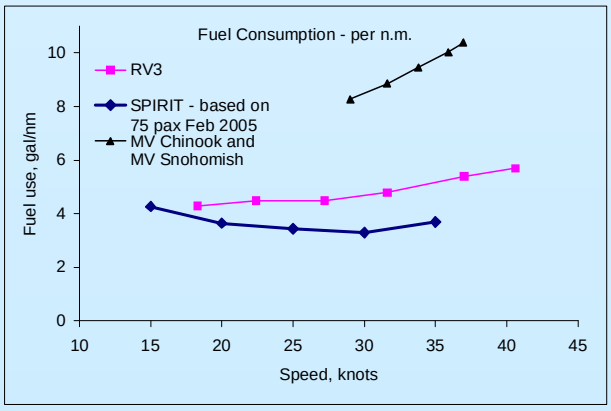
The nominal efficiency of various modes of transport for a one-way trip between Seattle and Bremerton is represented as the fuel consumed per passenger in the table below. The analysis assumes a constant speed of 37 knots and full passenger loads for three vessels.

Transport	Sea-Bre distance	Fuel use	Trip fuel use	Trip fuel use	Demand estimate	Daily fuel use	Fuel consumed per pax relative to RV3
	n.m. (or miles)	gal/n.m.(gal /mile)	gal	gal/pax	pax/day	gal	
RV3	14	5.71	80.0	1.18	680	800	
Chinook/Snohomish	14	10.50	147.0	1.15	1,283	1470	-2.63%
SPIRIT	14	4.01	56.2	0.98	571	562	-19.59%
Car*	65.1	0.05	2.96	2.96			
*based on EPA car average 22mpg					Trips per day	10	

- *Chinook* uses about the same amount of fuel per passenger as *RV3* assuming both vessels follow the same schedule, but *Chinook* does not meet the wake criteria and would create at least 3-4 times the shore impact on the same schedule
- *Spirit* is 20% more fuel efficient than *RV3,* but carries 20% fewer total passengers, and can not meet the schedule on a regular basis (based on 37 knot cruising speed)
- All vessels are more fuel efficient than single passenger automobile



The MTU engines proposed for RV3 are approximately 12-15% more efficient between 3600-4800 horsepower than the Detroit Diesel engines in the Chinook.



RV3 is slightly less fuel efficient than Spirit due to the higher weight of RV3, but is capable of faster speeds and lower wake wash.