

Monday, 1/30: The Samish rose ~590 cfs from Sunday afternoon through the evening, peaking at about 2 am Monday morning. Rainfall at Mount Vernon for this event was 0.59". This prompted an automatic closure of the bay late Sunday. Results from Monday showed Storm Team numbers to be higher than County sample results, but the state used a "weight of evidence" approach to reopen the bay on Tuesday as soon as results were available.

Storm Team 1/30

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Thomas Road 0700	32	360	220

County 1/30

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Thomas Road 0850	32	46	49

Storm Team 1/30

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Thomas Road 1230	32	180	120

Tuesday, 1/31: County took samples early in the day in case they were needed to reopen the bay. Results low but bay was already open. No rainfall, river on decline.

County 1/31

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Thomas Road 0830	32	13	23

Wednesday, 2/1: County on regular ambient run in the Samish Basin. Because of perceived discrepancy between County and Storm Team results on 1/30, Storm Team met us at Thomas Road for side-by-side sampling. Results from that exercise pulled out at the bottom. 2/1 sampling occurred

near peak of ~250 cfs river rise in response to 0.26" of rain. This was not enough to close the bay, and FC counts would have rescinded the closure had it occurred.

County 2/1/12

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Hwy 9	11	6.8	
Samish River at upper Prairie Rd	SAM3PR	Not sampled	
Parsons Creek at mouth	PAR	23	33
Samish River above Parsons Creek	SAMPAR	49	
Samish River at Double Creek Ln	SAMDCL	Not sampled	
Skarrup Creek at Double Creek Ln	SKAR	130	
Samish River at 1st Prairie Rd	SAM1PR	Not sampled	
Samish River at Grip Road	SAMGRIP	Not sampled	
Swede Creek at Grip Rd	8	46	
Samish River at F&S Grade Rd	SAMFS	79	
Weir Creek Prairie Rd	WCPR	Not sampled	
Friday Creek at Prairie Rd	6	350	
Samish River at Hwy 99	SAMH99	Not sampled	
Thomas Creek at F&S Grade Rd	4	350	
Thomas Creek at Hwy 99	3	110	
Samish River at Chuckanut Drive	SAMCD	Not sampled	
Samish River at Thomas Rd 1400	32	33	23
Alice Bay Pump Station	33	11	
Edison Slough at School	36	11	
Edison Pump Station	37	110	
North Edison Pump Station	38	540	540
Colony Creek at Colony Road	39	33	

Storm Team 2/1

Location	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
Samish River at Thomas Road 1000	32	168	180
Samish River at Thomas Road 1400	32	108	130
Samish River at Thomas Road 1400	32	140	60

Side-by-side comparison from 2/1: Storm Team and County personnel sampled within a foot of each other at the same time at 1400 on Wednesday. Results show significant differences. Storm Team analyzes the samples using volunteers at the Padilla Bay lab and the Membrane Filtration method. County takes samples to certified lab (Edge Analytical) for analysis using Most Probable Number (aka Multiple Tube Fermentation) method.

Side by Side (repeated from above) - Samish River at Thomas Road, 1400 2/1/12

Sampler	Site Number	Fecal Coliform, cfu/100 mL	Duplicate
County	32	33	23
Storm Team	32	108	130
Storm Team	32	140	60

Discussion:

Results showed that another river rise event apparently did not produce sufficient bacteria to warrant bay closure. A caveat to that is that we did not sample at the peak at 2 am Monday morning, but the river was still near the peak level by the time sampling occurred. Another caveat is that in the past, late January and February have been quiet times for fecal coliform production, but the 300-cfs river rise criteria for this period was supposed to account for that. It's possible that the river was over criteria (based on the 0700 sampling results) and had reduced FC counts by the time the County sampling took place, but as discussed below, Storm Team samples may be running higher than County samples this week anyway.

The second, lesser event (2/1) barely qualified as a "rain event" by our criteria (≥ 0.25 "), but since the river rise was <300 cfs did not trigger an automatic bay closure. This event was sampled very close to the peak and produced a very low loading.

Ambient data from 2/1 showed low FC counts in the mainstem river but a few troubling numbers in Friday and Thomas Creeks as well as North Edison. As indicated last week, the North Edison drainage is now the focus area for inspections. County personnel are having a look at the Friday Creek area today.

RE: The side-by-side sampling – the Monday results as well as the Wednesday side-by-side exercise indicate that we may have a difference between County and Storm Team results. Previous sampling that occurred at the same or similar times/places has not revealed such a difference. We will probably conduct more comparison sampling.

When the county started its monitoring program in 2000, the MPN technique was chosen in part because of its reported resistance to interference from turbidity. It is possible that turbidity interference may be responsible for these differences.

– Rick Haley
Water Quality Analyst
Skagit County Public Works
Water Resources Management