

**WASHINGTON DEPARTMENT OF ECOLOGY**  
**ENVIRONMENTAL ASSESSMENT PROGRAM**  
**FRESHWATER MONITORING UNIT**  
**STREAM DISCHARGE TECHNICAL NOTES**

**STATION ID:** 05A105  
**STATION NAME:** S.F. Stillaguamish at Jordan Rd Bridge  
**WATER YEAR:** 2016  
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**Introduction**

Watershed Description

The basin above this gage covers 181 square miles of steep forested terrain in the North Cascade Mountains. The mean elevation for the basin is 2,450 feet. Elevations range from about 196 feet at the gage to 6,690 feet at the highest point of the headwaters. The mean slope in the basin is over 43 percent. The forest canopy cover was computed in 2001 as 74 percent of the basin. Mean annual precipitation for the basin is 95.5 inches. Basin statistics are provided by the USGS.

Gage Location

The gage house is on the left bank of the South Fork Stillaguamish River at the south end of the Jordan Road Bridge near Granite Falls. The primary gage index is a wire weight gage mounted on the downstream bridge rail.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	181
Latitude (degrees, minutes, seconds)	48.095249° N
Longitude (degrees, minutes, seconds)	-121.974555° W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1700
Median Annual Discharge (cfs)	967
Maximum Daily Mean Discharge (cfs)	21500
Minimum Daily Mean Discharge (cfs)	121
Maximum Instantaneous Discharge (cfs)	36500
Minimum Instantaneous Discharge (cfs)	115
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	3460
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	220
Number of Days Discharge is Greater Than Range of Ratings	1
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	1
Number of Days Qualified as Estimates	66
Number of Modeled Days	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Table 2 Discussion (Discharge Statistics)

Discharge at South Fork Stillaguamish River at Jordan Road bridge gaging station reached its lowest point August 30, 2016. Discharge in South Fork Stillaguamish peaked November 17, 2015.

One day was un-reported due to discharge being greater than the range of ratings.

Sixty-six days were qualified as estimated during WY 2016. Of those 66 days, four were the result of gaps in the stage record that were filled with estimated data using a similar station. The remaining 62 days were qualified as estimates due to instrument drift as explained below.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	9.4
Potential Weighted Rating Error (% of discharge)	9.8
Total Potential Error (% of discharge)	19.2

Table 3 Discussion (Error Analysis)

Logger Drift Error is based on a statistical analysis comparing continuous automated gage height readings with quality assurance gage height observations made during periodic stations visits.

Similarly, the Weighted Rating Error is calculated using a composite analysis of the level of quality assigned to each discharge measurement used to define each rating table.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	4.83
Maximum Recorded Stage (feet)	18.44
Range of Recorded Stage (feet)	13.61

Table 4 Discussion (Stage Record)

Minimum stage occurred during a low flow period at the end of August 2016. Maximum stage occurred during high flow conditions caused by a storm event in mid November of 2015.

Table 5. Rating Table Summary

Rating Table No.	201		
Period of Ratings	10/1/15-9/30/16		
Range of Ratings (cfs)	45-42,800		
No. of Defining Measurements	64		
Rating Error (%)	9.8		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Table 5 Discussion (Rating Tables)

Rating 201 is a carry over due to stable control conditions from WY 2015.
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Table 6. Model Summary

Model Type (Slope conveyance, other, none)	none
Range of Modeled Stage (feet)	none
Range of Modeled Discharge (cfs)	none
Valid Period for Model	none
Model Confidence	none

Table 6 Discussion (Modeled Data)

none
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Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station	07/07/2016

Table 7 Discussion (Surveys)

A station survey was completed to update the survey completed in September of 2010. All reference marks were surveyed and the survey was able to meet the acceptable error of closure.

Activities Completed

Eight streamflow measurements were conducted during WY 2016.

Appendix

None.