

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

STATION ID: 05A105
STATION NAME: S. F. Stillaguamish River at Jordan Rd Bridge
WATER YEAR: WY2013
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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 2450 feet. Elevations range from about 196 feet at the gage to 6690 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.

Drainage Area (square miles)	181
Latitude (degrees, minutes, seconds)	48, 05, 43 N
Longitude (degrees, minutes, seconds)	121, 58, 29 W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1870 cfs
Median Annual Discharge (cfs)	1430 cfs
Maximum Daily Mean Discharge (cfs)	12000 cfs
Minimum Daily Mean Discharge (cfs)	118 cfs
Maximum Instantaneous Discharge (cfs)	19500 cfs
Minimum Instantaneous Discharge (cfs)	109 cfs
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	4090 cfs
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	240 cfs
Number of Days Discharge is Greater Than Range of Ratings	None
Number of Days Discharge is Less Than Range of Ratings	None

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

Narrative

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Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	5 %
Weighted Rating Error (% of discharge)	10 %
Total Potential Error (% of discharge)	15 %

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	2		
Period of Ratings	10/1/2012 - 9/30/2013		
Range of Ratings (cfs)	109 to 42800 cfs		
No. of Defining Measurements	33		
Rating Error (%)	10 %		

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 (%)			

Narrative

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Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	4.80 ft
Maximum Recorded Stage (feet)	13.64 ft
Range of Recorded Stage (feet)	8.84 ft
Number of Un-Reported Days	None
Number of Days Qualified as Estimates	11 days
Number of Days Qualified as Unreliable Estimates	None

Narrative

In November 2012 and March 2013, a total of nine days had significant data gaps due to a failing radar gage. Reference data from a nearby station were used to fill the gaps and are qualified as estimates. There were a number of other brief gage failures that did not cause significant loss of data.

Data for two days in January 2013 are qualified as estimates due to instrument drift with potential for errors greater than 20 percent of the mean daily flow.

Modeled Discharge

Table 6. Model Summary

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

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Activities Completed

The Radar Level Sensing gage failed and was replaced on November 7, 2012, and again on March 19, 2013. The second replacement solved the problem of failures during high turbulent flows.