

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: WY2010
AUTHOR: Don Watt

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 for 2001 was computed as 74 percent of the basin. The 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 S. F. Stillaguamish River at the south end of the Jordan Road Bridge. The slant-pipe drops 30 feet down a steep bank to the river. The terminal end of the pipe extends into the deepest portion of the channel a few feet from shore. The period of record for this station is from July 29, 2004 until the present.

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)	1520
Median Annual Discharge (cfs)	1070
Maximum Daily Mean Discharge (cfs)	10,700
Minimum Daily Mean Discharge (cfs)	170
Maximum Instantaneous Discharge (cfs)	16,500
Minimum Instantaneous Discharge (cfs)	166
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	3270
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	262
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

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)	11%
Total Potential Error (% of discharge)	16%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#1	#2	
Period of Ratings	10/1 - 1/12/2010	1/12 - 9/30/2010	
Range of Ratings (cfs)	134 - 21,400 cfs	218 - 21,400 cfs	
No. of Defining Measurements	29	16	
Rating Error (%)	11%	11%	

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)	4.87
Maximum Recorded Stage (feet)	12.88
Range of Recorded Stage (feet)	8.01
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	54
Number of Days Qualified as Unreliable Estimates	0

Narrative

Of 54 days qualified as estimated data, 30 days were the result of gap-filling efforts to replace data lost due to gage damage during slide activity on the stream bank. Logger drift exceeding 20% of the mean daily flow caused 20 estimated days. Filling of small data gaps caused the remaining 4 days qualified as estimated data.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	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
Station and cross section	9/13/2010

Activities Completed

On 3/9/10 replaced Campbell Scientific DCP with Design Analysis DCP. Temporarily repaired slide damage to slant pipe.

On 9/1/10 removed continuous gaging equipment to avoid further slide damage.