

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

STATION ID: 29A070
STATION NAME: Rock Creek at Stevensen
WATER YEAR: 2009
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Introduction

Watershed Description

Operation of station started on June 18, 2008. Stage was recorded on a Design Analysis® data logger every fifteen minutes. Staff gage (primary) and laser level (secondary) readings were made routinely for the duration of the period of record.

Gage Location

Ecology's telemetry stream gage on Rock Creek is located at river mile 1.0, upriver from the town of Stevenson on Allen Road. Gage is located on the upstream side of bridge.

Table 1.

Drainage Area (square miles)	42
Latitude (degrees, minutes, seconds)	45 41 55
Longitude (degrees, minutes, seconds)	121 54 18

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	192
Median Annual Discharge (cfs)	116
Maximum Daily Mean Discharge (cfs)	1,420
Minimum Daily Mean Discharge (cfs)	6.1
Maximum Instantaneous Discharge (cfs)	1,530
Minimum Instantaneous Discharge (cfs)	5.8
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	534
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	8.7
Number of Days Discharge is Greater Than Range of Ratings	9
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

Average potential error for discharge values is 18%. The majority of the error is in the rating and associated discharge measurement. Most measurement error is due to channel configuration of bedrock edges, large boulders, and cobble throughout channel and control. During high flows there is upwelling and turbulence throughout.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	1.3
Weighted Rating Error (% of discharge)	16.6
Total Potential Error (% of discharge)	17.9

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	1	2	
Period of Ratings	06-18-08/08-04-2009	08-04-09/03-27-2012	
Range of Ratings (cfs)	3.9 - 1850	8 to 925	
No. of Defining Measurements	33	23	
Rating Error (%)	16.4	17.3	

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

A scouring event occurred between June 23, 2009 and August 4, 2009, causing shift to rating table 2.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	6.25
Maximum Recorded Stage (feet)	15.71
Range of Recorded Stage (feet)	9.46
Number of Un-Reported Days	9
Number of Days Qualified as Estimates	0
Number of Days Qualified as Unreliable Estimates	0

Narrative

There were 275 days of stable drift, meaning little uncertainty was introduced to the discharge record from errors in the stage record. Nine days were unreported because they exceeded the reporting capabilities of the rating.

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

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