

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

STATION ID: 29G060
STATION NAME: Panther Creek
WATER YEAR: 2009
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Introduction

Watershed Description

Ecology's telemetry stream gage on Panther Creek located at river mile 2.0. The watershed is mainly Forest Service land.

Gage Location

The gage is located on Bear Creek Road at the bridge. The station is on the left bank.

Table 1.

Drainage Area (square miles)	41
Latitude (degrees, minutes, seconds)	45 46 16
Longitude (degrees, minutes, seconds)	121 50 54

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	147
Median Annual Discharge (cfs)	106
Maximum Daily Mean Discharge (cfs)	684
Minimum Daily Mean Discharge (cfs)	46
Maximum Instantaneous Discharge (cfs)	754
Minimum Instantaneous Discharge (cfs)	45
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	57
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	298
Number of Days Discharge is Greater Than Range of Ratings	7
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

Nineteen days of data were estimated based on records from another station. Eighty-nine days were estimated because of uncertainty in the logger record due to instrument drift. Eight days were above the range of measured discharges but are considered reliable extrapolations. Discharges from seven days throughout the water year exceeded the range of measured flows by two times the highest measured discharge and did not report.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	8.3
Weighted Rating Error (% of discharge)	17.5
Total Potential Error (% of discharge)	26

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	1		
Period of Ratings	06-18-08 to 10-02-12		
Range of Ratings (cfs)	0 to 948		
No. of Defining Measurements	36		
Rating Error (%)	18		

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

Nine discharge measurements were conducted during the water year ranging from 58 to 471 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	9.42
Maximum Recorded Stage (feet)	13.44
Range of Recorded Stage (feet)	4.02
Number of Un-Reported Days	7
Number of Days Qualified as Estimates	89
Number of Days Qualified as Unreliable Estimates	0

Narrative

The stage record for the water year is complete with no interruptions. To correct for instrument drift, the stage record has been adjusted to known periodic staff gage readings.

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
Comprehensive	2009

Activities Completed

More flow measurements are needed at this station to augment both the high and low ends of the rating curve.