

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

STATION ID: 46B060
STATION NAME: Roaring Creek nr Mouth
WATER YEAR: 2006
AUTHOR: Howard Christensen

Introduction

Watershed Description

Station 46B060, Roaring Creek, drains 24.75 square miles; and the basin elevation ranges from 1,180 ft. to 3,870 ft. The mean basin slope is 46 percent. The area is 32% forest canopy, and the rest is open grass land with steep hill sides. Land is mainly forested with some small farm and orchards. The stream channel is gravel to bedrock in places.

Gage Location

The gage is located up the Entiat River Road to Roaring Creek Road about eight miles. Turn left onto Roaring Creek Road and drive about two miles. The station is on the left-hand side. PGI is staff gage.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	25
Latitude (degrees, minutes, seconds)	47 41 09 N
Longitude (degrees, minutes, seconds)	120 20 35 W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	8.8
Median Annual Discharge (cfs)	3.0
Maximum Daily Mean Discharge (cfs)	76
Minimum Daily Mean Discharge (cfs)	0.6
Maximum Instantaneous Discharge (cfs)	98
Minimum Instantaneous Discharge (cfs)	0.5
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	1.1
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	29
Number of Days Discharge is Greater Than Range of Ratings	5
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	19
Number of Days Qualified as Estimates	56
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)

Eighteen days in October were estimated based on stage data from other stations. Thirty-eight days were estimated due to drift error threshold greater than 20 percent. Fourteen days were ice-impacted and not reported. Five days were not reported because the rating was exceeded.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	3.9
Potential Weighted Rating Error (% of discharge)	16
Total Potential Error (% of discharge)	20

Table 3 Discussion (Error Analysis)

Relative instrument drift was low through much of the year at 3.9 percent. There were 232 days of favorable stable drift conditions. We consider periods of stable drift when assessing potential error caused by instrument drift. The Potential Weighted Rating Error of 16 percent is due mostly to poor measurement cross-section conditions which increases the variability of discharge measurements.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	0.58
Maximum Recorded Stage (feet)	2.83
Range of Recorded Stage (feet)	2.25

Table 4 Discussion (Stage Record)

Maximum stage occurred on April 30, 2006; and minimum stage occurred on September 8, 2005.
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Table 5. Rating Table Summary

Rating Table No.	5	6	
Period of Ratings	10-01-05 to 05-16-06	04-24-06 to 09-30-06	
Range of Ratings (cfs)	0.4 to 109	0.55 to 109	
No. of Defining Measurements	4	8	
Rating Error (%)	17	15	

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 6 was created because of channel scouring during spring runoff.
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Table 6. Model Summary

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

Table 6 Discussion (Modeled Data)

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

Type	Date

Table 7 Discussion (Surveys)

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Activities Completed

Routine station maintenance and discharge measurement were conducted at six-week intervals.
