

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

STATION ID: 35K050
STATION NAME: Alpowa Creek at Mouth
WATER YEAR: 2012
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Introduction

Watershed Description

Alpowa Creek is a left bank tributary to the Snake River, approximately 6 miles downstream from Clarkston, Washington. The headwaters of Alpowa Creek are in the northern foothills of the Blue Mountains. From there, the creek flows northeasterly to its confluence with the Snake River.

Gage Location

The station is located on the right bank, between the Old Chief Timothy bridge and the Highway 12 bridge in the parking lot of the Department of Transportation Interpretive Site.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	128 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 24' 44" N
Longitude (degrees, minutes, seconds)	117° 12' 48" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	11
Median Annual Discharge (cfs)	10
Maximum Daily Mean Discharge (cfs)	46
Minimum Daily Mean Discharge (cfs)	5.3
Maximum Instantaneous Discharge (cfs)	51
Minimum Instantaneous Discharge (cfs)	3.2
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	15
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	6.8
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	1
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	14
Number of Modeled Days	5

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)

A majority of the estimated days were due to the mean daily flow difference between corrected and uncorrected data being greater than 20%.

Peak flow occurred on March 31, 2012.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	4.2
Potential Weighted Rating Error (% of discharge)	11.4
Total Potential Error (% of discharge)	15.6

Table 3 Discussion (Error Analysis)

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Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	0.90
Maximum Recorded Stage (feet)	2.06
Range of Recorded Stage (feet)	1.16

Table 4 Discussion (Stage Record)

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Table 5. Rating Table Summary

Rating Table No.	21	22	23
Period of Ratings	10/1/11 to 4/3/12	3/26/12 to 8/14/12	6/18/12 to 9/30/12
Range of Ratings (cfs)	3.2 to 284	3.8 to 284	2.6 to 284
No. of Defining Measurements	9	7	8
Rating Error (%)	10.5	12.9	11.0

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

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Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Table 5 Discussion (Rating Tables)

Rating 22 was a result of seasonal runoff. Rating 23 was due to fine sediment movement at the control.

Eight discharge measurements were taken throughout the water year, ranging from 7.6 to 33 cfs.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	1.70
Range of Modeled Discharge (cfs)	4.28
Valid Period for Model	WY 2012
Model Confidence	2.4%

Table 6 Discussion (Modeled Data)

Manning's roughness coefficient was calculated using the Manning's 'n' Determination worksheet.

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

Type	Date
Station, X-Section, Long.	10/19/2011

Table 7 Discussion (Surveys)

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Activities Completed

Conducted levels, cross sectional, and longitudinal surveys. Labor & Industries retrofit was completed.
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