

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

**STATION ID:** 40A070  
**STATION NAME:** Squilchuck Creen below Picher Canyon  
**WATER YEAR:** 2008  
**AUTHOR:** Michael S. Anderson

**Introduction**

Watershed Description

Squilchuck Creek is a tributary of the Columbia River, located south of the city of Wenatchee, Washington. The drainage extends from the Columbia River to Mission Ridge (elevation 6,280 feet), and is bounded by Dry Creek to the north and Stemilt Creek to the south. The upper Squilchuck basin is predominantly forested and includes the Mission Ridge ski area and Squilchuck State Park. The lower portion of the basin is mostly undeveloped shrub-steppe with some residential and agricultural development along the stream corridor. Annual precipitation averages 20.8 inches, with a substantial portion falling in the upper basin as snow. Snow-making operations are conducted at the ski resort.

Gage Location

The Squilchuck Creek below Pitcher Canyon stream gage is located off Squilchuck Road above the Lovitt Tailings Pond (inactive) at RM 2.0.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	26.34
Latitude (degrees, minutes, seconds)	47° 22' 42" N
Longitude (degrees, minutes, seconds)	120° 18' 51" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1.5
Median Annual Discharge (cfs)	1.5
Maximum Daily Mean Discharge (cfs)	2.7
Minimum Daily Mean Discharge (cfs)	0.60
Maximum Instantaneous Discharge (cfs)	5.6
Minimum Instantaneous Discharge (cfs)	0.60
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	2.4
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	0.80
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	309
Number of Days Qualified as Estimates	0
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)

This station was deployed August 4, 2008. Unreported days were all prior to the start of the record. Due to the deployment in the latter part of the water year, the range of flows is limited and the mean and median values are lower than would be expected for a complete water year.

Three discharge measurements were conducted, ranging from 1.24 cfs at a stage of 4.81 ft to 2.25 cfs at a stage of 4.90 ft.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	4.9%
Potential Weighted Rating Error (% of discharge)	9.6%
Total Potential Error (% of discharge)	14.5%

Table 3 Discussion (Error Analysis)

The short time period that monitoring was conducted in this water year contributed to low logger drift.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	4.61
Maximum Recorded Stage (feet)	5.02
Range of Recorded Stage (feet)	0.41

Table 4 Discussion (Stage Record)

The range of stage is relatively small due to the limited time over which it was observed, and because all the data was collected in late summer/early autumn when flows are typically low.

Table 5. Rating Table Summary

Rating Table No.	1	2	
Period of Ratings	08/04/2008-08/20/2008	08/04/2008-09/30/2008	
Range of Ratings (cfs)	0.66 to 32.3	0.31 to 64.6	
No. of Defining Measurements	4	18	
Rating Error (%)	5.3	10.8	

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)

Table #1 covers the initial measurement and immediately begins phasing into Table #2. No definitive event was identified as being responsible for the shift between ratings, so it was phased across the entire period between measurements. The small number of measurements and limited range of stage and discharge encountered made it necessary for discharge measurements from subsequent water years to be utilized in developing the rating tables used in water year 2008.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	None
Range of Modeled Stage (feet)	n/a
Range of Modeled Discharge (cfs)	n/a
Valid Period for Model	n/a
Model Confidence	na/

Table 6 Discussion (Modeled Data)

No model was developed for this station.
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Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Levels	08/04/2008

Table 7 Discussion (Surveys)

Survey to establish datum and relative elevation of benchmarks.

Activities Completed

Station was installed 08/04/2008.