

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

STATION ID: 03J100
STATION NAME: Hansen Creek near Sedro Woolley
WATER YEAR: 2009
AUTHOR: Don Watt

Introduction

Watershed Description

The Hansen Creek drainage extends from the southwest side of Lyman Hill south to the Skagit River just east of Sedro-Woolley. The gage basin has a mean elevation of about 1240 feet and ranges from about 80 feet above sea level to about 4030 feet at the top of Lyman Hill. Nearly 70 percent of the basin was found to be forested in a 2001 study. The USGS estimates annual precipitation at about 50 inches.

Gage Location

The gage is located near river mile 4.0 on Hansen Creek, on Skagit County property at the Northern State Recreation Area. The Primary Gage Index is a staff gage mounted near the right bank of the creek at the base of a large tree about 15 feet downstream from the Thompson Drive Bridge. The gage house is located on the left bank, at roughly the same elevation as the roadway.

Table 1.

Drainage Area (square miles)	7
Latitude (degrees, minutes, seconds)	48, 31, 50 N.
Longitude (degrees, minutes, seconds)	122, 12, 02 W.

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	17 cfs
Median Annual Discharge (cfs)	16 cfs
Maximum Daily Mean Discharge (cfs)	95 cfs
Minimum Daily Mean Discharge (cfs)	1.3 cfs
Maximum Instantaneous Discharge (cfs)	117 cfs
Minimum Instantaneous Discharge (cfs)	0.4 cfs
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	37 cfs
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	2.3 cfs
Number of Days Discharge is Greater Than Range of Ratings	11 days
Number of Days Discharge is Less Than Range of Ratings	0 days

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Discharge data are not reported for the 11 days in which the range of ratings was exceeded.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	17%
Weighted Rating Error (% of discharge)	10%
Total Potential Error (% of discharge)	27%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	6	303	7
Period of Ratings	10/1 to 10/29/2008	10/1/08 to 1/6/09	1/6 to 4/13/09
Range of Ratings (cfs)	2 to 132	2 to 132	14 to 132
No. of Defining Measurements	5	8	3
Rating Error (%)	14%	11%	6%

Rating Table No.	8		
Period of Ratings	3/5 to 9/30/09		
Range of Ratings (cfs)	0.001 to 132		
No. of Defining Measurements	6		
Rating Error (%)	11%		

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

Narrative

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Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	4.27 ft
Maximum Recorded Stage (feet)	9.69 ft
Range of Recorded Stage (feet)	5.42 ft
Number of Un-Reported Days	11 days
Number of Days Qualified as Estimates	113 days
Number of Days Qualified as Unreliable Estimates	0

Narrative

All 11 unreported days had discharge values exceeding the range of ratings. Of the 113 days qualified as estimates, 112 had potential logger drift errors greater than 20 percent. One day had a 10-hour data gap that was filled using linear interpolation.

Modeled Discharge

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	N/A

Surveys

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

Type	Date
None	

Activities Completed

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