

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

STATION ID: 01P080
STATION NAME: Tenmile Cr. abv Barrett Lake
WATER YEAR: 2009
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Introduction

Watershed Description

Tenmile Creek is a lowland agricultural tributary that drains into the mainstem Nooksack River at river mile 7.0, and is the focus of management efforts to improve habitat and instream flows under the Comprehensive Irrigation District Management Plan (CIDMP) and WRIA 01 management. Tenmile Creek supports populations of coho, steelhead, chinook, and chum salmon as well as cutthroat trout.

Gage Location

The gage is located on private property near the West Laurel Bridge crossing approximately 2.8 miles from the confluence with the mainstem Nooksack River. The gage is accessible only from this property.

Table 1.

Drainage Area (square miles)	25.7
Latitude (degrees, minutes, seconds)	48° 51' 26" N
Longitude (degrees, minutes, seconds)	-122° 31' 42" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	30
Median Annual Discharge (cfs)	17
Maximum Daily Mean Discharge (cfs)	507
Minimum Daily Mean Discharge (cfs)	2.0
Maximum Instantaneous Discharge (cfs)	760
Minimum Instantaneous Discharge (cfs)	1.8
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	63
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	3.7
Number of Days Discharge is Greater Than Range of Ratings	2
Number of Days Discharge is Less Than Range of Ratings	7

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

Narrative

In January 2009, this station encountered the highest storm event flow since monitoring began at this site. The peak flow for the storm even exceeded the rating curve and was at least 760 cfs. Numerous May storms extended winter flow level longer than in previous years, but this did not translate into higher summer low flows, which were lower than in previous years.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	4.8%
Weighted Rating Error (% of discharge)	17.3%
Total Potential Error (% of discharge)	22.1%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	12	13	
Period of Ratings	10/1/08 - 2/23/09	1/12/09 - 1/30/09	
Range of Ratings (cfs)	2.0 - 804	1.8 - 804	
No. of Defining Measurements	6	10	
Rating Error (%)	17.2%	17.3%	

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

This station encountered only one rating shift during water year 2009, a low- to high- range scour resulting from a very large storm event in January. The resulting rating (Table 13) remained in effect for the rest of the water year.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.72
Maximum Recorded Stage (feet)	9.28
Range of Recorded Stage (feet)	7.56
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	7
Number of Days Qualified as Unreliable Estimates	0

Narrative

This station logged continuously throughout Water Year 2009 without interruption. A brief period of pressure transducer drift in March resulted in seven days that were qualified as estimates.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	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
none	

Activities Completed

I Encountered several problems with the GOES satellite transmitter at this station during Water Year 2009, prompting two different replacements before the problems subsided.