

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

STATION ID: 01F070
STATION NAME: S.F. Nooksack R. @ Potter Rd.
WATER YEAR: 2010
AUTHOR: Chuck Springer

Introduction

Watershed Description

The Nooksack watershed contains the three (North, Middle, and South) forks of the Nooksack River, which drain approximately 1,250 square miles of land. The South Fork Nooksack River, about 50 miles long, flows from the eastern flank of Twin Sisters Mountain through southern Whatcom County and northern Skagit County, and joins the mainstem Nooksack River near Deming, WA. The South Fork Nooksack River supports populations of coho, steelhead, chinook, chum, char, pink and sockeye salmon as well as cutthroat trout.

Gage Location

This station is located on the left bank of the South Fork at the Potter Road Bridge crossing near river mile 1.8. The station was removed at the end of water year 2010.

Table 1.

Drainage Area (square miles)	179
Latitude (degrees, minutes, seconds)	48° 47' 21" N
Longitude (degrees, minutes, seconds)	-122° 11' 51" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1,350
Median Annual Discharge (cfs)	972
Maximum Daily Mean Discharge (cfs)	10,200
Minimum Daily Mean Discharge (cfs)	90.0
Maximum Instantaneous Discharge (cfs)	16,400
Minimum Instantaneous Discharge (cfs)	90.0
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	2550
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	152
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	18

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

Narrative

Much of the low flow period at the end of water year 2010 was below the rating curve for this station, resulting in the minimum reportable flow of 90 cfs being reported.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	33.5%
Weighted Rating Error (% of discharge)	14.1%
Total Potential Error (% of discharge)	47.6

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	8	9	
Period of Ratings	10/1/09 - 12/8/09	11/3/09 - 12/1/2010	
Range of Ratings (cfs)	0 - 31,800	90 - 31,800	
No. of Defining Measurements	11	12	
Rating Error (%)	16.7%	13.6%	

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

A series of storm events caused a channel fill at this station in November 2009. The lowest flows for the resulting rating (Rating Table 9) were not measured prior to station removal. As a result, several days in late-summer 2010 report as being below the rating curve.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	5.44
Maximum Recorded Stage (feet)	13.46
Range of Recorded Stage (feet)	8.02
Number of Un-Reported Days	47
Number of Days Qualified as Estimates	138
Number of Days Qualified as Unreliable Estimates	47

Narrative

The pressure transducer at this site began drifting, at times wildly, during water year 2010, resulting in a large number of estimated and non-reporting days.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope-conveyance
Range of Modeled Stage (feet)	12.0 - 16.0
Range of Modeled Discharge (cfs)	6,130 - 17,500
Valid Period for Model	WY 2010
Model Confidence	4.1%

Surveys

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

Type	Date
Stn, x-sec, longitudinal	8/17/2010

Activities Completed

Staff added tipping bucket rain gage to this station in June 2010. This station was removed on 10/26/2010.