WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 01A140

STATION NAME: Nooksack R. abv the Middle Fork

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 North Fork Nooksack River flows from the East Nooksack Glacier on the east side of Mt. Shuksan westward to its confluence with the Middle Fork Nooksack River. The upper watershed is predominantly Federal and private timberland, with pockets of rural residential development, and a few small towns such as Glacier, Kendall, and Maple Falls. The North Fork Nooksack River supports populations of coho, steelhead, chinook, chum, char, pink and sockeye salmon as well as cutthroat, rainbow and eastern brook trout.

Gage Location

This station is located on the left bank of the North Fork at the Mosquito Lake Road Bridge crossing near river mile 40.8, approximately 0.5 miles upstream of the confluence with the M.F. Nooksack River.

Table 1.

Drainage Area (square miles)	288
Latitude (degrees, minutes, seconds)	48° 50' 18" N
Longitude (degrees, minutes, seconds)	122° 09' 09" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1870
Median Annual Discharge (cfs)	1540
Maximum Daily Mean Discharge (cfs)	7660
Minimum Daily Mean Discharge (cfs)	466
Maximum Instantaneous Discharge (cfs)	9790
Minimum Instantaneous Discharge (cfs)	429
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	3470
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	688
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

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

Narrative

Five days in Water Year 2010 were below the measured range of flows, but within a reliable range of extrapolation.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	19.8
Weighted Rating Error (% of discharge)	18.0
Total Potential Error (% of discharge)	37.8

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	2	105	
Period of Ratings	10/1/09 - 1/11/10	11/16/09 - 10/26/10	
Range of Ratings (cfs)	250 - 17,800	350 - 17,800	
No. of Defining Measurements	17	18	
Rating Error (%)	24.0	16.3	

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

Both rating tables that were used during Water Year 2010 were recurrences of stage-discharge relationships that occurred in previous water years.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	5.03
Maximum Recorded Stage (feet)	10.24
Range of Recorded Stage (feet)	5.21
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	193
Number of Days Qualified as Unreliable Estimates	0

Narrative

The station logged continuously during Water Year 2010. However, periods of extreme pressure transducer drift during the water year resulted in a high number of estimated days.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope-Conveyance
Range of Modeled Stage (feet)	8.3 - 12.4
Range of Modeled Discharge (cfs)	5,430 - 15,900
Valid Period for Model	2003 - 2010
Model Confidence	7.8%

Surveys

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

Type	Date
Station	8/17/10

Activities Completed

Due to budget cuts, this station was permanently removed on October 26, 2010.