WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 01G100

STATION NAME: M.F. Nooksack R. above Clearwater Creek

WATER YEAR: 2007

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 sq. mi. of the west slopes of the Cascade Range. The Middle Fork drains approximately 103 sq. mi., originating at the Deming Glacier on the southern flank of Mt. Baker. The river flows northwest for approximately 20 miles to its confluence with the North Fork Nooksack River near the town of Deming. The upper watershed is predominantly managed timber land, while the lower watershed is a broad alluvial plain dominated by rural residential development and small farms.

Gage Location

The Middle Fork gage is located at the bridge crossing, on the right bank of the Middle Fork at river mile 9.5 off of Forest Road 38.

Table 1.

Drainage Area (square miles)	47.1
Latitude (degrees, minutes, seconds)	48° 46' 02" N
Longitude (degrees, minutes, seconds)	-122° 02'18" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	423
Median Annual Discharge (cfs)	357
Maximum Daily Mean Discharge (cfs)	2190
Minimum Daily Mean Discharge (cfs)	108
Maximum Instantaneous Discharge (cfs)	3100
Minimum Instantaneous Discharge (cfs)	108
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	803
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	113
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	68

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

Narrative

Continuous discharge at this station is derived from an estimated record of continuous stage, which is estimated based on USGS Station 12208000 M.F. Nooksack R. near Deming.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	N/A
Weighted Rating Error (% of discharge)	19.6%
Total Potential Error (% of discharge)	19.6%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	4	5	6
Period of Ratings	10/1/06 - 11/6/06	11/6/06 - 7/10/07	5/22/07 - 9/30/07
Range of Ratings (cfs)	75.0 - 4,300	112 - 4,300	108 - 4,300
No. of Defining Measurements	5	5	4
Rating Error (%)	11.7	20.5	20.0

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

High flows at this station are not measurable due to extreme velocity and turbulence. Heavy gravel-truck traffic on Forest Road 38 often precluded our ability to conduct measurements from the road bridge.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	3.67
Maximum Recorded Stage (feet)	7.34
Range of Recorded Stage (feet)	3.67
Number of Un-Reported Days	17
Number of Days Qualified as Estimates	348
Number of Days Qualified as Unreliable Estimates	0

Narrative

Continuous monitoring at this site was discontinued in 2005. The entire continuous stage record is estimated based on USGS Station 12208000 M.F. Nooksack R. near Deming using linear regression. The continuous stage record was then further adjusted to the individual stage-height observations taken during the water year. On average, these adjustments amounted to a 50% change in the continuous stage-height values produced by the linear regression.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope-conveyance
Range of Modeled Stage (feet)	4.0 - 8.1
Range of Modeled Discharge (cfs)	77 - 4,295
Valid Period for Model	2005 - 2007
Model Confidence	14.4%

Surveys

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

Type	Date
none	

Activities Completed

There is nothing of note.