WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 01K050

STATION NAME: Maple Cr. @ mouth

WATER YEAR: 2007

AUTHOR: Chuck Springer

Introduction

Watershed Description

Maple Creek is a higher-elevation tributary that flows southward from Silver Lake before converging with the North Fork Nooksack River near river mile 49.7. The lower reach of Maple Creek, downstream of Maple Falls, is located in the N.F. Nooksack River floodplain. This reach is characterized by well-developed pool and riffle complexes, off-channel wetlands, and clean gravel substrate. Beaver dam complexes abound in the lower reaches as well. This reach supports populations of coho, steelhead, chinook, chum, char, pink, and sockeye salmon, as well as cutthroat and rainbow trout.

Gage Location

The Maple Creek gage is located on Whatcom Land Trust property across the creek from Wandering Waters Farm, south of the town of Maple Falls in Whatcom County, Washington. The gage is located immediately downstream of a small private bridge approximately 1000 ft. above the confluence with the N.F. Nooksack River.

Table 1.

Drainage Area (square miles)	12.0
Latitude (degrees, minutes, seconds)	48° 54' 51" N
Longitude (degrees, minutes, seconds)	-122° 4' 47" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	34
Median Annual Discharge (cfs)	27
Maximum Daily Mean Discharge (cfs)	189
Minimum Daily Mean Discharge (cfs)	0.5
Maximum Instantaneous Discharge (cfs)	399
Minimum Instantaneous Discharge (cfs)	0.5
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	79
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	0.8
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	4

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

Narrative

Water Year 2007 started with the lowest flows recorded at this site, followed by a November storm event that produced the highest flows recorded at this site. Numerous oddly shaped storm events throughout spring 2007 suggest delayed release of storm flows due to beaver dams upstream of this station.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	2.7%
Weighted Rating Error (% of discharge)	15.9%
Total Potential Error (% of discharge)	18.6%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	5	6	7
Period of Ratings	10/1/06 - 1/9/07	11/8/06 - 9/27/07	8/14/07 - 9/30/07
Range of Ratings (cfs)	1.1 - 470	0.89 - 470	0 - 470
No. of Defining Measurements	11	7	7
Rating Error (%)	17.9%	15.4%	15.0%

Rating Table No.	8	N/A	N/A
Period of Ratings	9/27/07 - 9/30/07		
Range of Ratings (cfs)	5.5 - 470		
No. of Defining Measurements	4		
Rating Error (%)	16.0%		

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

Narrative

This station began Water Year 2007 amid a rating table shift, and encountered two more rating shifts during the water year. The first was a nearly full-range scour resulting from numerous storm events during fall 2006. The second shift was a low-end channel scour that occurred during late summer 2007. Neither of these shifts affected modeled high flows.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	0.89
Maximum Recorded Stage (feet)	2.70
Range of Recorded Stage (feet)	1.81
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	3
Number of Days Qualified as Unreliable Estimates	0

Narrative

The station logged continuously in Water Year 2007, with the exception of one 7-day period in December 2006. Data from 01A140 Nooksack R. above the Middle Fork was used to estimate continuous stage during this period.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope-Conveyance
Range of Modeled Stage (feet)	6.0 - 8.0
Range of Modeled Discharge (cfs)	210 - 470
Valid Period for Model	WY 2005-2008
Model Confidence	3%

Surveys

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

Type	Date
Stn, x-sec, longitudinal	10/25/2006

Activities Completed

Nothing of note