WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 32B075

STATION NAME: Touchet River at Cummins Road

WATER YEAR: WY 2009

AUTHOR: Mitch Wallace

Introduction

Watershed Description

The Touchet River is the largest tributary of the Walla Walla River in southeastern Washington. Its headwaters lie in the Blue Mountains above the town of Dayton in Columbia County. The main river is formed by the confluence of the North and South Forks.

Land use is primarily agricultural, consisting of dryland crops and irrigated farming in the lower portions.

Spring Chinook, steelhead, and bull trout are present within the watershed.

Gage Location

The gage is located on the left bank, directly upstream of the Cummins Road bridge crossing, one mile north of Touchet, Washington. It is located at river mile 3.0.

Table 1.

Drainage Area (square miles)	780 (USGS)
Latitude (degrees, minutes, seconds)	46° 03' 24" N
Longitude (degrees, minutes, seconds)	118° 40' 03" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	326
Median Annual Discharge (cfs)	147
Maximum Daily Mean Discharge (cfs)	3160
Minimum Daily Mean Discharge (cfs)	5.9
Maximum Instantaneous Discharge (cfs)	4180
Minimum Instantaneous Discharge (cfs)	5.1
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	939
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	15.4
Number of Days Discharge is Greater Than Range of Ratings	1
Number of Days Discharge is Less Than Range of Ratings	10

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

Narrative

Peak flow occurred on January 9, 2009, due to a significant rain on snow event. The lowest flows of the year occurred in early August.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	6.8
Weighted Rating Error (% of discharge)	13.0
Total Potential Error (% of discharge)	19.8

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#10	#11	#12
Period of Ratings	10/1/08 to 1/11/09	1/9/09 to 09/30/09	8/26/09 to 9/30/09
Range of Ratings (cfs)	7.6 to 4930	7.6 to 4930	11.7 to 4930
No. of Defining Measurements	8	17	16
Rating Error (%)	11.3	13.5	14.2

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

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Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

The shift to rating #11 was due to channel fill caused by a significant rain on snow event. The shift to rating #12 was due to channel fill caused by fine sediment movement.

Nine discharge measurements were taken, ranging from 18.8 to 1320 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.45
Maximum Recorded Stage (feet)	12.46
Range of Recorded Stage (feet)	11.01
Number of Un-Reported Days	2
Number of Days Qualified as Estimates	45
Number of Days Qualified as Unreliable Estimates	0

Narrative

The unreported days were due to a bubbler issue and a rating exceedance.

Data in which the mean daily flow difference between corrected and uncorrected data is greater than 20 percent has been qualified as an estimate.

Staff gage was damaged during the high flow event in Janaury. Gage heights from January to July, when staff gage was repaired, were calculated from a staff gage/secondary gage regression. At this site, the secondary gages are a tapedown from the bridge and laser level reading of water elevation.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	8.0 to 12.60
Range of Modeled Discharge (cfs)	1620 to 4930
Valid Period for Model	10/1/08 to 9/30/09
Model Confidence	3.4%

Surveys

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

Type	Date
n/a	n/a

Activities Completed

Staff gage was re-installed in July, set at same datum as previous gage.