

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

STATION ID: 32B100
STATION NAME: Touchet River at Bolles Road
WATER YEAR: WY 2009
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Introduction

Watershed Description

The Touchet River, the largest tributary of the Walla Walla River, flows out of the Blue Mountains in southeast Washington. Spring Chinook, steelhead, and bull trout are present within the watershed. Land use is primarily agricultural, consisting of dryland crops and irrigated farming in the lower portions.

Gage Location

This gage is located on the right bank, downstream of the Highway 125 Bridge, 3.5 miles west of the town of Waitsburg. It is located at river mile 40.4.

Table 1.

Drainage Area (square miles)	357 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 16' 28" N
Longitude (degrees, minutes, seconds)	118° 13' 16" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	397
Median Annual Discharge (cfs)	121
Maximum Daily Mean Discharge (cfs)	4730
Minimum Daily Mean Discharge (cfs)	36
Maximum Instantaneous Discharge (cfs)	6270
Minimum Instantaneous Discharge (cfs)	34
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	1140
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	44
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

Nine discharge measurements were taken throughout the water year, ranging from 41 to 1300 cfs. The 3/4/2009 discharge measurement was discarded because of inaccurate collection of depths. This was caused by an initial maximum-depth entry that was too shallow.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	5.5
Weighted Rating Error (% of discharge)	9.2
Total Potential Error (% of discharge)	14.7

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	4	5	301
Period of Ratings	5/13/08 to 1/11/09	1/12/09 to 3/29/09	3/30/09 to 1/05/10
Range of Ratings (cfs)	24 to 7780	92 to 7780	25 to 7780
No. of Defining Measurements	15	3	15
Rating Error (%)	7.7	8.4	10.4

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 water year began under rating 4. There was a significant rain-on-snow event in early January that led to channel fill, which resulted in a shift to rating 5. In early March, the rating shifted to 301. This shift was a result of channel scour caused by early season snow melt.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.98
Maximum Recorded Stage (feet)	9.09
Range of Recorded Stage (feet)	6.11
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	46
Number of Days Qualified as Unreliable Estimates	0

Narrative

The early January rain on snow event damaged the end of the bubbler. The data that was collected during this period was replaced with data from the Department of Ecology's stream gaging station 32E050 (NF Touchet R. above Dayton). The estimated days were a result of the mean daily flow differences between edited and un-edited data being greater than 20%.

The staff gage was underwater at times throughout the water year. These staff readings were calculated based on a regression between staff gage and a secondary gage index, in this case a reference point from the bridge.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	6.0 to 9.48
Range of Modeled Discharge (cfs)	1800 to 7784
Valid Period for Model	WY 2009
Model Confidence	2.13%

Surveys

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

Type	Date
n/a	n/a

Activities Completed

Bubbler line and terminal end were repaired in mid February. The battery was replaced in late July.