

**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 2011  
**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)	318
Median Annual Discharge (cfs)	212
Maximum Daily Mean Discharge (cfs)	2830
Minimum Daily Mean Discharge (cfs)	7.60
Maximum Instantaneous Discharge (cfs)	3660
Minimum Instantaneous Discharge (cfs)	7.60
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	702
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	23.5
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	24

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

**Narrative**

<p>Peak flow occurred on April 6, 2011, being a result of spring runoff. The lowest flows of the year occurred in the middle of September.</p>
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## Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	9.4
Weighted Rating Error (% of discharge)	13.5
Total Potential Error (% of discharge)	22.9

## Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#901	#13	#112
Period of Ratings	10/1/10 to 4/11/11	4/6/11 to 8/8/11	7/22/11 to 9/30/11
Range of Ratings (cfs)	1.30 to 4930	29.4 to 4930	7.60 to 4930
No. of Defining Measurements	22	18	17
Rating Error (%)	12.7	14.6	13.5

Rating Table No.	#131		
Period of Ratings	9/26/11 to 9/30/11		
Range of Ratings (cfs)	29.4 to 4930		
No. of Defining Measurements	18		
Rating Error (%)	14.6		

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

## Narrative

The most significant rating shift occurred during spring runoff in early April. Nine discharge measurements were taken throughout the water year, ranging from 15.1 to 769 cfs.

## Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.62
Maximum Recorded Stage (feet)	11.33
Range of Recorded Stage (feet)	9.71
Number of Un-Reported Days	13
Number of Days Qualified as Estimates	45
Number of Days Qualified as Unreliable Estimates	4

## Narrative

The unreported days were due to ice-impacted data and bubbler issues.

Data is qualified as an unreliable estimate when the mean daily flow difference between corrected and uncorrected data is greater than 50 percent, but less than 100 percent. A majority of the estimated days were due to the mean daily flow difference between corrected and uncorrected data being greater than 20 percent, but less than 50 percent.

Missing gage height readings were calculated based on a regression between staff gage and a secondary gage. At this site, the secondary gages are a tapedown from the bridge and a laser level reading of water surface 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	10/1/10 to 9/30/11
Model Confidence	3.4%

## Surveys

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

Type	Date
All	9/26/2011

## Activities Completed

The 0.00 to 3.33 staff gage has been damaged; not able to repair. A new laser level pad was installed.