

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

STATION ID: 35B150
STATION NAME: Tucannon River at Marengo
WATER YEAR: 2014
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Introduction

Watershed Description

The Tucannon River Watershed is located in southeastern Washington State in Garfield and Columbia counties. It flows into the Snake River, four miles upstream of Lyons Ferry.

Historically, the lower elevation areas were covered with canyon grasslands and shrub-steppe vegetation. Much of this land has now been converted to livestock and crop production. Coniferous forests still dominate the higher elevations of the watershed.

The Tucannon River is one of the few Snake River tributaries in this area that contains a spring run of Chinook salmon, *Oncorhynchus tshawytscha*.

Gage Location

The Tucannon River at Marengo stream gage is located 12 miles east of Hwy 12, off of Tucannon River Road. The station is located on the left bank, downstream from the county bridge.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	161 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 26' 25" N
Longitude (degrees, minutes, seconds)	117° 45' 01" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	180
Median Annual Discharge (cfs)	129
Maximum Daily Mean Discharge (cfs)	1150
Minimum Daily Mean Discharge (cfs)	77
Maximum Instantaneous Discharge (cfs)	1390
Minimum Instantaneous Discharge (cfs)	74
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	312
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	87
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	8
Number of Days Qualified as Estimates	28
Number of Modeled Days	0

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

Table 2 Discussion (Discharge Statistics)

The eight unreported days were caused by ice impacted data. The battery failed in late September, resulting in missing data. This data gap was filled with regressed data from Ecology station 35D100 (Asotin Creek above George Creek).

Eight discharge measurements were taken throughout the water year, ranging from 82 to 231 cfs.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	0.20
Potential Weighted Rating Error (% of discharge)	13.1
Total Potential Error (% of discharge)	13.3

Table 3 Discussion (Error Analysis)

The discharge measurements associated with the WY 2014 ratings were mostly rated as fair to good quality.

There were a few exceptions at high flows in which the measurements were rated as poor and one rated as an estimate. At high flows, the cross section choices are limited to measuring from the bridge. This location is less than ideal for flow measurements.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	4.16
Maximum Recorded Stage (feet)	6.45
Range of Recorded Stage (feet)	2.29

Table 4 Discussion (Stage Record)

Maximum recorded stage occurred on March 10, 2014.
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Table 5. Rating Table Summary

Rating Table No.	401	502	
Period of Ratings	10/1/13 to 11/6/13	10/1/13 to 9/30/14	
Range of Ratings (cfs)	29 to 1510	36 to 1510	
No. of Defining Measurements	16	25	
Rating Error (%)	12.7	13.2	

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 (%)			

Table 5 Discussion (Rating Tables)

The water year began during a transition between ratings 401 and 502. The shift to rating 502 was caused by channel scour, resulting from small sized substrate movement.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	n/a
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Table 6 Discussion (Modeled Data)

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

Type	Date
n/a	n/a

Table 7 Discussion (Surveys)

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Activities Completed

No significant activities were completed during the water year other than the normal site visits and flow measurements.
