

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: 2009
AUTHOR: Mitch Wallace

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 the Tucannon River Road. The station is located on the left bank, downstream from the county bridge.

Table 1.

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

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	249
Median Annual Discharge (cfs)	136
Maximum Daily Mean Discharge (cfs)	1360
Minimum Daily Mean Discharge (cfs)	68
Maximum Instantaneous Discharge (cfs)	1590
Minimum Instantaneous Discharge (cfs)	64
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	590
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	75
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

<p>Peak flow occurred on January 9, 2009. This flow was associated with a significant rain on snow event.</p>

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	6.2
Weighted Rating Error (% of discharge)	11.2
Total Potential Error (% of discharge)	17.4

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	5	6	7
Period of Ratings	10/1/08 to 1/9/09	1/7/09 to 4/12/09	3/22/09 to 9/30/09
Range of Ratings (cfs)	36 to 1500	51 to 1600	39 to 1600
No. of Defining Measurements	15	4	9
Rating Error (%)	10.2	12.4	11.0

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 (%)			

Narrative

A significant rain on snow event occurred in early January 2009. Eight discharge measurements were taken throughout the water year, ranging from 77 to 720 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	3.90
Maximum Recorded Stage (feet)	6.34
Range of Recorded Stage (feet)	2.44
Number of Un-Reported Days	17
Number of Days Qualified as Estimates	17
Number of Days Qualified as Unreliable Estimates	0

Narrative

The unreported days were due to ice-impacted data. The estimated days were a result of the mean daily flow difference between edited and unedited data being greater than 20 percent.

The battery failed in late December, resulting in a twenty-one day data gap. This gap was filled with data from the Department of Ecology's stream gage 35G060 (Joseph Creek near mouth).

Modeled Discharge

Table 6. Model Summary

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

Surveys

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

Type	Date
n/a	n/a

Activities Completed

Battery changed in mid January
