

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

STATION ID: 32A105
STATION NAME: Walla Walla River at Beet Road
WATER YEAR: 2013
AUTHOR: Mitch Wallace

Introduction

Watershed Description

The Walla Walla River is a tributary of the Columbia River, joining the Columbia just above Wallula Gap in southeastern Washington. The headwaters of the Walla Walla River lie in the Blue Mountains of northeastern Oregon. The Walla Walla River supports populations of spring Chinook salmon, summer steelhead, and bull trout. Land use in the watershed is mostly dry land and irrigated agriculture.

Gage Location

The gage house is located on the left bank near the Frog Hollow and Beet Road intersection at river mile 36.5. It is located approximately a quarter mile downstream of the Gardena Farms Irrigation District #13 diversion. The period of record for this station is June 2002 to the present.

Table 1.

Drainage Area (square miles)	125(Streamstats)
Latitude (degrees, minutes, seconds)	46° 01' 25" N
Longitude (degrees, minutes, seconds)	118° 25' 33" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	230
Median Annual Discharge (cfs)	224
Maximum Daily Mean Discharge (cfs)	1670
Minimum Daily Mean Discharge (cfs)	25
Maximum Instantaneous Discharge (cfs)	2080
Minimum Instantaneous Discharge (cfs)	20
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	414
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	36
Number of Days Discharge is Greater Than Range of Ratings	2
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

This station was taken offline from mid-June to mid-September to avoid the complications created by the recreational swimmers dam that is built every summer downstream of the gage. The dam backs water up into the gage pool. This falsely elevates stage readings, resulting in reported discharge being higher than actual.

Statistics in the above table only include the periods October 1, 2012, to June 6, 2013; and September 19, 2013 to September 30, 2013.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	1.0
Weighted Rating Error (% of discharge)	11.7
Total Potential Error (% of discharge)	12.7

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	134	153	17
Period of Ratings	10/1/12 to 4/7/13	4/4/13 to 4/22/13	4/20/13 to 9/30/13
Range of Ratings (cfs)	8.2 to 2850	12.0 to 2250	9.8 to 2850
No. of Defining Measurements	21	7	7
Rating Error (%)	11.9	11.5	11.4

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 high flow event in the middle of April led to the rating shift between ratings 153 and 17. This shift was caused by channel fill resulting from spring runoff.

Eight discharge measurements were taken throughout the water year, ranging from 33 to 403 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.29
Maximum Recorded Stage (feet)	8.32
Range of Recorded Stage (feet)	6.03
Number of Un-Reported Days	108
Number of Days Qualified as Estimates	0
Number of Days Qualified as Unreliable Estimates	0

Narrative

The recorded stage statistics above do not include the June 6, 2013, to September 19, 2013, period.

Modeled Discharge

Table 6. Model Summary

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

Surveys

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

Type	Date
n/a	n/a

Activities Completed

This station was shut down for summer due to the presence of a downstream recreational dam.