

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: 2010
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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 dryland 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)	152
Median Annual Discharge (cfs)	96
Maximum Daily Mean Discharge (cfs)	1730
Minimum Daily Mean Discharge (cfs)	9
Maximum Instantaneous Discharge (cfs)	1890
Minimum Instantaneous Discharge (cfs)	9
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	314
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	13
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	2

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

Narrative

The two days in which discharge is less than range of ratings indicates that the reported discharge is less than 1/2 the lowest actual measured discharge and that the actual discharge is less than reported discharge.

A recreational swimmers' dam was erected directly downstream of the gage. This activity falsely elevated stage readings. Consequently, the reported discharge is higher than actual discharge. The data from mid-July through September are considered to be questionable estimates.

The highest flow of the year occurred on June 3rd.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	0.70
Weighted Rating Error (% of discharge)	12.0
Total Potential Error (% of discharge)	12.7

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	603	121	13
Period of Ratings	10/1/09 to 10/5/09	10/5/09 to 1/6/10	1/5/10 to 6/28/10
Range of Ratings (cfs)	8.5 to 2850	10 to 2850	8.2 to 2850
No. of Defining Measurements	16	20	20
Rating Error (%)	11.8	14.3	12.5

Rating Table No.	503	14	131
Period of Ratings	6/28/10 to 7/27/10	7/7/10 to 8/21/10	8/21/10 to 9/30/10
Range of Ratings (cfs)	11 to 2850	11 to 200	8.2 to 2850
No. of Defining Measurements	14	1	20
Rating Error (%)	11.4	5.7	12.5

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

Narrative

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Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.33
Maximum Recorded Stage (feet)	6.48
Range of Recorded Stage (feet)	4.15
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	46
Number of Days Qualified as Unreliable Estimates	0

Narrative

The 46 estimated days were flagged as questionable estimates. This was caused by the uncertainty created by the recreational swimmers' dam.

There were six days in early February when the battery began to fail. This caused very sporadic data. The data for this period were deleted and filled with data from Ecology stream gage 32A100-Walla Walla at Detour Rd. [Equation: $y=(0.837*x)+1.103$, Correlation coefficient =0.994]

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

Recreational dam was removed in late August.