

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: 2007
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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)	177
Median Annual Discharge (cfs)	105
Maximum Daily Mean Discharge (cfs)	1050
Minimum Daily Mean Discharge (cfs)	19
Maximum Instantaneous Discharge (cfs)	1120
Minimum Instantaneous Discharge (cfs)	14
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	479
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	21
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

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 early July through September are considered to be questionable estimates.

The highest flow of the year occurred on February 16, 2007.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	0
Weighted Rating Error (% of discharge)	13.9
Total Potential Error (% of discharge)	13.9

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	501	602	9
Period of Ratings	10/1/06 to 10/6/06	10/1/06 to 10/20/06	10/6/06 to 10/20/06
Range of Ratings (cfs)	11 to 2850	8.5 to 2850	14 to 300
No. of Defining Measurements	14	16	1
Rating Error (%)	11.4	11.8	14.0

Rating Table No.	801	10	802
Period of Ratings	10/20/06 to 5/30/07	4/11/2007 to 7/17/07	5/30/07 to 8/23/07
Range of Ratings (cfs)	10 to 2850	10 to 2850	10 to 2850
No. of Defining Measurements	20	10	20
Rating Error (%)	14.1	16.8	14.1

Rating Table No.	11	502	803
Period of Ratings	7/17/07 to 8/28/07	8/23/07 to 9/30/07	8/28/07 to 9/30/07
Range of Ratings (cfs)	11 to 194	11 to 2850	10 to 2850
No. of Defining Measurements	1	14	20
Rating Error (%)	8.9	11.4	14.1

Narrative

The large number of different ratings used throughout the water year was a result of the continually changing recreational swimmers' dam downstream of the gage.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.55
Maximum Recorded Stage (feet)	5.54
Range of Recorded Stage (feet)	2.99
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	122
Number of Days Qualified as Unreliable Estimates	0

Narrative

The estimated days were qualified as questionable estimates due to the presence of the recreational swimmers' dam. The stage record was edited to correct for differences between logger and staff gage readings. There were minimal differences throughout the water year, ranging from 0.00 to 0.06 feet.

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 by Ecology staff on October 20th. Installed new air temperature probe.