

To: WRIA 35 Planning Committee	
From: Kari Vigerstol and Jory Oppenheimer	Project: WRIA 35 Level II – Water Quality
CC: Ben Floyd, HDR/EES	
Date: May 18, 2005	Job No: 22592

RE: TUCANNON RIVER – COMPARISON OF WATER TEMPERATURE AND ELEVATION

This memo presents a graph that compares Tucannon River temperatures with elevation. This graph was requested by a WRIA 35 planning unit member (Dick Ducharme).

METHODS

We obtained water temperature data from the Washington Department of Fish and Wildlife (WDFW) for 20 sites along the mainstem Tucannon River. The station names and elevations are listed in Table 1 and the station locations are shown in Figure 1. We graphed the daily maximum water temperatures and station elevations for the following four separate dates in the spring and summer of 2004:

- May 15
- June 15
- July 15
- August 15

RESULTS

Figure 2 shows the relationship between Tucannon River daily maximum temperatures with elevations. Figure 2 also lists the linear regression equations and r-squared values for each date. The analysis shows that there is a strong inverse linear relationship between Tucannon River water temperatures and elevation. (r-squared values for the linear relationships ranged between 0.92 and 0.99). The linear trend line for May and June share a similar slope, while July and August are more closely related to each other than the late spring months. This analysis shows that Tucannon River water temperatures are strongly correlated with elevations. We did not assess the other influences on water temperature, such as, air temperatures or the amount of solar radiation reaching the stream.

Table 1.
Tucannon River Temperature Stations

	Station Name	Elevation
1	Smolt Trap	554
2	Smith Hollow	744
3	Ducharme's	807
4	Territorial Rd Br	905
5	US HWY 12 Br	932
6	Enrich Rd Br	1095
7	King Grade Br	1279
8	Marengo Br	1479
9	Howard Br	1581
10	Donohue Br	1722
11	Weller Br	1919
12	Cummings Creek Br	2113
13	Hatchery Intake	2224
14	Deer Lake	2260
15	USFS Info Sign	2336
16	Big 4 Lake	2521
17	Camp Wooten	2647
18	Little Tucannon R	2809
19	Panjab Br	2969
20	Lady Bug Flat CG	3222

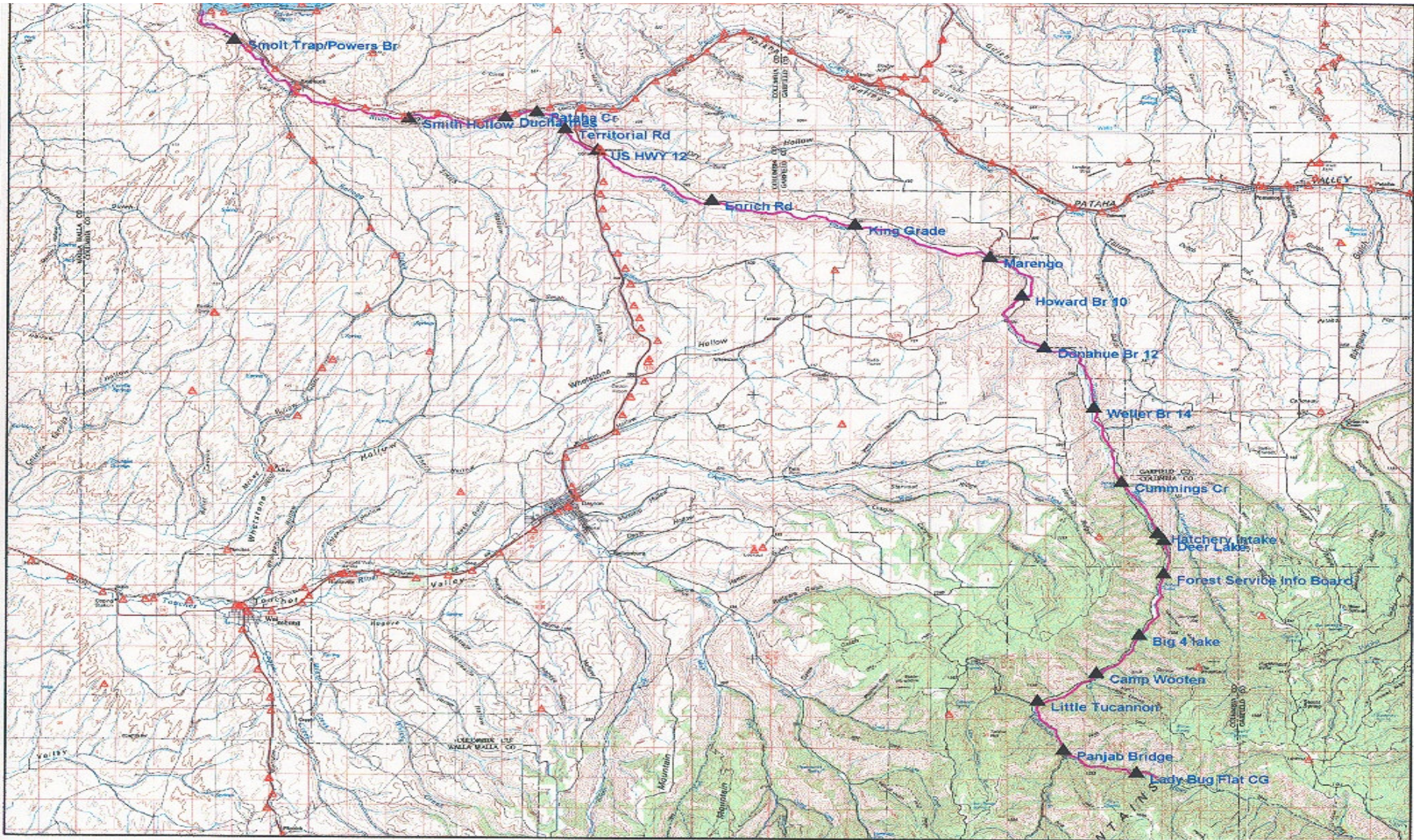


Figure 1. Tucannon River temperature monitoring stations

Elevation vs. Temperature Along the Tucannon River

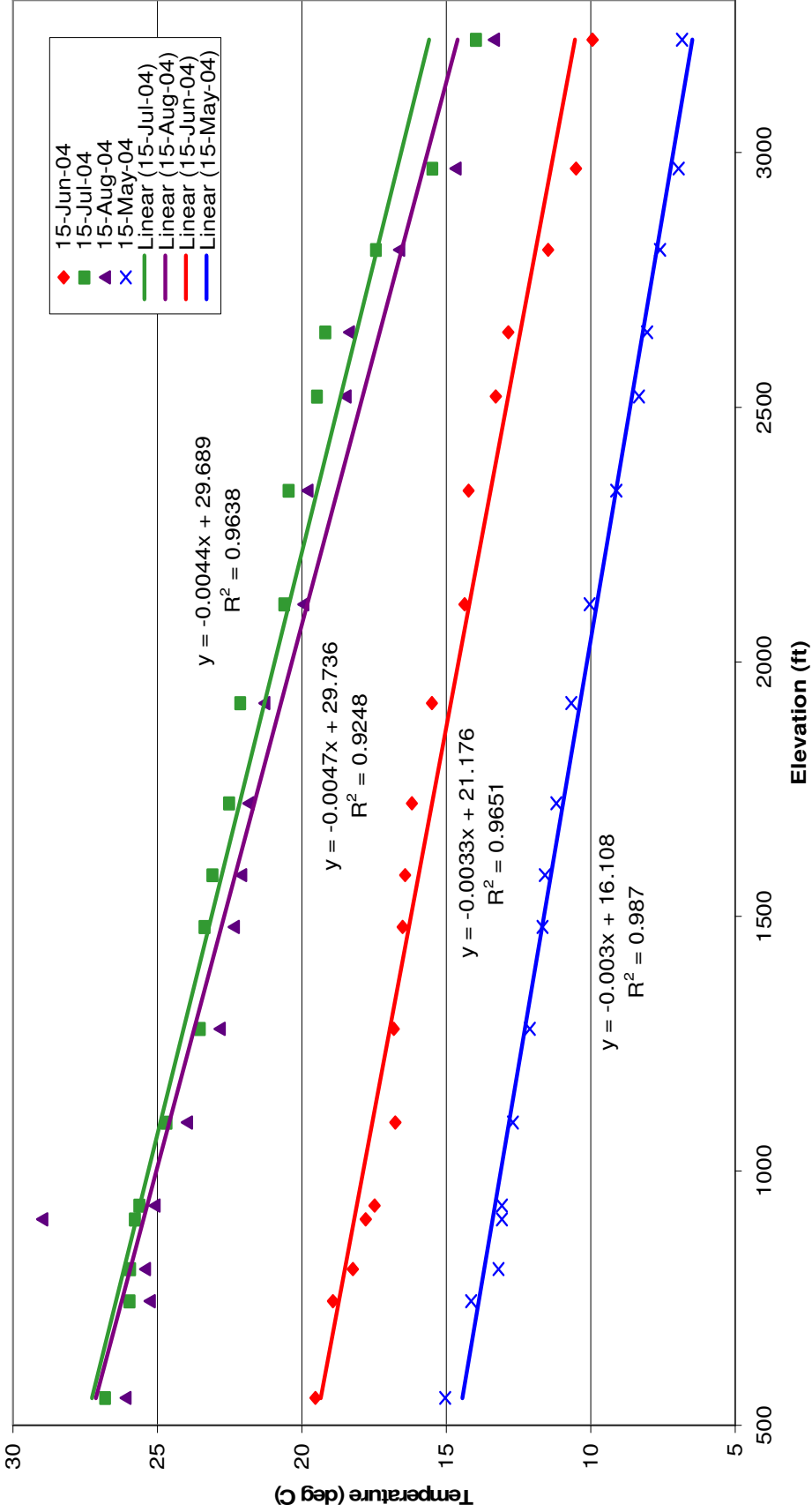


Figure 2. Tucannon River daily maximum temperatures compared with elevation on four dates in 2004. Source: WDFW unpublished data.