# *Water Quality at the Confluence of the Grande Ronde and the Wallowa Rivers*

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When the Grande Ronde River and the Wallowa Rivers meet, the influence that the Wallowa has on the Grande Ronde is extremely significant. This was predicted to be the case because of the large amount of flow that the Wallowa contributes to the Grande Ronde. The Wallowa is not only a colder river than the Grande Ronde, but it also has a greater flowrate at the confluence. The temperature 200 ft upstream of the confluence in the Grande Ronde was found to be 21.87 degrees Celsius; just above the confluence the temperature in the Grande Ronde was found to be 23.78 degrees Celsius. When compared with the Wallowa which was 16.98 degrees Celsius just above the confluence, the Grande Ronde was found to be over 6 degrees Celsius warmer than the Wallowa. It took quite a ways for a complete mixing of the waters to take place. At 150 feet below the confluence the water temperature was 22.54, but the water was not fully mixed, 50 feet further downstream the water quality reading was taken in an active mixing zone where a range of temperatures were observed to vary from 20.50 to 21.35 degrees Celsius. The temperature stabilized at approximately 19 degrees Celsius and continued to vary under the diurnal influences.

Although the introduction of the Wallowa to the Grande Ronde River had a significant influence, Figure 1 below illustrates that the introduction of the Grande Ronde River to the Wallowa had minimal influence on the temperature of the water being transported in the Wallowa River. The diurnal variations had a greater impact on the water temperature than the introduction of the Grande Ronde River.

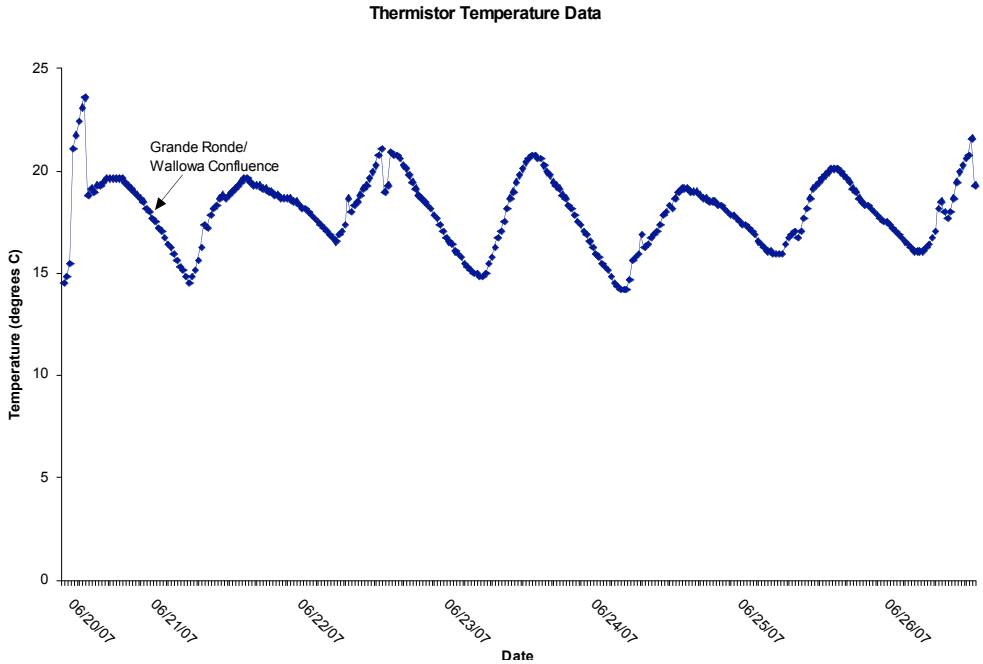


**Figure 1.** Thermistor Temperature Data from put river mile 7 on the Wallowa to the mouth of the Grande Ronde River.