

Water Quality Monitoring Program

Comparison of Goals and Objectives

Monitoring Sites

Water quality funding from the EPA started on July 1, 2003. Friends of the Teton River had funded water quality sampling for two years prior to July. Water quality data was collected from 12 sites in the upper Teton Watershed 6 times since May 2003. The final data collection in 2003 was collected on December 1st and 2nd (See Table 1). The three sampling sites on Forest Service land were not accessible in December due to snow. The Teton River site at highway 33 was not sampled because it was covered in ice.

Lab Analysis

For each sampling site samples were analyzed for Non-filterable Residue (TSS), Volatile Residue (TVS), Nitrogen-nitrate/nitrite, Ammonia, Total Phosphorus, *Ortho Phosphorus*, and *E-coli*. Along with the 12 site samples, a blank and duplicate accompanied each sampling round.

Field Measurements

At each site location, field parameters for dissolved oxygen, specific conductance, pH, temperature and turbidity were measured. The measurements were taken from a well-mixed section, near mid-stream at approximately mid-depth. Calibration of all field equipment was completed in accordance with each manufacturer's specifications.

Flow Measurements

Flow measurements were made with a Marsh McBirney Flow Mate Model 2000 flow meter. Water levels over three feet were not encountered in wadeable conditions, so the six-tenth-method was used to determine flow for each site. The discharge was computed by summation of the products of the partial areas of the flow cross-sections and the average velocities for each of the sections. This method was used to calculate cubic feet per second at each of the monitoring sites.

In December, flow measurements were not taken at any sites due to an equipment malfunction. The flow meter has been sent to Marsh McBirney Inc, for calibration and maintenance and will be returned before the next sampling round.

Other Pertinent Information

Pollutant Exceedances

E. coli bacteria and Nitrogen, as nitrate/nitrite, continue to stand out as pollutants of concern. Through the water quality monitoring program the Teton River (headwaters) site was found to have an elevated count of *E. coli* bacteria. All sites in Teton Valley were found to have high levels of Nitrogen.

E. coli bacteria counts for Woods Creek started high at 1162 cfu/100 mL in June and continued throughout the summer until September, when counts were down to 110 cfu/100 mL. *E. coli* counts have remained low in December (See Figure 1). The Teton River (headwaters) site has generally had measurements of around 200 cfu/100 mL, but in December it had an exceedance measuring at 660 cfu/100 mL (See Figure 2). FTR will continue to watch the *E. coli* levels at this site. The Teton River is protected for Secondary Contact Recreation in the Idaho Water Quality Standards (IDAPA 58.01.02.101.01a). *E. coli* levels cannot exceed an instantaneous measurement of 576 cfu/100 mL or a monthly geometric mean of 126 cfu/100 mL.

Although there are not specific numeric criteria for nitrogen in Idaho, researchers have recommended that 0.3 mg/L to 0.6 mg/L total nitrogen should not be exceeded in fresh water streams and rivers. Figures 3 and 4 show the continuing high levels of nitrogen found throughout the valley.

In February data will be analyzed and compared to the past years of data. Decisions will be made as to whether the same sites will be continued or if new sites should replace the present sites.