

Water Quality Monitoring Program

Actual Accomplishments

Monitoring Sites

Congressional Appropriation water quality funding began on July 1, 2003. However, Friends of the Teton River has been performing water quality sampling for the two previous years. During the 2003 (See Table 1) summer field season, water quality data was collected five times from twelve sites in the upper Teton Watershed. The final data collection for 2003 will be collected prior to the water freezing in December. In the original proposal goals and objectives, Teton Creek was included in the sampling plan. However, due to land access issues, it was removed and replaced with another site, Darby Creek.

Lab Analysis

For each of the twelve sites, 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 twelve site samples, a blank and duplicate sample accompanied each 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.

Due to a mechanical problem with the Dissolved Oxygen meter, Dissolved Oxygen readings were not taken in August, 2003.

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 July, flow measurements were not taken at the Teton River sites and the Wyoming sites, due to unwadeable conditions from high flows. In September, flow measurements were not taken at three sites due to an equipment malfunction, which has since been remedied.

Other pertinent information

Pollutant Exceedances

Although data analysis will be completed in December 2003, *E. coli* bacteria stand out as a pollutant of concern. Through the water quality monitoring program several sites, Woods Creek, Fish Creek, TR3, and TR4, were found to have elevated counts of *E. coli* bacteria.

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 (See Figure 1). Woods Creek 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. Due to these high counts, Friends of the Teton River notified the Department of Environmental Quality (DEQ). The DEQ has since performed a series of tests in which a geometric mean of 659 cfu/100 mL was obtained. Woods Creek will be placed on the 2004 Integrated Report as impaired by *E. coli*. This listing will require development of a Total Maximum Daily Load (TMDL) bacteria reduction from the Idaho Department of Environmental Quality.

E. coli signage

The Fish Creek site had a one time exceedance of 1332 cfu/100 mL (See Figure 1). The Teton River-site TR3 had an exceedance of 708 cfu/100 mL and the Teton River-site TR4 had an exceedance of 850 cfu/100 mL (See Figure 2).

Although there are not specific numeric criteria for nitrogen in Idaho, researchers have recommended that .3 mg/L to .6 mg/L total nitrogen should not be exceeded in fresh water streams and rivers. Figures 3, 4, & 5 display the high levels of nitrogen found throughout the valley.

Finally, over the winter months the data will be analyzed and compared to the past couple years data. Decisions will be made as to whether the same sites will be continued or if new sites should replace the present sites.