

## Summary of Columbia River, Rock Island Reservoir Studies

In order to begin to assess the health of the Rock Island Reservoir on the Columbia River, Citizens for a Clean Columbia-Wenatchee, the Wenatchee Valley Fly-fishers, and Columbia Riverkeeper conducted macroinvertebrate surveys and soil contaminant studies in 2007 and 2008. Additionally, in 2010 the organizations collaborated on a water quality assessment of fecal coliform contamination in the commonly used swim beaches in the Wenatchee area.

### Key Results from macroinvertebrate studies:

- ✓ 62 taxa collected
- ✓ The benthic community is primarily dominated by poor water quality tolerant non-insects (worms, leeches, scuds, pea clams)
- ✓ Dominant insect species were caddisflies (trichoptera) and tolerant midges (chironomids)

### Key Results from Soil Sediment Studies:

- ✓ There are currently no federal or state standards for chemical contaminants in freshwater sediments
- ✓ Of 26 trace metals tested 16 were detected in the sediment (arsenic, barium, calcium, chromium, copper, iron, lead, manganese, nickel, potassium, rubidium, strontium, thorium, titanium, vanadium, and zinc).
- ✓ Levels of **iron, nickel and zinc exceeded Washington state guidelines** for which adverse effects on biological resources may occur
- ✓ Zinc is thought to be highly toxic to macroinvertebrates

### Concerning abiotic conditions:

- ✓ All sites exceeded that state water quality standard for temperature (20°C) in 2007

### Bacteria Study

Fecal Coliform lives in the lower intestines of warm-blooded mammals and is necessary for the digestion of food, but its presence in rivers indicates fecal contamination. Common sources of high fecal bacteria include overflowing septic fields and sewage systems, and fecal matter from wildlife and pets. The presence of fecal coliform may indicate the potential presence of many waterborne microorganisms and pathogens. The Washington state standard for primary contact recreation waters reads that the geometric mean **must not exceed 100 colonies /100 mL**, with no single sample exceeding 200 colonies /100 mL (when less than 10 samples are collected).

### Key Results:

- ✓ Confluence swim beach exceeded the state standard by 279.5% with 6 out of 9 samples exceeding 200 colonies/100mL

- ✓ Walla Walla swim beach exceeded state standard by 117.5% with 3 out of 9 samples exceeding 200 colonies/100mL
- ✓ Hydro swim beach geometric mean did not exceed state standard however 1 out of 8 samples exceeded 200 colonies/100mL
- ✓ The open river site near Walla Walla swim beach did not exceed state standards for geometric mean or single samples

### **Recommendations:**

The macroinvertebrate and soil contaminant studies provide insightful preliminary data but continued studies and long-term datasets are required for definitive conclusions. The results of these studies suggest potential pollution and ecological issues that could have significant human health and ecological effects. The concerns raised in these preliminary studies certainly **warrant further investigation.**

The human health implications of high levels of fecal coliform are particularly concerning in the commonly used swim beaches in the Wenatchee area. We recommend regular monitoring for fecal contamination to help to track down and stop the source of contamination. We also recommend the use of warning signs or beach closures in during times when safe levels are exceeded. **Regular monitoring will ensure safety and protect the public health.**