

THE YUKON RIVER BASIN WATER QUALITY MONITORING PROGRAM: A SUCCESSFUL TRANSITION FROM GOVERNMENT TO GRASS ROOTS

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The U.S. Geological Survey recently concluded a five-year water quality study (2001-2005) of the Yukon River, including its major tributaries, from its headwaters in British Columbia, Canada to Pilot Station, Alaska near its mouth and just above tidal influence. The focus of the study was to establish a water quality baseline providing an important frame of reference to assess changes in the basin that may result from permafrost melting and a warmer climate.

As the study neared its conclusion, the USGS began to foster a relationship with the Yukon River Intertribal Watershed Council (YRITWC). YRITWC was in the process of building a steward-based Yukon River water quality program. Through a collaborative effort with mutual benefits, YRITWC developed and implemented a basin-wide water quality program modified from the USGS study. The YRITWC program began in March, 2006 utilizing USGS protocols, techniques, and in-kind services. To date, more than 200 samplings and field measurements at more than 25 locations throughout the basin (twice the size of California) have been completed. Basic field measurements include field pH, specific conductance, dissolved oxygen, and water temperature. Samples taken for laboratory analyses include, major ions, dissolved organic carbon, greenhouse gasses, selected trace elements, nutrients, and stable isotopes of hydrogen and oxygen. Field replicates and blanks were introduced into the program in 2007 for quality assurance.

Long-term water-quality databases are essential to understanding the effects of climate change on river basins. The Yukon River Basin baseline water quality database has been extended from 5 to 7 years due to the efforts of the YRITWC-USGS collaboration. Consistencies in data populations between the USGS 5-year database and the YRITWC 2-year database indicate protocols and procedures made a successful transition. This reflects the success of the YRITWC-USGS sponsored water-quality training workshops for water technicians representing 18 Tribal Councils and First Nations throughout the Yukon River Basin. The cohesion of USGS and YRITWC data collected during the past 7 years will be discussed and graphically displayed.

KEYWORDS: Yukon River, water quality, collaboration, long-term