

## **AUTOMATED REAL TIME FISH TRACKING AND PLANT OPERATIONS DATA CAPTURE**

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Fully automatic radio telemetry based systems are being used to simultaneously monitor fish movement and plant operations data to help support the development of effective fish passage strategies at a hydroelectric installation near Thompson Falls, Montana. Approximately 120 fish of varying ages, weights, and species, have been fitted with surgically implanted radio transmitters and released downstream from the plant. Fish location data are then gathered by an array of automated radio receiving stations that monitor individual fish movements. The plant SCADA system provides simultaneous operations data such as turbine flow, flashboard configuration, gate position data, lake levels, and other information. Automated systems download the data, perform additional processing, and then upload the results to a dedicated Internet site for user interactive display and analysis. An animation application was also written to incrementally display simultaneous plant operations and fish location data through time, so that analysts and designers can assess the behavior of fish based on plant operations and other physical conditions.