TEMPERATURE MONITORING

WELLS HYDROELECTRIC PROJECT

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Temperature Monitoring

Beginning in 2001, an extensive water temperature monitoring effort was initiated by Douglas PUD in order to better understand the temperature dynamics throughout the Wells Reservoir. Temperature data have been collected at four locations in the Columbia River (RM 544, RM 532, RM 530 and RM 516) and at one location in both the Methow (RM 1.5) and Okanogan rivers (RM 17). Data were collected hourly using Onset tidbit temperature loggers. Monitoring start and end dates varied from year to year but generally began in the spring and ended in late fall. Quality assurance and control measures were implemented prior to deploying and upon retrieving temperature loggers to ensure that data collected was accurate (Douglas PUD 2005). Due to sensor loss and sensor malfunction in some years, the availability of data at some of these monitoring locations is limited.

An additional component of the water temperature monitoring effort launched in 2001 was to profile vertical temperatures at the RM 516 location in the Columbia River at the Wells Dam forebay. The temperature station was located along the east portion of the forebay, in what had been the original channel of the Columbia River prior to the construction of the Wells Project. Each year between 2001-2005, temperature loggers were hung at 3 different depths between 5 and 90 feet and approximately 30 feet apart from one another. Results reflected the limited storage capacity of the Wells Reservoir and showed that no measurable thermal stratification was observed.

In 2006, Douglas PUD expanded the Wells Reservoir temperature monitoring season to cover the entire year and implemented a more frequent downloading schedule to avoid temperature data gaps. Douglas PUD also added additional monitoring stations at the mouths of the Okanogan (RM 0.5) and Methow (RM 0.1) rivers. This data will be useful in the potential development of future temperature models that may be necessary for 401 Water Quality Certification.