North Canadian River near Wetumka

Station AT242000 (520510000010-001AT) is a permanent ambient trend monitoring station located on the North Canadian River. Situated in the north central portion of Hughes County, the site was established northeast of the city of Wetumka on US Highway 75. The station is positioned near the upper end of stream segment 520510000010 and is classified within the Lower North Canadian River 8 digit HUC watershed (11100302). Water enters the stream system Cohee Lake and Lake Wetumka and from several tributaries including Turkey Creek, Sand Creek, Flat Rock Creek, among others.

This station on the North Canadian River has been active for all water quality variables since September of 1999. The following assessment of beneficial uses is based on data collected from May of 2002 through April of 2007. Analysis also includes water quality data collected at a variety of stations throughout the segment. Data were collected in cooperation with the Oklahoma Department of Environmental Quality (ODEQ). For purposes of reporting, this station is representative of the North Canadian River from the confluence of Sand Creek (96.3996, 35.3964) downstream to above the confluence of Wewoka Creek with the North Canadian River (96.1690, 35.2556). As per Appendix A, Table 5 of OAC 785:45, this water quality management segment is assigned the following designated beneficial uses: 1) Public and Private Water Supply (PPWS), 2) Warm Water Aquatic Community—Fish and Wildlife Propagation (WWAC), 3) Agriculture—Class I Irrigation (AG), and 4) Primary Body Contact—Recreation (PBCR).

The PPWS beneficial use is supported. The WWAC beneficial use is not supported. Of the forty-eight (48) segment wide turbidity samples, thirty-one (31) samples (or 65%) exceed the numerical criteria of 50. Of the twelve (12) lead samples collected, four (4) of the concentrations (or 33%) exceeded the prescribed, hardness-dependant chronic criterion of 8.01 ug/L. Of the eighty-five (85) pH values, twelve (12) samples (or 14%) exceed the maximum criterion of 9.0 units. Dissolved oxygen samples met the criteria prescribed in the WWAC beneficial use. Fish collected during the summer of 2005 indicate that whether the segment is supporting a healthy biological community is currently indeterminate. Based on the Index of Biological Integrity (IBI) outlined in Appendix C of Oklahoma's USAP, the station has a sample composition score of 9 (maximum 30) and fish condition score of 11 (maximum 15) for a total score of 20. This is between the assigned non-supporting and supporting thresholds of 20-25 for Central Oklahoma/Texas Plains warm water aquatic communities [OAC 46:15-5(l)]. The AG beneficial use is supported for total dissolved solids, chlorides, and sulfates. The PBCR beneficial use is not supported. Of the forty-three (43) enterococci concentrations, eleven (11) samples exceeded the prescribed screening level of 406 cfu/100mL, and the geometric mean (124.6 cfu/100mL) exceeded the prescribed mean standard of 33 cfu/100mL. This segment of the North Canadian River is nutrient-threatened. The median of the segment wide total phosphorus concentrations (0.576 mg/L) exceeded the threshold median of 0.36 mg/L and has a mean baseflow organic turbidity of 86 NTU. Furthermore, the mean sestonic chlorophyll-a concentration (112.2 mg/M^3) produced a TSI of 77, which is above the threshold TSI of 62. The nitrate/nitrite median value was below the threshold median of 5.0 mg/L.

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