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| DATE : | October 10, 2014 |
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| FROM : | Pam Anderson  Water Quality Monitoring Unit  Surface Water Monitoring Section  Environmental Analysis and Outcomes Division |
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| SUBJECT : | Request to remove Red Rock Lake (27-0076-00) from the 303(d) Impaired Waters list |

In 2013 a request was made by the Riley-Purgatory-Bluff Creek Watershed District to have Red Rock Lake be removed from the 303(d) Impaired Waters List as the basin was now meeting standards. The basin was originally listed in 2002.

The original listing data (Table 1) indicated total phosphorus, chlorophyll-a, and Secchi exceeding the trophic state thresholds; expectations for the lake changed when the lake eutrophication standards were promulgated in 2008, applying the shallow lake eutrophication standard in lieu of the previous thresholds.

**Table 1. Lake eutrophication standards**

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| Ecoregion | TP | Chl-a | Secchi |
| **µg/L** | **µg/L** | **meters** |
| NCHF – Trophic State Thresholds for impairment (pre-2010 cycle) | < 45 | < 18 | > 1.1 |
| NCHF – Aquatic Rec. Use (Class 2B) Shallow Lakes | < 60 | < 20 | > 1.0 |
| 1991-2000 Red Rock Lake Data | 87 | 59.9 | 1.1 |
| 2002-2013 Red Rock Lake Data | 59 | 24.2 | 1.5 |
| 2011-2013 Red Rock Lake Data | 48.5 | 6.8 | 2.1 |

Recent data (Table 1) shows significantly reduced phosphorus and chlorophyll-a concentrations and improved transparency. While chlorophyll-a over the most recent 10 years still exceeds the threshold, phosphorus is just below the threshold, Secchi is well below the threshold and the lake meets the delisting guidance and the lake eutrophication standard. In addition, the most recent 3 years of data show considerable decline in phosphorus and chlorophyll-a concentrations.

As noted in the Technical Memorandum (Barr 2013), restoration and planning activities are underway in the watershed. These include the addition of stormwater ponds, more restrictive management of stormwater draining to the lake, and dredging sediment and curlyleaf pondweed removal. A management plan suggested alum treatments; it is unclear at this time if those treatments have been implemented. As a result of the improved conditions in Red Rock Lake, it is recommended that the lake be removed as a delisting from the draft 2016 Impaired Waters List.