**Fact Sheet for Lake Thunderbird Trend Analysis and Data Visualization Proposal**

**Presented by the OWRB to the COMCD Board of Directors**

**December 3rd, 2020**

**Proposed Work**

* ***Trend Analysis Exploring Changes in Water Quality*** Is water quality improving or declining and at what magnitude? Analyses will occur for both the whole lake and at various ecological zones throughout the reservoir.
* ***Analysis of Water Quality Relationships*** How do changes in water quality relate to reservoir dynamics and cultural eutrophication?
* ***Collaboration with the University of Oklahoma Capstone Project*** Provide technical insight for student-led data review. Create a literature review discussing in-lake best management practices to mitigate for low DO and cultural eutrophication.
* ***Data Visualization*** Develop a preliminary data visualization tool for data and outputs.

**Project Data**

* ***Data Sources*** All data collected as part of the COMCD annual limnological studies and OWRB’s Beneficial Use Monitoring Program (BUMP), covering a period of record greater than 20 years.
* ***Included Parameters*** Will evaluate nutrients, chlorophyll-a, water temperature, conductivity, and dissolved oxygen.

**Project Deliverables**

* ***Final Report***. Water quality trends, limnological relationships, and review of in-lake BMP’s.
* ***Prototype Data Visualization Tool***

**Decision-Making Tools**

* ***In-depth Analyses of Water Quality Changes*** Snapshot look at changes in water chemistry and chlorophyll-a over several decades. Comparative view across various zones of the reservoir.
* ***Exploration of Relationships***  Better understanding of the relationships between stressors (e.g., phosphorus and nitrogen) and between stressors and responses (e.g., chlorophyll-a). With better understanding of relationships, can better relate water quality to in-lake processes.
* ***Iterative Trends*** A trend tool specifically designed for Lake Thunderbird will be a project output. Tool can be used at various future timescales to explore the changing health of the lake and progress toward a variety of water quality goals.
* ***Data Visualization*** Dynamicdata visualization tools will allow the user to integrate data, time, and analysis outputs to answer a variety of water quality questions. In turn, this will enhance the ability of COMCD Board and lake managers to make timely decisions using relevant data and give lake users an integrative platform to better understand their reservoir.