



Scope of Utah Lake Study

Introduction

The goal of the Utah Lake Water Quality Study (ULWQS) is to develop nitrogen and phosphorus criteria that are protective of the lake's designated beneficial uses¹. The study approach consists of three phases to achieve this goal:

- Phase 1 – Data gathering and characterization
- Phase 2 – Development of in-lake criteria for nitrogen and phosphorus
- Phase 3 – Implementation planning for Phase 2 criteria

The original expectation of the Steering Committee (SC), as defined in the [Utah Lake Water Quality Stakeholder Process](#) document, was to focus on guiding Phase 2. However, the SC has expressed an interest in participating in Phase 3 of the ULWQS and committed to an additional 2 years of service to accomplish that work.

The following discussion provides background on water quality criteria development, addresses questions and comments by the SC of the overall project scope, how Phase 2 and Phase 3 intersect, and a recommended approach moving forward. Recognizing there are many water quality concerns surrounding Utah Lake, the ULWQS will focus exclusively on the subject of nutrient criteria development. Maintaining focus on this critical issue will be necessary to move forward recognizing that other venues are available to discuss new and emerging concerns that arise in Utah Lake's rapidly changing environment.

Phase 1. Data Gathering and Characterization

In November 2015 DWQ initiated the data gathering and characterization phase (Phase 1) of the ULWQS. This phase included coordinating research efforts, data compilation, an evaluation of in-lake water quality conditions, an evaluation of nutrient sources entering the lake from the surrounding watershed, and development of water quality models to inform Phase 2. Phase 1 is nearing completion and a report describing these elements will be presented during the initial work of the Science Panel.

¹ Uses, designated uses and beneficial uses are commonly used synonymously including this explanation and in Utah's Water Quality Standards. There can be subtle differences in meaning. For instance, once a use is specified in water quality standards, it becomes a designated use.

Phase 2. Site Specific Criteria Development

Phase 2 of the Study is the core responsibility of the Steering committee and Science Panel, to evaluate the factors that affect beneficial use support and Harmful Algal Blooms in Utah Lake, guide additional research to address data gaps, and to develop site-specific criteria for phosphorus and nitrogen for Utah Lake. The endpoint of Phase 2 will be numeric criteria for nutrients protective of existing uses² in the lake, including aquatic life and recreation.

Phase 3. Implementation Planning

Developing nutrient criteria for Utah Lake will require consideration of the highest attainable uses³ for the lake. This will provide for an evaluation of current use designations and the scientific and economic feasibility of achieving recommended criteria. DWQ has the flexibility to consider these aspects using processes outlined by the Clean Water Act.

A pollutant's water quality criterion informs the allowable discharge of pollutants from all sources through a combination of monitoring and modeling of in-stream and in-lake processes. Intensive monitoring of Utah Lake and its tributaries began during the summer of 2017 and will continue for the duration of the ULWQS. Water quality and watershed models currently in development will help identify sources of phosphorus and nitrogen, reductions required to meet criteria, and inform decisions on how best to reduce nutrient loading, if needed.

Once sources are identified and their relative contributions are calculated, a cost evaluation to implement required reductions will be completed. In conjunction with a watershed model, various scenarios will be evaluated, including pollution trading to achieve the most cost effective solutions to reduce nutrient pollution to the lake.

DWQ has several means to help finance costs for water quality improvement through the Water Quality Board and some flexibility in phasing projects over time to address concerns related to economic impacts. Resources include loan and grant programs for funding wastewater upgrades and treatment, stormwater, and non-point source projects that will all be considered in the implementation planning phase of the project.

² UAC R317-1-1 defines "existing uses" as those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in the water quality standards.

³ The highest attainable use is the modified aquatic life, wildlife, or recreation use that is both closest to the uses specified in section 101(a)(2) of the Clean Water Act and attainable, based on the evaluation of the factor(s) in §131.10(g) that preclude(s) attainment of the use and any other information or analyses that were used to evaluate attainability (40 CFR 131.3[m]).

