

## **ULWQS Science Panel Update to Steering Committee Regarding Engaging with All Potential Sources of Information to Address Initial Charge Questions**

*This document was developed by the ULWQS Science Panel to accomplish three things: 1) provide an overview of their general approach to engaging with researchers – including scientists formally engaged through contracts to implement studies and other outside partners undertaking relevant studies in the area – to obtain the information necessary to complete the tasks given to them by the ULWQS Steering Committee; 2) provide a comprehensive overview of the efforts undertaken to engage on the atmospheric deposition topic (as an example of how they have engaged with partners outside the contracted studies); and 3) to confirm the approach they are taking is understood and supported by the ULWQS Steering Committee moving forward.*

### Introduction:

The Utah Lake Water Quality Study (ULWQS) Science Panel is currently tasked with addressing the Initial Charge questions posed by the ULWQS Steering Committee. Specifically, the Science Panel is working to develop research projects and related RFPs (which are then presented to and approved by the Steering Committee) to fill knowledge gaps identified in the Strategic Research Plan. The Panelists have and will continue to work closely with the scientists selected to complete these projects to develop and approve the study designs, guide study activities as they are implemented, and assess preliminary results and all relevant reports.

In addition, the Science Panel has had opportunities to work with other outside partners (e.g., WFWQC) to take advantage of and build on those entities' efforts to obtain information (e.g., atmospheric deposition). For the Science Panel to ensure the results from outside partners are adding value to the Science Panel efforts to address the charge questions, the Science Panel has agreed to engage in the development and ongoing implementation of these outside studies, at least through review and comment on sampling plans and, when appropriate, via meetings to engage directly with outside partners implementing the research. This approach is consistent with how the Science Panel engages in the studies directly commissioned by the Science Panel; though the Science Panel does not approve or formally 'oversee' these outside studies. Ultimately, these efforts are expected to assist the Science Panel in obtaining information they can use to address the Initial Charge questions while also providing useful considerations for the outside partners as they undertake their efforts.

Finally, it is possible that other outside entities who choose not to coordinate with the Science Panel will have information for the Science Panel to consider in undertaking their charge and, to be clear, the current approach does not mean qualified scientists cannot submit information for Science Panel consideration. However, there are three aspects to consider: first, if the studies are not implemented in a way that the Science Panel believes will assist in answering the questions, uncertainty related to the value of the results will likely increase; second, the level of Science Panel effort to review other studies in addition to the work being implemented to specifically address the charge could be significant; and third, if those outside entities are unable or unwilling to engage with the Science Panel in advance it could be challenging to integrate the findings of these efforts in a meaningful way.

Background on Atmospheric Deposition Engagements between March 2019 – May 2020:

Over the past year the Science Panel has been working with Wasatch Front Water Quality Council, primarily through discussions with Dr. Theron Miller who is a Science Panel member as well, to provide recommendations regarding the ongoing efforts to understand atmospheric deposition to Utah Lake.

Dr. Miller first introduced the topic in a presentation he made during the March 11-12, 2019 Science Panel meeting. In the discussion that followed Dr. Miller's presentation, the Science Panel requested an opportunity to review and comment on his sampling plan. At the next Science Panel call on April 25, 2019 the Panel recommended that a literature review be conducted to summarize existing atmospheric deposition information relevant to Utah Lake. Significant milestones for these two initiatives, which were developed in parallel, along with other related efforts are summarized in the following paragraphs.

The recommended literature review was conducted by Dr. Janice Brahney, also a member of the Science Panel. She developed a proposal that was reviewed by the Science Panel. After addressing those comments the Independent Science Panel members approved the proposal in early June 2019. A first draft of the white paper [[Estimating total and bioavailable phosphorus loading to Utah Lake from the atmosphere v2.pdf](#)] was shared in early July 2019 and discussed by the Science Panel at its July 9-10 meeting. Following the meeting the Science Panel submitted comments [[Brahney white paper comments JB.pdf](#)] on the draft white paper in late July – note that the version referenced includes Dr. Brahney's responses to the comments and how she addressed them in the next version of the document. Dr. Miller provided a separate set of comments [[Dr. Miller Comments on the Atmospheric Deposition White Paper V3.pdf](#)] on the draft white paper in late August 2019. Dr. Michael Brett submitted comments [[Comments on Theron Miller AD memo.pdf](#)] on Dr. Miller's review in late September 2019. Dr. Brahney's final version of the white paper [[Estimating total and bioavailable phosphorus loading to Utah Lake from the atmosphere Revised - 09-30-19.docx](#)] was shared with the Science Panel in early October 2019.

Building on the development and revision of the white paper and their ongoing discussions, the Science Panel decided to develop a recommendation on atmospheric deposition for the sake of calibrating the mechanistic water quality models being developed for Utah Lake by the University of Utah. The Panel reached agreement on a recommendation [[ULWQS SP AD Loading Recommendation - Approved – Final.docx](#)] at their December 10-11 meeting. Recognizing the “true atmospheric nutrient deposition to Utah Lake is not known at this time,” the Science Panel noted that they would “incorporate new atmospheric nutrient input information into the Utah Lake mass balance, mechanistic models, and other relevant analyses as it becomes available.” All members of the Science Panel, except for Dr. Miller, supported the recommendation.

The other primary focus of the conversations has been around the Wasatch Front Water Quality Council sampling and analysis plans for atmospheric deposition. Dr. Miller shared the first version [[WFWQC Atmospheric Deposition Proposal-Workplan-2019-Version 2.docx](#)] with the Science Panel in mid-April 2019 for review and comment. The Panel reviewed the plans following the call and spent time at their July 10-11, 2019 meeting discussing the topic further. The Panel then submitted formal comments [[ULWQS - Atmospheric Deposition Study Comments 8-2-2019.pdf](#)] on the document in early August

2019. Dr. Miller revised the plan and shared an updated version [[Atmospheric Deposition Proposal-Workplan-2019-Version4.docx](#)] in late August 2019. A track changes version [[WFWQC Atmospheric Deposition Proposal-Workplan-2019-Version 2 redlined.docx](#)] shows the changes made in response to the comments. Two members of the Science Panel provided additional comments [[Atmospheric Deposition Proposal-Workplan-2019-Version4 \(SB and MCH 9-18-2019\).pdf](#)] on the revised version in early October 2019.

In the course of the exchange regarding the white paper and the first two versions of the sampling and analysis plan, it became clear there were significantly different opinions on what needed to be included in the plan. Given the situation, WFWQC and the Science Panel agreed to proceed with a process to secure a third party review of the products developed until this point as well as some additional materials the WFWQC wanted incorporated into the review. Dr. Mitch Hogsett, Science Panel Chair, worked with WFWQC to develop an agreement of how the process would proceed and shared an update with the Science Panel in late August [[Update on WFWQC AD study and 3rd party review - Email to SP from MH.pdf](#)].

A Scope of Work for the review [[RFP for Air Deposition Expert.pdf](#)] was developed and two entities responded – Dr. David A. Gay, University of Wisconsin; and Todd McDonnell and Tim Sullivan, E&S Environmental Chemistry, Inc.. Both parties were asked to conduct reviews [of relevant existing atmospheric deposition papers](#) and their results were shared with the Science Panel in early December [[David Gay Reviews – Complete.pdf](#); [E&S UtahLake Task1 Review 2019 12 06.pdf](#)]. Dr. Gay was then asked to develop recommendations to improve the atmospheric deposition sampling project. The WFWQC, UDWQ, and some of the Science Panel members met with Dr. Gay in mid-December to discuss his report and provide additional perspectives on his task. In late December, Dr. Gay provided his final report and recommendations [[Task 2 Report and Recommendations \(WFWQC AD workplan\).pdf](#)].

WFWQC provided the third version of the atmospheric deposition sampling and analysis plan [[Standard Operating Procedure Miller and Barrus V4.docx](#)] in mid-March 2020. Individual Science Panel members subsequently submitted comments over the next six weeks and a compilation of the comments, which included a retrospective review of the SP's prior comments (from August 2, 2019) and the comments and recommendations developed by Dr. Gay, was sent on May 1, 2020 [[SP comments on WFWQC AD SAP \(v4 3-12-2020\) – 05-01-2020.pdf](#)]. The Science Panel Chair noted the challenge in reviewing different versions of the plan unaccompanied by any response to prior comments and suggested WFWQC develop an official response document to the Science Panel comments moving forward.

The Science Panel then developed a set of recommendations for WFWQC, building on the individual comments submitted, designed to set the stage for a coordinated set of next steps moving forward that best meets the needs of the Science Panel in achieving its charge and WFWQC in meeting their needs. These recommendations were formally approved] during their May 28 call [[SP Recommendation on WQFWQC AD Products May 2020 - FINAL v2](#)].

#### Final Thoughts and Request for Steering Committee:

At this point, the Science Panel has formally worked on three studies (approved by the Steering Committee) and is engaging with two other study efforts (the WFWQC AD work and the Timpanogos

Special Service District (TSSD) Limnocorral work) in the manner described above. There are also three additional studies currently being developed by the Science Panel for Steering Committee approval.

Our intention is to continue to engage with all of the research projects that will be useful in providing information so that we can answer the Initial Charge questions as efficiently and effectively as possible. As the Science Panel proceeds with these efforts it would be useful for the Steering Committee to confirm our approach is reasonable and that, by extension, those entities engaging with us are aware of our, and the Steering Committee's, interest in working together in the described fashion.

Sincerely,

ULWQS Science Panel