Dear Leah Fisher and Jason Gipson,

As a coalition of environmental researchers, natural resource managers, community groups, and Indigenous leaders, we are writing to ask that the Utah Lake Restoration Project permit application be rejected as incomplete and based on an unduly narrow scope and ill-defined purpose. The project proponent, Lake Restorations Solutions (LRS), requests a Clean Water Act Section 404 permit for the largest dredging and island building project ever undertaken. LRS claims, without evidence, that these activities will restore Utah Lake, the largest freshwater lake in Utah and a keystone ecosystem in western North America.

After carefully reviewing the application, we believe that the provided information is insufficient to satisfy the Corps' regulations. Indeed, LRS does not provide adequate detail for the Corps or the public to evaluate the effects of dredging, the suitability of the islands for development, or the nature of their "restoration" activities. Nearly every section of the application has major deficiencies, with key components missing or plagiarized (Table 1). For example, the nature of the activity is not described in detail, the mitigation plan is undeveloped, and there are no practicable alternatives described. Without this required information—which is not disclosed or provided in the permit application—the Corps should not initiate the process of preparing an Environmental Impact Statement (EIS).

In addition to being incomplete, LRS's application tries to establish a project purpose that precludes the consideration of less harmful and risky alternatives. While LRS has repeatedly stated that their only motivation is restoration of the lake, their application narrows the basic project purpose to require "dredging" and "construction of islands." This is clearly contrived to pre-select LRS' proposal and improperly foreclose viable alternatives—an approach that violates the law and, if carried out, would result in an enormous and unwarranted destruction of lake and wetland habitat. There are hundreds of ongoing and completed restoration projects on and around Utah Lake that do not and have not required dredging and discharge of lakebed materials, many of which have been highly effective. If the Corps chooses to move forward with this application, it should require an amendment of the project purpose to allow consideration of the full range of restoration options open to Utah Lake, including those that will not result in dredging and island building.

To ensure a thorough and transparent permitting process, the Corps' regulations set forth fundamental requirements for every permit application. LRS has failed to satisfy these prerequisites, putting the Corps and the public on unfair footing from the outset. LRS's application disregards the Corps' permitting requirements and defies the National Environmental Policy Act's mandate to ensure informed decision-making at every stage of the process. The Corps should therefore decline LRS's invitation to press forward with the NEPA process based on incomplete information and an unduly narrow scope of proposed activities.

In the pages below, we provide an overview of our concerns, followed by an initial set of questions. We also direct the Corps to two documents pertaining to this project:

1. In December of 2021, this open letter about the LRS island project was released by 117 Utah Lake experts: https://pws.byu.edu/utahlakeislands
2. In February of 2022, this nontechnical review of LRS's application to the Corps was published by 27 Utah Lake experts: https://pws.byu.edu/utah-lake-island-response

We hope that you will reject the application as incomplete or at least halt the permitting process until LRS provides the necessary information and revises the project scope. We would be happy to provide additional detail if this would be helpful to the Corps.

Thank you for your consideration of these concerns,

List of signatories:

Tara B. B. Bishop, *PhD research scientist and Utah County resident*
Gregory T. Carling, *Associate professor of geology, Brigham Young University*
Mary Murdock Meyer, *Chief Executive of the Timpanogos Nation*
Joshua J. LeMonte, *Assistant professor of environmental geochemistry, Brigham Young University*
Craig Christensen, *Conserve Utah Valley assistant executive director*
Adam Johnson, *Conserve Utah Valley assistant executive director*
James Westwater, *PhD, Chair, Utah Valley Earth Forum*
Michael T. Searcy, *Associate professor of archaeology, Brigham Young University*
Erin F. Jones, *Environmental Science Lab manager, Brigham Young University*
Linda Mooney, *Okleveuha Native American Church*
James 'Flaming Eagle' Mooney, *International Indigenous Cultures*
Russell Rader, *Professor of aquatic ecology, Brigham Young University*
Peggy Climenson, *BS Chemistry, MS Chemistry, JD*
Richard S. Foggio, *BS Chemistry, MBA, Saratoga Springs HOA Board Member*
Benjamin W. Abbott, *Assistant professor of aquatic ecology, Brigham Young University*
Jani Radebaugh, *Professor of Geological Sciences, Brigham Young University*
Rachel L. Buck, *Postdoctoral Fellow, Brigham Young University*
Lafe Conner, *PhD, Science Teacher, Wasatch High School*
Katy Knight, *MS, education administrator, Bean Life Science Museum*
J. Kevin Shurtleff, *PhD Chem*, MBA, *Associate Professor of Chemistry, Utah Valley University*
Byron Adams, *Professor of Biology, Brigham Young University*
Ryan Stewart, *Professor of plant ecophysiology, Brigham Young University*
Rebecca Finger-Higgens, *PhD research scientist and Grand County, UT resident*

Overview of project deficiencies

Table 1. Partial list of problems with the application

Problem	Applicable topics	Section numbers
Not finished or improperly completed	Description of the development activities on the islands, including the infrastructure needed to support that development	2.2; 4.0-3; 5.1-3; 5.4; 5,5.17
	Description of the restoration activities, including water quality improvements and invasive species removal	Water quality - 2.2; 3.9.4; 5.5.16; 4.1; 4.3; 5.4.1-8; 5.4.2; 5.4.27; 5.6.2 Invasive species - 5.4.9; 5.4.11; 5.4.25&28; 5.5; 5.5.9
	Timeline of proposed activities	No timeline or duration specified; 3.10.4.3; 4.1
	Visual impact assessment analysis	None provided in section 3 (incomplete); 5.4.18
	Information about impoundment structures relative to safety criteria	5.5.27
	Type of material being discharged (neither in-situ sediment or imported rock)	5.5.18; 5.4.22
	Demonstration of claimed benefits of the project	No data/modeling included in 5.4.3 or 4; and available data demonstrating limits of the claimed benefits are omitted
	Analysis of practical alternatives	Not included; 6.0
Inadequate detail (Most sections of the application, including the topics and sections to the right):	Effects on threatened and endangered species	3.1.5; 5.4.26; 5.5.10
	Effects on cultural/archaeological resources	3.2; 5.3; 5.5.6-8; 5.6.2
	Effects on other beneficial uses	3.8.1; 3.9.2.1
	Measures to protect water quality and habitat during project construction	5.4.2
	Agency and stakeholder engagement (no public or tribal meetings)	Appendix A
	Mitigation and monitoring plan	3.5; 3.7.6.3; 5.4.26; 5.5.5; 5.5.7; 5.6; 5.6.2/3
	Operations and management plan	sections 4 & 7
Plagiarized	An online plagiarism check found that approximately 25% of the application (excluding references and section titles) was plagiarized. We confirmed more than 15 instances of major plagiarism, including	text in the following sections: 3.1.4.2.1; 3.1.5; 3.1.5.2.10; 3.1.5.2.11; 3.1.6.4.1; 3.1.6.5.2; 3.2; 3.4.7; 3.5.4.2.1; 3.7.6.4; 3.9.3; 3.9.5.2.2; 5.2; 6

LRS has failed to establish a need for the project nor defined the scope and/or scale

The LRS proposal submitted to the Army Corps describes four main activities: 1) dredging the lakebed, 2) constructing islands, 3) expanding wetlands, and 4) building infrastructure. LRS claims that these activities are needed to restore the lake because “the sediments are believed to contain elevated nutrients that contribute to the ongoing water quality concerns.” LRS provides no references or new data to support this claim, which is directly contradicted by multiple studies showing natural concentrations of nutrients for most of the lake. LRS provides no evidence to show that the project will improve water quality or conserve water. Despite being the premise of the permit proposal, LRS has not determined the type and composition of sediment to be dredged, nor whether it is suitable for island construction. In addition to not providing sufficient data to establish the need

for the project, LRS does not establish the scope or scale of the project. This ill-defined project precludes the ability to provide a thorough technical review.

The application lacks required details of the proposed island developments

The application does not include a description of the island developments nor impacts from widespread construction and permanent habitation on the lake. Despite the enormous scale of the development involved, LRS has not disclosed the number of homes, residents, multi-story buildings, or infrastructure needed to support a new city on the islands. It is impossible to evaluate the feasibility, safety, and environmental impacts of the proposal without details about the island development.

No timeline is given for the project

While the application does not specify the duration of dredging, LRS's original proposal estimated that it would take *"60 dredgers working 20 hours a day, six days a week, for eight years to move this quantity of material."* The current application downplays this disruption by suggesting that dredging *"will cause a temporary short-term, localized disturbance of water quality*." The consequences of this dredging will have devastating effects on the lake food web including, a decline in grazing zooplankton and benthic detritivores resulting in an increase in phytoplankton production and oxygen "dead zones". LRS has disclosed elsewhere that the project could take 15-40 years, but this information is not included in the application. A description of start and end dates for each activity is required by the Corps and needed to assess potential impacts. As a result, the Corp's should follow its regulations and deny the application as incomplete.

Restoration plan and alternatives analysis have not been submitted

LRS does not include evidence or explanations of how their activities could benefit the ongoing recovery of Utah Lake. The application lacks an aquatic species restoration plan, invasive species management plan, and descriptions of how impacts of dredging and island building will be mitigated or avoided. Likewise, the *"Alternatives Analysis"* required by NEPA has not yet been started.

These omissions are particularly troubling because nearly 50 years of coordinated restoration has allowed the lake to begin an ecological recovery regarding its hydrology, ecology, biology, and other beneficial uses. Invasive phragmites has been successfully reduced by 70%, invasive carp have been decreased by 75%, algal bloom intensity and duration have decreased for most of the lake, and the endemic June Sucker fish was recently downlisted from endangered to threatened (here is an overview of the history and current status of Utah Lake).

As practicable alternatives exist, but have not yet been evaluated, the proposal should be rejected or delayed until it is demonstrated that this proposal is the least harmful alternative. That analysis is critical to evaluate—from the outset—whether the project goals could be better achieved through less destructive and damaging interventions, including a "no-action alternative." This requirement is especially important in this case, where the proposed project could reverse decades of successful restoration work and harm water quality based on a project "need" that does not exist. While it is common for some details to be finalized during the EIS stage of a proposal, we are aware of no projects of this size that have had such an undeveloped restoration and mitigation plan at the time of application. As a result, the Corp's should follow its regulations and deny the application as incomplete.

Additional questions

While the LRS application raises too many questions to enumerate, we provide a partial list of basic questions that LRS should answer at this time so that the Corps and public can assess the permit application. These questions are organized based on the Corps permit checklist:

Purpose, need, scope of the project

1. What specific restoration activities are being proposed and how do they compare with, support, or interfer with other ongoing restoration projects?
2. What evidence is there that the lake is on a negative trajectory, or continues to degrade?
3. What is the need for the proposed project? LRS fails to demonstrate or support with evidence their most fundamental claim, that dredging will result in comprehensive restoration of the lake ecosystem. While the proposal claims upfront to be a project designed to restore the lake, the proposed actions are clearly not for restoration. Therefore, the proposal fails to demonstrate or support with evidence the need for this project.
4. What is the timeline for the various project activities?
5. What evidence does LRS have that dredging Utah Lake deeper will actually reduce algal blooms and improve water quality? In other words, do they have evidence that deeper, eutrophic, lakes do NOT suffer from algal blooms?
6. What evidence is there that this amount of dredging will benefit Utah Lake? For example, in areas with elevated nutrient sediment concentrations, how much will algal productivity be affected by their removal?

Dredging activities

7. What is the type and composition of the sediment where dredging will occur?
8. What is the lateral extent and vertical depth of the sediments claimed to contain nutrients causing algal blooms?
9. Where and when will the proposed dredging occur, especially Phase 1?
10. What are the dredging limits for water quality during proposed activity?
11. What equipment will be used for dredging? What equipment would be used for the discharge of the dredged sediments?
12. During dredging, how will sediments from adjacent undisturbed lakebed be kept from entering dredged areas due to currents and wave action during the dredging process? How will this influx impact the project dredging timeline?
13. Can dredging of sediment to create artificial islands in the lake actually reduce nutrient loads? Especially considering that those sediments will remain in the lake as islands. Therefore, the targeted nutrients will essentially remain in the lake.

Infrastructure and equipment

14. What is the specific layout and dimensions of islands, roads, and other proposed changes?
15. What structures are proposed to be built on the sediment containment areas (i.e. islands), and what data are available proving long-term safety for those structures in normal and natural disaster conditions?
16. What equipment will be used to build the structures (i.e., containment areas and islands)?
17. How much ‘imported’ material will be needed? What and where is the proposed source of this material? In another document, LRS estimates spending $357 million on imported material for islands.

18. What is the reported lifetime of containment materials such as Geotubes (or the material LRS plans to use as it is not disclosed)?
19. What is the linear distance of waterway that will be impacted by the entire project?
20. Where are access points and where will permanent or temporary construction areas be located?
21. What are the locations and equipment to be used for mechanical circulation and biofilters?

Discharge of dredged material and construction of structures

22. How much wetland will be filled for bringing in dredging equipment and construction of roadways connecting the islands to shore? What is the surface area of wetlands that will be impacted by the entire project?
23. What are the means by which the discharge is to be done? (backhoe, dragline, etc.)
24. Do the containment/impoundment structures demonstrate the structure complies with established state dam safety criteria?

Endangered species, plant, and animal life

25. How much damage and loss of life will the dredging activity cause to fish and other aquatic organisms living in the lake?
26. What would be the temporary impacts of dredging, including duration and impact on water and air quality, noise levels, recreation, wildlife, currently successful invasive species removal programs and June Sucker recovery?
27. What will be the effects of the project during construction and afterwards on water quality from turbidity, suspension/ release of toxic substances, fish kills, and algal and cyanobacteria blooms?
28. What will be the impact on adjoining water bodies (Jordan River to the Great Salt Lake, Provo Bay, Provo River and upstream reservoirs) and downstream water users during dredging and in the long term? Active storage versus inactive storage.

Mitigation --- including invasive species, water quality, environmental health impacts and cultural resources of archeological/historical significance

29. What will be the impact of imported material on Utah Lake and adjoining water bodies if the project is abandoned or left uncompleted?
30. What and where are toxic materials and amounts currently encapsulated in sediments? How will dredging and island building be conducted so these materials do not present a health concern now or in the future?
31. How will permanent sequestration of pollutants be ensured in the island containment areas? What hydrological and reactive transport assumptions are being made about pollutant mobility and residence time?
32. What measures will be put in place, and when, to protect newly created dredge containment areas from being colonized with invasive plant species and becoming habitat for invasive fish species?
33. What will be the impacts of seismic, spring, and geothermal activity on dredge containment areas?
34. How much will it cost to complete the proposed (but undefined) restoration activities that are not related to dredging or island building (no-action as a practicable alternative)?

35. What steps will be required after completion of project and projected annual cost to maintain water quality (mechanical circulators & biofilters), dredge containment areas (geotube maintenance), maintenance dredging, invasive species maintenance, and structure settling? How do these costs compare to the “no action” alternative (continuing the currently ongoing restoration and recovery programs)?
36. How will the following impacts (both short and long term) be avoided and mitigated?
    a. resuspension/dissolution of currently encapsulated pollutants (including PCBs) when overlaying sediment is removed
    b. release of pore water from sediments during compression into Geotubes
    c. increased turbidity from suspended sediments during dredging
    d. stratification in deeper water, resulting in anoxic dead zones, fish kills
    e. benthic community disruption, kills due to dredging
    f. increased algal & cyanobacteria blooms due to potential increased light penetration
    g. changes in lake level, especially in sensitive shoreline wetland areas due to dredging activity
    h. commercial dredging equipment exhaust/ atmospheric deposition of pollutants degrading water and air quality
    i. increased water usage demands/ waste & runoff, increased phosphorus from population on islands
    j. construction materials/ debris/ degradation of islands/ maintenance debris entering Utah Lake
    k. changes in lake circulation, specifically groundwater springs occurring across the lakebed
    l. development of salinity gradients where circulation is impeded by causeways and islands
    m. release of noxious gases from lakebed/hot springs
    n. creation of dredge containment areas that will be prone to infestation by invasive phragmites and provide habitat to invasive carp, both which degrade water quality
    o. increased air pollution from traffic/ atmospheric deposition of pollutants degrading water quality
    p. impacts on Threatened June Sucker from habitat alterations due to communities developed on the islands
    q. impacts on Threatened June Sucker from stratification in deeper water
    r. impediment of movement of Threatened June Sucker due to construction of islands, bridges, and causeways
    s. susceptibility of failure of dredged sediments and overlying structures during major shaking and subsequent liquefaction
    t. impacts on resident and migrating birds
    u. encounters with areas of archeological significance, artifacts, human remains.