



## WESTERN RESOURCE ADVOCATES

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Jodi:

On behalf of FRIENDS of Great Salt Lake (FRIENDS), thank you for the opportunity to submit comments on your draft Great Salt Lake Water Quality Strategy (Strategy). As an initial matter, please allow us to congratulate you on your outstanding effort in devising this Strategy. We'd like to express our appreciation for all of the thought and hard work that has gone into this draft. This document is a clear indication that DWQ is willing to do what it takes to develop workable water quality standards for the Lake, and Friends is very supportive of this effort. It is our hope – as it surely is yours – that the formulation of these standards will help us reach a point where all parties feel that the Lake is being adequately protected and that challenges to individual UPDES permits become unnecessary. While it is sometimes difficult to imagine we could reach such a point, it is a certainty that we will never make positive strides in that direction without some idea where we are headed. This document provides such a vision, and for that we thank you.

In general, we do not have any overarching criticisms of the proposed Strategy. As outlined below, the single biggest concern we have is that the range of salinity categories outlined in the Strategy is too narrow to provide an adequate basis for water quality protection. It is FRIENDS' position that the range currently outlined in the Strategy is not sufficient to protect the Lake's resources.

Outlined below, broken out by each major document section, are minor criticisms and suggestions that FRIENDS offers as constructive criticism:

### **Executive Summary**

- Recognizing that this could be considered bordering on the trivial, FRIENDS suggests capitalizing any reference to the “Lake” throughout the text. We feel that it has earned this distinction.
- Lines 38-39. While acknowledging that an effort such as this requires an overarching vision, we suggest that the vision outlined in the current draft be refined and tied directly to the purpose of the Strategy. For instance, it could be noted that the establishment of appropriate water quality standards for Great Salt Lake is critical to protecting the many valuable benefits offered

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by the Lake in a way that ensures protection of those benefits for current and future generations.

- Lines 122-24. The separation of Bear River Bay from Gilbert Bay is more complex than is being portrayed in the draft. Even if the entirety of the causeway were removed to the east of Promontory Point, the Great Salt Lake Minerals facilities would completely separate Bear River Bay from the rest of the Lake.
- Chart at the bottom of Page 5. The chart has been cut off at the bottom of the page.
- Lines 139-41. It is unclear what is being referenced through the assertion that high salt concentrations are being “transported south to Gilbert Bay.” If that reference is to the interchange via the railroad causeway, FRIENDS believe additional effort could be spent discussing the problems associated with this transport, especially at low Lake levels. If the reference is to the GSLM flushing operations, FRIENDS would object to that characterization.
- Line 171. There is reference here to a 2011 DFFSL document, although the reference section depicts a 2010 DFFSL document. Are these the same document?
- Lines 172-80. DWQ should spend some time discussing the qualities of Willard Spur and its relationship to Bear River Bay. Is it DWQ’s intent to simply outline Willard Spur as an additional wetland? FRIENDS believes that Willard Spur is large enough and significant enough to warrant its own discussion in this document and some thought should be given on how best to depict this portion of the Lake.
- Line 201-05. It is unclear what the function of this section is. It should either be expanded to be more meaningful, or removed entirely.
- Lines 214-48. The concept of potential threats to the Lake’s beneficial uses is an important one and should be used throughout the various sections of the document rather than being limited to this one section. Although potential threats are, at times, interwoven into the text of the remainder of the document, it would be useful to specifically outline these threats and show how the proposed water quality standards will then address them. In lieu of that, another approach could be to expand this section and break out the threats by section of the Lake, along with a discussion how the proposed standards will help address those threats.
- Lines 448-49. Although it is clear that DWQ envisions a strategy focused on the open water and a strategy focused on wetlands, it is not clear how those two strategies will work together to achieve overall water quality for the Lake.
- Lines 627-45. A frank discussion of some of the challenges of implementing the current selenium standard due to a shortage of eggs in the area of KUC’s discharge is in order here.
- Lines 682-94. A discussion of the upcoming changes to the Water Quality Board is appropriate. Given these changes, FRIENDS disagrees with the statement that “[t]he Board’s makeup...is designed to represent various interest groups of the water quality community.”

- Lines 697-98. FRIENDS disagrees with the statement that DFFSL is charged with managing the Lake under the multiple use/sustained yield mandate to the exclusion of its public trust responsibilities. The Strategy should at least provide a balanced picture of what DFFSL's public trust responsibilities are as those relate to the multiple use/sustained yield concept.
- Lines 729-32. Should note that this economic output is on an annual basis.

#### Core Component 1

- Page 1 Box. The text on the last line of the box is being cut off.
- Page 2 Box. The text on the last line of the box is being cut off.
- Lines 26-29. The statement on these lines should also account for stormwater oversight accomplished by DWQ.
- Lines 36-38. The statement on these lines is not comprehensive enough and should include the many reasons of protecting the Lake. This includes all of the economic benefits derived from the Lake as well as supporting the protection of the Lake's public trust resources.
- Lines 70-72. It should be noted that the selenium standard is only currently applicable to Gilbert Bay. There should be a discussion on whether the Gilbert Bay standard should be extended to all portions of the Lake and, if so, what it will take to accomplish that.
- Line 80. The statement is made that the beneficial uses are being protected by WET testing, however FRIENDS has been given to believe that there are numerous problems implementing WET testing using Lake water. Please explain. Additionally, the definition for WET contained within the Acronyms and Abbreviations section differs from the definition contained on Line 78.
- Lines 81-91. There should be an additional discussion how this standard relates to the 5A-E narrative language.
- Lines 129-31. The statement contained within these lines is inaccurate. The standards were revised to remove the dissolved oxygen and pH numeric standard. As noted in Footnote 2a, while protocols and guidelines will be developed, there is currently no specific narrative standard that addresses dissolved oxygen and pH for impounded wetlands.
- Lines 135-42. Although the nutrient example is a valid example to illustrate this point, how far is DWQ willing to take this argument? Does it only apply to nutrients? How about toxics? Additionally, the language noting that the responses vary "from place to place," along with the difficulty of generalizing precise regional numeric criteria, speaks to the need to be as precise as possible in establishing the application of the criteria.
- Lines 176-79. FRIENDS does not believe that this statement goes far enough. In certain cases, it may be necessary to not only protect and maintain the ecology of areas of the Lake, but it may be necessary to actually restore sections of the Lake – especially areas of the Lake significantly impacted by nutrients such as Farmington Bay and a number of impounded wetlands.
- Lines 187-89. This sentence should be rewritten to clarify what DWQ is intending to convey.

- Page 9, box. Please clarify what is intended by “economic use removal criteria.”
- Lines 267-69. How does DWQ plan to address high Lake levels and the impacts that high Lake levels has on sections of the Lake such as Gunnison Bay? For instance, in the 80’s Gunnison Bay was diluted to the degree that brine shrimp harvesting was occurring within Gunnison Bay during those years.
- Lines 305-07. Is DWQ advocating for the protection of Great Salt Lake based on salinity levels rather than on the current 5A-E designations?
- Lines 327-28. It is impractical for DWQ to limit the range of protection and evaluation to the three classes currently proposed. In order to accomplish DWQ’s stated goal, these classes must be refined to reflect the existing salinity levels specific to portions of the Lake. For instance, the hypersaline category does not even encompass the full range of brine shrimp habitat (up to 18%) that typically exists in Gilbert Bay. A hypersaline range of 4 to 12 percent is both under-inclusive and over-inclusive for Gilbert Bay (see line 366), and completely fails to account for Gunnison Bay, which is more than twice the proposed hypersaline range. The current categories also would not accurately capture the range in saline within Willard Spur and from Willard Spur to Bear River Bay. Because this concept is so important to the remainder of the Strategy and how monitoring, testing and research will be conducted going forward, it’s critical to create a framework that accurately reflects the reality of the saline ranges within the Lake. To the degree that variations exist within a particular Bay, those variations must also be accounted for.
- Line 414. How does DWQ intend to prioritize existing pollutants of concern in this process?
- Lines 454-55. As noted above, FRIENDS disagrees with DWQ’s contention that the proposed salinity classes “roughly determine the composition and abundance of species at different locations around the [L]ake.”
- Lines 488-89. FRIENDS does not agree that water quality is necessarily being protected by existing narrative standards.
- Lines 489-92. This statement is in direct contradiction with the statement on Line 80 of the Executive Summary that beneficial uses are currently being protected by WET testing. There should be an expansion of this thought to include how DWQ intends to overcome this deficiency.
- Lines 493-95. This statement is confusing. FRIENDS was under the impression that DWQ intended to follow the EPA mercury guidelines prior to the adoption of a numeric criteria. Specifically, following these guidelines has been proposed to help overcome the deficiencies of the tissue-based criterion as that relates to implementation of the selenium standard within Gilbert Bay.
- Lines 532-33. It is unclear what role the public will be allowed to play in deriving the specific methodology and in giving feedback on what should be the highest priority pollutants. This is true for many aspects of the Strategy,

where involving the public is mentioned, but nothing specific has been proposed.

- Line 540. Should read “UPDES.”
- Lines 557-61. What is the basis for the assumption that the benchmarks are adequate for protecting the water quality of the Lake? DWQ should first determine the appropriateness of the benchmarks before it assumes their validity for the purposes of this Strategy.
- Lines 605-07. Please clarify why this data is inconclusive and conflicting.
- Lines 652-55. Please clarify what is meant by “the most conservative criteria.”
- Lines 677-79. Please clarify how it will be determined which organisms are transient and not critical to the ecosystem’s biological integrity.
- Lines 693-94. Mixing zones are currently outlined in DWQ regulations rather than policies. This is an important distinction and any change to these will require rulemaking.
- Lines 700-05. It is unclear how DWQ would apply a UAA to the 5E habitats. Unless these discharge points are piped to the open waters of the Lake, it may be necessary to create water quality standards that are specific to each of these discharge point habitats.

## Core Component 2

- Line 46. It’s important to distinguish between Willard Bay (the reservoir) and Willard Spur.
- Lines 46-48. In order to understand how DWQ intends to implement this Strategy, it is important for DWQ to specifically outline what it considers to be a “wetland” and what it considers to be an open water of the Lake. For instance, does DWQ consider all of Willard Spur to be a wetland for the purposes of this Strategy?
- Lines 51-52. It is important that descriptions within the Strategy be as accurate as possible. In line with this, DWQ should call it the way it is and note that all of Stansbury Bay has been subsumed by evaporation ponds, rather than the way it is currently phrased.
- Lines 75-76. It’s unclear why the 2002 waterfowl data is being used when data exists that was published in 2011 on the economics of waterfowl hunting along Great Salt Lake.
- Lines 336-37. Same comment as above.
- Page 16, location of monitoring points. Given the Strategy’s stated goal of helping provide the foundation for defensible UPDES permits, it is important that DWQ position a monitoring station in the immediate vicinity of the KUC and JV discharge points. A number of conservation groups have become concerned over the possibility that a “hot zone” of selenium and mercury has or will be created in the vicinity of where the KUC/JV ditch hits the open waters of the Lake. Because we have been told that DWQ cannot require the permittees to monitor impacts within the open waters of the Lake, it is important that DWQ adjust the monitoring points of the Strategy accordingly.

- Page 20, statement “A long-term strategy to monitor selenium concentrations in bird eggs is needed to comply with the existing numeric criterion.” This statement is not an accurate portrayal of the current situation. There IS no existing numeric criterion as envisioned by this Strategy. Instead the current criterion is a tissue-based one designed to signal that the levels of selenium within the Lake seem to have reached an unhealthy level based on the amount of selenium in egg tissue.
- Page 20, composition of Project Team. FRIENDS notes the absence of EPA on the list of partner agencies. Given that the Strategy was created in conjunction with EPA, it is puzzling why that agency would not be part of the Project Team going forward.
- Pages 21-22.
  - Why is the analysis of potential contaminants of concern only limited to sampling of water, brine shrimp and bird eggs? In other places in the Strategy (lines 382-88; lines 436-37), there is a recognition that concentrations of contaminants within the sediment layers and within the food chain are important in determining both the presence and the effect of these contaminants on the ecosystem.
  - The second bullet in Step 3 does not correspond with what DWQ knows is the reality of collecting a sufficient amount of eggs in the vicinity of Saltair. It also does not conform to the location of egg collection noted elsewhere within the Strategy. Does this collection schedule indicate that DWQ has conceded that it will not use bird eggs as a means to verify whether or not the Lake is in conformance with the current selenium standard?
  - Is the testing for methyl-mercury only going to occur in the water or is it going to occur within the deep-brine layer where this metal is likely to be formed?
- Lines 360-64. FRIENDS has been led to believe that it was not practical for DWQ to monitor a sufficient amount of eggs in the vicinity of the discharge to make such monitoring statistically meaningful and that it was not practicable for the agency to derive a path of selenium transfer from the water to the bird eggs in a way that allowed the agency to derive a meaningful numeric standard for selenium. How do you reconcile these two positions with the statements contained within this section?
- Page 27, Figure 2-2. There is a notation that bird eggs will only be sampled for selenium when concentrations in water and brine shrimp reach trigger levels. As noted above, DWQ has repeatedly stated that it is currently impracticable for the agency to derive these numbers. How does the agency propose to conduct egg sampling in the interim? Does it intend to continue annual egg collections for the purposes of determining the concentration of selenium in egg tissue, or does it intend to discontinue that testing and, if so, at what point in time?
- Lines 503-08. Please expand on what DWQ is proposing in this section. On its face this appears to be a proposal for changing the baseline sampling program. If that is the case, it would be inappropriate for DWQ to make such

a proposal in this document. This entire section assumes a great deal of information that does not currently exist – at least from FRIENDS’ perspective. How does this equate to the current regulations and how does DWQ propose to transition from the current regulations to this proposal? Additionally, FRIENDS does not support taking an average of the selenium levels of eggs collected throughout the Lake to determine whether KUC’s discharge is causing excessive selenium levels in the vicinity of their discharge. Because it is likely that levels of selenium will vary depending on the location within the Lake, determinations based on egg and brine shrimp sampling should be examined on a location-by-location basis, rather than on the Lake as a whole.

- Lines 565-66. Hasn’t it already been determined whether standard methodology is appropriate for the purposes of this Strategy?
- Line 580, etc. There are several possible meanings of the term “round robin” depending on what the ultimate goal of the effort is. Additionally, members of the general public are not likely to understand what is meant by this term. DWQ should clarify how it intends to use that term within the Strategy.
- Lines 606-07. Throughout the document, the specific levels of salinity cited lack consistency. Even the range of salinity for Gunnison Bay ranges from 24 to 27 percent throughout the document. Considering that DWQ proposes to use salinity as the basis for determining monitoring and designation categories, it is critically important that the salinity numbers throughout the document be as precise as possible.
- Lines 608-09. If an expected result is likely cost prohibitive, why use it as the basis for the Strategy? Wouldn’t it make more sense to cite an approach that is more realistic?
- Line 610. FRIENDS does not feel that it is possible to collect from a single location that represents a “typical” salinity condition for the Lake and that this proposal would constitute an unreasonable approach given the realities of the Lake.
- Lines 729-31, lines 766-70. On lines 729-31, the Strategy notes that unrinsed and unsorted brine shrimp samples appear to provide the most accurate picture of the selenium concentrations in the brine shrimp samples. Having noted that, none of the protocols outlined in lines 766-70 provide for this. Is DWQ asserting that samples rinsed with lake water provide a substitute for an unrinsed sample? Why not simply account for what Mr. Marden notes and not rinse the sample prior to testing?
- Lines 815, 828-31, 834-36. This section notes that sediment sampling will be conducted for trace elements. This appears to be inconsistent with earlier regimens that exclude the sampling of sediment. How do these tie together with other sections of the Strategy? There seems to be a great deal of inconsistency in what is being proposed to be sampled, although it is possible that it is simply too difficult to track across the sections. Would it be possible to create a matrix that encompasses all of the proposed testing contained within the Strategy?
- Lines 971-72. What is the basis for the assumption that benchmarks are unlikely to result in adverse effects to aquatic and aquatic-dependent life?

The Strategy uses as its basis the assumption that fresh and marine numeric standards cannot properly be applied to the Lake, so it's unclear why it is reasonable to assume that these benchmarks could be used in this manner.

- Lines 1014-16. As recent studies indicate, there is a vibrant fish population in the Willard Spur that should be accounted for when making this statement.
- Line 1025. Should read: "is essential in protecting."
- Lines 1124-42. FRIENDS feels that it is critically important that the unquantified sources selenium entering into the Lake be identified as soon as possible.
- Lines 1276-79. While noting the importance of the lower food chain components of Great Salt Lake, it is unclear how the Strategy could account for the range of these resources with the currently proposed salinity classes. Lines 1326-1328 seem to indicate a need for a much wider range of classification to capture a sufficient sampling for these organisms. A location in Willard Spur should also be added.
- Line 1311. Remove the "the" in front of Gilbert Bay.
- Line 1368. The sentence is incomplete.
- Lines 1549-51. Please specify where in Section II of the Strategy monitoring of the food web of adult avocets and stilts occurs as part of the baseline sampling plan.

When the Public Outreach Plan is further along, FRIENDS would like an opportunity to review a more detailed draft of that section and provide comments on how DWQ intends to involve the public in the implementation of the Strategy going forward.

Again, thank you very much for the opportunity to comment on this draft. You have every reason to be proud of your accomplishment and we look forward to seeing the final versions of these sections and in working with DWQ to implement this Strategy.

Yours,



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