APPENDIX B-1

COMMENT RESPONSES

Comments and Utah Division of Water Quality Responses
November 2010 drafts of the 2008 and 2010 Integrated Reports (IRs)

Comments were received from USEPA Region 8 and Western Resource Advocates. To improve clarity, portions of the comments were excerpted. DWQ responses to the comments are in blue text. The complete comments are included at the end of this appendix.

Responses to Environmental Protection Agency (EPA) Comments

General Comments

DWQ appreciates the time and effort of EPA staff in reviewing the Report. As specified below, most recommended revisions have been incorporated into the final draft of the 2010 IR.

Specific Responses

1. *Biological Assessment Results, Chapter 2.15:* Utah's 2008 Integrated Report includes the results of the newly implemented biological assessment procedures, allowing the state to directly quantify support of beneficial uses for aquatic life. These results and UDWQ's process for interpreting biological data are presented in Chapter 2.15: *Biological Assessment Results.* Following this process, DWQ has added waterbodies to the State's 303(d) list if the benthic macroinvertebrate data indicated impairment and sufficient data existed. Once listed, UDWQ plans to conduct additional studies to identify the pollutant causing the biological impairment. EPA supports this approach and commends UDWQ for using biological data in the State's assessment process.

   Since biological data were not considered by UDWQ until the 2008/ 2010 IRs, we recognize there are situations where the biological data suggest that the waterbody is impaired but a TMDL has already been completed. In these situations, EPA recommends the following:

   - Utah will submit additional documentation to EPA that describes why UDWQ believes that the completed TMDL adequately addresses the benthic macroinvertebrate impairment. This documentation may include: an examination of the taxa list; information linking the biological data to the

pollutant; description of the possible sources in the watershed; etc. EPA will consider this information in our review of the final IR.

- If the TMDL has been completed for more than 5 years, and current biological data indicate impairment, EPA recommends that UDWQ add these waters to the State's 303(d) list for biological impairment.

In situations where the TMDL has not yet been started or completed, we recommend adding "Benthic Macroinvertebrate Assessments" as a cause of impairment for the waterbody. We would also encourage UDWQ to incorporate biological data as one of the TMDL targets.

DWQ agrees with the proposed approach and has reevaluated listing decisions accordingly. In general, DWQ believes that it is always appropriate to include biological endpoints for TMDLs that are developed to address impairments of Aquatic Life designated uses. Indeed, in many cases it is more defensible to use biological endpoints, which are site-specific, than to completely depend upon chemical numeric criteria, which are developed to be broadly applicable.

Strictly speaking, "Benthic Macroinvertebrate Assessments" are not a "cause" of designated use impairment. Rather, these procedures are assessment methods. DWQ acknowledges that this cause exists to align biological assessment problems within CWA rules and regulations. However, the lack of a logical connection in this example highlights the need to readdress common practices in light of the development of rigorous biological assessment programs. In particular, Utah and many other states have initiated much dialogue with EPA about the need to reconsider the policy of "Independent Applicability". If biological assessment tools are sufficiently robust to list impaired sites, they should also be considered sufficiently robust to document support of aquatic life uses. Inflexible dependence of chemical criteria for non-toxics (e.g., nutrients, temperature) is illogical and an inefficient use of limited resources. DWQ looks forward to continued dialogue with EPA and other stakeholders on developing alternatives to a strictly applied Independent Applicability policy.

2. Appendix A-1, *Draft Great Salt Lake Assessment for Mercury,* page 10: EPA notes the statement "multiply the dry weight measurement by (1- percent moisture/100) is incorrect. This statement should read "*divide* the dry weight measurement by (percent moisture/100)." Utah should verify the nature of this error; whether it is merely typographical, or if this is actually the approach that was used to convert the data from dry weight to wet weight. If it is the approach used, then the data analysis in this appendix is incorrect. As the raw data were not available with the appendix, EPA is unable to determine if this is the case.

DWQ Response:

DWQ has reviewed the wet weight-dry weight conversion and the conversion is correct as written and calculated. As a result, no changes were made in response to this comment.

3. Page 18: Exceptions Based Upon Unusual Hydrologic or Climatic Conditions

"Severe or extreme natural conditions, such as a drought, can be considered during the beneficial use assessment. During severe to extreme drought conditions, streams can have temperatures greater than the standard but are rare in occurrence if the normal hydrological regime occurs. In this case, DWQ reserves the right to identify these waters, but not list the AU on the 303(d) list. A rationale for not listing will be provided whenever this occurs. The AU will be assessed again when normal flow conditions return. For example, during the extreme drought in southern Utah, the Paria River was listed as not being assessed because the stream dried up during several months of the year and samples could not be collected." (Utah's 2010 Integrated Report, *Part 1: Methods for Assessing and Reporting the Condition of Lakes and Streams, p. 18/19.*)

EPA has several question/comments concerning the above paragraph. First, this section appears to be confusing two issues: drought and "natural conditions" as specifically used in Utah's water quality standards. The standards recognize that natural conditions may be taken into consideration when assessing attainment of *E.coli* criteria and when developing site-specific standards for temperature and TDS. EPA recommends this section be re-written with discerning attention to the meaning attributed to the term "natural conditions" in the standards (i.e., application to temperature, TDS and *E. coli* criteria). As currently written, the information on page 18

may be misleading. Is it implied that the State excluded parameters beyond temperature from their assessment?

Second, is it always reasonable to consider data collected under drought conditions as nonrepresentative? EPA will want to be assured in situations where exceedances occur under drought conditions and no site-specific standard is in place that the State evaluated other possible anthropogenic impacts to the waterbody (e.g., irrigation diversions).

We recommend that UT develop a protocol and/or water quality standards revisions that identify how climatic conditions should be taken into consideration for future assessments of temperature criteria. For example, Colorado's temperature standards provide excursions from criteria on extremely hot days and during extreme low flows. Additionally, Colorado's Listing Methodology discusses representative data. In 303(d) listing hearings, long-term hydrographs and sample date/time-specific flows have been used to demonstrate the lack of the representative nature of specific samples. Without justification, as the default, samples should be regarded as representative.

EPA urges caution before ignoring data that seem unexpected and hence not representative. Many climate scientists and modeling results predict additional variability in the central Rocky Mountains precipitation - approximately 30% (+ & -) on top of the already variable historic conditions. Some of this variability appears to be already occurring with data from the past decade showing statistically greater variability than historic records. So the new norm, may not resemble the old norm. If ecosystems experience greater variability in flows and weather conditions, assessment analyses may merit additional care prior to being declared nonrepresentative. What may have been nonrepresentative in the past may indicate the first signs of a wider range of conditions becoming the new norm.

DWQ Response:

As described in the text, "A rationale for not listing will be provided whenever this occurs." For the 2008 and 2010 IRs, drought conditions were not used as a justification to not list a site that was violating numeric criteria. However, drought is listed as a

source of impairment for several waterbodies. Drought as used in this context refers to a transient condition that is not expected to persist for more than approximately five years and would not warrant a standards change.

DWQ appreciates the limitations of using historical data for determining "normal' current conditions but this is the only readily available indicator and its use is replete throughout site-specific standards setting, use attainability analyses, and TMDL processes.

DWQ appreciates the suggestions regarding Colorado's excursion for temperature. Part 1 Assessment Methods was revised in the 2010 IR as follows:

> *As noted in the Utah's Standards of Quality for Waters of the State (R315-2), numeric standards can be modified based on natural conditions for temperature, total dissolved solids, and pathogens. Per the standards, site-specific standards will be developed for temperature and total dissolved solids but not pathogens in these instances. Short-term (five years or less) climatic influences on temperature and total dissolved solids such as drought are also considered for the beneficial use assessments. During drought conditions, streams can have temperatures or total dissolved solids greater than the standard but are rare in occurrence under normal conditions. If the condition persists for longer term, DWQ will modify the water quality standards to take into account the natural conditions. DWQ commits to revising the water quality standards to identify the criteria that will be used to identify these transient excursions (e.g., ambient air temperatures greater than 90th percentile for 10 years of data). In the interim, these waters will be placed in Category 3A and the rationale provided.*

Response to FRIENDS Comments

General Comments

DWQ appreciates the time and effort on the part of FRIENDS in preparing comments to Utah's Integrated Reports. The assessment process, like all water quality programs, continues to improve in part due to insights provided via stakeholder comments. As FRIENDS is aware, there are always more areas for improvement than the resources necessary to instigate these changes. As a result, it is particularly helpful to receive recommendations for program development, so that these considerations can be incorporated, wherever possible, into water quality planning processes.

With regard to placing Great Salt Lake (GSL) on the 303(d) list of impaired waters, DWQ retains the position that finding of "insufficient data and information" (Category 3C) is consistent with both EPA guidance and an objective interpretation of all "existing and readily available data". Many of the arguments that FRIENDS make for declaring GSL as impaired are similar to those made in response to the first draft of the 2008 IR (http://www.waterquality.utah.gov/WQAssess/documents/IR2008/Part2/2008_IR_Appendix_A_03152011.pdf). While considerable work has been conducted over the past couple of years to address previously identified data gaps (see IR appendices for details), the position of DWQ remains unchanged. Our previous responses to issues raised by FRIENDS with regard to GSL listing decisions remain relevant and should be reviewed in concert with the updates provided in this responsiveness summary.

GSL assessments are challenging for many reasons, including: 1) general lack of numeric criteria, 2) poorly defined existing uses, 3) a paucity of data describing historic conditions or water quality trends, and 4) the unique ecological and biogeochemical characteristics of the lake. Overcoming these challenges requires both time and sufficient resources. Yet DWQ agrees that ensuring the long-term protection of GSL warrants the necessary expense. The ecological, economic, and cultural significance of GSL are simply too important to risk the degradation of the lake's uses.

As evidenced by recent progress in the development of water quality programs, DWQ remains committed to ensuring that water quality remains sufficient to support GSL's

existing uses. These recent research efforts continue to provide insights into the role of water quality in supporting GSL's recreation and aquatic life uses. DWQ agrees that some water quality reports provide data that would be disconcerting if observed in other waterbodies. However, none of these data demonstrate impairment of aquatic life or recreation uses by for instance, demonstrating that recreation uses are in decline or that GSL biota are in decline. In addition, violations of Utah's Narrative Standard must be human-caused as opposed to a result of the lake's unique biogeochemical processes. Similarly, existing data are also insufficient to conclude that GSL is fully supporting its designated uses because too little is known about the role of water quality to make definitive impairment conclusions; hence the 3C (insufficient data and information) listing decisions. Consistent with EPA guidance, a Category 3 listing decision is an implicit commitment to collecting the data and information necessary to assess support of existing uses. DWQ continues to work as quickly as possible to filling these critical data gaps.

Specific Responses

1. All Segments of Great Salt Lake are Impaired

States are required to identify either entire water bodies or discrete water body segments as impaired based on evidence of water quality impairment or impairment of existing or designated uses. An existing use is any use "actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 CFR § 131.3(e). Designated uses "are those uses specified in water quality standards for each water body or segment whether or not they are being attained." 40 CFR §131.3(f).

DWQ Response:

Similarly, existing uses "are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards" (40 CFR § 131.3(d).

As shown in more detail below, there is clear evidence that several discrete segments of Great Salt Lake, if not the Lake as whole, are impaired and require listing as such.

DWQ Response:

The distinction between designated uses and existing uses is important to understanding DWQ's position. Briefly, designated uses—explicitly defined in water quality standards—are intended to describe the ***attainable*** condition of a waterbody. Conversely existing uses describe ***past***—in particular those that have occurred since November 28, 1975—***or present conditions***. Existing uses define the minimum conditions that must be maintained, whereas designated uses define ultimate water quality goals. The distinction between these uses is not merely semantic as it is critically important when interpreting state or federal rules and regulations governing water quality. Recent guidance (http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/Smithee-existing-uses-2008-09-23.pdf) from EPA on the interpretation of these terms is captured in a letter sent to the State of Oklahoma Water resource Board in 2008 (hereafter Smithee letter).

The existing uses of a waterbody describes aspects of the purpose of maintaining water quality (i.e., recreation, support of "fishable" uses) and the function of maintaining water quality (i.e., support of a healthy aquatic ecosystem). DWQ is required to ensure that the "highest degree" of existing uses are supported, which EPA has interpreted as being those uses closest to "minimally impacted" ecosystems (see Smithee letter for detailed discussion). "Minimally impacted" conditions are usually determined by comparing water quality conditions with those observed from comparable reference sites because determining historic conditions is difficult. However, DWQ is working to identify historic conditions at GSL because no comparable reference sites are available. DWQ has begun paleolimnology and remote sensing investigations to help better define the ***existing*** uses in GSL by describing trends in water quality indicators over several decades.

Federal regulations require DWQ to protect existing uses, "not specific water quality parameters which may have achieved levels more protective than necessary to support these uses" (Smithee letter). The concept of use support is directly coupled to water

quality parameters, but the use is the endpoint not the specific water quality parameters. GSL data do not demonstrate that the existing uses of GSL are impaired, by, for instance, demonstrating negative trends (e.g., type, timing, frequency) in recreation uses or deleterious changes in the composition or diversity of resident biota. As a result, DWQ disagrees that there are "clear signs" of impairment of existing uses.

Following current EPA guidance, states may provide more-specific descriptions of existing uses than the broad descriptions of designated uses identified in water quality standards. This is especially appropriate when necessary to protect "unique attributes of a water body" (Smithee letter). Certainly GSL has numerous unique attributes that need to be considered when interpreting water quality data. DWQ will consider modifying the GSL designated use descriptions with additional details in the future if such changes supported by existing data and helpful in adding clarity to regulatory policies.

Existing uses are the "highest degree" of uses that have occurred at GSL since 1975. The majority of dikes, which greatly changed the nature of the GSL ecosystem, were all constructed before 1975. Moreover, federal regulations expressly permit States to find that use attainment is not feasible if the changes are caused by hydrologic modifications (40 CFR 131.10(g)(2) & 40 CFR 131.10(g)(4). Hence, DWQ is ***required*** to protect post-dike existing uses. This does not mean that moving toward pre-dike conditions is an unworthy water quality goal (i.e., potential modification of designated uses), it simply means that creating such goals would go beyond what is expressly required by the Clean Water Act. DWQ encourages FRIENDS to work with DWQ and other stakeholders on better defining the designated uses of GSL if they believe that these changes are warranted.

In the context of the IR, DWQ assesses the extent to which the uses of a waterbody are met. Modifications to designated uses, however germane to water quality GSL discussions, must be addressed by revisions to water quality standards.

2. Lack of Numeric Water Quality Standards Cannot Justify the Refusal to List Great Salt Lake as Impaired.

Although there is only one proposed numeric water quality criterion for Great Salt Lake at this time, the Lake is protected by a narrative standard. If that narrative standard is not being met, DWQ must list those segments of the Lake, or the Lake as a whole, as impaired under 303(d). If DWQ does not list Great Salt Lake as impaired where the narrative water quality standard is being violated, then the narrative standard is ineffective. If the narrative standard is ineffective, the Lake will have no water quality protection and DWQ will be violating its duties under the Clean Water Act of restoring and maintaining the "the chemical, physical, and biological integrity of the Nation's waters." 33 USC § 1251(a). Moreover, because water quality standards consist of both designated uses and water quality criteria to protect those uses, the state must list water bodies as impaired whenever there is evidence of impairment of existing and designated uses.

Utah's narrative standard reads as follows (emphasis added):

> *It shall be unlawful, and a violation of these regulations,* ***for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste****; or cause conditions which produce* ***undesirable aquatic life*** *or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures.*

The narrative standard applies to all waters of the State, including GSL. Nuisance algae blooms are consistent with descriptions such as "scum" and "undesirable aquatic life", which would be a clear violation of the narrative criterion. However, this rule expressly states that that these conditions must be attributable to human-caused activities. First, the current algae blooms need to be more frequent, extensive, or otherwise deleterious to the lake's designated uses than they have been in any period since 1975, which is the

existing use that must be protected. Second, the increase must be human caused and not the result of naturally variable climatic or hydrologic conditions. Both rationale need to be more thoroughly vetted, which highlights the appropriateness of a Category 3 listing decision. DWQ's decision to not list GSL as impaired does not result from a lack of numeric criteria, it is a decision based upon limited and sometimes conflicting data and information.

Although full compliance with section 303 of the Clean Water Act requires development and adoption of a full suite of numeric water quality criteria for Great Salt Lake, it can be appropriate for DWQ to rely on the narrative standard as a benchmark for use attainment until numeric standards can be established. For non-toxic pollutants, narrative criteria based on biomonitoring methods are appropriate to supplement numeric criteria, or in the interim until numeric criteria can be established. 40 C.F.R. § 131.11(b)(2). After numeric standards are adopted for the Lake, narrative criteria should still play a role under the Act, as EPA has determined that narrative criteria are necessary to comply with section 303(c)(2)(A) of the Act, which requires standards to protect public health or welfare, enhance the quality of water, and further serve the purposes of the Act. EPA, *Water Quality Standards Handbook* 6-3 (2d ed. 1993) at 3-24. The use of the narrative standard requires DWQ to develop a methodology or criteria for implementing those standards so that it can be objectively determined whether those standards have been violated. For narrative standards applied to toxic pollutants, the State must ensure that the standard is sufficient to protect beneficial uses. EPA rules also require that where a state adopts narrative toxicity criteria to protect designated uses, the State must also identify procedures for implementing those criteria. 40 C.F.R. § 131.11(a)(2). The State must explain how it will develop specific limits on point source discharges to ensure that the narrative standard is met. *Handbook* at 3-24 to 3-26.

DWQ agrees that better procedures for interpreting narrative water quality standards are desirable. Over the past several years DWQ has developed numeric translators of the narrative standards for streams and draft procedures for GSL's impounded wetlands. However, most implementation methods developed in Utah and elsewhere estimate expected (i.e., unimpaired) conditions from reference sites, which is not an option for Great Salt Lake. DWQ proposed an alternative approach in an appendix of the 2008 IR, which uses multiple lines of evidence to quantify the biological integrity of GSL. DWQ has subsequently been working on collecting the data necessary to improve

assessment procedures and an update is provided in Chapter 14 and Appendix A of the Part 2 2010 IR.

As stated above, missing from DWQ's narrative standards are any clear procedures for implementing the standards so that it can be objectively determined whether the standards is being met or violated. How specific discharges will be limited/regulated so as to comply with these standards has similarly never been clearly established. DWQ cannot simply rely on vague narrative standards when there is no way to measure whether beneficial uses are being met. The agency is properly acting now to develop numeric standards, however in the interim, the agency cannot use the lack of numeric standards to justify not listing Great Salt Lake as impaired if its narrative standard is not being adequately met. By the same token, DWQ may not point to the lack of methodology associated with a narrative standard to prevent the listing the Great Salt Lake as impaired. The methodology for the narrative criteria is necessary for DWQ to adequately assess the impacts of individual proposed discharges into Great Salt Lake during permit proceedings until numeric criteria are established, but an impairment listing will still be appropriate whenever there is credible evidence that the water body is impaired.

Permitting is not addressed by the IR. The decision to assign GSL to Category 3C is based on limited and sometimes conflicting data and information that speaks to the condition of the lake's designated uses

To make conclusions regarding impairment of Great Salt Lake beneficial uses, DWQ relies on the weight of evidence approach where the agency identifies critical direct and indirect indicators needed to attain beneficial uses. DWQ identifies thresholds for these indicators and uses a preponderance of the evidence test to make a conclusion. Under the weight of evidence approach, there is no need to offer definitive proof. Rather, the data and information needs only to show that the beneficial use at issue is **at risk.** As a result, where a use is at risk, DWQ should not require more than evidence of

impairment before taking appropriate remedial action. *See,* 2006 Integrated Report Guidance, Section V: Five-Part Categorization of Waters, at 47.[1]

EPA guidance specifies that sites be listed as impaired if available data demonstrate risk to existing uses. However, states have much latitude with regard to determining the extent of risk necessary before a site would be considered impaired, particularly for assessments that are tied to narrative water quality standards. Scientific uncertainty may include conflicting lines of evidence that should be reconciled to make defensible regulatory decisions. DWQ outlines risk-based methods for making objective decisions with regard to mercury impairment in the 2010 IR appendices and anticipates adopting similar approaches for other pollutants.

In sum, based on one or more methods that DWQ presents in the Report and based on the agency's own data as well as data from other credible sources, Great Salt Lake is impaired. As a result, the agency must immediately take action to improve water quality in the Lake. Moreover, DWQ must ensure that any decision tree it proposes relative to Great Salt Lake adequately protects this important ecosystem, errs on the side of immediate action at the sign of any risk to impairment, is enforceable, and does not delay action when direct and indirect indicators suggest non-impairment.

DWQ Response:

As we mentioned in the responses to FRIENDS' 2008 IR comments, a Category 3 listing does not delay GSL water quality programs. Data cited in the comments to DWQ do not support the contention that the existing uses of GSL are impaired. Several of the cited water quality indicators would indicate impairment if observed in other freshwater ecosystems. It is not axiomatic that these comparisons are applicable to GSL. Indeed, one could similarly argue that GSL's uses are impaired because the salt content is >10X concentrations observed in any other lake or reservoir in Utah. Obviously such an argument is specious, yet it does highlight the importance of considering the unique

[1] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-sec5.pdf.*

ecological and biogeochemical properties of GSL when interpreting water quality indicators.

3. Data & Information Show Great Salt Lake is not Meeting its Narrative Standard.

Based on any interpretation or analysis of the narrative standard, the excessive quantities of algae, nutrients, and other contaminants in the open waters of Farmington Bay and other open waters indicate that the beneficial uses of Great Salt Lake, including the primary contact use, are not being protected. Algae blooms, hypoxic conditions, and excess quantities of criteria pollutants mean that the public cannot and should not use portions of the Lake for primary contact recreation. The narrative standard, on its face, prohibits Lake conditions that would cause undesirable aquatic life to proliferate. Such conditions have continued to exist for considerable time. The algae problem, particularly in Farmington Bay, has caused eutrophic and hypoxic conditions that allow algae to flourish and deplete the Bay of oxygen, therefore preventing beneficial uses from being met.

As stated in the 2008 comments, DWQ agrees that the algae blooms observed in GSL are concerning and warrants additional investigation. However, evidence does not exist to tie these blooms to an impairment of GSL's existing uses. In particular, evidence is needed to show that these conditions did not exist or have become increasingly worse since 1975. Similarly, considering that algae blooms are common in terminal lakes, DWQ does not believe listing GSL as impaired based on these observations is warranted unless it can be demonstrated that the blooms and associated anoxic conditions are human-caused.

DWQ's assertion that Great Salt Lake is within category 5C (insufficient data to assess) is not supportable based on the fact that DWQ currently possesses sufficient data to require that Great Salt Lake be listed as impaired. Even based on a weight of evidence approach, which is insufficiently protective, existing objective information indicates that water quality is well-below acceptable standards as established in the narrative standard. *Specific segments of the Lake are clearly impaired, as shown below:*

DWQ Response:

These comments suggest that all lines of evidence point toward impairment and as DWQ highlights in the 2008 responses, this is certainly not the case. DWQ does not agree that weight of evidence approaches are "insufficiently protective". Such methods are among the best approaches for considering all evidence to make balanced and objective management decisions. Specifics supporting DWQ's position are provided in the following responses.

4. Existing Data on Mercury Proves that Narrative Standards have been Violated and Uses are Impaired due to the Known Adverse Human Health Impacts.

FRIENDS would first like to acknowledge and thank DWQ for its focus on mercury in Great Salt Lake. Plainly, the relevant appendices to the Report represent significant and quality work undertaken to determine the impact of mercury on the Great Salt Lake ecosystem. We also appreciate that DWQ recognizes mercury contamination as a serious issue. Further, FRIENDS is pleased to see that DWQ is working to develop numeric water quality standards for mercury, which along with development of other water quality criteria for all other pollutants present in the lake, are essential for compliance with the State's obligations under section 303(c) of the CWA. In the interim, FRIENDS hopes DWQ continues to make strides to develop a specific narrative standards for all segments of Great Salt Lake, which meet the requirements of 40 C.F.R. 131.11(a)(2).

Under the current narrative standard, a waterbody is impaired when it is contaminated to such an extent that poor water quality leads to undesirable physiological responses in desirable resident fish or other desirable aquatic life, or undesirable human health effects. Existing data on mercury shows that mercury levels within Great Salt Lake exceed safe levels by a significant margin. Great Salt Lake in particular is known as a local hot spot for excessive quantities of toxic mercury.

In light of these troubling realities, as well as the strong and repeated evidence that mercury poses a risk to Great Salt Lake birds, we urge DWQ to list Great Salt Lake as impaired. While we appreciate that DWQ believes that certain scientific questions are left unanswered, the existing evidence requires a finding of impairment. The levels of

toxic mercury in the Lake, combined with DWQ's recent findings, as well as repeated studies by its sister agencies favors a finding of impairment. All of this evidence points to the same conclusion. At the same time, the importance of the ecosystem values put at risk by mercury, and an appropriate approach that errs on the side of protection of human health and the environment, requires that the Lake be declared as impaired.

DWQ Response:

DWQ appreciates the acknowledgement of the considerable effort that DWQ and our stakeholders have expended to address mercury concerns of GSL. The progress in this area and other GSL water quality programs demonstrates that DWQ is addressing water quality concerns for GSL to the maximum practicable extent given existing resources. DWQ fully intends to continue with the development of water quality programs for mercury and other contaminants as quickly as possible.

Utah's narrative standard states that pollution should not result in deleterious effects to "desirable fish, or other desirable wildlife". When elevated mercury concentrations are found in resident fish tissue, the source of the mercury is assumed—quite reasonably—to be obtained from the waterbody where the fish were collected. Obviously this assumption does not necessarily hold for birds, especially migratory birds, who are highly mobile and feed among numerous waterbodies.

As discussed in the 2010 IR, mercury data for GSL are conflicting with regards to whether they imply support or non-support of GSL's existing uses. For instance, studies for the development of the selenium standard for GSL did not find mutations in bird embryos, which is one of the aquatic life uses. These observations are not interpreted as definitive evidence that mercury is not a concern but do demonstrate that there is insufficient data and information to make a conclusion of support or non-support of aquatic life uses related to mercury contamination. DWQ developed a risk assessment framework—described in detail in the appendices—that will ultimately allow DWQ to weigh all of the evidence to make a listing decision.

DWQ agrees that it is appropriate to err on the side of protecting the environment or human health. Human health is currently protected with consumption advisories,

whereas existing evidence does not point toward an eminent threat to aquatic life. Neither of these protections is diminished by making a Category 3 listing while DWQ investigates, among other things, the extent to which mercury in bird tissue can be attributable to conditions within GSL.

5. Waters Impaired due to Atmospheric Mercury Contamination Are Impaired.

EPA guidance requires water bodies impaired by mercury to be listed as a category five water (impaired under 303(d)). This guidance also allows those bodies to be listed as 5m waters where other pollution controls may be established in addition to TMDLs in order to reduce the amount of atmospheric mercury contamination. This is because EPA's position is that a TMDL cannot directly address atmospheric mercury. *Listing Waters Impaired by Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs,* EPA Guidance Document, issued 2007.[2] However, states cannot use the complexity of crafting TMDLs to address atmospheric sources of mercury as a reason not to list a water as impaired or not to establish a mercury-reduction program for the impaired water body. *Id.* at 1-4; 9. Although the 5m category is voluntary, the listing of waters as impaired by atmospheric mercury is mandatory. *Id.* Also, EPA recommends that states have an existing comprehensive mercury management program before taking advantage of the 5m listing. *Id.* at 4.

DWQ Response:

The decision to not list GSL as impaired for mercury contamination was not made because the sources of mercury likely originate from the atmosphere. DWQ agrees that such a decision would be inappropriate as evidenced by the listing of Newcastle Reservoir as impaired—not meeting aquatic life uses—due to mercury contamination in the 2010 IR. The decision to not list GSL as impaired for mercury in the 2010 IR was based on inconclusive and conflicting lines of evidence in linkages between mercury and GSL's existing uses.

DWQ is interested in moving toward a statewide mercury management plan and is working toward this goal through a statewide workgroup (see: www.mercury.utah.gov).

[2] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2007_03_08_tmdl_mercury5m_Mercury5m.pdf.*

A comprehensive plan, sufficient to satisfy EPA 5m listing requirements, will require considerable resources to compile. DWQ intends to continue to work toward this goal as time and resources allow.

6. The Great Salt Lake Duck Consumption Advisory is Equivalent to a Fish/Shellfish Advisory and Provides Evidence that the "Fishable" Designation of Great Salt Lake is Impaired.

EPA believes that fish and shellfish consumption advisories "based on waterbody specific information demonstrate impairment of CWA section 101(a) 'fishable' uses." *EPA Guidance Document: Use of Fish & Shellfish Advisories and Classifications in 303(d) & 305(b) Listing Decisions* at 1.[3] Therefore, these sorts of advisories are proof that a waterbody is impaired for at least one of its designated uses.

Health advisories are different than use support decisions (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/mercury/upload/2000_10_24_standards_library_shellfish.pdf). EPA guidance states that aquatic life impairment listings are appropriate if they are made from "waterbody specific" information. As stated in more detail in the IR, direct linkages between the concentrations of mercury in waterfowl tissue and the GSL has not been established, which needs to occur before final impairment conclusions are made. In the interim, DWQ believes that a category 3 listing is appropriate and consistent with EPA guidance.

Great Salt Lake's duck consumption advisory is equivalent to a fish or shellfish consumption advisory. While Great Salt Lake does not have game fish, it does have waterfowl that are hunted for sport. These birds are water-oriented species of wildlife. The basic concept of 'fishable' is that the animals reliant on a waterbody's ecosystem are safe for human consumption. Consuming waterfowl from Great Salt Lake is clearly an existing use as defined by EPA regulations, and a consumption advisory is a per se example of use impairment. Great Salt Lake ducks are not safe for human consumption because of the levels of mercury they contain, and therefore a Clean Water Act

[3] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/mercury/upload/2000_10_24_standards_library_shellfish.pdf*.

fundamental use designation, "fishable," is impaired by mercury.[4] For this reason any segments of the Lake that have active duck-consumption advisories in place must be listed as impaired due to mercury contamination. The agency may decide whether to take advantage of the voluntary 5m classification explained above, but must list mercury-impaired segments of Great Salt Lake as impaired.

DWQ Response:

As previously stated, both in these responses and in the IR appendices, direct ties between waterfowl tissue concentrations and GSL are tenuous given that these birds feed from waters outside of GSL. Moreover, the extremely high concentrations referenced in FRIENDS' comments were from early investigations and the concentrations have been appreciably lower in follow-up investigations.

7. Hydromodification of the Great Salt Lake Constitutes a Use Impairment.

EPA guidance states that hydromodified waters are likely impaired due to their hydromodification. *National Measures to Control Non-Point Source Pollution from Hydromodification,* US EPA Office of Water (2007).[5] A water body is hydromodified any time the "hydrologic characteristics" of the waterbody are altered. *Id.* at 1-1. When hydromodification segments a waterbody or isolates certain sections of a cohesive water body, that water body is likely to be impaired by non-point source pollution. *Id.* EPA suggests that states identify all hydromodified waters and take measures to prevent non-point source pollution and mitigate the effects of the hydromodification on the waterbody. *Id.* at 1-2, *et seq*. Any time hydromodification impairs any of the waterbody's designated uses, the water is impaired by that hydromodification. *Id.* at 1-2. EPA lists the most common causes of beneficial use impairment that occur due to hydromodification as "nutrients, sediment, pathogens (bacteria), metals, pesticides, oxygen-depleting materials, and habitat alterations." *Id.* at 1-2; *see also generally, id.* at Chapter 6.

[4] *www.waterfowladvisories.utah.gov.*
[5] *http://www.epa.gov/owow/NPS/hydromod/pdf/Hydromod_all_web.pdf*

As demonstrated elsewhere in these comments, sections of Great Salt Lake are impaired. Further, most of the impaired sections have been hydromodified, either by the railroad causeway, the Antelope Island causeway, or the extensive diking of the lake for mineral extraction evaporation reservoirs and other purposes by Great Salt Lake Minerals, U.S. Magnesium, Morton Salt and other entities. DWQ must take all appropriate action to alleviate the effects of hydromodification on Great Salt Lake and its various bays so that the hydromodification does not further impair the bays' designated uses.

DWQ Response:

The referenced guidance document is a compendium of potential Best Management Practices (BMPs) to address concerns related to hydrologic modifications. The document does not address, in any detail, the nuances of making impairment decisions based upon these modifications. Tellingly, the document refers to alternative practices as MPs versus BMPs because the "best" practice is highly dependent on site-specific characteristics; certainly the complex and highly variable hydrology of GSL warrants site-specific considerations.

To make an impairment decision based on these modifications post-1975 existing uses must be impaired by the dikes Unless clear linkages to GSL's existing uses is established, the responsibility of evaluating potential improvements to improve circulation between diked areas in GSL is under the authority of Utah's Division of Forestry Fire and State Lands.

8. Aquatic Ecosystem Impairment in Gunnison Bay is a Per Se Use Impairment.

Gunnison Bay's aquatic ecosystem is impaired because it is not meeting its beneficial uses. Before the railroad causeway was construed, the Gunnison Bay aquatic ecosystem supported brine flies and brine shrimp as well as five different types of blue and blue-green algae. The commercial harvesting of adults and eggs of brine shrimp was carried out to provide food for topical fish. *Changes in lake levels, salinity and the biological community of the Great Salt Lake (Utah, USA), 1847-1987*, Stephen (1990) at 143-144. After the completion of the railroad causeway in 1959, Gunnison Bay salinity

concentrations have rose to and stayed at elevated levels, altering the type of organisms which can survive the new ecosystem. The brine shrimp industry moved to the southern portion of Great Salt Lake because it was no longer economically feasible to continue operations in Gunnison Bay. *Id* at 145. Currently the salinity level found in Gunnison Bay is 28%. *Great Salt Lake,* United States Geological Survey (2007).[6]

The high salt concentration found in Gunnison Bay has decreased the ability of the water to absorb oxygen. Stephen (1990) at 144. At current salinity levels, the only organisms found in Gunnison Bay are brine flies (found along the shoreline), small pockets of brine shrimp (found along the breach in the causeway and culverts), and photosynthetic sulfur bacteria. Also, red algae can be found in the waters north of the causeway. The sulfur bacteria accounts for 180,000 tons to 2 million tons of the biomass found in Gunnison Bay. It is this bacterium which lends the distinct reddish-purple tint for which Gunnison Bay is known.[7]

Under the Great Salt Lake beneficial use classification, Gunnison Bay's beneficial uses are to (1) protect for infrequent primary and secondary contact recreation and (2) protect waterfowl, shore birds and other water-oriented wildlife including their necessary food chain. Each of these protected beneficial uses is discussed briefly below. These designations are appropriate given that the Clean Water Act defines "e*xisting uses"* are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 CFR 131.3(e).[8] Plainly, in the early 1980s and after, Gunnison Bay did meet its designated uses, providing important and widespread habitat for brine shrimp, brine flies and waterbirds including erred grebes and being "swimmable."

The 1980's were highly unusual conditions (http://ut.water.usgs.gov/greatsaltlake/elevations/gslelevgraphs/GSL.WSAlt.Aug07.pdf)

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[6] *pubs.usgs.gov/wri/wri994189/PDF/WRI99-4189.pdf.*

[7] *http://ut.water.usgs.gov/greatsaltlake/salinity/.*

[8] "States may remove a designated use which is not an existing use[.]" 40 C.F.R. 131.10(g)

and Part 1 Assessment Methods of the 2010 IR states that listing decisions should not be based on drought or unusual climatic conditions.

The first beneficial use of Gunnison Bay for primary and secondary contact recreation is impaired. This is due to three different factors. First, because of the high salinity level found in Gunnison Bay recreational enthusiast do not want immerse themselves in the water. More so than other segments of the Lake, the high salinity level burns their eyes, ears, and any other sensitive areas of the body. Second, the presence of high levels of sulfur bacteria and red algae makes the water in Gunnison Bay appear reddish-purple, and makes the waters appear dirty, polluted and unfit recreational use. Finally, the sulfur bacteria, as mentioned above, make up the majority of the biomass found in Gunnison Bay. This bacterium emits a rotten egg like smell. This bacterium contributes to the perception that the Gunnison Bay is polluted and not safe to use for recreation. Therefore, because these factors deter people from using Gunnison Bay for primary and second recreation, Gunnison Bay is impaired.

The hypersaline conditions along with any affects that these conditions might have on recreation in Gunnison Bay are an existing use. The beneficial use for Gunnison Bay (R317-2-6) of infrequent primary and secondary recreation reflects that this area of GSL is not optimal for recreation because of conditions such as access and salinity. The salt concentrations in this bay may be sufficiently high to make primary contact recreation uncomfortable. Recreation uses should account for the high salinity because this is the existing use for Gunnison Bay.

The second beneficial use of Gunnison Bay, the protection of avian species, water-oriented wildlife and their food chain, is also impaired. This arises from the fact that organisms found in the South Arm cannot survive in the high salinity level found in Gunnison Bay. The high salinity level makes it very difficult for brine shrimp, blue and blue-green algae, and plankton to reproduce and grow in its waters. Many avian species and wildlife rely on these organisms as a food source. The brine flies found in and around Gunnison Bay primarily migrate from the south part of Great Salt Lake. Thus, Gunnison Bay is use-impaired because it cannot support the organisms that the avian and wildlife species rely on as a main food source.

DWQ Response:

DWQ is obligated to protect Gunnison Bay's "existing uses" which are the most sensitive uses that have actually occurred in the lake since November of 1975 and include conditions created by the dikes. An evaluation of the present dike configuration could provide worthwhile information about what is needed to ensure the long-term sustainability of GSL, yet these fall outside of the scope of analysis of existing use support conducted for IRs.

9. Other Areas of the Great Salt Lake Are Impaired.

The areas of Great Salt Lake that have been diked and sequestered for mineral harvesting and other industrial purposes are also impaired. Currently, ten producing mineral leases, totaling 171,644 acres, operate within Great Salt Lake sovereign lands. For example, Great Salt Lake Mineral Company currently operates mining reservoirs that cover 43,000 acres (21,000 acres in Clyman Bay and 22,000 acres in Bear River Bay) in and along the shores of the Great Salt Lake. *See* Army Corps of Engineers Final Scoping Comment (2007) at 5. This company is currently seeking to expand its facility by 91,000 acres.

These portions of the Lake have been fundamentally altered in a manner that obliterates designated or existing uses. They support no desirable lifeform and are not swimmable. Because these significant portions of Great Salt Lake have been so hydrologically altered as to completely eliminate existing and designated uses, DWQ should undertake efforts to identify these segments of the Lake and list them as use-impaired. This is particularly true where the hydrological modifications have been made after 1975, such as in Clyman Bay.

DWQ Response:

The loss of wetlands is addressed in §401 and §404 of the Clean Water Act. It is certainly appropriate to evaluate the effects of previous losses, and potential future loss, of these wetlands. However, these considerations lie outside of the scope of IR analyses, which are intended to meet §303(d) and §305(b) of the Clean Water Act.

10. The Wildlife and Recreation Uses of the Open Waters of Farmington Bay Are Impaired.

We reiterated that the open water of Farmington Bay is impaired because this waterbody does not adequately support waterbirds and aquatic organisms and is not swimmable. This is particularly true because these waters are plagued by eutrophic conditions. In response, DWQ noted that to list Farmington Bay as impaired would be premature, in part, because "[i]f nutrients are a threat, then reductions should not be implemented without understanding how N:P ratios influence cyanobacteria blooms, which represent a separate yet related threat to lake biota." DWQ's response does not properly distinguish between listing a water as impaired and then identifying and addressing the cause of that impairment. DWQ's reasons for not listing Farmington Bay as impaired are relevant to the later action – creating a TMDL for the Bay. However, the agency does not have to know the appropriate level of nutrients for Farmington Bay to know that the Bay is impaired because every summer the Bay is clogged with severe algae blooms and other highly undesirable growths. Therefore, DWQ is putting the cart before the horse in believing that it needs to know how to correct an impairment in order to list a particular water – Farmington Bay – as impaired.

DWQ Response:

DWQ agrees that an incomplete understanding of the causes of impairment does not prohibit impairment listings provided that clear ties exist between observed water quality effects and the uses of a waterbody. As previously stated, such linkages cannot currently be established for GSL.

11. The Wetlands of Farmington Bay.

FRIENDS appreciates DWQ's willingness to meet and discuss the impounded wetlands of Farmington Bay, and would like to thank DWQ for reaching a mutually agreeable compromise to find a more efficient and scientifically sound method for accessing impounded wetlands. However, FRIENDS would like to note that per our agreement, DWQ is behind schedule in formulating a new assessment method for those impounded wetlands, and for establishing involvement of stakeholder groups. FRIENDS is eagerly

awaiting more information, but notes that the agreement was based on adherence to a timetable for finalizing and implementing these assessment tools.

DWQ Response:

Since the draft assessment tool was released, DWQ has held a couple of meetings with stakeholders groups. In addition, DWQ continued to collect data at the wetland locations last summer and plans to use these data to evaluate year-to-year variability in key water quality indicators. More recently, DWQ was awarded a grant from EPA and intends to leverage these funds to finalize the assessment tools for impounded wetlands and to initiate development of a similar tool to the fringe (sheet flow) wetlands surrounding GSL.

12. If a Category 3 Listing is Appropriate for Great Salt Lake, DWQ Cannot Issue UPDES Permits for the Lake Until there is Sufficient Data to Make an Attainment Decision.

If there is truly not sufficient information to make a listing determination for one or more of the five segments comprising Great Salt Lake (a point which FRIENDS does not concede here), or Great Salt Lake as a whole, then the agency cannot continue to issue new UPDES permits for Great Salt Lake. The agency claims that it is fulfilling its obligations under the Clean Water Act. However, it is not possible to issue UPDES permits for discharges into Great Salt Lake under 33 USC § 1342 if DWQ does not have adequate data to determine when discharges may threaten Great Salt Lake's beneficial uses, or when a UPDES permit has the potential to cause impairment of the Lake. In the case that a category 3 listing is appropriate for one or more segments of Great Salt Lake, DWQ must not issue UPDES permits in those segments of the Lake until sufficient data exist to determine whether the Lake is impaired and whether a discharge will further impair the Lake or violate the water quality standards.

DWQ Response:

Permitting issues are not relevant to the IR and are therefore outside the scope of these responses. DWQ disagrees that permits cannot be issued for Category 3 waters but would be happy to discuss this issue further.

13. Numeric Water Quality Standards for the Great Salt Lake

FRIENDS appreciates DWQ's efforts to establish numeric water quality criteria for Great Salt Lake. FRIENDS agrees with DWQ that accurate, protective numeric water quality standards for the Great Salt Lake will help determine impairment, and protect the Lake's beneficial uses. FRIENDS also appreciates DWQ's efforts to establish numeric ambient water quality standards for Great Salt Lake in order to comply with 33 USC § 1313(a)-(c) & 40 CFR § 130.3. 33 USC § 1313(a)-(c) requires DWQ to promulgate numeric water quality criteria for Great Salt Lake. It is essential for DWQ to establish numeric criteria for the Great Salt Lake, criteria that are now more than 40 years overdue, in order to comply with section 303.

In the Report, DWQ states that "[t]o characterize the hydrology and geochemistry for each Bay (Classes 5A – 5E), post flood conditions (from 1995 onwards) will be used to develop numeric criteria and assessment methods for the GSL." Report at 2.699. This plan of action fails to meet the purposes of the Clean Water Act. Numeric criteria are necessarily designed to protect designated uses. Post flood conditions may not be representative of hydrology and geochemistry necessary to meet beneficial uses.

DWQ Response:

As stated in the IR and elsewhere, the development of numeric criteria for GSL remains a major goal for DWQ. In fact, DWQ is in the process of developing a framework that outlines an approach for developing these criteria that we hope to start vetting with stakeholders soon. Developing numeric criteria for GSL presents considerable technical challenges. Among the many challenges in developing criteria is selecting an appropriate period of record for a more thorough evaluation of the lake's existing uses. DWQ has proposed post-flood conditions as a starting point for establishing background conditions; however, we agree that numeric criteria should be developed to protect designated uses under limiting conditions. For this and other standards-related issues, there will be numerous opportunities for stakeholder input as numeric criteria are developed for GSL.

14. Reporting Requirements

FRIENDS agrees that segmenting Great Salt Lake is appropriate and in compliance with EPA guidance documents and recommendations. *See 2006 Integrated Report Guidance Appendix: Data Elements for 2006 Integrated Water Quality Monitoring and Assessment Report & Documentation for Defining and Linking Segments to the National Hydrography Dataset*.[9] However, segmenting the Lake does not obviate the need to list Great Salt Lake, or individual impaired segments, as not meeting beneficial uses under 303(d), category 5.

DWQ meets all the EPA information and reporting requirements to explain the decision to segment a water body. *Id.* at A-5, A-6. However, DWQ does not meet the reporting requirements explaining why DWQ determined that any given waterbody is supporting its designated uses, how and when DWQ came to its conclusion regarding each designated use and listing all pollutants and non-pollutants that might be the cause of use impairment in the waterbody segment. *Id.* at A-5, A-6. Specifically, for each segment, DWQ must: 1) list each designated use; and, 2) designate that use as either fully supported, not supported, insufficient data to support a determination (but explaining how DWQ will rectify this insufficiency) or not assessed (with the reason for the lack of assessment and remediation measures). *Id.* at A-5. Once DWQ reports the attainment decision, it must then explain how and when the assessment took place, including data on the assessment date, type, confidence, all data used in the assessment, and the results of the assessment. *Id.* at A-5. Finally, DWQ must report a list of pollutants and non-pollutants that might be impairing one of more designated use, link the pollutant to the impairment, and report all the observed effects of pollution for each designated use segment (for instance: fish kill, change in algae color, absence of native aquatic life). *Id.* at A-5, A-6. DWQ fails to meet these reporting requirements for the five segments of the Great Salt Lake.

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[9] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-appendix-2.pdf.*

DWQ Response:

The reporting requirements were met for all Utah's surface waters pending USEPA approval of the IR. GSL assessments are challenging for several reasons, including: 1) general lack of numeric criteria, 2) poorly defined existing uses, 3) a paucity of data describing historic conditions or water quality trends, and 4) the unique ecological and biogeochemical characteristics of the lake. DWQ relied on primary and secondary literature to assess support of the GSL's uses. As discussed in previous responses, some of these studies report inconsistent data and all of these studies are difficult to interpret in the context of GSL's expected conditions. All of these things contribute to DWQ's inability to make a defensible assessment of full support or non-support of the lake's designated uses, which is precisely the rationale for listing the lake as Category 3.

To make support decisions for GSL, DWQ is collecting the data and information necessary to more clearly define the existing uses for each of the GSL segments. More clearly articulating these existing uses will help define the minimum conditions that must be protected, which in turn can be used to develop numeric criteria and rigorous assessment methods. In the interim, DWQ has worked with EPA to develop framework that uses multiple lines of evidence to assess the condition of the lake's uses (see 2008 IR appendix). The focus over the last couple of years, in response to stakeholder input, has been populating the mercury framework. Next, DWQ intends to compile existing data and develop a long-term monitoring strategy to fill data gaps. Much work remains in developing long-term water quality programs for GSL and the development of these programs will involve considerable technical challenges. As progress over the past several years demonstrates, DWQ remains committed to the further development of programs that will ensure the long-term protection of GSL's designated uses.

15. Category 4C

We are submitting more specific comments on category 4C because there is a real need to better utilize this category and to tie the category to policies and programs which address the problems of habitat and flow impairment.

Waters listed in category 5 – traditionally known as the 303(d) list – receive special attention for restoration, as they should. For example, category 5 waters receive a higher priority for funding and other resources in programs such as the 319 program. However, the practice of relegating waters not meeting their beneficial uses due to habitat or flow alteration to category 4C has meant these equally impaired systems do not receive this attention and hence languish in impairment.

We request that the agency invest in developing a more thorough list of waters impaired by habitat and flow alterations, and begin to direct policies and programs to restore the beneficial uses of those waters. For purposes of these comments, we will focus on the first part of that request – developing a better list of 4C waters.

However, the reason we are concerned with improving category 4C is tied to the second part of that request – the need to better implement restoration efforts. In brief, we suggest a stronger category 4C list should be tied to policy changes such as prioritizing 4C waters for DWQ funding programs and sister agency funding programs, 401 water quality certifications placed on individual and general 404 wetland and stream alteration permits (for example, requiring individual certification of stream alteration permits in habitat impaired river segments), and more.

We look forward to discussing these implementation ideas with agency staff, but for these comments will focus on the need to better develop category 4C.

DWQ Response:

DWQ appreciates these excellent suggestions and agrees that further refining assessment methods to address habitat and flow alterations could potentially improve water quality. To some degree, Utah's biological assessment program addresses some of these concerns by identifying sites with habitat and flow degradation because biota respond to both habitat degradation and flow modifications. However, further development of a habitat assessment tool will be essential as TMDLs—or alternative remediation plans—are developed to address biological degradation.

DWQ has always collected habitat data as part of its UCASE program, which continues to expand. Yet significant work remains before these data can be effectively used to inform water quality programs. In particular, models are needed to reduce natural variation and to summarize expected—non-degraded—habitat conditions.

DWQ intends to further develop 4C assessment methods. As with all program development the rate in which this program develops involves balancing limited resources among numerous programs. The rate in which these programs develop would certainly be bolstered with the support of stakeholders such as FRIENDS and DWQ looks forward to discussions that help move this program forward.

16. Placement in Category 4C

According to discussions and email correspondence with State agency staff, there is no clear procedure for placing waters in category 4C. Staff state in part: "Our listings in this category were based on outside reports, usually reports from CUP or other water development agencies that e.g., conclude habitat is or will be severely limited."[10] This is an appropriate approach, but far too limited in its application.

We request that the agency expand its efforts to gather relevant information on 4C waters and develop a simple process for placing waters in 4C. For example, on page 2.23 a chart summarizing the causes of non-support in streams lists only 100 miles of stream as impaired by flow alterations, with only three of those miles due to low flow alterations. Similarly, a chart on page 2.27 lists hydromodification as the source of non-support in only three stream miles. This data is clearly not capturing even a fraction of the true flow impairments in Utah.

At the very least, we ask that the agency use the habitat assessment data you collect through your own bioassessement process to populate category 4C with segments in poor condition. An additional approach to better documenting 4C waters would be to

[10] Chris Bittner, Utah Division of Water Quality, 1/25/2011 email.

partner with the Utah Division of Wildlife Resources regional offices to document their data in a way that can be brought into the 4C category. Preliminary discussions with State office staff suggest this information is readily available – although not in a form applicable to category 5 listings, it could be documented in a manner appropriate for 4C categorization.

Which directs us to the need to describe the process for deciding whether a water should be listed in the 4C category. For several reasons, category 4C listings should not require the same rigor and intense structure as category 5. Category 4C listings do not have the regulatory ramifications of category 5 – they do not trigger development of a Total Maximum Daily Load (with the associated costs and agency time), nor do they have direct regulatory impacts on UPDES permitting. In addition, much of the data needed to demonstrate a habitat or flow impairment is quite different and more qualitative than that used to document a chemical or biological impairment.

However, there is a need for some information on how the agencies such as the Division of Wildlife Resources, the public and others can submit information in support of a 4C categorization. We request the agency establish a short description of the types of information appropriate for 4C categorization, and actively recruit that information for future listing cycles.

DWQ Response:

Category 4C is by definition outside the TMDL program and poorly defined in USEPA guidance. DWQ will consider the changes suggested by this comment as resources become available. As noted in the comment, Category 4C does not have the same regulatory ramifications as listings based upon pollutants exceeding numeric criteria. Currently, other changes to the assessment methodology have higher priority because they directly affect permitting and the TMDL program. FRIENDS may submit specific language or analytical methods for DWQ's review and possible incorporation into the assessment methods.

17. Discrepancies within the 2010 report for 4C

As discussed with agency staff, there are some discrepancies within the draft 2010 report for category 4C. The chart on page 2.21 identifies only four 4C segments, for a total of 128 river miles. However, if the reader moves through each of the basin chapters one finds 22 stretches totaling nearly 600 miles (including 4 new stretches since the draft 2008 report). Discussions with staff indicate that the basin listings are the correct listings, and that the chart is the result of a sorting bug within the database which only shows the 4 segments which are ONLY 4C and not also category 5.

We request the final report correct the chart on page 2.21 and also provide a summary chart identifying all 4C segments in one place, for ease of tracking and use for policy matters.

DWQ Response:

As requested, a table was added (Table 3-7) to the Draft Final 2010 IR that lists the stream segments in Category 4C. We did not change the table on p. 2.21 of the October 2010 draft because this output is from USEPA's Assessment Database (ADB) that was specifically developed to standardize the IRs.

18. Delisting of Parleys Creek between 2006 and 2010

We cross referenced the 2006 4C category listings with the 2010 4C category listings. The only stretch which was delisted was Parleys Creek. No explanation is provided, and given the unchanged nature of use and habitat restoration needs in the stretch, we believe this stretch may have been mistakenly omitted from the 4C category in the draft 2008 and 2010 reports. We request the agency return the segment to 4C, or provide an explanation for why it was removed.

DWQ Response:

Parley Canyon Creek-1 was inadvertently not listed in Category 4C and was corrected. Parley Canyon Creek-1 should remain in Category 4C because a portion of the creek remains piped.

19. Delistings between 2006 and 2010

While no other river stretches appear to have been delisted between 2006 and 2010, certain pollution sources have been removed from the list for stretches still listed for a different pollution source. For example, the following segments were listed for just one problem on the draft 2008/2010 report, but were listed for two (missing problem noted here in parentheses) on the 2006 report:

- Beaver-2 (noxious aquatic plants)
- Diamond Fork-1 (other habitat alterations)
- Sixth Water Creek (other habitat alterations)
- Uinta River-3 (other habitat alterations)

We request that the agency provide information that these pollution issues were resolved in these segments or reinstate them in category 4C.

DWQ Response:

These segments were not delisted and with the exception of the noxious aquatic plant cause for Beaver River-3, the causes are unchanged. We suspect that noxious aquatic plants cause was dropped on the mistaken assumption that ADB does not include this cause. The appropriate (but not obvious) cause in ADB is native aquatic plants and this cause was added. The causes for the segments are as follows:

The Category 4C causes for Sixth Water Creek are other flow regime alterations and physical substrate habitat (p. 2.261 of the October 2010 draft 2010 IR).

The Category 4C causes for Diamond Fork-1 are flow regime alterations physical substrate habitat alterations (p. 2.259 of the October 2010 draft 2010 IR).

The Category 4C causes for Beaver River-2 are physical substrate habitat alterations (p. 2.552 of the October 2010 draft 2010 IR) and native aquatic plants was added/reinstated.

The Category 4C causes for Uinta River-3 are other flow regime alterations and physical substrate habitat alterations (p. 2.397 of the October 2010 draft 2010 IR).

20. Category 3B Delay in listing for lakes and reservoirs

The draft 2010 Integrated Report states:

Lakes and reservoirs that have been assessed as not supporting a beneficial use for one monitoring cycle are included in Category 3B. If a lake or reservoir is assessed as impaired for two consecutive monitoring cycles it is listed on the 303(d) list.

Discussions with State agency staff suggest the "monitoring cycle" referenced here is actually the two-year Integrated Report cycle. However, there is some uncertainty that this would not in practice mean the 5-year rotating basin monitoring cycle, as new monitoring data to document "two consecutive monitoring cycles" would likely not be available until monitoring teams are again rotated through a basin.

Regardless of the two or five year delay, this system is unacceptable. As a practical matter, the State is changing the water quality criteria for lakes and reservoirs illegally by requiring two consecutive findings of criterion violation in order to list. If the State wishes to apply this approach, they would need to change the water quality criteria.

This fact alone means waters in category 3B should be moved to Category 5. The addition of the two to five year delay in taking action (beyond monitoring), if that is the reality of implementation, only adds insult to injury.

Therefore, we request that the agency move waters in Category 3B into Category 5.

DWQ Response:

DWQ disagrees that Category 3B waters should be moved into Category 5. These waters are in Category 3 because while some data is available, the data is insufficient to make impairment decision in accordance with the assessment methods (Part 1 of the IRs). However, DWQ is in the process of revising the lakes assessment methodology. The primary impetus for the revisions is transitioning to the rotating basin approach and also integrating probabilistic-based sampling in addition to the census approach. Some of the current assessment methods may not be optimal under the new sampling approaches. The listing methodology for lakes is projected to be revised for use in the 2012 Integrated Report. Once the new methodology is finalized, DWQ can evaluate how best to integrate the new and old listing methodologies (e.g., 2010 listing decisions).

21. Comments to EPA

Based on the public notice it appears that DWQ intends to send its 303(d) proposal to EPA without first considering public comments on the agency's analysis. The primary benefit of such comments is that they can be used by DWQ to improve the analysis and the list. In this way, when the list/analysis is sent to EPA it will include responses to public input. To send the analysis without careful consideration of public comments will render the public process largely inconsequential or ceremonial in terms of aiding the agency in its analysis. Such an approach violates the Clean Water Act.

DWQ Response:

Public comments are reviewed, responses prepared, and the reports revised as necessary prior to submittal of the Integrated Reports to USEPA for approval. We apologize if we have inadvertently communicated otherwise in previous correspondence.

22. Request for Notice

Finally, we request that you notify us when DWQ has finalized the 305(b)/303(d) Integrated Reports of both 2008 and 2010, and advise us of our right to appeal under the Utah Administrative Procedures Act relative to that action.

DWQ Response:

DWQ will public notice the next drafts of the 2008 and 2010 Integrated Reports.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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JAN 14 2011

Ref: 8EPR-EP

Mark Stanger
Utah Division of Water Quality
P.O. Box 144870
Salt Lake City, UT 84114-4870

Re: Clean Water Act Section 303(d) Total Maximum Daily Load (TMDL) Waterbody List

Dear Mr. Stanger:

The U.S. Environmental Protection Agency Region 8 office appreciates the opportunity to comment on the recently released draft 2008 and 2010 Integrated Reports on the condition of Utah's waters including the draft Clean Water Act (CWA) Section 303(d) waterbody lists (Section 303(d) lists) and supporting documentation and information. Comments on the draft reports/lists are enclosed. Additional formatting, methodology and ADB comments will be sent informally via email. We hope many of the comments will assist Utah in the finalization of these reports for approval.

Congratulations are in order for the superlative efforts of staff and management of the Water Quality Management Section of the Division of Water Quality in overcoming major logistical issues to complete these draft reports (as well as major revisions to the associated database (ADB)) and release them for public comment. These products represent a tremendous amount of work.

We appreciate your work to produce Utah's Draft 2008 and 2010 Integrated Reports, including the draft Section 303(d) lists. If you have questions, the most knowledgeable EPA staff person is Kris Jensen and she may be reached at (303) 312-6237.

Sincerely,

Karen Hamilton
Chief, Water Quality Unit
Ecosystems Protection Program

Enclosure

Detailed Comments

1. *Biological Assessment Results, Chapter 2.15:* Utah's 2008 Integrated Report includes the results of the newly implemented biological assessment procedures, allowing the state to directly quantify support of beneficial uses for aquatic life. These results and UDWQ's process for interpreting biological data are presented in Chapter 2.15: *Biological Assessment Results.* Following this process, DWQ has added waterbodies to the State's 303(d) list if the benthic macroinvertebrate data indicated impairment and sufficient data existed. Once listed, UDWQ plans to conduct additional studies to identify the pollutant causing the biological impairment. EPA supports this approach and commends UDWQ for using biological data in the State's assessment process.

   Since biological data were not considered by UDWQ until the 2008/ 2010 IRs, we recognize there are situations where the biological data suggest that the waterbody is impaired but a TMDL has already been completed. In these situations, EPA recommends the following:

   - Utah will submit additional documentation to EPA that describes why UDWQ believes that the completed TMDL adequately addresses the benthic macroinvertebrate impairment. This documentation may include: an examination of the taxa list; information linking the biological data to the pollutant; description of the possible sources in the watershed; etc.. EPA will consider this information in our review of the final IR.

   - If the TMDL has been completed for more than 5 years, and current biological data indicate impairment, EPA recommends that UDWQ add these waters to the State's 303(d) list for biological impairment.

   In situations where the TMDL has not yet been started or completed, we recommend adding "Benthic Macroinvertebrate Assessments" as a cause of impairment for the waterbody. We would also encourage UDWQ to incorporate biological data as one of the TMDL targets.

1. Appendix A-1, *Draft Great Salt Lake Assessment for Mercury,* page 10: EPA notes the statement "multiply the dry weight measurement by (1- percent moisture/100) is incorrect. This statement should read "*divide* the dry weight measurement by (percent moisture/100)." Utah should verify the nature of this error; whether it is merely typographical, or if this is actually the approach that was used to convert the data from dry weight to wet weight. If it is the approach used, then the data analysis in this appendix is incorrect. As the raw data were not available with the appendix, EPA is unable to determine if this is the case.

Appendix A-2, *Draft Great Salt Lake Assessment for Mercury, Part 2- 2010 Ecological Risk Assessment Approach:* EPA considers this draft approach a great addition to the assessment and hopes to be closely involved in future developments with this approach. The most knowledgeable EPA staff person to participate is Sandra Spence and she may be reached at 303-312-6947.

2. Page 18: Exceptions Based Upon Unusual Hydrologic or Climatic Conditions

"Severe or extreme natural conditions, such as a drought, can be considered during the beneficial use assessment. During severe to extreme drought conditions, streams can have temperatures greater than the standard but are rare in occurrence if the normal hydrological regime occurs. In this case, DWQ reserves the right to identify these waters, but not list the AU on the 303(d) list. A rationale for not listing will be provided whenever this occurs. The AU will be assessed again when normal flow conditions return. For example, during the extreme drought in southern Utah, the Paria River was listed as not being assessed because the stream dried up during several months of the year and samples could not be collected." (Utah's 2010 Integrated Report, *Part 1: Methods for Assessing and Reporting the Condition of Lakes and Streams, p. 18/19.*)

EPA has several question/comments concerning the above paragraph. First, this section appears to be confusing two issues: drought and "natural conditions" as specifically used in Utah's water quality standards. The standards recognize that natural conditions may be taken into consideration when assessing attainment of *E.coli* criteria and when developing site-specific standards for temperature and TDS. EPA recommends this section be re-written with discerning attention to the meaning attributed to the term "natural conditions" in the standards (i.e., application to temperature, TDS and *E. coli* criteria). As currently written, the information on page 18 may be misleading. Is it implied that the State excluded parameters beyond temperature from their assessment?

Second, is it always reasonable to consider data collected under drought conditions as nonrepresentative? EPA will want to be assured in situations where exceedances occur under drought conditions and no site-specific standard is in place that the State evaluated other possible anthropogenic impacts to the waterbody (e.g., irrigation diversions).

We recommend that UT develop a protocol and/or water quality standards revisions that identify how climatic conditions should be taken into consideration for future assessments of temperature criteria. For example, Colorado's temperature standards provide excursions from criteria on extremely hot days and during extreme low flows[1].

(i) [1]Colorado Regulation 31, Table 1, Footnote 5.(c): Air temperature excursion: ambient water temperature may exceed the criteria in Table 1 or the applicable site-specific standard when the daily maximum air temperature exceeds the 90th percentile value of the monthly maximum air temperatures calculated using at least 10 years of air temperature data.

Additionally, Colorado's Listing Methodology discusses representative data. In 303(d) listing hearings, long-term hydrographs and sample date/time-specific flows have been used to demonstrate the lack of the representative nature of specific samples. Without justification, as the default, samples should be regarded as representative.

EPA urges caution before ignoring data that seem unexpected and hence not representative. Many climate scientists and modeling results predict additional variability in the central Rocky Mountains precipitation - approximately 30% (+ & -) on top of the already variable historic conditions. Some of this variability appears to be already occurring with data from the past decade showing statistically greater variability than historic records. So the new norm, may not resemble the old norm. If ecosystems experience greater variability in flows and weather conditions, assessment analyses may merit additional care prior to being declared nonrepresentative. What may have been nonrepresentative in the past may indicate the first signs of a wider range of conditions becoming the new norm.

(ii) Low-flow excursion: ambient water temperature may exceed the criteria in Table 1 or the applicable site-specific standard when the daily stream flow falls below the acute critical low flow or monthly average stream flow falls below the chronic critical low flow, calculated pursuant to Regulation 31.9(1)

(iii) Air temperature excursion: ambient water temperature may exceed the criteria in Table 1 or the applicable site-specific standard when the daily maximum air temperature exceeds the 90th percentile value of the monthly maximum air temperatures calculated using at least 10 years of air temperature data.

(iv) Low-flow excursion: ambient water temperature may exceed the criteria in Table 1 or the applicable site-specific standard when the daily stream flow falls below the acute critical low flow or monthly average stream flow falls below the chronic critical low flow, calculated pursuant to Regulation 31.9(1)

January 31, 2011

Walt Baker

Director, Division of Water Quality

P.O. Box 144870

Salt Lake City, Utah 84114-4870

Via Email

Re: Comments on the 2010 305(b) and 303(d) State Water Quality Assessment Integrated Report.

Dear Walt:

Thank you for the opportunity to comment on the Division of Water Quality (DWQ) 2010 305(b) and 303(d) State Water Quality Assessment Integrated Report (Report). I submit these comments on behalf of FRIENDS of Great Salt Lake, Utah Chapter of the Sierra Club, Utah Rivers Council, Utah Waterfowl Association, South Shores Wetland & Wildlife Management, League of Women Voters of Utah and League of Women Voters of Salt Lake, Western Wildlife Conservancy and Great Salt Lake Yacht Club (collectively FRIENDS). We hope that DWQ will thoroughly consider these comments as it assesses Utah streams and lakes to determine if these waters are supporting their beneficial uses and as it considers making changes to its assessment protocols. These comments focus on aspects of the report that implicate Great Salt Lake, but also address issues that impact designation and protection of all Utah's waters .

Initially, FRIENDS hereby incorporates by reference its comments on the 2008 305(b) and 303(d) State Water Quality Assessment Integrated Report, submitted June 9, 2008. Exhibit A, attached. We greatly appreciate the amount of work undertaken by your agency to address many of the concerns we raised in our 2008 comments. These efforts demonstrate your commitment to protecting and maintaining the quality of Utah's waters and, in particular, Great Salt Lake. However, as much of that work is still in progress or otherwise inconclusive at this point, we reiterate those comments by incorporating them here.

Introduction

We have chosen to restate the local, national and international value of Great Salt Lake, its islands, and its wetlands. This value cannot be overstated and deserves repeating. Overall, 257 avian species use the Great Salt Lake ecosystem. Of these, 112 species are exclusively

associated with the lake's varied wetland areas, while 117 species reportedly nest on the lake's periphery or on its islands. At least 33 species of shorebirds representing 2-5 million individuals use Great Salt Lake annually. In addition, up to 5 million waterfowl migrate through the Lake each year, stopping along routes that take them elsewhere in North America or to Central and South America. Approximately 30 percent of the waterfowl migrating along the Pacific Flyway depend upon the Great Salt Lake wetlands. For these migrants, the Lake provides a critical food supply, allowing them fuel up for the rest of their migrations, sometimes doubling their body weight before they leave. In recognition of its role in these international flights, Great Salt Lake is designated as one of only 19 sites in the Western Hemisphere Shorebird Reserve Network.

The importance of Great Salt Lake to the birds of the Americas is borne out by the sheer numbers that depend on its resources, including:

- 80 percent of the world's population of Wilson's phalaropes,
- The largest staging concentration of eared grebes in North America,
- The world's largest breeding population of white-faced ibis and California gulls,
- Over half of the entire breeding population of snowy plovers west of the Rocky Mountains,
- More than three quarters of the entire western population of tundra swan,
- One of the three largest breeding colony of American white pelicans, and
- One of the ten largest wintering populations of bald eagle in the lower 48 states.

The Lake boasts several protected areas including the Bear River Migratory Bird Refuge, Farmington Bay Waterfowl Management Area, Nature Conservancy Great Salt Lake Shorelands Preserve, Audubon Gilmore Sanctuary and Lee Creek Natural Area. Not surprisingly, hundreds of thousands of bird watchers comb the shores of Great Salt Lake to be rewarded by incredible views of feeding, flying and nesting birds that journey thousands of miles to gorge on the bounty of our nation's largest inland "sea." The Lake also attracts recreationists enjoying other water-based activities such as swimming, sailing, rowing, floating, wading and kayaking. Others hike, ride horseback and mountain bike to enjoy scenery, solitude and wildlife. Great Salt Lake also supports a robust community of waterfowl enthusiasts who not only enjoy hunting but are working to preserve and protect Utah's waterfowl, its unique and rich habitat and its rich heritage.

Farmington Bay, in particular, has enormous biological and recreational value. Surveys reveal that Farmington Bay provides habitat for more than 1% of the estimated North American population for 12 avian species. Counts found 81,000 American avocets, comprising 18.2% of that population, more than 47,000 black-necked stilts (31.4% of the population), over 108,000 Wilson's phalaropes (7.2%), 19,000 California gulls (3.2%); more than 8,000 cinnamon teal (3.5%); and over 7,000 white-faced ibis (4.9%).

The open water of Farmington Bay also has extensive use as documented by the Great Salt Lake waterbird surveys. For example, species counts on the open water of Farmington Bay during the waterbird surveys from 1998-2001 found 30,230 Franklin gulls, 2,178 northern pintail, 51, 606 American avocet, 4,023 black-necked stilt, 37,620 California gulls, 10,481 Wilson's phalarope and 16,476 eared grebe. Single day counts from Farmington Bay in 2005

found numbers of American avocet greater than 65,000, phalaropes (Wilson's and Red necked) greater than 670,000, western sandpiper greater than 41,000, and waterfowl greater than 34,000.

Recognizing the importance of Great Salt Lake, not only to Utah, but to the Nation and the World, DWQ has designated the beneficial uses of each bay. Utah Admin. Code r. 317-2-6.5. Gilbert Bay is designated for "frequent primary and secondary contact recreation, waterfowl, shorebirds, and other water-oriented wildlife including their necessary food chain." Utah Admin Code r. 317-2-6.5(a). The three other bays: Gunnison, Bear River, and Farmington are "protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water oriented wildlife including their necessary food chain. Utah Admin. Code r. 317-2-6.5(b)-(d). Finally, DWQ has designated all Great Salt Lake's transitional shoreline waters as "protected for infrequent primary and secondary contact recreation, waterfowl, shorebirds and other water oriented wildlife including their necessary food chain." Utah Admin. Code r. 317-2-6.5(e). The Farmington Bay Waterfowl Management Area has among its beneficial uses the protection "of waterfowl, shore birds and other water- oriented wildlife . . . including the necessary aquatic organisms in their food chain," Utah Admin. Code r. 317-2-6.3(d) (use designations)

As DWQ has acknowledged in these designations, clean water is critical to maintaining the health of the Great Salt Lake ecosystem and protecting recreation there. Water of high quality is necessary to keep the Lake's wetlands functioning and the processes working to ensure an ample safe food supply for the millions of birds that depend upon it. Clean water is also necessary to protect recreation in and around Great Salt Lake – whether it involves swimming, bird watching, ducking hunting, wading or sailing.

Legal Background

Here, we also reiterate the legal background for our comments, adding citations to additional legal provisions and providing additional analysis. As declared by Congress, the goal of the Clean Water Act is "to restore and maintain the chemical, physical, **and** biological integrity of the Nation's waters." 33 U.S.C. § 1251(a) (emphasis added). This means that the Act protects **each** of the three elements – chemical, physical and biological health – and that a failure to meet any of these standards is a violation of the Act. To this end, Congress proclaimed as a national goal that the "discharge of pollutants into navigable waters be eliminated by 1985." 33 U.S.C. § 1251(a)(1). The Clean Water Act utilizes a two-pronged approach to prevent pollution and restore the Nation's waters. Point source discharges of pollutants – "end of pipe" conveyances from factories, sewage treatment plants, industrial wastes and the like – are regulated through the National Pollution Discharge Elimination System (NPDES) permit program detailed in Section 402. *See* 33 U.S.C. § 1342. Through the NPDES program, the U.S. Environmental Protection Agency (EPA) ensures that polluters institute technology-based and water quality-based controls at each point source, monitor effluent levels and adhere to quantified pollution levels in their discharges as set by permit.

The second prong of the Clean Water Act's pollution control strategy is embodied in Section 303, which requires the establishment and implementation of ambient water quality standards to assess and control pollution from all sources, including point sources and the pervasive problem of non-point source pollution, such as wastes from agricultural and

unpermitted sources of urban run-off, in addition to end-of-pipe pollution regulated under the NPDES program. Water quality standards must include several key components. Each state must first designate uses (fishing, swimming, drinking, etc.) for each water body, and then develop ambient water quality criteria to protect and restore those uses, plus an antidegradation policy to ensure protection of all existing and designated uses, and to maintain existing high levels of water quality. Water quality standards must be set at a level to protect designated uses from all sources of pollution, point and non-point sources. 33 U.S.C. § 1313 (a)-(c); 40 C.F.R. § 130.3.

Based on federal law, a state must establish "[w]ater quality criteria sufficient to protect the designated uses." 40 C.F.R. § 131.6(c). Under these provisions, even without a showing of a violation of numeric standards, a waterbody must be listed on the 303(d) list if it is not meeting its beneficial uses. 33 U.S.C § 1313(d)(1)(A) ("Each state shall identify those waters within its boundaries for which effluent limitations . . . are not stringent enough to implement *any water quality standard* applicable to such waters") (emphasis added)). DWQ must protect all existing and designated uses for each water body, and the water quality established for the water body must be sufficient to protect each of the water's existing and designated uses. 40 CFR 131.12 (commonly known and the "anti-degradation" rule). Moreover, as a general matter, where the quality of the waters exceeds levels necessary to protect beneficial uses, "that quality shall be maintained and protected[.]"

In addition, subpart (d) of § 303 obligates states to identify waters that are impaired (*e.g.* that do not meet water quality standards) after point source controls are imposed. 33 U.S.C. § 1313 (d)(1)(A). The state must then prioritize each of these water quality limited segments (WQLS), according to the "severity of the pollution and uses to be made of such waters." *Id.* States must then develop, in accordance with the priority ranking of the WQLSs, a total maximum daily load (TMDL) as suitable for such calculation "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." 33 U.S.C. § 1313(d)(1)(C). A TMDL includes best estimates of pollution from non-point sources and natural background sources, pollution from point sources, and a margin of safety to account for future sources of pollution. 40 C.F.R. § 130.2(i). In other words, TMDLs establish the maximum amount of pollutants a water body can receive on a daily basis without violating the state's water quality standards.

In turn, water quality standards "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use" of a particularly water body. 40 C.F.R. § 131.11(a)(1). Water quality standards are typically expressed as numeric limitations, 40 C.F.R. § 131.11(b) ("In establishing criteria, States should: (1) Establish numeric values, which can be supplemented by "narrative standards." 40 C.F.R. § 131.11(b)(2). Indeed, relying solely on narrative criteria to protect designated uses is appropriate only "where numerical criteria **cannot** be established. . . ." 40 C.F.R. § 131.11(b)(2) (emphasis added). Moreover, where the State relies on narrative criteria for toxic pollutants, such as mercury, to protect beneficial uses, the State must "identify[] the method by which the State intends to regulate point source discharges of toxic pollutants. . . ." 40 C.F.R. § 131.11(a)(2).

To protect the State's most important water-based ecosystem, the State of Utah relies almost entirely on a narrative standard that applies to all waters of Utah, and in all cases but the Great Salt Lake, serves to supplement numeric criteria. That narrative standard states:

> It shall be unlawful, and a violation of these regulations, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures.

Utah Admin. Code r. 317-2-7.2. The Farmington Bay Waterfowl Management Area , which has among its beneficial uses the protection "of waterfowl, shore birds and other water- oriented wildlife . . . including the necessary aquatic organisms in their food chain," is protected by the applicable numeric standards. Utah Admin. Code r. 317-2-6.3(d) (use designations); Utah Admin. Code r. 317-2-13.11 (designating Farmington Bay Waterfowl Management Area); see also r. 317-2-13 (numeric standards for 3D).

All Segments of Great Salt Lake are Impaired

States are required to identify either entire water bodies or discrete water body segments as impaired based on evidence of water quality impairment or impairment of existing or designated uses. An existing use is any use "actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 CFR § 131.3(e). Designated uses "are those uses specified in water quality standards for each water body or segment whether or not they are being attained." 40 CFR §131.3(f). As shown in more detail below, there is clear evidence that several discrete segments of Great Salt Lake, if not the Lake as whole, are impaired and require listing as such.

Lack of Numeric Water Quality Standards Cannot Justify the Refusal to List Great Salt Lake as Impaired.

Although there is only one proposed numeric water quality criterion for Great Salt Lake at this time, the Lake is protected by a narrative standard. If that narrative standard is not being met, DWQ must list those segments of the Lake, or the Lake as a whole, as impaired under 303(d). If DWQ does not list Great Salt Lake as impaired where the narrative water quality

standard is being violated, then the narrative standard is ineffective. If the narrative standard is ineffective, the Lake will have no water quality protection and DWQ will be violating its duties under the Clean Water Act of restoring and maintaining the "the chemical, physical, and biological integrity of the Nation's waters." 33 USC § 1251(a). Moreover, because water quality standards consist of both designated uses and water quality criteria to protect those uses, the state must list water bodies as impaired whenever there is evidence of impairment of existing and designated uses.

Although full compliance with section 303 of the Clean Water Act requires development and adoption of a full suite of numeric water quality criteria for Great Salt Lake, it can be appropriate for DWQ to rely on the narrative standard as a benchmark for use attainment until numeric standards can be established. For non-toxic pollutants, narrative criteria based on biomonitoring methods are appropriate to supplement numeric criteria, or in the interim until numeric criteria can be established. 40 C.F.R. § 131.11(b)(2). After numeric standards are adopted for the Lake, narrative criteria should still play a role under the Act, as EPA has determined that narrative criteria are necessary to comply with section 303(c)(2)(A) of the Act, which requires standards to protect public health or welfare, enhance the quality of water, and further serve the purposes of the Act. EPA, *Water Quality Standards Handbook* 6-3 (2d ed. 1993) at 3-24. The use of the narrative standard requires DWQ to develop a methodology or criteria for implementing those standards so that it can be objectively determined whether those standards have been violated. For narrative standards applied to toxic pollutants, the State must ensure that the standard is sufficient to protect beneficial uses. EPA rules also require that where a state adopts narrative toxicity criteria to protect designated uses, the State must also identify procedures for implementing those criteria. 40 C.F.R. § 131.11(a)(2). The State must explain how it will develop specific limits on point source discharges to ensure that the narrative standard is met. *Handbook* at 3-24 to 3-26.

As stated above, missing from DWQ's narrative standards are any clear procedures for implementing the standards so that it can be objectively determined whether the standards is being met or violated. How specific discharges will be limited/regulated so as to comply with these standards has similarly never been clearly established. DWQ cannot simply rely on vague narrative standards when there is no way to measure whether beneficial uses are being met. The agency is properly acting now to develop numeric standards, however in the interim, the agency cannot use the lack of numeric standards to justify not listing Great Salt Lake as impaired if its narrative standard is not being adequately met. By the same token, DWQ may not point to the lack of methodology associated with a narrative standard to prevent the listing the Great Salt Lake as impaired. The methodology for the narrative criteria is necessary for DWQ to adequately assess the impacts of individual proposed discharges into Great Salt Lake during

permit proceedings until numeric criteria are established, but an impairment listing will still be appropriate whenever there is credible evidence that the water body is impaired.

To make conclusions regarding impairment of Great Salt Lake beneficial uses, DWQ relies on the weight of evidence approach where the agency identifies critical direct and indirect indicators needed to attain beneficial uses. DWQ identifies thresholds for these indicators and uses a preponderance of the evidence test to make a conclusion. Under the weight of evidence approach, there is no need to offer definitive proof. Rather, the data and information needs only to show that the beneficial use at issue is **at risk.** As a result, where a use is at risk, DWQ should not require more than evidence of impairment before taking appropriate remedial action. *See,* 2006 Integrated Report Guidance, Section V: Five-Part Categorization of Waters, at 47.[11]

In sum, based on one or more methods that DWQ presents in the Report and based on the agency's own data as well as data from other credible sources, Great Salt Lake is impaired. As a result, the agency must immediately take action to improve water quality in the Lake. Moreover, DWQ must ensure that any decision tree it proposes relative to Great Salt Lake adequately protects this important ecosystem, errs on the side of immediate action at the sign of any risk to impairment, is enforceable, and does not delay action when direct and indirect indicators suggest non-impairment.

Data & Information Show Great Salt Lake is not Meeting its Narrative Standard.

Based on any interpretation or analysis of the narrative standard, the excessive quantities of algae, nutrients, and other contaminants in the open waters of Farmington Bay and other open waters indicate that the beneficial uses of Great Salt Lake, including the primary contact use, are not being protected. Algae blooms, hypoxic conditions, and excess quantities of criteria pollutants mean that the public cannot and should not use portions of the Lake for primary contact recreation. The narrative standard, on its face, prohibits Lake conditions that would cause undesirable aquatic life to proliferate. Such conditions have continued to exist for considerable time. The algae problem, particularly in Farmington Bay, has caused eutrophic and

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[1]*water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-sec5.pdf.*

hypoxic conditions that allow algae to flourish and deplete the Bay of oxygen, therefore preventing beneficial uses from being met.

DWQ's assertion that Great Salt Lake is within category 5C (insufficient data to assess) is not supportable based on the fact that DWQ currently possesses sufficient data to require that Great Salt Lake be listed as impaired. Even based on a weight of evidence approach, which is insufficiently protective, existing objective information indicates that water quality is well-below acceptable standards as established in the narrative standard. *Specific segments of the Lake are clearly impaired, as shown below:*

Existing Data on Mercury Proves that Narrative Standards have been Violated and Uses are Impaired due to the Known Adverse Human Health Impacts.

FRIENDS would first like to acknowledge and thank DWQ for its focus on mercury in Great Salt Lake. Plainly, the relevant appendices to the Report represent significant and quality work undertaken to determine the impact of mercury on the Great Salt Lake ecosystem. We also appreciate that DWQ recognizes mercury contamination as a serious issue. Further, FRIENDS is pleased to see that DWQ is working to develop numeric water quality standards for mercury, which along with development of other water quality criteria for all other pollutants present in the lake, are essential for compliance with the State's obligations under section 303(c) of the CWA. In the interim, FRIENDS hopes DWQ continues to make strides to develop a specific narrative standards for all segments of Great Salt Lake, which meet the requirements of 40 C.F.R. 131.11(a)(2).

Under the current narrative standard, a waterbody is impaired when it is contaminated to such an extent that poor water quality leads to undesirable physiological responses in desirable resident fish or other desirable aquatic life, or undesirable human health effects. Existing data on mercury shows that mercury levels within Great Salt Lake exceed safe levels by a significant margin. Great Salt Lake in particular is known as a local hot spot for excessive quantities of toxic mercury.

In light of these troubling realities, as well as the strong and repeated evidence that mercury poses a risk to Great Salt Lake birds, we urge DWQ to list Great Salt Lake as impaired. While we appreciate that DWQ believes that certain scientific questions are left unanswered, the

existing evidence requires a finding of impairment. The levels of toxic mercury in the Lake, combined with DWQ's recent findings, as well as repeated studies by its sister agencies favors a finding of impairment. All of this evidence points to the same conclusion. At the same time, the importance of the ecosystem values put at risk by mercury, and an appropriate approach that errs on the side of protection of human health and the environment, requires that the Lake be declared as impaired.

Waters Impaired due to Atmospheric Mercury Contamination Are Impaired.

EPA guidance requires water bodies impaired by mercury to be listed as a category five water (impaired under 303(d)). This guidance also allows those bodies to be listed as 5m waters where other pollution controls may be established in addition to TMDLs in order to reduce the amount of atmospheric mercury contamination. This is because EPA's position is that a TMDL cannot directly address atmospheric mercury. *Listing Waters Impaired by Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs,* EPA Guidance Document, issued 2007.[12] However, states cannot use the complexity of crafting TMDLs to address atmospheric sources of mercury as a reason not to list a water as impaired or not to establish a mercury-reduction program for the impaired water body. *Id.* at 1-4; 9. Although the 5m category is voluntary, the listing of waters as impaired by atmospheric mercury is mandatory. *Id.* Also, EPA recommends that states have an existing comprehensive mercury management program before taking advantage of the 5m listing. *Id.* at 4.

The Great Salt Lake Duck Consumption Advisory is Equivalent to a Fish/Shellfish Advisory and Provides Evidence that the "Fishable" Designation of Great Salt Lake is Impaired.

EPA believes that fish and shellfish consumption advisories "based on waterbody specific information demonstrate impairment of CWA section 101(a) 'fishable' uses." *EPA Guidance Document: Use of Fish & Shellfish Advisories and Classifications in 303(d) & 305(b)*

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[2] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2007_03_08_tmdl_mercury5m_Mercury5m.pdf.*

Listing Decisions at 1.[13] Therefore, these sorts of advisories are proof that a waterbody is impaired for at least one of its designated uses.

Great Salt Lake's duck consumption advisory is equivalent to a fish or shellfish consumption advisory. While Great Salt Lake does not have game fish, it does have waterfowl that are hunted for sport. These birds are water-oriented species of wildlife. The basic concept of 'fishable' is that the animals reliant on a waterbody's ecosystem are safe for human consumption. Consuming waterfowl from Great Salt Lake is clearly an existing use as defined by EPA regulations, and a consumption advisory is a per se example of use impairment. Great Salt Lake ducks are not safe for human consumption because of the levels of mercury they contain, and therefore a Clean Water Act fundamental use designation, "fishable," is impaired by mercury.[14] For this reason any segments of the Lake that have active duck-consumption advisories in place must be listed as impaired due to mercury contamination. The agency may decide whether to take advantage of the voluntary 5m classification explained above, but must list mercury-impaired segments of Great Salt Lake as impaired.

Hydromodification of the Great Salt Lake Constitutes a Use Impairment.

EPA guidance states that hydromodified waters are likely impaired due to their hydromodification. *National Measures to Control Non-Point Source Pollution from Hydromodification,* US EPA Office of Water (2007).[15] A water body is hydromodified any time the "hydrologic characteristics" of the waterbody are altered. *Id.* at 1-1. When hydromodification segments a waterbody or isolates certain sections of a cohesive water body, that water body is likely to be impaired by non-point source pollution. *Id.* EPA suggests that states identify all hydromodified waters and take measures to prevent non-point source pollution and mitigate the effects of the hydromodification on the waterbody. *Id.* at 1-2, *et seq.* Any time hydromodification impairs any of the waterbody's designated uses, the water is impaired by that hydromodification. *Id.* at 1-2. EPA lists the most common causes of beneficial use impairment that occur due to hydromodification as "nutrients, sediment, pathogens (bacteria), metals, pesticides, oxygen-depleting materials, and habitat alterations." *Id.* at 1-2; *see also generally, id.* at Chapter 6.

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[3]*http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/mercury/upload/2000_10_24_standards_library_shellfish.pdf.*
[4]*www.waterfouladvisories.utah.gov.*
[5]*http://www.epa.gov/owow/NPS/hydromod/pdf/Hydromod_all_web.pdf*

As demonstrated elsewhere in these comments, sections of Great Salt Lake are impaired. Further, most of the impaired sections have been hydromodified, either by the railroad causeway, the Antelope Island causeway, or the extensive diking of the lake for mineral extraction evaporation reservoirs and other purposes by Great Salt Lake Minerals, U.S. Magnesium, Morton Salt and other entities. DWQ must take all appropriate action to alleviate the effects of hydromodification on Great Salt Lake and its various bays so that the hydromodification does not further impair the bays' designated uses.

Aquatic Ecosystem Impairment in Gunnison Bay is a Per Se Use Impairment.

Gunnison Bay's aquatic ecosystem is impaired because it is not meeting its beneficial uses. Before the railroad causeway was construed, the Gunnison Bay aquatic ecosystem supported brine flies and brine shrimp as well as five different types of blue and blue-green algae. The commercial harvesting of adults and eggs of brine shrimp was carried out to provide food for topical fish. *Changes in lake levels, salinity and the biological community of the Great Salt Lake (Utah, USA), 1847-1987*, Stephen (1990) at 143-144. After the completion of the railroad causeway in 1959, Gunnison Bay salinity concentrations have rose to and stayed at elevated levels, altering the type of organisms which can survive the new ecosystem. The brine shrimp industry moved to the southern portion of Great Salt Lake because it was no longer economically feasible to continue operations in Gunnison Bay. *Id* at 145. Currently the salinity level found in Gunnison Bay is 28%. *Great Salt Lake,* United States Geological Survey (2007).[16]

The high salt concentration found in Gunnison Bay has decreased the ability of the water to absorb oxygen. Stephen (1990) at 144. At current salinity levels, the only organisms found in Gunnison Bay are brine flies (found along the shoreline), small pockets of brine shrimp (found along the breach in the causeway and culverts), and photosynthetic sulfur bacteria. Also, red algae can be found in the waters north of the causeway. The sulfur bacteria accounts for 180,000

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[6] *pubs.usgs.gov/wri/wri994189/PDF/WRI99-4189.pdf.*

tons to 2 million tons of the biomass found in Gunnison Bay. It is this bacterium which lends the distinct reddish-purple tint for which Gunnison Bay is known.[17]

Under the Great Salt Lake beneficial use classification, Gunnison Bay's beneficial uses are to (1) protect for infrequent primary and secondary contact recreation and (2) protect waterfowl, shore birds and other water-oriented wildlife including their necessary food chain. Each of these protected beneficial uses is discussed briefly below. These designations are appropriate given that the Clean Water Act defines "e*xisting uses"* are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 CFR 131.3(e).[18] Plainly, in the early 1980s and after, Gunnison Bay did meet its designated uses, providing important and widespread habitat for brine shrimp, brine flies and waterbirds including erred grebes and being "swimmable."

The first beneficial use of Gunnison Bay for primary and secondary contact recreation is impaired. This is due to three different factors. First, because of the high salinity level found in Gunnison Bay recreational enthusiast do not want immerse themselves in the water. More so than other segments of the Lake, the high salinity level burns their eyes, ears, and any other sensitive areas of the body. Second, the presence of high levels of sulfur bacteria and red algae makes the water in Gunnison Bay appear reddish-purple, and makes the waters appear dirty, polluted and unfit recreational use. Finally, the sulfur bacteria, as mentioned above, make up the majority of the biomass found in Gunnison Bay. This bacterium emits a rotten egg like smell. This bacterium contributes to the perception that the Gunnison Bay is polluted and not safe to use for recreation. Therefore, because these factors deter people from using Gunnison Bay for primary and second recreation, Gunnison Bay is impaired.

The second beneficial use of Gunnison Bay, the protection of avian species, water-oriented wildlife and their food chain, is also impaired. This arises from the fact that organisms found in the South Arm cannot survive in the high salinity level found in Gunnison Bay. The high salinity level makes it very difficult for brine shrimp, blue and blue-green algae, and plankton to reproduce and grow in its waters. Many avian species and wildlife rely on these organisms as a food source. The brine flies found in and around Gunnison Bay primarily migrate from the south part of Great Salt Lake. Thus, Gunnison Bay is use-impaired because it cannot support the organisms that the avian and wildlife species rely on as a main food source.

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[7] *http://ut.water.usgs.gov/greatsaltlake/salinity/.*

[8] "States may remove a designated use which is not an existing use[.]" 40 C.F.R. 131.10(g)

Other Areas of the Great Salt Lake Are Impaired.

The areas of Great Salt Lake that have been diked and sequestered for mineral harvesting and other industrial purposes are also impaired. Currently, ten producing mineral leases, totaling 171,644 acres, operate within Great Salt Lake sovereign lands. For example, Great Salt Lake Mineral Company currently operates mining reservoirs that cover 43,000 acres (21,000 acres in Clyman Bay and 22,000 acres in Bear River Bay) in and along the shores of the Great Salt Lake. *See* Army Corps of Engineers Final Scoping Comment (2007) at 5. This company is currently seeking to expand its facility by 91,000 acres.

These portions of the Lake have been fundamentally altered in a manner that obliterates designated or existing uses. They support no desirable lifeform and are not swimmable. Because these significant portions of Great Salt Lake have been so hydrologically altered as to completely eliminate existing and designated uses, DWQ should undertake efforts to identify these segments of the Lake and list them as use-impaired. This is particularly true where the hydrological modifications have been made after 1975, such as in Clyman Bay.

The Wildlife and Recreation Uses of the Open Waters of Farmington Bay Are Impaired.

We reiterated that the open water of Farmington Bay is impaired because this waterbody does not adequately support waterbirds and aquatic organisms and is not swimmable. This is particularly true because these waters are plagued by eutrophic conditions. In response, DWQ noted that to list Farmington Bay as impaired would be premature, in part, because "[i]f nutrients are a threat, then reductions should not be implemented without understanding how N:P ratios influence cyanobacteria blooms, which represent a separate yet related threat to lake biota." DWQ's response does not properly distinguish between listing a water as impaired and then identifying and addressing the cause of that impairment. DWQ's reasons for not listing Farmington Bay as impaired are relevant to the later action – creating a TMDL for the Bay. However, the agency does not have to know the appropriate level of nutrients for Farmington Bay to know that the Bay is impaired because every summer the Bay is clogged with severe algae blooms and other highly undesirable growths. Therefore, DWQ is putting the cart before the horse in believing that it needs to know how to correct an impairment in order to list a particular water – Farmington Bay – as impaired.

The Wetlands of Farmington Bay.

FRIENDS appreciates DWQ's willingness to meet and discuss the impounded wetlands of Farmington Bay, and would like to thank DWQ for reaching a mutually agreeable compromise to find a more efficient and scientifically sound method for accessing impounded wetlands. However, FRIENDS would like to note that per our agreement, DWQ is behind schedule in formulating a new assessment method for those impounded wetlands, and for establishing involvement of stakeholder groups. FRIENDS is eagerly awaiting more information, but notes that the agreement was based on adherence to a timetable for finalizing and implementing these assessment tools.

If a Category 3 Listing is Appropriate for Great Salt Lake, DWQ Cannot Issue UPDES Permits for the Lake Until there is Sufficient Data to Make an Attainment Decision.

If there is truly not sufficient information to make a listing determination for one or more of the five segments comprising Great Salt Lake (a point which FRIENDS does not concede here), or Great Salt Lake as a whole, then the agency cannot continue to issue new UPDES permits for Great Salt Lake. The agency claims that it is fulfilling its obligations under the Clean Water Act. However, it is not possible to issue UPDES permits for discharges into Great Salt Lake under 33 USC § 1342 if DWQ does not have adequate data to determine when discharges may threaten Great Salt Lake's beneficial uses, or when a UPDES permit has the potential to cause impairment of the Lake. In the case that a category 3 listing is appropriate for one or more segments of Great Salt Lake, DWQ must not issue UPDES permits in those segments of the Lake until sufficient data exist to determine whether the Lake is impaired and whether a discharge will further impair the Lake or violate the water quality standards.

Numeric Water Quality Standards for the Great Salt Lake

FRIENDS appreciates DWQ's efforts to establish numeric water quality criteria for Great Salt Lake. FRIENDS agrees with DWQ that accurate, protective numeric water quality standards for the Great Salt Lake will help determine impairment, and protect the Lake's beneficial uses. FRIENDS also appreciates DWQ's efforts to establish numeric ambient water quality standards for Great Salt Lake in order to comply with 33 USC § 1313(a)-(c) & 40 CFR § 130.3. 33 USC §

1313(a)-(c) requires DWQ to promulgate numeric water quality criteria for Great Salt Lake. It is essential for DWQ to establish numeric criteria for the Great Salt Lake, criteria that are now more than 40 years overdue, in order to comply with section 303.

In the Report, DWQ states that "[t]o characterize the hydrology and geochemistry for each Bay (Classes 5A – 5E), post flood conditions (from 1995 onwards) will be used to develop numeric criteria and assessment methods for the GSL." Report at 2.699. This plan of action fails to meet the purposes of the Clean Water Act. Numeric criteria are necessarily designed to protect designated uses. Post flood conditions may not be representative of hydrology and geochemistry necessary to meet beneficial uses.

Reporting Requirements

FRIENDS agrees that segmenting Great Salt Lake is appropriate and in compliance with EPA guidance documents and recommendations. *See 2006 Integrated Report Guidance Appendix: Data Elements for 2006 Integrated Water Quality Monitoring and Assessment Report & Documentation for Defining and Linking Segments to the National Hydrography Dataset*.[19] However, segmenting the Lake does not obviate the need to list Great Salt Lake, or individual impaired segments, as not meeting beneficial uses under 303(d), category 5.

DWQ meets all the EPA information and reporting requirements to explain the decision to segment a water body. *Id.* at A-5, A-6. However, DWQ does not meet the reporting requirements explaining why DWQ determined that any given waterbody is supporting its designated uses, how and when DWQ came to its conclusion regarding each designated use and listing all pollutants and non-pollutants that might be the cause of use impairment in the waterbody segment. *Id.* at A-5, A-6. Specifically, for each segment, DWQ must: 1) list each designated use; and, 2) designate that use as either fully supported, not supported, insufficient data to support a determination (but explaining how DWQ will rectify this insufficiency) or not assessed (with the reason for the lack of assessment and remediation measures). *Id.* at A-5. Once DWQ reports the attainment decision, it must then explain how and when the assessment

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[9] *http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-appendix-2.pdf.*

took place, including data on the assessment date, type, confidence, all data used in the assessment, and the results of the assessment. *Id.* at A-5. Finally, DWQ must report a list of pollutants and non-pollutants that might be impairing one of more designated use, link the pollutant to the impairment, and report all the observed effects of pollution for each designated use segment (for instance: fish kill, change in algae color, absence of native aquatic life). *Id.* at A-5, A-6. DWQ fails to meet these reporting requirements for the five segments of the Great Salt Lake.

Category 4C

We are submitting more specific comments on category 4C because there is a real need to better utilize this category and to tie the category to policies and programs which address the problems of habitat and flow impairment.

Waters listed in category 5 – traditionally known as the 303(d) list – receive special attention for restoration, as they should. For example, category 5 waters receive a higher priority for funding and other resources in programs such as the 319 program. However, the practice of relegating waters not meeting their beneficial uses due to habitat or flow alteration to category 4C has meant these equally impaired systems do not receive this attention and hence languish in impairment.

We request that the agency invest in developing a more thorough list of waters impaired by habitat and flow alterations, and begin to direct policies and programs to restore the beneficial uses of those waters. For purposes of these comments, we will focus on the first part of that request – developing a better list of 4C waters.

However, the reason we are concerned with improving category 4C is tied to the second part of that request – the need to better implement restoration efforts. In brief, we suggest a stronger category 4C list should be tied to policy changes such as prioritizing 4C waters for DWQ funding programs and sister agency funding programs, 401 water quality certifications placed on individual and general 404 wetland and stream alteration permits (for example, requiring individual certification of stream alteration permits in habitat impaired river segments), and more.

We look forward to discussing these implementation ideas with agency staff, but for these comments will focus on the need to better develop category 4C.

Placement in Category 4C

According to discussions and email correspondence with State agency staff, there is no clear procedure for placing waters in category 4C. Staff state in part: "Our listings in this category were based on outside reports, usually reports from CUP or other water development agencies that e.g., conclude habitat is or will be severely limited."[20] This is an appropriate approach, but far too limited in its application.

We request that the agency expand its efforts to gather relevant information on 4C waters and develop a simple process for placing waters in 4C. For example, on page 2.23 a chart summarizing the causes of non-support in streams lists only 100 miles of stream as impaired by flow alterations, with only three of those miles due to low flow alterations. Similarly, a chart on page 2.27 lists hydromodification as the source of non-support in only three stream miles. This data is clearly not capturing even a fraction of the true flow impairments in Utah.

At the very least, we ask that the agency use the habitat assessment data you collect through your own bioassessement process to populate category 4C with segments in poor condition. An additional approach to better documenting 4C waters would be to partner with the Utah Division of Wildlife Resources regional offices to document their data in a way that can be brought into the 4C category. Preliminary discussions with State office staff suggest this information is readily available – although not in a form applicable to category 5 listings, it could be documented in a manner appropriate for 4C categorization.

Which directs us to the need to describe the process for deciding whether a water should be listed in the 4C category. For several reasons, category 4C listings should not require the same rigor and intense structure as category 5. Category 4C listings do not have the regulatory ramifications of category 5 – they do not trigger development of a Total Maximum Daily Load (with the associated costs and agency time), nor do they have direct regulatory impacts on

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[10] Chris Bittner, Utah Division of Water Quality, 1/25/2011 email.

UPDES permitting. In addition, much of the data needed to demonstrate a habitat or flow impairment is quite different and more qualitative than that used to document a chemical or biological impairment.

However, there is a need for some information on how the agencies such as the Division of Wildlife Resources, the public and others can submit information in support of a 4C categorization. We request the agency establish a short description of the types of information appropriate for 4C categorization, and actively recruit that information for future listing cycles.

Discrepancies within the 2010 report for 4C

As discussed with agency staff, there are some discrepancies within the draft 2010 report for category 4C. The chart on page 2.21 identifies only four 4C segments, for a total of 128 river miles. However, if the reader moves through each of the basin chapters one finds 22 stretches totaling nearly 600 miles (including 4 new stretches since the draft 2008 report). Discussions with staff indicate that the basin listings are the correct listings, and that the chart is the result of a sorting bug within the database which only shows the 4 segments which are ONLY 4C and not also category 5.

We request the final report correct the chart on page 2.21 and also provide a summary chart identifying all 4C segments in one place, for ease of tracking and use for policy matters.

Delisting of Parleys Creek between 2006 and 2010

We cross referenced the 2006 4C category listings with the 2010 4C category listings. The only stretch which was delisted was Parleys Creek. No explanation is provided, and given the unchanged nature of use and habitat restoration needs in the stretch, we believe this stretch may have been mistakenly omitted from the 4C category in the draft 2008 and 2010 reports. We request the agency return the segment to 4C, or provide an explanation for why it was removed.

Delistings between 2006 and 2010

While no other river stretches appear to have been delisted between 2006 and 2010, certain pollution sources have been removed from the list for stretches still listed for a different pollution source. For example, the following segments were listed for just one problem on the draft 2008/2010 report, but were listed for two (missing problem noted here in parentheses) on the 2006 report:

- Beaver-2 (noxious aquatic plants)
- Diamond Fork-1 (other habitat alterations)
- Sixth Water Creek (other habitat alterations)
- Uinta River-3 (other habitat alterations)

We request that the agency provide information that these pollution issues were resolved in these segments or reinstate them in category 4C.

Category 3B

Delay in listing for lakes and reservoirs

The draft 2010 Integrated Report states:

> Lakes and reservoirs that have been assessed as not supporting a beneficial use for one m onitoring cycle are included in Category 3B. If a lake or reservoir is assessed as impaired for two consecutive monitoring cycles it is listed on the 303(d) list.[21]

Discussions with State agency staff suggest the "monitoring cycle" referenced here is actually the two-year Integrated Report cycle. However, there is some uncertainty that this

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[11] Utah Division of Water Quality, draft *2010 Integrated Report*, page 17

would not in practice mean the 5-year rotating basin monitoring cycle, as new monitoring data to document "two consecutive monitoring cycles" would likely not be available until monitoring teams are again rotated through a basin.

Regardless of the two or five year delay, this system is unacceptable. As a practical matter, the State is changing the water quality criteria for lakes and reservoirs illegally by requiring two consecutive findings of criterion violation in order to list. If the State wishes to apply this approach, they would need to change the water quality criteria. This fact alone means waters in category 3B should be moved to Category 5. The addition of the two to five year delay in taking action (beyond monitoring), if that is the reality of implementation, only adds insult to injury.

Therefore, we request that the agency move waters in Category 3B into Category 5.

Comments to EPA

Based on the public notice it appears that DWQ intends to send its 303(d) proposal to EPA without first considering public comments on the agency's analysis. The primary benefit of such comments is that they can be used by DWQ to improve the analysis and the list. In this way, when the list/analysis is sent to EPA it will include responses to public input. To send the analysis without careful consideration of public comments will render the public process largely inconsequential or ceremonial in terms of aiding the agency in its analysis. Such an approach violates the Clean Water Act.

Request for Notice

Finally, we request that you notify us when DWQ has finalized the 305(b)/303(d) Integrated Reports of both 2008 and 2010, and advise us of our right to appeal under the Utah Administrative Procedures Act relative to that action.

FRIENDS reserves the right to supplement comments to both the 2008 Integrated Report and the 2010 Integrated Report based on DWQ's final response to comments from the 2008 report and final submission of the 2008 report to EPA.

Thank you again for the opportunity to comment on the 2008 and 2010 Integrated Reports, and for all you do to protect Utah's waters. Please let us know of any action that you take relative to both 2008 and 2010 Integrated Reports, including when and in what form DWQ submits them to EPA.

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