



State of Utah

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MEMORANDUM

TO: File

FROM: Chris Bittner

DATE: March 21, 2011

SUBJECT: Summary of Comments Received at the Public Hearing for the 2011 Triennial Review
Date: February 14, 2011
Time: 6:00-7:00 PM
Location: Multi-Agency State Office Bldg Room 1015 011 Triennial Review of Utah's Water Quality Standards
Hearing Officer: Christopher Bittner, Division of Water Quality

Attendees:

Leah Ann Lamb,
Ariel Calmes, Western Resource Advocates, FRIENDS of Great Salt Lake
LauraLee GilesPie, Western Resource Advocates
Robert Adler, U of U College of Law
Jeff Ostermiller, Division of Water Quality
Thad Garlick, Western Resource Advocates, FRIENDS of Great Salt Lake
Kimber Hall, Division of Water Quality
Division of Water Quality

1. Formal Hearing Introduction:

Chris Bittner of the Division of Water Quality conducted the hearing. Chris Bittner welcomed all in attendance and invited the public to introduce themselves and present their statements. The hearing was recorded.

2. Western Resource Advocates Statement by Ariel Calmes:
(Refer to recording at time 4:37)

- Western Resource Advocates(WRA) supports DWQ's efforts to develop numeric water quality criteria for Great Salt Lake. WRA notes that some people remain opposed to the

- selenium numeric criterion adopted. WRA emphasized the importance of developing a translator for predicting selenium concentrations in bird eggs from water concentrations.
- Methyl mercury criterion. WRA supports the adoption of methyl mercury criterion for freshwater. Methyl mercury criterion should also be adopted for Great Salt Lake. WRA recommends that the inorganic mercury criterion also be reviewed for freshwater and developed for Great Salt Lake.
 - WRA supports revising the Narrative Standard to address biological condition. However, the draft proposed language does not appear to meet the requirements of the Clean Water Act because DWQ cannot use the standard when permitting or enforcing permits. WRA recommends that the proposed language be revised.
 - Antidegradation Standard. WRA opposes specifying specific examples or exceptions in the rules. WRA recommends adopting decision criteria that identifies when a discharge will not degrade water quality. The assumption that a discharge won't degrade water quality should be verified by monitoring. WRA opposes the construction exception in Category 2 waters, and this provision should be deleted or amended for Category 1 waters
 - Recreational Beneficial Uses. WRA support the idea of changing the beneficial use class from 2B to 2A for the Ogden River, Fremont River, and several ditches. WRA recommends that DWQ continue to update the recreational beneficial uses as appropriate. WRA recommends that DWQ consider dropping the infrequent primary and secondary contact designation (2B) and rely on the more stringent frequent primary and secondary contact designation (2A) for all waters. Limiting recreational uses to one class would be more efficient and the numeric differences between the two classes are unlikely to make a difference for most waters.
 - Statewide Nutrient Criteria. WRA supports DWQ's efforts to develop nutrient criteria and encourage DWQ to also develop nutrient criteria for Great Salt Lake.
 - Sediment quantity and quality criteria. WRA supports the development of sediment quality and quantity criteria. WRA believes these criteria are being developed for Utah's red rocks regions but criteria should also be developed for other waters including GSL.

Priorities

- Translator. The translator standard for the Great Salt Lake selenium criteria which is necessary for implementing the criterion and will make potential issues with the selenium criteria more clear defensible
- The Jordan River TMDL is a priority because of the Jordan's influence on Great Salt Lake.
- Change all waters to frequent primary and secondary recreation (Class 2A).
- Revise Antidegradation rules by deleting examples and specific exceptions.
- FRIENDS supports the DWQ efforts to implement and monitor water temperature criteria. Appropriate assessment methodologies would use resources wisely. . Revising the temperature standards or assessment methods is a lower priority than methyl mercury criteria.

3. Thad Garlick, WRA:

(Refer to recording at time 14:36)

- Antidegradation rules – FRIENDS takes exception to examples because they are too open ended and allow too much “wiggle room”.

- Impounded wetlands. DWQ should follow-up through on their commitment to find a more vigorous and scientific method to assess wetlands in place of the DO and pH standard. DWQ is behind schedule on developing these alternative assessment methods.
- Sediment quality standard. Sediment standards are important for the red rock region of Utah but are also important for other waters such as GSL because sedimentation may affect depth.
- Water Temperature. FRIENDS supports DWQ efforts to refine water temperature criteria but the revisions should consider colder as well as hotter because warm water fish could be affected by cold water discharges such as dams.

4. Meeting Adjourned:

(Refer to recording at time 19:37)

No additional comments followed. Chris Bittner adjourned the hearing at 7:04 pm.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

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DENVER, CO 80202-1129
Phone 800-227-8917
<http://www.epa.gov/region08>

Ref: 8EPR-EP

February 8, 2011

Mr. Jeff Ostermiller
Division of Water Quality
Utah Department of Environmental Quality
P.O. Box 144870
Salt Lake City, Utah
84114-4870

Subject: EPA's WQS Triennial Review Priorities for 2011

Dear Mr. Ostermiller,

Thank you for notifying the U.S. Environmental Protection Agency (EPA) Region 8's Water Quality Unit (WQU) of the State's intent to initiate a triennial review of its water quality standards (WQS). EPA's WQS regulation requires that states "shall from time to time, but at least once every three years, hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards" (40 CFR § 131.20(a)). The WQU offers the following suggestions for your consideration.

- Outstanding Disapprovals – The WQU recommends that the Division address outstanding disapproval issues discussed in EPA's August 24, 2010, EPA action letter including Section R317-2-3.5(b)(1)(d) and Section R317-2-14.1 (site-specific TDS criterion for the Price River). EPA provided several options to resolve the disapprovals in its action letter. We recommend that the Division consider these options and propose revisions to resolve the disapprovals in the 2011 hearing.
- Human Health Criteria - EPA recently published updates to its acrolein and phenol water quality criteria for protection of human health (74 Fed. Reg. 27535, 27536, June 10, 2009). We recommend that Utah adopt these updated criteria.

Parameter	Water & Organisms (µg/L)	Organisms Only (µg/L)
Acrolein	6	9
Phenol	10,000	860,000

- Aquatic Life Criteria - EPA recently published new acrolein water quality criteria for the protection of aquatic life (74 Fed. Reg. 46587, 46588, September 10, 2009). Furthermore, there are several EPA aquatic life criteria for non-priority pollutants that have not yet been adopted by Utah. At a minimum, we recommend adoption of the following criteria.

Parameter	Acute (µg/L)	Chronic (µg/L)
Acrolein	3.0	3.0
Chloride	86,000	230,000
Chloropyrifos	0.083	0.041
Tributyltin (TBT)	0.46	0.072

The WQU also recommends that UT review the existing iron criterion for consistency with EPA’s Clean Water Act (CWA) § 304(a) recommendations. UT’s aquatic life criterion for iron is currently expressed as dissolved. It is not clear from the review of historic EPA action letters for Utah WQS when Utah changed the iron criterion to the dissolved fraction. In its March 8, 1991 action letter, EPA approved the criteria presented Table 2.14.2. At this time all, of UT metals criteria for the protection of aquatic life were acid soluble. Following the release of EPA’s Metals Policy¹, UT revised the aquatic life metals criteria to be consistent with the new policy. In its May 30, 2000 action letter, EPA approved the revisions to silver, aluminum, cadmium, chromium (III), copper, lead, nickel, and zinc. Iron is not one of the parameters addressed in the Metals Policy, and therefore is not discussed in the action letter. In its May 28, 2004, EPA approved additional revisions to arsenic, cadmium, chromium (III), copper, lead nickel, selenium, silver, and zinc. It is possible that the iron criterion had inadvertently changed to the dissolved fraction during one of these revisions.

While the CWA § 304(a) recommendation for iron is dated, EPA’s Red Book discusses the importance of considering iron hydroxide and ferric oxide (iron precipitates or floc) when deriving criteria, toxicity of iron floc to benthic organisms, and the reduction of suitable spawning habitat due to excessive iron floc.² We are not aware of any data or analyses to support that 1,000 µg/L as dissolved iron is protective of aquatic life. Therefore, we suggest that UT revise the existing iron criterion to account for the toxicity that results from precipitated iron. One way to accomplish this would be to change the 1,000 µg/L iron criterion from dissolved to total recoverable.

¹ U.S. Environmental Protection Agency. *Office of Water and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria*. October 1, 1993. Memorandum from Martha Prothro, Acting Assistant Administrator of Water, to Waste Management Division Directors, Environmental Services Division Directors, Regions I-X

² U.S. Environmental Protection Agency. *Quality Criteria for Water*. July 1976.

- Narrative Standard – The Division is currently using an empirical model to assess biological use support in streams. While the WQU believes that the model provides a scientifically valid interpretation of the existing narrative criterion, the relationship is not clearly identified in the current standards. The WQU recommends that the Division expand their existing narrative to provide further support of current assessment practices.
- Use Designations - Utah should review and evaluate whether refinement of the surface water use designations is needed, e.g., to more precisely describe the aquatic communities and recreational uses that are to be protected as well as the criteria necessary to protect those uses. This can include creation of new categories and/or reviewing whether changes to uses for individual segments (e.g., to apply more stringent Class 2A uses) is appropriate.
- Making Supporting Information Available to the Public - We recommend that the Division take steps to ensure that appropriate supporting information and analyses (e.g., Use Attainability Analyses, scientific rationale to support site-specific standards, etc...) are developed and available at the beginning of the public review period for all proposed revisions. It may be helpful to review the Region's January 27, 1997 letter on the federal public participation requirements.³ For example, we recommend that the Division put together a rationale document that summarizes the basis for each proposed revision. Such a document would help the public and stakeholders understand the reasons supporting each proposed revision.
- We suggest that Utah consider revising the reference to R317-2-3.5(c) in Table 2.14.2 Footnote (14) to be consistent with the March 2010 revision to the antidegradation policy.

In addition to the items above that hopefully can be addressed this year, we recommend the State start working towards adoption of the methylmercury criterion EPA (66 Fed. Reg. 1344, 1355, (January 8, 2001)) for the protection of people who eat fish and shellfish. This criterion, 0.3 mg/kg fish tissue wet weight, is EPA's first water quality criterion expressed as a fish and shellfish tissue value rather than as an ambient water column value. In April 2010, EPA finalized technical guidance for states and authorized tribes on how to implement the new fish tissue-based criterion.⁴ As discussed in Chapter 3 of the guidance, EPA recommends working with stakeholders and the public to develop an implementation plan prior to moving forward with a rulemaking proposal. EPA recognizes the complexity involved in implementing this criterion, and the WQU is available to assist the State in this effort.

In the mean time, we recommend that UT delete the existing acute mercury criterion of 2.4 µg/L for following reasons. First, the acute criterion is inconsistent with the existing CWA § 304(a) recommendation for mercury. The current recommendation is 1.4 µg/L, based on data presented in the 1995 Updates (EPA-820-B-96-001). Second, and more importantly, the acute mercury criterion is based on aquatic life effects resulting from water column exposure alone; thus, it does not consider effects resulting from food chain exposure. Bioaccumulative effects of

³ See <http://www.epa.gov/region8/water/wqs/OUTREACH.pdf>

⁴ See <http://www.epa.gov/waterscience/criteria/methylmercury/>.

mercury should be taken into consideration when determining protective criteria. Therefore, until UT adopts the recommended methylmercury criterion, it would be appropriate to only rely on the final residue value of 0.012 µg/L to protect use classifications.

Another high priority for future WQS development is nutrient criteria. We recognize the State is working to process samples that were collected in 2010 and will begin data analyses soon. EPA's expectation is that states will establish milestones for developing, proposing, and adopting total nitrogen, total phosphorus, and response parameter (e.g., chlorophyll) criteria for each waterbody type (e.g., lakes/reservoirs, streams, rivers) by spring 2011. Our understanding is that the Division intends to have a draft nutrient criteria proposal in 2012. The WQU is available to assist the State in developing appropriate milestones, coordinating technical assistance, and coordinating external review of the proposed criteria.

I hope these suggestions are useful in developing proposed new and revised water quality standards. Please note that these comments are preliminary in nature and should not be interpreted as final EPA decisions under Clean Water Act § 303(c). If you have any questions, please call Lareina Guenzel on my staff at (303) 312-6610.

Sincerely,

A handwritten signature in cursive script, appearing to read "Karen Hamilton".

Karen Hamilton, Chief
Water Quality Unit

cc: Chris Bittner, Utah Division of Water Quality

February 16, 2011

Geotechnical
Environmental
Water Resources
Ecological

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

Re: Proposal to Support the Use of the Biotic Ligand Model for Copper Aquatic Life Criteria in Utah

Dear Mr. Bittner:

We contacted you in August 2010 on behalf of our client, the Copper Development Association (CDA), to request information concerning the schedule of the upcoming triennial review of surface water quality standards in Utah. CDA played a significant role in sponsoring scientific research used in development of the freshwater Biotic Ligand Model (BLM) for copper, which was adopted by the United States Environmental Protection Agency (EPA) in its latest national ambient water quality criteria (EPA 2007). CDA is now interested in encouraging efforts by states and tribes to incorporate these latest recommended EPA national criteria for copper into their water quality standards programs.

It is our understanding that Utah has scheduled a triennial review for 2011 and that suggestions for topics for this review are due by Friday, February 18, 2011. Thus, the purpose of this letter is to urge the Utah Division of Water Quality (UDWQ) to consider updating its aquatic life criteria for copper to use the BLM as currently recommended by EPA. We understand that the UDWQ recently considered use of the BLM as part of a site-specific criteria proposal from the Central Weber Sewer Improvement District (Tobiason et al. 2009), but that this was ultimately not accepted because the BLM was not yet considered to be an acceptable approach for use in Utah Pollutant Discharge Elimination System (UPDES) permits. GEI and CDA would like to support UDWQ in the process of officially accepting the use of the BLM to derive copper criteria and permit limits in Utah surface waters.

Utah's current aquatic life criteria used to derive copper standards, like most states' criteria, only take into account hardness as a factor that modifies toxicity. Using only hardness as a modifying factor for metals criteria is an outdated approach that excludes a substantial body of peer-reviewed scientific literature demonstrating that additional modifying factors can and should be incorporated into regulatory benchmarks or standards, while providing the same levels of aquatic life protection required under the Clean Water Act (EPA 1985, 1994, 2001, 2007). Copper toxicity is a function of its bioavailability, which in addition to being controlled by hardness, is also strongly related to other important factors such as dissolved organic carbon (DOC), alkalinity, pH, and temperature. The key strength of the BLM is that it

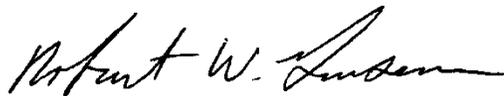
accounts for multiple factors—in addition to hardness—that mitigate or exacerbate copper's toxic effect on aquatic life. There also are practical advantages for using the BLM; it is a cost effective regulatory tool compared to other site-specific toxicity test procedures (e.g., water-effect ratios), and the BLM software is publicly available, sanctioned by EPA, and requires only brief training to generate rapid and useable output. Therefore, BLM-based criteria provide a practical means of deriving demonstrably more accurate levels of aquatic life protection across a broad range of water quality conditions.

Please let us know how we can assist the UDWQ in your consideration of the BLM during the upcoming triennial review. GEI or CDA could help in a variety of ways, including preparation of written or oral testimony supporting the technical basis of the BLM, or providing guidance on application of the BLM to water quality criteria and what type of implementation approach would best fit your available datasets. CDA has also sponsored BLM training sessions over the past several years, and they have been well-attended by both regulators and the regulated community. If desired, it may be possible to provide this course or related education materials if you would find that helpful as a means of helping inform the public and stakeholders as to the basis and application of the BLM.

We appreciate the opportunity to provide you with this prospective proposal. Please let me know if you have any questions. We look forward to discussing this with you further.

Sincerely,

GEI CONSULTANTS, INC.



Robert W. Gensemer, Ph.D.
Senior Ecotoxicologist

RWG

cc: Joe Gorsuch, CDA
Steven Canton, GEI
Stephanie Baker, GEI

References

- Tobiason, S., P. Heck, S. Park, and K. Tobiason. 2009. Using the biotic ligand model, water effect ratio, and translator for site-specific copper criteria to update effluent limits at a wastewater treatment plant. Proceedings of the Annual Water Environment Federation Technical Exhibition and Conference, p. 6325-6344. Water Environment Federation, Alexandria, VA.
- U.S. Environmental Protection Agency (EPA). 1985. Guidelines for deriving numerical national water quality criteria for the protection of the aquatic organisms and their uses. PB85-227049, U.S. Environmental Protection Agency, Washington, D.C.
- U.S. Environmental Protection Agency (EPA). 1994. Interim guidance on determination and use of water-effect ratios for metals. EPA-823-B-94-001, U.S. Environmental Protection Agency, Washington, D.C.
- U.S. Environmental Protection Agency (EPA). 2001. Streamlined water-effect ratio procedure for discharges of copper. EPA-822-R001-005, U.S. Environmental Protection Agency, Washington, D.C.
- U.S. Environmental Protection Agency (EPA). 2007. Aquatic life ambient freshwater quality criteria – copper. EPA-822-R-07-001, U.S. Environmental Protection Agency, Washington, D.C.



February 18, 2011

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

Subject: Comments on the Utah Triennial Review: Recommendation for Updating the Aquatic Life Criteria for Zinc

Dear Mr. Bittner:

As requested by the Division of Water Quality (DWQ), this letter provides comments for the current triennial review (TR) of surface water quality standards (WQS) in Utah. The comments provided here are primarily related to the numeric zinc criteria for protection of aquatic life. These comments are being provided jointly by the International Zinc Association (IZA) and Windward Environmental. The IZA is a non-profit industry association dedicated to the global market for zinc and the role of zinc in sustainable development. As such, the IZA actively supports research programs on the fate and effects of zinc in the environment and supports the adoption of regulatory standards for zinc that reflect the current state-of-the-science. Windward Environmental is a consulting firm consisting of environmental scientists and engineers who support the IZA on zinc research projects and work with the regulated community in complying with water quality standards for zinc and other metals. The remainder of this letter provides a brief summary and basis of our recommendation with regard to updated aquatic life criteria for zinc in Utah.

The current Utah WQS include aquatic life criteria that have not been updated for many years, in some cases more than 16 years. These criteria include the priority pollutant metals arsenic, chromium, copper, lead, nickel, selenium, silver, and zinc. Since 2008 when Utah last updated the aquatic life criteria, other states and various organizations have updated criteria for many of these metals and other non-priority pollutant metals, such as aluminum, cadmium, and zinc. These updated criteria are based on more current scientific information and were developed following the EPA's criteria update procedures. For example, Colorado and New Mexico each adopted updated zinc criteria in 2010 using EPA procedures based on numerous additions to the scientific literature. Colorado zinc criteria were similarly updated earlier and have been approved by EPA. It is the EPA's policy to update criteria as new scientific information becomes available, especially that which could

significantly affect environmental management decisions. Therefore, these updates give Utah an opportunity to bring their state WQS up-to-date and provide more appropriate policy and more accurate tools for regulating and managing water quality in Utah.

The current Utah acute and chronic zinc criteria are calculated as a function of water hardness, and are based on the 1995 EPA criteria update for zinc (EPA 1996). A more recently developed tool for deriving water quality criteria for several metals, including zinc, is the biotic ligand model (BLM). The BLM accounts for several factors that influence metal bioavailability. Technical details regarding the BLM are provided as an appendix to this letter, in case there is interest. Another set of comments submitted to the DWQ on behalf of the Copper Development Association (CDA) and International Copper Association (ICA) is recommending that the DWQ consider updating the freshwater aquatic life criteria for copper using the BLM.

Draft BLM-based zinc criteria were submitted to the EPA in 2006, but the EPA has yet to review and release the draft BLM-based zinc criteria for public comment. While EPA review and issuance of nationwide criteria is a principal pathway for states to update their own criteria, it is not the only means of doing so. States can provide their own updates following EPA guidance and procedures and these can be approved by EPA, as required. We strongly encourage use of the BLM-based criteria for zinc and other metals and its adoption in standards as more states undergo their WQS triennial reviews.

In Utah, it would be expected that numerous Utah Pollution Discharge Elimination System (UPDES) permittees are subject to compliance based on the EPA's 1995 zinc criteria. The UPDES permits are the principle regulatory vehicle for Clean Water Act implementation to protect and restore water quality in the state. The UPDES permits rely on state WQS and criteria for setting appropriate compliance levels. Water quality criteria drive permit compliance decisions and can lead to significant capital expenditures. Water quality criteria also drive the 303(d) and TMDL process for identifying and cleaning up impaired water bodies. Using outdated criteria for UPDES, 303(d), and TMDL purposes could lead to wasted resources on unnecessary listings (i.e., false positives). In fact, there are currently five sites listed as impaired due to zinc in the state of Utah. Using outdated criteria may also result in under-protection of aquatic life (i.e., false negatives).

In summary, although we recommend that the DWQ ultimately adopt the BLM as the basis for numeric zinc criteria in Utah, adoption of BLM-based zinc criteria within EPA may not occur within the timeframe of the current triennial review.



Accordingly, we recommend that the DWQ consider an update to the aquatic life criteria for zinc as follows:

1. Update the hardness-based zinc criteria using the substantial body of zinc toxicity data published in the last 16+ years; and
2. allow use of the BLM to derive site-specific zinc criteria.

Thank you for the opportunity to provide these comments for consideration by the DWQ during the Utah triennial review process. Please let us know if you have any questions or if you would like to discuss this further.

Sincerely,



Eric Van Genderen, Ph.D.
Manager, Environment & Sustainability
International Zinc Association



David DeForest
Sr. Environmental Toxicologist
Windward Environmental



Scott Tobiason
Sr. Environmental Engineer
Windward Environmental

REFERENCES

EPA. 1996. 1995 updates: Water quality criteria documents for the protection of aquatic life in ambient water. U.S. Environmental Protection Agency, Washington, D.C. EPA-820-B-96-001.



Appendix to *Comments on the Utah Triennial Review: Recommendation for Updating the Aquatic Life Criteria for Zinc Submitted by IZA and Windward*

The following provides technical details on the biotic ligand model (BLM) as a tool for deriving site-specific metals criteria for aquatic life.

Overview

The EPA recently released aquatic life criteria based on the BLM for copper (EPA 2007a). The BLM represents a significant step forward in the best available science of not only copper, but several other metals, including zinc. A few states, including New Mexico, have recently adopted the EPA's BLM-based copper criteria in their WQS, but to-date mostly as a tool for deriving site-specific WQS rather than as the default basis for statewide numeric criteria. The copper BLM was used to develop criteria for updating effluent limits for the Central Weber Sewer Improvement District (CWSID) wastewater treatment plant in Ogden, Utah. Although the DWQ could not accept the BLM basis of updated copper limits because the BLM is not yet recognized in Utah WQS, the study provides an example of how the BLM can be implemented in Utah (Tobiason et al. 2009).

The BLM is easy to use and the data required to run the BLM are a marginal increase in costs for data already needed to calculate hardness-dependent criteria. The BLM generates instantaneous acute and chronic criteria using 10 water quality input parameters that typically cost less than \$200 per sample. These 10 input parameters are: temperature, pH, and concentrations of dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. The BLM software is publicly available, sanctioned by EPA for copper, and requires only brief training to generate rapid and useable output. The BLM for zinc can be readily obtained (http://www.hydroqual.com/wr_blm.html) and uses the same input data set as the copper BLM.

Utah's current zinc criteria, like most states' criteria, only take into account hardness as a factor that modifies toxicity. Using only hardness as a modifying factor for metals criteria is an outdated approach that does not take into account a substantial body of science. The peer-reviewed scientific literature demonstrates that additional modifying factors can and should be incorporated into regulatory benchmarks or standards, while providing the same level of aquatic life protection (EPA 1985, 1994, 2001). Zinc toxicity is a function of its bioavailability, which in addition to being controlled by hardness, is also strongly related to other important factors such as pH and DOC. The key strength of the BLM is that it accounts for multiple factors – in addition to hardness – that influence the amount of zinc that is bioavailable to aquatic life and, hence, potentially toxic. Therefore, the BLM-based criteria can provide more accurate levels of aquatic life protection across a broad range of water quality conditions than the hardness-based criteria.



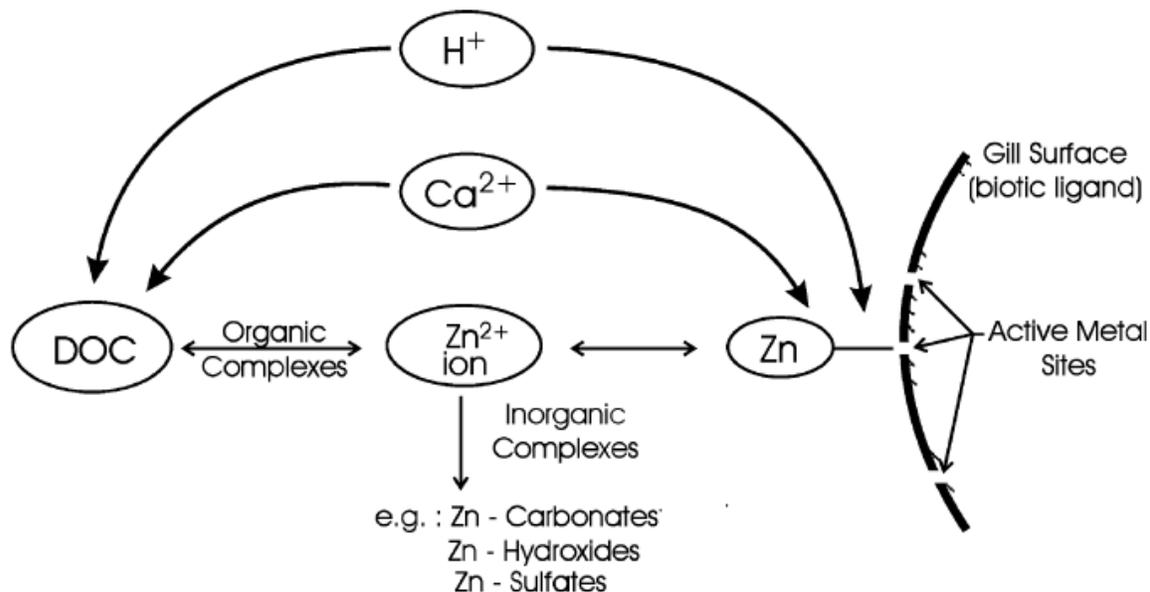
Technical Basis of the Zinc BLM

Like the copper BLM recommended by the EPA for copper criteria development, the zinc BLM is a computational model that incorporates chemical reaction equations to evaluate the amount of metal that would bind to organism tissues (termed the “biotic ligand”, such as a fish gill) and thus be ultimately responsible for causing toxicity. By incorporating chemical equilibria, the BLM better represents the complex chemical factors that influence zinc bioavailability, more so than the simple hardness-based approach (Di Toro et al. 2001, Heijerick et al. 2002). Unlike the hardness-based equation for zinc criteria, the BLM explicitly accounts for more of the important water quality variables that determine zinc bioavailability, and the BLM is not limited to a particular correlation between toxicity and these variables.

The mechanistic principles underlying the BLM follow general trends of zinc toxicity as related to individual water quality variables and their combinations. The basic premise of the BLM is that changes in water quality will cause a corresponding change in the concentrations of toxic forms of zinc (primarily Zn^{2+}) that can potentially bind to biological surfaces (i.e., the “biotic ligand”; Di Toro et al. 2001). Zinc bioavailability is also affected by competitive chemical binding interactions at the biotic ligand (e.g., fish gill) with calcium, in particular (Santore et al. 2002). The interactions between zinc, other ions, dissolved organic carbon (DOC), and the biotic ligand are shown in Figure 1. Each of the dissolved chemical species, with which the biotic ligand reacts, is represented by characteristic binding site densities and conditional stability constants (Playle et al. 1993). In turn, each of the chemical species can be predicted as a function of inorganic and organic equilibrium reactions. The thermodynamic constants used to simulate these equilibrium reactions are empirically derived and do not change for simulations involving different organisms.

Predictions of zinc toxicity are based on the relationships between the dissolved zinc LC50 and a critical level of zinc accumulation at the biotic ligand. This critical accumulation is called the median-lethal biotic ligand accumulation concentration, or LA50. While LA50 values can vary based on differential species sensitivity (i.e., more or less zinc-gill accumulation required to exert a similar toxic response), they are assumed to be constant within individual species regardless of water quality (Meyer et al. 1999). Overall, increases in hardness and natural organic matter tend to decrease zinc bioavailability, while changes in pH may have a variable influence on Zn bioavailability (Santore et al. 2002; Clifford and McGeer 2009).

Figure 1. Conceptual Diagram of the Biotic Ligand Model for Zinc



Source: Santore et al. (2002)

The draft BLM-based zinc criteria submitted to EPA in 2006 were ultimately developed using an approach that is analogous to EPA metals criteria derivation methods that are based on normalizing available toxicity data to a similar hardness (EPA 1985). The zinc BLM was used to normalize LC50 values to a single reference exposure condition that includes all of the BLM water quality parameters. Although not all historical studies reported concentrations of parameters needed for the BLM, the dataset was supplemented by new data from current research. Once the data were normalized to the BLM parameters for this reference exposure condition, criteria derivation procedures followed EPA guidance (EPA 1985). Accordingly, the acute criterion was estimated from a ranked distribution of BLM-normalized genus-mean acute values from which the 5th percentile of sensitivity (i.e., the final acute value) was divided by two to calculate the acute criterion. Insufficient data were available to explicitly derive a separate BLM-based chronic criterion. Thus, according to the EPA guidance, the BLM-normalized acute criterion was divided by the final acute-chronic ratio to derive a chronic criterion.

Use of the BLM represents a significant improvement upon the current hardness-based zinc criteria. The BLM has been adequately validated for a wide range of water quality conditions, and therefore provides more accurate and scientifically-defensible water quality criteria. Validation studies have shown that over a very wide range of water quality characteristics (e.g., hardness, alkalinity, and ion composition), the BLM provides criteria concentrations that are more accurate and consistently

protective of even the most acutely sensitive aquatic organisms (e.g., De Schampelaere et al. 2005).

Application of the BLM to Water Quality Criteria

It is important to note that both the hardness-based and BLM-based zinc criteria rely on “models” to calculate criteria. For hardness-based metals criteria, a simple equation, which is in essence a “model,” mathematically relates the criterion concentration to a single variable, in this case hardness (hardness is an aggregate measure of calcium and magnesium cations). For the BLM-based zinc criteria, a computer model mathematically relates multiple water quality characteristics, including hardness cations, to the final criterion concentration. While the BLM itself is mathematically more complex, it is mechanistically more realistic than the hardness-based approach.

Like any policy, changes to a regulatory criterion should consider implementation needs and how they will be different from the status quo. Most states have guidance documents for implementing water quality criteria in assessments and regulatory needs. Guidance documents like these can be a more appropriate place to provide the necessary details for implementation than the WQS language, especially given that rulemaking considerations affect only the standards (i.e., guidance documents are not rules). Accordingly, the DWQ should thoroughly evaluate their related guidance and policy documents so they are effective and up-to-date with best practices and EPA guidance.

In terms of data needs for implementation, for determining zinc criteria under either the hardness- or BLM-based approach, measurements of Ca^{2+} and Mg^{2+} are needed (assuming the hardness-based criterion would employ the more accurate method for determining hardness by calculating hardness from the Ca and Mg ion concentrations per SM2340B). Therefore, the difference between data needs for the hardness-based and BLM-based criteria are the remaining eight BLM parameters: temperature, pH, alkalinity, DOC, sodium, potassium, chloride, and sulfate. Temperature and pH data must be field collected, which is a straight forward process using handheld meters or simpler means. For the remaining additional parameters, the costs for analyses by accredited laboratories are typically less than \$100. Furthermore, samples for these analyses are as easily collected as the samples for hardness data needs for hardness-based criteria. Note that DOC samples must be filtered shortly after collection, which is also needed for evaluating metals criteria compliance based on a dissolved (filtered) metals sample. Therefore, the added cost and field effort for BLM data needs are minimal.

The next criteria implementation need would address the number and location of water quality samples that need to be collected to adequately characterize a particular water body for applying the criterion. General guidance is available from EPA which provides several suggested sampling strategies depending on the type of water body and the anticipated seasonal or spatial variation anticipated in BLM



parameters (EPA 2007b). This potential issue of variability over time and space would be important to address for both BLM-based and the current hardness-based criteria. It is important to note that any criterion based on an instantaneous or short-term reading such as a hardness would be susceptible to certain time-variability considerations. Therefore, this situation is not unique to the BLM, as noted in the EPA's BLM-based copper criteria (EPA 2007a):

With regard to BLM-derived freshwater criteria, to develop a site-specific criterion for a stream reach, one is faced with determining what single criterion is appropriate even though a BLM criterion calculated for the event corresponding to the input water chemistry conditions will be time-variable. This is not a new problem unique to the BLM – hardness-dependent metals criteria are also time-variable values. Although the variability of hardness over time can be characterized, EPA has not provided guidance on how to calculate site-specific criteria considering this variability. Multiple input parameters for the BLM could complicate the calculation of site-specific criteria because of their combined effects on variability. Another problem arises from potential scarcity of data from small stream reaches with small dischargers.

EPA has also provided general guidance as to the various regulatory options that could be used to encourage states and tribes to implement copper BLM-based criteria in their water quality standards programs (EPA 2007c). This guidance emphasizes that considerable flexibility exists in implementing BLM-based copper criteria, with suggested implementation options being full statewide implementation of the BLM-based criteria, or the incremental approach of using the BLM for certain water bodies (i.e. TMDLs) on a site-specific basis.

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From: Leland Myers <lmyers@cdsewer.org>
To: Christopher Bittner <cbittner@utah.gov>
CC: William Moellmer <william.moellmer@gmail.com>, Walt Baker <wbaker@utah.g...>
Date: 2/13/2011 7:19 PM
Subject: Re: confirmation of Feb. 14 WQS Workgroup Meeting

Chris,

I have to go to the Legislature on Monday morning to show DWQ permitting fees support from POTW's, so I will be late to the meeting. Bill Moellmer will represent me at the meeting until I am able to arrive. In case I am late for the discussion of the following items, I want them added to the Standards review process.

Proposal #1

Change the Water Quality Standard for all of Willard Spur to match the standard for the Bear River Bay Bird Refuge. The change would for all the area north of GSL Minerals.

Proposal #2

Drop pH and DO standards for all wetlands, replace with functional MMI Analysis. Drop TDS standards for all GSL wetlands.

Proposal #3

Develop an action planning process when an MMI Analysis does not show a wetland meets an acceptable quality level as compared to the reference wetland. This would include the an analysis of beneficial use protection and would be in conformance with recommendations from the National Academy of Sciences TMDL Report (see page 49).

Proposal #4

Develop a mixing policy for Wetland discharges. This would include an allowance for effluent dominated wetlands.

Thanks, See you later Monday.

--

Leland Myers
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From: "Merritt Frey" <MFrey@rivernetwork.org>
To: "Christopher Bittner" <cbittner@utah.gov>
Date: 2/18/2011 3:21 PM
Subject: triennial review scoping

Via email

February 18, 2011

Dear Chris,

Thank you for the opportunity to comment on the Triennial Review scoping on behalf of River Network. We support the Division of Water Quality's effort to involve the public and stakeholders earlier in the Triennial Review process. We also appreciate the draft list of topics you provided, and the initial discussion at the work group meeting on February 14. I also shared these comments at the work group meeting in more detail, but I am sending them along in writing for clarity's sake.

If you have any questions or concerns, please feel free to call (801-486-1224) or email (mfrey@rivernetwork.org) me.

Priorities among existing list for 2011

We suggest the following items from your long, more inclusive list of topics be considered priorities for the current triennial review. Of course, if time allows more topics to be tackled we are open to that idea, but given limited time and resources we suggest these three items are the highest priority:

* Antidegradation policy revisions and antidegradation implementation guidance. As we discussed, we have concerns with the current draft of the antidegradation implementation guidance. I look forward to working those out with you through the work group process.

* Changes from 2B to 2A: we support the specific ideas provided in your list (select ditches, Ogden River, Fremont River and Hyrum Reservoir) and also encourage you to frame this as a more general review to allow public comment on additional, appropriate reclassifications. We will provide specific rivers/stretches during the process. We also support the concerns raised in comments by Western Resource Advocates on behalf of Friends of Great Salt Lake and other about the use of 2B more generally.

* Revisions to narrative standard: expand to address biological condition.

* Development of a translator for Great Salt Lake selenium criterion from a tissue standard to a water-based standard. We see this as a high priority for this process, but incorporate by reference comments submitted on the topic of selenium by Western Resource Advocates on behalf of Friends of Great Salt Lake and others.

Additions to current list for 2011

Aquatic life use classes

As mentioned at the work group meeting, we are concerned about the 3A, 3B, and 3C aquatic life use designation classes. The core of the concern is the separation based on "game" versus "non-game" species. As far as we can tell, these terms are not defined in the regulation and they do not appear to be based on any actual scientific difference in what the different groups (i.e. game or non-game fish) require to support a designated use.

In addition, we are concerned about how the class 3C use is assigned. Reviewing the segments with 3C designations does not reveal any sort of pattern, beyond an obvious - although not all-inclusive - trend toward 3C status for stretches with a point source discharge (Mill Creek stretch, Malad stretch, etc.). If this class has been used as a sort of dumping ground for stretches with discharges, that is entirely inappropriate.

We request these issues - both a review of the appropriateness of the game vs. non-game separation and the application of class 3C -- be priority issues for this triennial review.

Use Attainability Analysis and Site-Specific Standard processes

As mentioned during the work group meeting, we believe there is a need for additional clarity about when Use Attainability Analysis and Site-Specific Standards are appropriate and how they can be applied. These ideas are coming up more and more often in discussions, and a structure must be in place to ensure they are applied appropriately. We encourage the Division to at least start this discussion now, although we acknowledge these topics may prove too complicated to tackle in the short timeframe for the current Triennial Review.

Numeric criteria development for Great Salt Lake

Again, we support and incorporate by reference comments (see point #1 in their comment letter) submitted by Western Resource Advocates on behalf of Friends of Great Salt Lake and others calling for development of numeric criteria for Great Salt Lake. As Advocates discusses, numeric criteria for Great Salt Lake are long overdue. Criteria development for the Lake should focus on pollutants of the greatest concern (e.g. mercury, phosphorus, etc.). In addition, development of criteria for some parameters may be easier than others. For example, the Division should work to identify pollutants that are not affected by a water body's salinity and/or parameters where other states with saline lakes have developed criteria that can serve as a starting point for our work.

Other near-term priorities for the list...beyond this year's Triennial Review

The Division's list of topics includes many other important items, several of which will take a year or more to tackle. Work on these topics must begin now in order to be prepared to address them in the next review (or even between large-scale reviews). While staff has begun work on several of these topics, we encourage you to also begin to bring along the work group and the public so that we are all prepared to move forward quickly when the issues are ripe. Our priorities here include:

* Statewide nutrient criteria

- * Variance regulation
- * Methylmercury criteria and implementation
- * Sediment criteria

Again, please feel free to contact me if you have any questions. I look forward to working with you throughout this process.

Sincerely,

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"If there is a better way to do something, do it." Thomas Edison

From: Paul Dremann <pdremann@xmission.com>
To: Jeffrey Ostermiller <jostermiller@utah.gov>
CC: <cbittner@utah.gov>, Bob Dibblee <dibsant@aol.com>, George Sommer <Advpr...>
Date: 2/17/2011 3:45 PM
Subject: Provo River Category Reclassification

Jeffrey,

As we discussed in the initial Triennial Review meeting, the Utah Council, Trout Unlimited (UTU) requests that the following reaches (sections) of the Provo river be upgraded from Category 3 to Category 2:

*Outlet of Jordanelle Reservoir downstream to the inlet to Deer Creek Reservoir (middle Provo)

*Outlet of Deer Creek Reservoir downstream (approximately 6 miles) to the Olmsted Diversion (lower Provo).

Both of these river reaches are classified as high quality Blue Ribbon Fisheries and have an economic impact in the millions of dollars to the State. The lower Provo is the first designated high quality fishery in the State. The middle Provo now receives the highest angler usage of any river/stream in the State.

The Blue Ribbon Fisheries Advisory Council (BRFAC) has some preliminary economic data that I will provide at our next meeting. Also, the BRFAC will be going out for bid sometime in July for a more comprehensive analysis of the economic value of these and several other important BRF waters. Hopefully, the results of these studies will be available prior to final water quality standard change recommendations.

We appreciate your consideration of our request.

Bob Dibblee - Chair UTU

Paul Dremann - VP Conservation UTU



WESTERN RESOURCE
ADVOCATES

February 18, 2011

Walt Baker
Executive Director
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Salt Lake City, Utah 84114-4870
Via Email: cbittner@utah.gov

Re: Comments on Triennial Review Scoping and Action Items List

Dear Walt:

Thank you for the opportunity to comment on the 2011 Triennial Review action items list proposed by the Division of Water (DWQ). 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 considers its critical task of improving Utah's Water Quality Standards to protect Utah's waters, public and wildlife.

FRIENDS commends the DWQ for undertaking the Triennial Review and its scoping process as an important part of ensuring that our water quality standards are up to date. As you know, standards underlie all the important Clean Water Act tools that protect Utah's waters, from discharge permits to total maximum daily loads. As such, the Triennial Review is a critical piece of the strategy to keep these water bodies healthy and productive, and we thank you for your work on toward this goal. We also greatly appreciate your efforts to include the public in the rule revision process.

We make the following specific comments on your efforts:

1. Utah has an affirmative duty to promulgate numeric water quality criteria for the Great Salt Lake and this task should be one of DWQ's highest priorities.

Utah has an affirmative duty to establish and implement numeric water quality criteria for the Great Salt Lake. 33 U.S.C. § 1313(a)(3)(A-C)(2000); 33 U.S.C. § 1313a (1981). The Clean Water Act requires, without exception, that each state write water quality criteria for all its water bodies, including saline bodies. 33 U.S.C. § 1313(a)(3)(A-C)(2000); 33 U.S.C. 1313a (1981). Water quality criteria must include both designated uses and criteria sufficient to protect those uses. United States Environmental Protection Agency (EPA) regulations also require states to develop numeric criteria for their water bodies. 40 C.F.R. § 131.11(b)(1). *See also, Natural Resources Defense Council, Inc. v. U.S. E.P.A.*, 16 F.3d 1395, 1400 (4th Cir. 1993).

States have been required to establish numeric water quality criteria for over 40 years. 33 U.S.C. § 1313(a)(3)(A)(2000). Numeric criteria for Great Salt Lake are long overdue, and therefore, establishing numeric water quality criteria for the Lake should be DWQ's highest priority for this triennial review.

In the past, DWQ has asserted that EPA does not currently provide any guidance for states to use to establish numeric water quality criteria for saline water bodies like Great Salt Lake *in particular*, despite the fact that it has adopted extensive guidance for a wide range of pollutants and other water quality parameters relative to both fresh waters and marine waters. However, states are not required to rely on EPA or wait for such guidance before formulating numeric water quality criteria for its water bodies. *See* 48 Fed.Reg. 51,400, 51,411 (1983), *see also*, *City of Albuquerque v. Browner*, 865 F.Supp. 733, 738 (D.N.M.1993). Moreover, the state's duty to promulgate all aspects of water quality standards under section 303 is independent of EPA's duty to adopt water quality criteria guidance under section 304(a). If Utah fails to promulgate numeric water quality criteria for Great Salt Lake, EPA has a duty to write those numeric water quality criteria for Utah, and Utah will then be required to either use EPA's numeric criteria or to establish more stringent criteria than those initially drafted by the EPA. CWA § 303(b)(1), 33 U.S.C. § 1313(b)(1) (2006), *see also*, *Northwest Environmental Advocates v. U.S. EPA*, 268 F. Supp. 2d 1255, 1261 (D. Or. 2003). For this reason, DWQ should prioritize the task of establishing narrative water quality criteria for Great Salt Lake. If Utah does not do this itself, it may be forced to adopt numeric criteria promulgated by EPA instead.

Thus, Utah has a non-discretionary duty to promulgate numeric water quality criteria for Great Salt Lake, and it needs to make numeric water quality criteria for Great Salt Lake the highest priority for the 2011 triennial review, and each year thereafter.

In undertaking this task, DWQ should also prioritize pollutants so that numeric criteria for pollutants that are currently impairing the water body, and present the most serious risks to the environment and human health, are established first. FRIENDS proposes a focus on selenium, mercury, heavy metals (such as arsenic, lead, and copper), phosphorus, nutrients and pathogens. However, during this process DWQ should not stop with these pollutants of highest concern based on currently available information, and should also promulgate numeric water quality criteria for any pollutant that is impairing or has the potential to impair Great Salt Lake.

It is possible that promulgating numeric water quality criteria for Great Salt Lake will require significant time and resources. However, dedicating these resources to the establishment of numeric water quality criteria for the Great Salt Lake will be beneficial to DWQ in the long run, because numeric criteria will provide a basis for evaluating UPDES permits that allow discharges into Great Salt Lake, determining whether Jordan River water quality criteria are stringent enough to protect the downstream uses of the Lake, and preventing potential legal conflicts over the lack of numeric criteria for Great Salt Lake. Moreover, there are at least two reasons why DWQ could promulgate water quality criteria for at least some parameters at lower resource costs.

First, for some pollutants, the salinity of the water may not make any difference for the purposes of pinpointing a numeric standard. When this is the case, DWQ can rely on EPA 304(a) guidance to promulgate water quality criterion for those pollutants. Therefore, DWQ should work immediately to identify pollutants that are not affected by a water body's salinity and use EPA's current guidance to promulgate numeric water quality criteria for the Great Salt Lake for such pollutants.

Second, other states have promulgated numeric water quality criteria for saline lakes. DWQ can use other states' work on saline water bodies to help reduce the amount of resources required to develop numeric water quality criteria for the Great Salt Lake. California, Nevada, Oregon, North Dakota, and Louisiana all have saline lakes. *See, Lehr, Jay; Keeley, Jack; Lehr, Janet (2005). Water Encyclopedia, Volumes 1-5.. John Wiley & Sons.*¹ Oregon has narrative and numeric criteria for its saline water bodies, including Malheur Lake and Harney Lake. *See* ORS §§ 340-041-0001 to 340-041-0350.² California has many saline lakes, and has even promulgated TMDL's for the Salton Sea. *See*, California EPA's TMDL Page, under Water issues tab;³ California EPA's Salton Sea page.⁴ Devil's Lake in South Dakota, the state's only saline lake, is protected with specific numeric water quality criteria. *See*, N.D. Admin. Code 33-16-02.1 *et seq.*, & Appendix II: Lake and Reservoir Classification.⁵ Although these saline lakes may have different characteristics than Great Salt Lake, states that have numeric water quality criteria for saline water bodies may be able to provide a wealth of resources that Utah can use to develop its own numeric water quality standards for Great Salt Lake.

DWQ can and should use already established information, research, and materials addressing pollutants in and corresponding numeric water quality criteria for saline lakes as a starting point for developing numeric water quality criteria for Great Salt Lake. In any case, DWQ must develop numeric water quality criteria for Great Salt Lake.

2. FRIENDS supports the revision of the narrative water quality standard at Utah Admin Code R317-2-7 to include a narrative biological standard, but reminds DWQ that this standard must be an additive standard, and should not be used to replace current standards or excuse a water body's failure to achieve other existing water quality criteria and standards. Moreover, the form of the draft of the biological standard violates the Clean Water Act.

¹ *Online version available at:*

http://www.knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=1449&VerticalID=0.

² *Available at:* http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_041.html.

³ *Available at:*

http://www.swrcb.ca.gov/rwqcb7/water_issues/programs/tmdl/tmdl_current_projects.shtml#salton.

⁴ *Available at:*

http://www.swrcb.ca.gov/coloradoriver/water_issues/programs/salton_sea/.

⁵ *Available at:* <http://www.legis.nd.gov/information/acdata/pdf/33-16-02.1.pdf>.

FRIENDS agrees with DWQ that biocriteria should be established and are useful tools for determining use impairment of water bodies even when numeric criteria for individual pollutants are being met. A narrative biological standard alone, however, does not provide sufficient standards to ensure meaningful implementation of biocriteria, and therefore Utah should continue to develop detailed scientific protocols for biocriteria.

Congress' goal in enacting the Clean Water Act was to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Federal Water Pollution Control Act, 33 USC § 1251(a). Water Quality Standards must serve this greater purpose. 33 USC § 1313(c)(2)(A). Therefore, the purpose of the Clean Water Act is not only to protect one aspect of the nation's waters, but all aspects, the biological, chemical, and physical integrity of the waters. A separate narrative water quality standard for biological water quality will be an excellent tool for expanding the protection Utah affords its water bodies, but such a standard must be applied in addition to current narrative and numeric criteria, and may not be considered a substitute for other types of water quality standards and criteria.

In its current draft form, DWQ's narrative biological standard provides that the standard, "shall not be used for regulatory and enforcement actions." This provision impermissibly violates the Clean Water Act. The Clean Water Act requires all discharges to meet each and every applicable water quality standard. 33 USC § 1313(a)(1). Therefore, UPDES permits shall be required to meet the narrative biological standard to the same degree as any other standard for water quality. This language also impermissibly limits DWQ's discretion. For example, if biocriteria were being violated downstream from a major discharge, DWQ must be able to take appropriate action in order to enforce the applicable water quality standard and resolve the violation. However, DWQ cannot do so if the standard cannot be used in enforcement actions. Although we understand that it may be more challenging to translate violations of biocriteria into enforceable permit requirements, that does not eliminate the legal requirement to do so, and DWQ cannot rid itself of valid regulatory authority to implement that duty wherever possible.

3. FRIENDS supports DWQ's efforts to establish a methyl mercury criterion and implementation methods, but encourages DWQ to use EPA's methyl mercury criterion guidance report as a basis for this process. Moreover, DWQ is required to adopt an elemental mercury criterion as well, because elemental mercury is the original source of methyl mercury, and a control only on methyl mercury will fail to address mercury contamination issues in the Great Salt Lake and other water bodies in Utah.

FRIENDS supports DWQ's plans to promulgate methyl mercury criterion and implementation plans. However, in doing so, DWQ may not use methyl mercury criterion as a replacement or substitute for water quality criteria addressing elemental mercury. Both forms of mercury are dangerous to the environment, and elemental mercury is required to create methyl mercury. *See*, Benoit, J., C. Gilmour, A. Heyes, R.P. Mason, C. Miller. 2003. Geochemical and Biological Controls Over Methylmercury

Production and Degradation in Aquatic Ecosystems. In: “Biogeochemistry of Environmentally Important Trace Elements,” ACS Symposium Series #835, Y. Chai and O.C. Braids, Eds. American Chemical Society, Washington, DC. pp. 262-297;⁶ Ekstrom, E.B., F.M.M. Morel, J.M. Benoit, Mercury Methylation Independent of Acetyl-CoA Pathway in SRB. *Appl. and Environ. Microbiol.*, 69 (9) 5414 – 5422 (2003).⁷

As part of its methyl mercury program, therefore, DWQ must promulgate numeric water quality criterion for both elemental mercury and methyl mercury in Great Salt Lake and elsewhere. This would advance Utah’s progress in meeting its obligatory duty to promulgate numeric water quality criteria for Great Salt Lake. 33 U.S.C. § 1313(a)(3)(A-C)(2000), 33 U.S.C. § 1313a (1981). High concentrations of mercury and methyl mercury are currently polluting Great Salt Lake. *See*, Naftz, David; Fuller, Christopher; Cederberg, Jay; Krabbenhoft, David; Whitehead, John; Garberg, Jodi; and Beisner, Kimberly (2009) “Mercury inputs to Great Salt Lake, Utah: Reconnaissance-Phase results,” *Natural Resources and Environmental Issues*: Vol. 15, Article 5.⁸ This USGS study suggests that the lake’s unique chemistry may actually speed up the conversion of mercury to a more toxic form, methyl mercury. **A key conclusion of the study was that all the water samples collected exceeded mercury criteria for protection of aquatic life in marine environments.** A good way to begin addressing this problem is for DWQ to set numeric water quality criteria for both types of mercury in Great Salt Lake. We encourage DWQ to make mercury and methyl mercury criteria for the Great Salt Lake among its highest priorities in the coming months.

4. FRIENDS supports DWQ’s efforts in promulgating and implementing statewide nutrient criterion for Utah’s waters, as long as DWQ establishes a nutrient criterion for Great Salt Lake’s four major bays, as well as Willard Spur. Moreover, the resulting criterion must be sufficient to protect each water body.

Nutrient pollution, especially from nitrogen and phosphorus, has consistently ranked as one of the top causes of degradation in U.S. waters for decades. Excess nitrogen and phosphorus lead to significant water quality problems, including harmful algal blooms, hypoxia and declines in wildlife and wildlife habitat. Excesses have also been linked to higher amounts of chemicals that make people sick.

Nutrient pollution, generally nitrogen and phosphorus pollution, is one of the top three causes of impairment of the nation’s waters. Collectively, 49 states have listed over 10,000 nutrient and nutrient-related water quality impairments. As a result, EPA, the states, and the public have placed high priority on reducing nutrient water pollution through the promulgation of numeric nutrient Water Quality Standards (WQS). These standards will enable water quality assessment and watershed protection management, as well as facilitate more effective and efficient program implementation, including easier

⁶ Available at:

<http://www.serc.si.edu/labs/microbial/pubs/Benoit%20et%20al.%20ACS%202003.pdf>.

⁷ Available at: <http://geoweb.princeton.edu/research/tracemetals/pdf/ekstrom2003.pdf>.

⁸ Available at: <http://digitalcommons.usu.edu/nrei/vol15/iss1/5>.

and faster development of Total Maximum Daily Loads (TMDLs) and National Pollution Discharge Elimination System (NPDES) permits. Consequently, EPA has encouraged all states to accelerate adoption of numeric nutrient WQS or numeric translators for narrative standards for all waters that contribute nutrient loadings to the Nation's waterways.⁹

Farmington Bay illustrates the problem with nutrient pollution in Utah's water bodies. Farmington Bay suffers from excess nutrients and algal growth, which is commonly called eutrophication. The conditions eutrophication engenders allow for excessive algal blooms and the growth of toxic cyanobacteria. Most of these problems could be addressed by DWQ adopting a numeric nutrient criterion for Farmington Bay¹⁰.

Once again, FRIENDS stresses that DWQ has a legal obligation to establish and implement statewide numeric nutrient criteria that will include all Utah water bodies.

5. FRIENDS supports a translator for Great Salt Lake selenium criterion from a tissue standard to a water-based standard. However, the current selenium standard is insufficiently protective and must be reissued at a level that provides greater protection for migratory birds.

FRIENDS agrees with DWQ that a translator is necessary for the selenium standard. However, FRIENDS still also believes that the current selenium standard is improper and violates the Migratory Bird Treaty Act (MBTA).

Approval of a Water Quality Standard Based on Egg Mortality Would Violate the MBTA and Executive Order.

Legal Background

Congress passed the MBTA in 1918 to implement a treaty between the United States and Great Britain protecting migratory birds in North America. *See generally Missouri v. Holland*, 252 U.S. 416 (1920). The MBTA now implements four bilateral migratory bird treaties signed between the United States and Canada (entered on Canada's behalf by Great Britain), Mexico, Japan and Russia.¹¹

Justice Holmes observed that the Migratory Bird Treaty signed between the United States and Great Britain establishes a national approach to the management of migratory bird populations. *Missouri v. Holland*, 252 U.S. at 435. "Wild birds are not in

⁹ See Western Resource Advocate's January 2010 Triennial Review Comments

¹⁰ See Western Resource Advocate's January 2011 Integrated Report Comments

¹¹ Convention for the Protection of Migratory Birds, Aug. 16, 1916, U.S.-Gr. Brit., 39 Stat. 1702, T.S. No. 628; Convention for the Protection of Migratory Birds and Game Mammals, Feb. 7, 1936, U.S.-Mex., 50 Stat. 1311, T.S. No. 912; Convention for the Protection of Birds and Birds in Danger of Extinction and their Environment, Mar. 4, 1972, U.S.-Japan, 25 U.S.T. 3329, T.I.A.S. No. 7990; Convention Concerning the Conservation of Migratory Birds and their Environment, Nov. 19, 1976, U.S.-U.S.S.R., 29 U.S.T. 4647, T.I.A.S. No. 9073.

the possession of anyone. . . . The whole foundation of the State's rights is the presence within their jurisdiction of birds that yesterday had not arrived, tomorrow may be in another State and in a week a thousand miles away." *Id.* at 434. "Here, a national interest of very nearly the first magnitude is involved. It can be protected only by national action in concert with that of another power." *Id.* at 435. *Missouri v. Holland* acknowledges that under the Treaty, the signatories, including the United States, have ceded absolute and unfettered control over the management of migratory bird populations. *Id.* at 434.

To implement these national policies, the MBTA makes it illegal to "pursue, hunt, take, capture, kill, attempt to take, capture, or kill" any migratory bird or "any part, nest, or egg of any such bird . . . by any means or in any manner," 16 U.S.C. § 703(a), except as authorized by a valid permit issued pursuant to regulations. *See* 50 C.F.R. § 21.11.¹² Pursuant to 16 U.S.C. § 704(a), Congress authorized the Secretary of Interior, acting through the U.S. Fish and Wildlife Service, to regulate when and to what extent migratory birds may be captured or killed. The Fish and Wildlife Service has responded with a permit program that regulates activities involving migratory birds and issuing permits that, in limited circumstances, allow the take of migratory birds or their eggs. 50 C.F.R. § 21. The Fish and Wildlife Service does **not** offer a permit that authorizes the unintentional take of migratory birds that would result from a bird egg tissue water quality standard based on egg mortality. *Id.*

The MBTA prohibits both intentional and unintentional take of migratory birds and their eggs. For example, in *United States v. Corrow*, 119 F.3d 796 (10th Cir. 1997), *cert. denied*, 522 U.S. 1133 (1998), the Tenth Circuit joined the majority of Circuit Courts of Appeal in holding that violation of the MBTA is a strict liability crime. *Id.* at 805 (collecting cases). "Simply stated . . . 'it is not necessary to prove that a defendant violated the Migratory Bird Treaty Act with specific intent or guilty knowledge.'" *Id.* (quoting *United States v. Manning*, 787 F.2d 431, 435 n. 4 (8th Cir. 1986)); *see also* S.Rep. No. 445, at 16, *reprinted in* 1986 U.S.C.C.A.N. 6113, 6128 ("Nothing in this amendment is intended to alter the 'strict liability' standard for misdemeanor prosecutions under 16 U.S.C. § 707(a), a standard which has been upheld by many Federal court decisions."); *United States v. Wood*, 437 F.2d 91 (9th Cir. 1971) (same). Indeed, "courts consistently hold that the MBTA applies to both intentional and unintentional behavior." *Center for Biological Diversity v. Pirie*, 191 F.Supp.2d 161, 175 (D.D.C. 2002), *vacated on other gds.*, 2003 WL 179848 (D.C. Cir. Jan 23, 2003).

Finally, the prohibitions of the MBTA apply to federal agencies. *Humane Soc. of the U.S. v. Glickman*, 217 F.3d 882 (D.C. Cir. 2000); *City of Sausalito v. O'Neill*, 386 F.3d 1186, 1203-04 (9th Cir. 2004) (*citing Clarke v. Secs. Indus. Ass'n*, 479 U.S. 388, 399 (1987)); *Seattle Audubon Soc'y v. Evans*, 952 F.2d 297 (9th Cir. 1991); *Mahler v. U.S. Forest Service*, 927 F. Supp. 1559 (S.D. Ind. 1996); *see also Robertson v. Seattle Audubon Soc.*, 503 U.S. 429 (1992). In fact, the Fish and Wildlife Service recently

¹² The relevant regulations further define "take" as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect." 50 C.F.R. § 10.12 (1997).

concluded that the U.S. Environmental Protection Agency (EPA) is bound by the MBTA to prevent the take of migratory birds that would result from a proposed Great Salt Lake selenium standard allowing 10 percent egg mortality. Letter from Acting Regional Director, Mountain-Prairie Region, Fish and Wildlife Service to Acting Administrator, EPA Region 8 (May 18, 2009) (FWS Letter), Exhibit A, attached.

Executive Order 13186 – “Responsibilities of Federal Agencies to Protect Migratory Birds”

In 2001, President Clinton promulgated Executive Order 13186 to further “the purposes of the migratory bird conventions [and] the Migratory Bird Treaty Act[.]” Initially, the President recognized that “[m]igratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries.” EO 13186, Sec. 1.

The Order “directs Executive departments and agencies to take certain actions to further implement the [MBTA].” For example, Federal agencies are required to “prevent or abate the pollution . . . of the Environment for the benefit of migratory birds” and “develop and use principles, standards, and practices that will lessen the amount of unintentional take” that are “reasonably attributable to agency actions.”¹³ *Id.* at Sec. 3 (e)(3) & (9); *Id.* at Sec. 3(f) (encouraging Federal agencies to comply with Section 3 (1-15) prior to entering memoranda of understanding).

The Proposed 12.5 µg/g Dry Weight Selenium Standard for Great Salt Lake

EPA is currently considering whether to reject a proposed selenium standard for Great Salt Lake of 12.5 µg/g dry weight in egg tissue. This proposed standard, submitted for EPA approval by the Utah Division of Water Quality, is based on modeling that predicts – **as the most likely result** of this concentration of selenium in egg tissue – 10 percent mortality of mallard eggs. This same modeling predicts, even under the best case – which has only a 2.5 percent chance of occurring – a 4 percent mortality of mallard eggs.¹⁴ Because best estimates conclude that the 12.5 µg/g dry weight standard would

¹³ Under the Executive Order, each Federal agency whose activities may adversely affect migratory birds is required to enter into a Memorandum of Understanding (MOU) with the Service, outlining how the agency will promote conservation of migratory birds. Although the MOUs are still under development, per the Executive Order, Federal agencies are encouraged to immediately begin implementing conservation measures.

¹⁴ Mallards are believed to be fairly sensitive to selenium toxicity. However, comparative toxicity profiles are available for very few bird species. Moreover, of the handful of species for which such data exists, at least two species, American coot (Ohlendorf et al. 1986) and chickens (reviewed in Detwiler 2002), are known to be more sensitive to selenium than mallards. As a result, it has been suggested that 25 percent of bird species are more sensitive to selenium than are mallards. This means that a water

lead to 10 percent mortality in bird eggs, it is considered to have an “effects concentration” of 10 or an “EC10.”

In furtherance of its role as the agency responsible for implementing and enforcing the MBTA, the Fish and Wildlife Service has asked EPA to reject the proposed EC10 selenium standard for Great Salt Lake, explaining that approval of the standard would violate the MBTA. FWS Letter, Exhibit A. Initially, the Fish and Wildlife Service determined that the EC10 standard would have, as “an inevitable outcome,” the take of Great Salt Lake’s migratory birds. *Id.* at 4. This is because the models of the effects of the standard predict 10 percent mortality of migratory bird eggs. The Fish and Wildlife Service further stated that EPA approval of an EC10 water quality standard would be inconsistent with Executive Order 13186 and would frustrate the goal of the long-term conservation of Great Salt Lake’s migratory birds. To avoid running afoul of the MBTA, the Fish and Wildlife Service recommended that EPA set the selenium standard for Great Salt Lake “at a no effect level” of 5 µg/g dry weight. *Id.*

Violation of MBTA

Therefore, the unintentional take of migratory birds, such as by adopting a bird egg tissue criteria for selenium that is associated with known or observed effects such as Utah’s proposed bird egg tissue standard of 12.5 µg Se/g dw, is prohibited. Moreover, the MBTA requires a standard for selenium be established at a “no effects concentration” for bird egg tissue.

The MBTA prohibits a water quality standard that predicts the mortality of migratory birds in a variety of ways. First, as a general matter, courts have found that the MBTA prohibits even the unintentional poisoning of migratory birds. *United States v. FMC Corp.*, 572 F.2d 902 (2d Cir. 1978) (upholding prosecution for killing of migratory birds by dumping waste water); *United States v. Corbin Farm Serv.*, 444 F.Supp. 510 (E.D. Cal.), *affirmed on other grounds*, 578 F.2d 259 (9th Cir. 1978) (upholding prosecution for deaths of birds resulting from misapplication of pesticides); *see also Exxon Shipping, Co. v. Baker*, 28 S.Ct. 2605, 2613 (2008) (the Federal government charged Exxon with, and the company pled guilty to, violations of the MBTA resulting from a tanker accident spilling millions of gallons of crude oil into Prince William Sound); *U.S. v. Moon Lake Electric Ass'n, Inc.*, 45 F.Supp.2d 1070 (D. Colo. 1999) (upholding charges against electricity provider for electrocution of migratory birds on power lines); *Center for Biological Diversity v. Pirie*, 191 F.Supp.2d 161 (D.D.C. 2002), vacated, 2003 WL 179848 (D.C. Cir. 2003) (circuit court found the case mooted by the Bob Stump Defense Authorization Act for Fiscal Year 2003, which amended 16 U.S.C. § 703) (holding that military live fire training exercises involved activity that, while not directed at migrating birds, nonetheless resulted in bird deaths that were not incidental but were a consequence of that fire). Applying this reasoning to the present inquiry

quality standard predicted to result in 10 percent mortality in mallard eggs could result in greater mortality rates among other migratory bird eggs.

demonstrates that a water quality standard that predicts the mortality of migratory birds as the most likely outcome of the authorized selenium concentration is unlawful under the MBTA. Under this premise, only a standard that is based on a “no effects concentration” is permissible.

Second, only the Fish and Wildlife Service can properly permit the take – even the unintentional take – of migratory birds. 16 U.S.C. §§ 703(a) & 704(a). EPA, which must ultimately approve any site-specific water quality standard, *see* 33 U.S.C.A. 1313(c), may not circumvent this MBTA requirement by authorizing the take of migratory birds through selenium poisoning. *See Humane Soc. of the U.S. v. Glickman*, 217 F.3d 882 (D.C. Cir. 2000) (because it failed to obtain a permit from Fish and Wildlife Service, Department of Agriculture violated the MBTA by implementing its management plan through means that included the taking of Canada geese); *Center for Biological Diversity v. Pirie*, 191 F.Supp.2d 161 (Secretaries of Navy and Defense must obtain valid permits from Fish and Wildlife Service before conducting military live fire training exercises). Said another way, EPA may not authorize an EC10 water quality standard that allows the take of migratory birds without first obtaining a permit from Fish and Wildlife Service. Without a permit, such a move would be arbitrary and capricious and a violation of the MBTA.¹⁵

Third, EPA may not approve a water quality standard under its Clean Water Act authority that contravenes the MBTA. Such authorization would violate the Administrative Procedures Act (APA), which prohibits agency actions that are arbitrary and capricious or otherwise in violation of the law. 5 U.S.C. § 706(2)(a); *see also Fund For Animals v. Norton*, 281 F.Supp.2d 209 (D.D.C. 2003) (plaintiff may sue federal agency under the APA for violations of the MBTA); *Center for Biological Diversity v. Pirie*, 191 F.Supp.2d at 175; *Hill v. Norton*, 275 F.3d 98, 103 (D.C.Cir. 2001); *Humane Society of the United States v. Glickman*, 217 F.3d 882 (D.C.Cir. 2000) (holding federal agency action in violation of MBTA violates “otherwise not in accordance with law” provision of the APA).

Fourth, DWQ is likewise bound by the MBTA. For the reasons stated above, the agency is also prevented from authorizing the take of migratory birds. By promulgating and applying a water quality standard that foresees mortality among migratory bird eggs, the agency would be in violation of the Act.

Fifth, selenium discharges are subject to prosecution under the MBTA. As case law confirms, actors otherwise participating in lawful activity are liable for even the unintentional deaths of migratory birds. *E.g. U.S. v. Moon Lake Electric Ass'n, Inc.*, 45 F. Supp. 2d 1070 (D. Colo. 1999) (rural electrical distribution liable under MBTA for

¹⁵ Of course, the Fish and Wildlife Service has determined that there is **no** permit that allows the take of migratory birds as implicit in a water quality standard. Therefore, no entity, including EPA, could obtain such as permit under the current statutory and regulatory scheme.

unintended bird deaths caused by its power lines).¹⁶ As a result, an entity with a purportedly valid permit that discharges selenium in concentrations sufficient to cause mortality in bird eggs could be liable under the MBTA.

Finally, EPA – again, the federal agency charged with approving the SSO – is bound by the MBTA and Executive Order 13186 to prevent the discharge of pollutants for the benefit of migratory birds and to develop and use standards that will reduce unintentional take. Plainly, when given a choice between a water quality standard that unlawfully takes migratory birds and one that does not, EPA is legally bound by the MBTA and Executive Order 13186 to authorize only the standard that does not result in a take.

Approving a Water Quality Standard that Allows the Likely Selenium Poisoning of Waterbird Eggs Constitutes an Unlawful “Take” of Migratory Birds.

Legal Background

To contend that the MBTA does not prohibit the taking of migratory birds by selenium poisoning, it has been argued that the MBTA does not prohibit the adverse modification of migratory bird habitat and that selenium poisoning is a habitat modification. For example, the *Seattle Audubon* Court distinguished between the word “take” as defined by the MBTA, and as defined by the Endangered Species Act (ESA), to hold that the MBTA does not forbid the U.S. Forest Service and Bureau of Land Management from authorizing timber cutting on lands that may provide suitable habitat for the northern spotted owl. *Seattle Audubon Soc’y v. Evans*, 952 F.2d 297, 302-03 (9th Cir. 1991). The MBTA “makes it illegal to ‘pursue, hunt, take, capture, kill, attempt to take, capture, or kill’ any migratory bird or ‘any part, nest, or egg of any such bird ..., by any means or in any manner,’ 16 U.S.C. § 703, except as permitted by valid permit issued pursuant to regulations. See 50 C.F.R. § 21.11.” *Id.* at 302; *Newton County Wildlife Ass’n v. U. S. Forest Serv.*, 113 F.3d 110, 115 (8th Cir. 1997) (same). “Take” is, in turn, defined by regulation as “pursue, hunt, shoot, wound, kill, trap, capture, or collect,” or to attempt any such act. 50 C.F.R. § 10.12.

However, while the ESA makes it unlawful for any person to “take” endangered or threatened species, 16 U.S.C. § 9(a)(1)(B), it goes further than the MBTA by defining “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect.” 16 U.S.C. § 3(19). Under the ESA, “harm” is defined as including “significant habitat modification or degradation where it actually kills or injures wildlife.” 50 C.F.R. § 17.3. As the *Seattle Audubon* Court stated, the ESA’s “broadest term, ‘harm,’ . . . is not included in the regulations under the Migratory Bird Treaty Act.” *Id.* at 303.

¹⁶ *E.g. see also U.S. v. FMC Corp.*, 572 F.2d 902 (2d Cir. 1978); *U.S. v. Corbin*, 444 F.Supp. 510 (E.D. Cal. 1978), *Exxon Shipping*, 28 S.Ct. 2605 (2008); *CBD v. Pirie*, 191 F.Supp.2d 161 (D.D.C. 2002).

Thus, while noting that the MBTA does prohibit even unintended poisoning of birds, the Court concluded that habitat modification, including destruction that leads to bird deaths, is “harm” under the ESA but not “take” under the MBTA. *Id.* In other words, “[h]abitat destruction causes ‘harm’ to the owls under the ESA but does not ‘take’ them within the meaning of the MBTA.” *Id.*

Newton County Wildlife Ass’n v. U. S. Forest Serv., 113 F.3d 110 (8th Cir. 1997), expressly followed Seattle Audubon to hold that the MBTA did not prohibit the Forest Service from proceeding with four timber sales. Similarly, in *Mahler v. United States Forest Serv.*, 927 F. Supp. 1559, 1574 (S.D. Ind. 1996), the Court announced that “MBTA and regulations promulgated under it make no mention of habitat modification or destruction” and therefore that “habitat destruction in the form of logging causes ‘harm’ under the Endangered Species Act but does not ‘take’ birds within the meaning of the MBTA.” See also *Citizens Interested in Bull Run, Inc. v. Edrington*, 781 F. Supp. 1502 (D. Or. 1991) (“a ‘taking’ under the MBTA does not include habitat modification resulting from Forest Service sales activity”).

Thus, it is not appropriate to rely on a single line of cases that hold that federal approval of timber sales, which would adversely modify or even destroy migratory bird habitat, was not unlawful under the MBTA. As those courts noted, the scope of the MBTA does not preclude harm to birds that results from habitat loss, but rather prohibits the killing and take of migratory birds.

Selenium Poisoning is a “Take” of Migratory Birds, not an Adverse Modification of Habitat.

It would be wrong to suggest that an egg-tissue based water quality standard that predicts the mortality of migratory bird eggs constitutes a modification of habitat, not a take. In other words, in an attempt to circumvent the prohibition of the statute, one may not equate the release of toxic selenium into the environment with authorizing the cutting down of trees. For several reasons, this argument is ill-conceived.

First, and most obviously, the models on which, for example, an EC10 standard is based, predict the mortality of 10 percent of migratory bird eggs. This means that the models do not foresee the modification of migratory bird habitat – the place where the birds live – as the potential threat to birds. Rather, the models specifically forecast the killing of bird eggs as a result of the release of selenium into the water. Thus, the very basis for the EC10 standard is an acknowledgement that the concentration of selenium the standard permits will result in the take of migratory bird eggs.

Second, selenium is regulated precisely because it has the potential to kill migratory birds. Selenium is a toxic water pollutant. List of Section 307(a) Priority Toxic Pollutants, Appendix P, Water Quality Standards Handbook, Second Edition. The Clean Water Act defines “toxic pollutant” as any

pollutant[] . . . which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will . . . cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

Clean Water Act, § 503(13), 33 U.S.C.A. § 1362(13). Thus, the definition of toxic pollutant underscores that the very reason that selenium is regulated under the Clean Water Act is because the toxin has the potential to kill organisms and their offspring. This, applied in the context of the water quality standard, demonstrates that the anticipated outcome will indeed occur – selenium will kill bird eggs.¹⁷ Plainly, neither the statutory scheme of the Clean Water Act nor the water quality standards itself indicates that selenium causes habitat modification.

Third, *Seattle Audubon* and the other habitat modification cases have no bearing on the present inquiry. Indeed, *Seattle Audubon* itself distinguishes between habitat alteration, which the MBTA does not prevent, and the poisoning of birds, which the MBTA does prohibit:

Courts have held that the Migratory Bird Treaty Act reaches as far as direct, though unintended, bird poisoning from toxic substances. *See, e.g., United States v. FMC Corp.*, 572 F.2d 902 (2d Cir. 1978) (killing of migratory birds by dumping waste water); *United States v. Corbin Farm Serv.*, 444 F.Supp. 510 (E.D. Cal.), *affirmed on other grounds*, 578 F.2d 259 (9th Cir. 1978) (deaths of birds resulting from misapplication of pesticides). In *FMC Corp.*, the Second Circuit imposed strict criminal liability for poisoning birds by analogizing to principles of strict tort liability arising from dangerous conditions or substances. 572 F.2d at 906-08. That case involved the manufacture of a highly toxic pesticide. *Id.* at 906. In *Corbin Farm Serv.*, the district court simply held that the MBTA can “constitutionally be applied to impose criminal penalties on those who did not intend to kill migratory birds.” 444 F.Supp. at 536.

952 F.2d 297, 303 (9th Cir. 1991); *Mahler v. Forest Serv.*, 927 F. Supp. at 1574, fn. 8 (citing and agreeing with this analysis in *Seattle Audubon*). Thus, the habitat modification cases recognize a plain distinction between poisoning and habitat destruction, finding that the MBTA prohibits the former. The attempt to gloss over this distinction ultimately fails, not only for the reasons stated above, but because the case law on which the Memo relies does not support its core argument.

Finally, the Fish and Wildlife Service, the agency charged with implementing the MBTA states plainly that the scope of the Act includes a prohibition against a water

¹⁷ Indeed, rather than preventing mortality of bird eggs from selenium poisoning, the concentration of toxic selenium authorized by the standard will most likely result in the mortality of 10 percent of bird eggs.

quality standard that predicts migratory bird egg mortality. The Fish and Wildlife Service also states that, to comply with the law, EPA should adopt a “no effects concentration” standard. As the *Newton County* Court conceded when qualifying its MBTA analysis, “[o]ur conclusions about the apparent scope of MBTA are necessarily tentative because we lack the views of the Fish and Wildlife Service, the agency charged with administering and enforcing that statute.” *Newton County*, 113 F.3d at 115. Here, where we have the benefit of the input of the expert agency, its recommendations should be heeded.

Thus, based on the requirements of the MBTA and determination by the Fish and Wildlife Service, Utah’s proposed selenium standards is insufficiently protective, as would be a translation of that standard to an effluent limit. The only appropriate standard for selenium is a no effect standard.

6. FRIENDS supports additional primary contact recreation (2A) designations for Ogden River, Fremont River, and specific ditches (not named in the list, action item #10).

All water bodies in the state of Utah should be classified for primary contact recreation in order to fulfill the “fishable/swimmable” goals of the Clean Water Act. CWA § 101(a)(2); see also, EPA’s Water Quality Standards Handbook: Second Edition, Ch. 2: Designation of Uses, EPA823/B-94-005a, June 2007).¹⁸ FRIENDS fully supports DWQ’s proposal to reclassify various waters to 2A, suitable for primary contact recreation. Further, this reclassification meets with EPA’s reasons and rationale for approving the 2A/2B distinction in 2009. The 2A/2B distinction can only be proper when both categories protect primary contact recreation. As the agency stated: “these revisions clarify situations where it is appropriate to apply each recreation use designation, and because currently a large majority of waters in Utah are assigned to Class 2B, EPA expects that these[2A/2B use designations for primary recreation] revisions will facilitate an increase in the number of waters assigned to Class 2A. For example, as a result of this rulemaking several heavily-used waterbody segments were moved from Class 2B to Class 2A.” EPA’s Water Quality Standards Action letter, Sept. 30, 2009 at 3.¹⁹

FRIENDS strongly supports designating waters of the state as 2A. FRIENDS encourages DWQ to continue to make this designation for all water bodies of the state, and to make a change to 2A designations a high priority not only during triennial review, but at all times and for all water bodies that do not currently fall under 2A designation but are used for primary contact recreation.

¹⁸ Available at,

<http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm>

¹⁹ Available at, http://www.waterquality.utah.gov/WQS/2009-10-29_UT_WQS_Action_Letter.pdf.

7. FRIENDS opposes any changes of existing beneficial uses for the Jordan River, any individualized criteria that would impair the existing characteristics (i.e.; TDS and temperature), and any downgrade from a Class 2B water. FRIENDS encourages DWQ to instead designate the Jordan River as a class 2A water.

FRIENDS does not oppose site-specific criteria for the Jordan River in principle, so long as those criteria provide either the same or a higher level of water quality protection that it receives currently. The Jordan River is a critically important water body and also flows directly in to Great Salt Lake; therefore DWQ should place a high priority on protection the Jordan River's water quality. FRIENDS does not oppose a reclassification for the designated use of the Jordan River, so long as that designation is for 2A status. Because of the Jordan River's great importance and value, it should be protected accordingly.

When DWQ considers changes to the designated uses of the Jordan River, DWQ should not remove any beneficial use designations. The removal of designated uses is only allowed under the narrow circumstances specified in 40 CFR § 131.10:

(g) States may remove a designated use which is not an existing use, as defined in Sec. 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

(1) Naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

Further, Utah cannot remove an existing use of the Jordan River under 40 CFR § 131.10(h):

(h) States may not remove designated uses if:

- (1) They are existing uses, as defined in Sec. 131.3, unless a use requiring more stringent criteria is added; or
- (2) Such uses will be attained by implementing effluent limits required under sections 301(b) and 306 of the Act and by implementing cost-effective and reasonable best management practices for nonpoint source control.

A designated use, under 40 CFR § 131.3(e), is any use “actually attained on the water body on or after November 28, 1975, whether or not they are included in the water quality standards.” EPA’s water quality handbook clarifies the meaning of existing use to include both whether the use has occurred in the relevant timeframe (after Nov. 28, 1975) or the water quality would have supported the use during the timeframe, whether or not the use occurred. U.S. EPA’s Water Quality Handbook.²⁰

Therefore, DWQ may not remove any designated uses or reduce the water quality protections of the Jordan River unless these strict criteria are met. If DWQ intends to make changes in use designations and water quality criteria on the Jordan River, DWQ should change the criteria so that they afford more protection to the Jordan River, and classify the Jordan River’s designated use under 2A, primary contact recreation. DWQ must make a 2A classification for the Jordan River.

8. FRIENDS opposes the construction exception of R317-2-3.3, and instead of expanding it, DWQ should eliminate the exception entirely because it is likely to exempt from review water quality impacts that will not be *de minimus*.

The construction exception in Utah Admin. Code R317-2-3.2 purports to exempt certain limited construction projects from anti-degradation review, in violation of the CWA and applicable EPA regulations. 33 USC § 1326; CWA § 316; 40 CFR § 131.12 *et seq.* This exception, although it appears only to apply to projects that use best management practices to minimize the effects of pollution, poses a risk of substantial impairment to water quality. Utah Admin. Code R317-2-3.2. Without any level of either monitoring or review, it would be impossible for DWQ to ensure that these projects are actually minimizing the effects of pollution, employing the required management practices, or meeting anti-degradation controls and criteria. EPA requires states to use anti-degradation controls and techniques, including review and monitoring, in order to ensure that minimum water quality required to ensure the protection and preservation the water body’s existing uses. 40 CFR § 131.12. This exception, in its current form, would allow construction projects to be exempt from anti-degradation policies and implementation methods, running a risk that water bodies will become impaired as a result of the discharges and pollutants associated with the projects. Therefore, the exemption violates anti-degradation policy requirements, and should be removed from the Utah Administrative Code. FRIENDS encourages DWQ, instead of expanding this exemption, to eliminate it entirely.

²⁰ Available at:

<http://www.epa.gov/waterscience/standards/handbook/chapter04.html#section4>

9. FRIENDS supports DWQ’s efforts to implement and monitor water temperature criteria. FRIENDS encourages DWQ to expand these criteria to more bodies of water and to promulgate site-specific TMDLs where those criteria are violated. FRIENDS opposes any reduction of monitoring and use of a less rigid assessment methodology.

FRIENDS supports DWQ’s efforts to implement and monitor water temperature criteria. DWQ is required to expand these criteria to more bodies of water and to promulgate site-specific TMDLs where those criteria are violated. FRIENDS opposes any reduction of monitoring and use of a less rigid assessment methodology and narrow focus on thermal discharges as DWQ proposes in their 2011 Triennial List of Topics. Cold water discharges from dams could be just as harmful to warm water aquatic life as a thermal discharge would be to cold water aquatic life. DWQ should work with the TDML team to promulgate site-specific TDMLS for both thermal and cold water discharges.

10. FRIENDS opposes any change to the Anti-Degradation Standards which would reduce the review obligation under R317-2-3. Specifically, FRIENDS opposes the proposed reduction of a Level II antidegradation review. FRIENDS request that DWQ notify them after the finalization of the antidegradation rule so that they may review it.

FRIENDS opposes any change to the Anti-Degradation Standards that would reduce the State’s mandatory review obligations under the Clean Water Act’s Antidegradation Rule. EPA’s antidegradation policy set forth at 40 C.F.R § 131.12 establishes the minimum requirements for all state antidegradation policies, and must apply to all state water bodies. “Tier I” of EPA’s regulation expressly provides that “existing instream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” “Tier II” of EPA’s regulation requires that levels of water quality higher than necessary to protect those uses must be maintained and protected, unless certain specific conditions are met (addressed further below), in all waters in which those conditions exist. While obviously water quality higher than necessary to protect existing and designated uses will not necessarily exist in all of Utah’s waters, the EPA regulation requires that antidegradation requirements must apply to all waters in which those conditions do occur. “Tier III” of EPA’s antidegradation regulation, by contrast, applies only with respect to specifically-identified waters, which are designated as “Outstanding National Resource Waters.”²¹

DWQ, in accordance with 40 C.F.R. § 131.12 (a), promulgated an antidegradation policy and implementation procedure. Utah Admin. Code R317-2-3. However, FRIENDS opposes the proposed reduction of Level II antidegradation review under R317-2-3. The proposed revision to R317-2-3 Antidegradation Policy reads:

- b. An Anti-degradation Level II review is not required where any of the following conditions apply:
 - 1. Water quality will not be lowered by the proposed activity or for existing permitted facilities, water quality will not be further lowered by the proposed

²¹ See Western Resource Advocate’s January 2010 Triennial Review Comments.

activity, examples include situations where:

- (a) the proposed concentration-based effluent limit is less than or equal to the ambient concentration in the receiving water during critical conditions; or
- (b) a UPDES permit is being renewed and the proposed effluent concentration and loading limits are equal to or less than the concentration and loading limits in the previous permit; or
- (c) a UPDES permit is being renewed and new effluent limits are to be added to the permit, but the new effluent limits are based on maintaining or improving upon effluent concentrations and loads that have been observed, including variability; or
- (d) a new or renewed UPDES permit is being issued, and water quality-based effluent limits are not required for a specific pollutant because it has been determined that the discharge will not cause, have reasonable potential to cause, or contribute to an exceedance of a State water quality standard for the pollutant.

DWQ should do away with these examples because they are subject to open-ended discretion and too vague. In example (a), the use of the word “conditions” is ambiguous. Does it mean low flow conditions? DWQ needs to clarify what “conditions” mean. Also, ambient concentrations will be variable even at critical conditions.

In example (c), the word “upon” is ambiguous. Does it mean “lower than”? The subjectivity of “upon” could be problematic and lead to headache down the road.

FRIENDS is particularly concerned with example (d) of the proposed revision. Example (d) illegally shifts the focus of the review from what a Level II ADR requires. The purpose of a Level II ADR is to protect the existing water quality levels even if they are higher than the water quality standards implement by DWQ. This is to ensure that the standard is not exceeded. Example (d), if adopted, would essentially eliminate a Level II ADR altogether.

FRIENDS urges DWQ to adopt all comments EPA made on the proposed antidegradation rule. FRIENDS also request that DWQ notifies them after the finalization of the antidegradation rule and implementation procedures, and allow a sufficient period of time so that they may review it and comment further on it.

11. FRIENDS supports DWQ’s efforts to implement sediment quantity criteria but encourages DWQ to adopted sediment quantity criteria for all water bodies of Utah and to adopt the criteria that protects fish (game and non-game), waterfowl, shorebirds and other water-oriented wildlife. Also, FRIENDS encourages the DWQ to adopt criteria for Great Salt Lake tributaries and the Lake because of its special characteristic of being a terminal lake.

12. FRIENDS appreciates DWQ’s meetings and discussion regarding 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 impounded wetlands assessment. However, FRIENDS would like to note that per our agreement, DWQ is behind schedule in formulating a new assessment method for

impounded wetlands, and FRIENDS is eagerly awaiting more information on this topic including the furtherance of a stakeholder associated with this effort.

13. FRIENDS opposes the use of a class 2B for any Utah water. DWQ is required to designate all bodies of water appropriate for recreation for frequent primary contact recreation under class 2A, and to apply the associated 2A water quality criteria to those water bodies. DWQ should not have changed any of designated uses of the Bays of Great Salt Lake from 2A to 2B, and should restore GSL to 2A status.

First, although EPA has approved DWQ's 2B use designation category, that category cannot be used to give a water body a lower status of protection. Even when EPA allows states to use a designation like 2B, states must still protect those 2B water for primary contact recreation. CWA 101(a)(2) & EPA's Water Quality Standards Handbook: Second Edition, Ch. 2: Designation of Uses, EPA823/B-94-005a, June 2007.²²

Second, EPA also expects that the 2A/2B designation will lead to more waters being classified as 2A, and stated this expectation as a primary reason for approving the 2A/2B distinction. EPA's Water Quality Standards Action letter, Sept. 30, 2009 at 3.²³

Third, EPA also approved the distinction between 2A and 2B for some bays in the Great Salt Lake only because EPA expected all Bays to continue to be designated for primary contact recreation, protected for primary contact recreation, and that the distinction would not cause any relaxation of water quality protection for the Lake. EPA's Water Quality Standards Action letter, Sept. 30, 2009 at 4.²⁴

EPA has also made clear that even if a waterbody were designated for secondary contact recreation, it must be protected at the same level as if it were designated for primary contact recreation. CWA 101(a)(2) & EPA's Water Quality Standards Handbook: Second Edition, Ch. 2: Designation of Uses, EPA823/B-94-005a, June 2007).²⁵ The EPA offers a variety of different options states may choose in order to fulfill this obligation to protect primary contact recreation on its waters in its Water Quality Standard Handbook. Ch. 2: Designation of Uses, 2.1 Use Classification, EPA823/B-94-005a, June 2007.²⁶

²² Available at:

<http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm>

²³ Available at: http://www.waterquality.utah.gov/WQS/2009-10-29_UT_WQS_Action_Letter.pdf

²⁴ Available at: http://www.waterquality.utah.gov/WQS/2009-10-29_UT_WQS_Action_Letter.pdf.

²⁵ Available at:

<http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm>

²⁶ Available at:

<http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm>

The simplest option is the first:

A number of acceptable State options may be considered for designation of recreational uses.

Option 1

Designate primary contact recreational uses for all waters of the State, and set bacteriological criteria sufficient to support primary contact recreation. This option fully conforms with the requirement in section 131.6 of the Water Quality Standards Regulation to designate uses consistent with the provisions of sections 101(a)(2) and 303(c)(2) of the CWA. States are not required to conduct use attainability analyses (for recreation) when primary contact recreational uses are designated for all waters of the State.

Water Quality Standard Handbook. Ch. 2: Designation of Uses, 2.1 use classification, EPA823/B-94-005a, June 2007.²⁷

This option achieves the same result as all the other options for designated uses and corresponding water quality criteria: it requires water bodies to be protected for primary contact recreation. The other options allow secondary contact recreation, or infrequent primary contact recreation designations, but then require the water body to be protected for primary contact recreation. Therefore, the simplest and least-resource intensive option is to designate all water bodies as class 2A, with the appropriate corresponding numeric water quality criteria attached. This is the same result as if there were 2B or other designations, but allows DWQ to focus its resources on more pressing and necessary actions, like establishing numeric water quality criteria for Great Salt Lake. The 2A and 2B is essentially a distinction without a difference, as the effect is the same: protection for primary contact recreation. DWQ should instead focus its resources on water bodies that are impaired, or do not have numeric water quality criteria.

We appreciate the opportunity to comment on this DWQ action. We hope that you will carefully consider these comments as you consider your future actions. Please keep us informed of any and all opportunities to continue to be involved in any agency actions and decisions that will lead to final agency action on this matter. Please inform us of your final action and any chance we have to comment further on or appeal that action. We also request that we be provided with any records associated with this action. Finally, we ask that we be told when any relevant proposals, actions or decisions are presented to EPA for that agency's approval or consideration so that we may comment to that agency prior to any final action taking place.

²⁷ Available at:

<http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm>

Thank you for all you do to protect Utah's waters and aquatic habitats and organisms and particularly, for all you do to safeguard Great Salt Lake and its internationally and nationally important ecosystem.

A handwritten signature in black ink, appearing to be 'Joro Walker', written in a cursive style.

JORO WALKER
ROB DUBUC
Attorneys for FRIENDS

From: "Jonathan B. Ratner " <jonathan@westernwatersheds.org>
To: <cbittner@utah.gov>
Date: 1/6/2011 11:14 AM
Subject: Triennial

Chris,

I would like to see the issue of degraded habitat dealt with clearly. Frequently, I deal with severely degraded conditions which are obvious and severe yet its nearly impossible to list based on anything other than temp and e coli.

Jonathan B. Ratner

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