



## NUTRIENT CORE TEAM MEETING

WEDNESDAY, NOVEMBER 30, 2011

1:30 PM – 4:30 PM

### **PURPOSE**

Seek early engagement from high-level representatives of stakeholder groups as the Division of Water Quality (DWQ) develops a plan for establishing water quality standards and associated nutrient reduction programs and policies for nutrients.

### **MEETING GOALS**

- 1) Review the basics of how nutrients affect aquatic ecosystems, with a focus on the potential for nutrients to alter aquatic life and recreation uses.
- 2) Revisit role of group and get feedback from each member on how groups of stakeholders—specifically agriculture and waste water treatment—view nutrient criteria and actions they have undertaken.

**ATTENDANCE: PLEASE VERIFY ATTENDEES**

**Moderator: Steve Avery**

<u>Representative</u>	<u>Stakeholder Group</u>	<u>Affiliation</u>
Walt Baker	Chairman	DEQ/Division of Water Quality
Florence Reynolds	Drinking Water Utilities	Salt Lake City
Sandy Spence	EPA	USEPA Montana Office
Cameron Diehl	Municipalities	Utah League of Cities and Towns
Elise Boeke	Agriculture	NRCS, State Resource Conservationist
Ron Davidson	Agriculture	UDAF, Assistant Director
Don Leonard	GSL Artemia	Great Salt Lake Brine Shrimp Cooperative, Inc
Erica Gaddis	Science Expert	SWCA Environmental Consultants
Leland Myers	POTW's	Central Davis
Roger Wilson	Wildlife	Utah DNR, Aquatic Section, Program Manager
Jim Webb	Agriculture	Circle 4 Farms
Kathleen Clarke	Agriculture	UDAF, Deputy Director
Niels Hansen	Agriculture	NRCS, State Conservation Agronomist
Fred Hayes	Recreation	Division of State Parks, Deputy Director
Darwin Sorensen	Surface/Groundwater Interface	Utah State University
<b>Support Staff</b>		
Ray Loveless	Agriculture	Technical Expert, Utah Department of Agriculture
John Whitehead	DWQ	Assistant Director, Permits/Compliance/TMDL
Jeff Ostermiller	DWQ	Water Quality Management Section, program manager
Nick von Stackelberg	DWQ	Water Quality Management Section
Mike Shupryt	DWQ	Water Quality Management Section
John Mackey	DWQ	Engineering Section
Leah Ann Lamb	DWQ	Assistant Director, Standards/Assessments/Engineering/GW

**EXCUSED**

Donna Spangler	Public Information Officer	DEQ
Merritt Frye	Environmental Interests	National Rivers Council
Tina Laidlaw	EPA	USEPA Montana Office
Lincoln Shurtz	Municipalities	Utah League of Cities and Towns
Christine Pomeroy	Stormwater	University of Utah
Alan Clark	Wildlife	Division of Wildlife Resources, Deputy

## 1:30 PM - WELCOME, INTRODUCTIONS, AND PURPOSE OF MEETING:

### -STEVE AVERY TIME 3:45

- Steve introduced himself and discussed his philosophy in working with stakeholders to find solutions to complex problems
- Members will be contacted over the next several weeks to get input on how this process is working

## 1:40 PM - REVIEW OF SEPTEMBER 22<sup>ND</sup> MEETING SUMMARY AND NATIONAL UPDATE

### -WALT BAKER TIME 4:45

- Members agreed that the September 21<sup>st</sup> meeting notes are a fair representation of the discussions that occurred during the previous Core Team meeting; DWQ will post these notes online.
- EPA is going to retract their proposed numeric criteria in Florida and accept the approach proposed by Florida that considers both nutrient concentrations and biological responses. Accepting this process is an implicit acknowledgement that independent applicability—strict adherence to numeric criteria irrespective of whether deleterious effects are observed in the environment—is not appropriate for nutrients. This change in position removes a significant barrier to implementing some of the ideas that DWQ has proposed.

## 1:45 PM - NUTRIENTS 101

### -ERICA GADDIS AND DARWIN SORENSON TIME: 11:00

This presentation provided a review of how nutrients affect aquatic ecosystems and how excessive nutrients can potentially degrade aquatic ecosystems. General notes are provided below, but please see the PowerPoint presentation for details.

- Both Nitrogen(N) and Phosphorous (P) need to be considered to address nutrient water quality problems
- When thinking of controls we need to think about both reducing transport to aquatic ecosystems (most common) and making cycles of human use more efficient (less common, but equally important).
  - *Later the group discussed that improving efficiencies within soil-to-crop cycles can improve profits in agriculture, so we should look for opportunities to address this whenever possible.*
- Groundwater inputs are also important, but often ignored. Pineview Reservoir example: inputs of soluble reactive P (9%) and Nitrate (34%) to the reservoir. Often this isn't measured directly and instead is assumed to be a portion of the unknown sources. **Time 31:00**
- Internal loads also can be important contributor of nutrients to aquatic ecosystems; history matters.
- Conceptual models help refine linkages between nutrients and designated water quality uses (i.e., aquatic life, recreation), but as these models become increasingly accurate, they also get quite complex. Site-specific processes are important and need to be considered.
- Linkages to aquatic life use includes: direct toxicity (ammonia, nitrate), low dissolved oxygen, cyanobacteria.
- Both direct effects (e.g., mortality) and indirect effects (i.e., reproduction, biotic interactions) to aquatic life are important, although the latter is typically not well understood.
- The potential exists for excessive to nutrients to affect both fish and birds, but links to birds are less direct or understood.
- Linkages to recreation uses include: nuisance conditions, aesthetics, and human health risks particularly for cyanotoxins (i.e., skin irritants, neurotoxicity).

## COMMENTS/DISCUSSION: TIME 49:00

- How do you determine how many nutrients are needed to support an ecosystem?
  - Tough question that can only be addressed with multiple lines of evidence
  - Best attainable conditions are important

## 2:20 PM - STAKEHOLDER PERSPECTIVES

Members representing the interests of wastewater treatment and agriculture presented the perspective of these stakeholder groups on the following:

- How does nutrient pollution affect your stakeholder group?
- What steps are your stakeholders taking to address nutrient pollution?
- What is the approach your group would suggest to address nutrient pollution?

## AGRICULTURAL PERSPECTIVE TIME 54:00

### KATHLEEN CLARKE

- Agricultural interests are committed stewards, want to be part of the solution
- Many of these businesses are near the breaking point; so there are concerns relative to the costs of any regulations.
- All systems are unique and site-specific conditions need to be considered. No one size fits all solution.
- Both food and clean water are essential for survival; we need to consider both and tradeoffs may be necessary.
- Suggest that a good starting point would be for this group to adopt a set of key values much like what the Immigration Policy Coalition did with respect to the Immigration issue. These defined values should help direct policies, establish balance.

### RAY LOVELESS TIME 56:00

- Manure is an important source
- Soil is an important source, with or without agriculture. Agriculture can improve the health of the soil.
- Nutrients = Money; Producers have a financial incentive to minimize losses or exports to aquatic ecosystems. This is intrinsically understood by all producers, even if the nuances of ecological processes (good and bad) are not.
- Agriculture can be a significant source of nutrients; much is being done to address the problem already. Over \$25M in manure management over the past 10-years.
  - *Q: How the money is being used? A: construction of retention ponds, implementation of nutrient management plans, berms to prevent surface runoff, etc.*
  - *Q: Are there measured improvements? A: Models are used to estimate reductions. Utah AFO Risk Index (model) looks at reductions expected from controls implemented. No direct measurements of water quality improvements.*
- Nutrient Management Plans are used
- 319 projects have been used to reduce inputs, including remediation of riparian areas.
- Producers need to recognize that there is a problem and that changes are needed; some producers are proactive this way, others are not. Education and partnerships are important.
- Approach to address nutrient pollution? Avoid regulatory approaches; focus on incentives and voluntary approaches.
- Have effective partnerships with Farm Bureau, NRCS, DWQ, Department of Agriculture and Food.

- Example of new actions: recent initiative to create an environmental stewardship certificate.
- Niels Hansen
- Farm sustainability issues discussed.
  - Trend toward corporate farms may disconnect production operations from land use/management operations.
  - Deer Creek Reservoir example where wastewater treatment operations were modified to put effluent on land and into an alfalfa crop as well as watershed agriculture operations led to water quality improvements.
  - Similar improvements in Chalk Creek.

### **Elise Boeke TIME 1:23:00**

- Reiterated much of what was previously stated.
- Improving the efficiency of soil-to-plant-soil cycles is important because this improves the overall efficiency of agricultural production.

### **COMMENTS/DISCUSSION:**

- Are there estimates of the amount of money that can be saved by reducing nutrients?
  - Smaller operations are most affected by agriculture, yet larger operations are less sustainable
- Is there a better way for us to measure success or accountability (non-regulatory)?
  - Models are currently used, but cannot necessarily be empirically evaluated
  - Wasatch Co example: Deer Creek Reservoir has turned around, but it has taken many years. The public notices when major problems are addressed, particularly with regard to water clarity.

### **ACTION ITEMS:**

- Group should adopt a set of core values; these could become an important currency against which alternatives are evaluated.

### **WASTEWATER TREATMENT PERSPECTIVE TIME 1:25:00**

#### **LELAND MYERS**

*Please see posted PowerPoint presentation for details.*

- Among treatment plants throughout the United States, there is a HUGE range in the level of treatment that already occurs.
- There seems to be a disconnect between reality and expectations from regulatory bodies, particularly EPA.
- A major underpinning of treatment processes is controlling conditions to favor specific types of organisms, particularly autotrophs vs. heterotrophs. Different organisms are needed to remove different types of nutrients.
- The treatment size and expense increases as the need to remove N & P increase. These relationships are not linear, removing a little is fairly cheap on a per unit basis, removing a moderate amount costs more on a per unit bases, removing a lot is very expensive and technically challenging (requires very specific chemical and conditions).

- Wastewater primary considerations: Wasteload analysis (e.g., the final permit limit), particularly important for effluent dominated ecosystems. Permit limits need to be achievable. Variance policies alone will not cut it, managers want certainty based on affordable limits of technology.
- Limits of technology: membranes work but are VERY expensive.
- Criteria should be science based and tied to attainable uses and conditions.
- The beneficial use needs to be correctly and precisely defined. Surrogates of conditions need to be correct; there needs to be accurate cause and effect relationships.
- How do we address legacy issues, e.g., sediment sinks of historically accumulated nutrients; return to former ecological regimes difficult or impossible.
- Great Salt Lake is an important ecosystem that is poorly understood, important, and needs to be carefully managed. There is much complexity and sometimes competing interests, for example algae mats & airboaters vs. brine shrimp & birds/industry.

**A PROPOSAL OF SEVERAL STEPS THAT COULD BE TAKEN AS “FIRST STEPS” TO ADDRESSING THE PROBLEM:**

**Time 1:53:00**

- Immediately protect Category 1 waters with numeric nutrient criteria; these waters are important, need to be protected, and most directly comparable to reference sites, so we can be more confident in criteria that are derived using reference condition approaches.
- Intermediate water bodies – Follow UAA/TMDL process
- For lower elevation, urban streams – Continue science to determine appropriate numbers, accounting for best attainable and irreversible conditions. Continue to implement remediation activities, using adaptive management, as the science matures. Generate funds to support this science.
- One potential interim remediation could be immediate technological limits that are economically practical
- To address non-point sources, implement the Wisconsin approach: nutrient reductions will only be required if 70% of implementation costs are covered, or 90% of costs in situations of economic hardship.
  - See: [http://dnr.wi.gov/news/BreakingNews\\_Lookup.asp?id=1738](http://dnr.wi.gov/news/BreakingNews_Lookup.asp?id=1738)

**Comments/Discussion: Time 1:59:00**

- The iterative approach may mean that improvements do not occur for a long time; but it is a start.
- **Q:** How do we determine those waters that we are going to temporarily ignore? **A:** those that have experienced significant urbanization. Based upon based attainable uses and irreversible conditions.
- Is Snyderville Basin the only place where large nutrient reductions exist? No, many smaller communities use membranes, but all of these are subsidized.

**3:45 PM DEMONSTRATION OF NUTRIENT WEBSITE ([WWW.NUTRIENTS.UTAH.GOV](http://www.nutrients.utah.gov))**

**-JEFF OSTERMILLER TIME 2:12:00**

Jeff provided a brief overview of the draft website and solicited input into how it can be improved to better meet the needs of the core group or to convey this information to the public.

### Comments/Discussion:

- The group generally felt that the website was easy to navigate
- Changes to the structure may be needed as specific rules or policies are developed
- Members of the group didn't see a problem with DWQ updating the membership page with their e-mail contact information
- Would the DWQ compile a list of nutrient related TMDLs within the State of Utah (and beyond?) and the numeric values that were adopted for the group's review?
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### Action Items:

- DWQ will continue to update the website. If member of the Core Team are aware of material that should be posted, please send them to [jostermiller@utah.gov](mailto:jostermiller@utah.gov).

### 4:00 PM WRAP-UP AND NEXT STEPS

#### -STEVE AVERY TIME 2:06:00

- Steve asked members to think about what policies or procedures you would recommend—from the perspective of your stakeholder group—that would be tenable and actionable.
  - Include both recommendations for getting appropriately protective criteria and implementation programs that will lead to the greatest good for the greatest number of people.
  - What is the best approach for setting standards and for setting policy.
- Steve will call all members to discuss their ideas and create a list of items where folks generally agree and a list of areas where disagreement exists to help guide future discussions.
- Stakeholder Perspectives at the Next Meeting: DNR (wildlife and recreation perspective), Merritt Frye (conservation, NGO perspective), and Tina Laidlaw (national policy perspective)
- Next meeting scheduled for Wednesday, January 25, 2012 from 1:30 – 4:30 PM

### Action Items:

- Steve will prepare and e-mail a list of criteria that he would like team members to consider as they prepare their recommendations for nutrient reduction strategies.
- Member should prepare a list of recommendations to discuss with Steve
- Members should consider, but not limit themselves to, suggestions recently made by EPA in an effort to encourage flexible partnerships for addressing nitrogen and phosphorous pollution:  
[http://www.nutrients.utah.gov/documents/EPA\\_Nutrient\\_Expectations\\_Stoner\\_Memo\\_2011.pdf](http://www.nutrients.utah.gov/documents/EPA_Nutrient_Expectations_Stoner_Memo_2011.pdf)