

Nutrient Core Team Meeting

March 2012

Meeting Purpose/Review of Meeting Summary

- Correction: “40% of streams in Utah have [TN] >0.3 mg/L”
- CO nutrient criteria proposal summary **Time 7:00**
 - We’ll post a summary online
 - Numbers are all really low, even more so for new facilities
 - Phased for site below facilities, but these are implementing immediate tech-based standards
 - Next step...Governor has asked EPA to clarify whether this is a “Federal Mandate”, otherwise laws are not permitted
- MT nutrient criteria proposal **Time 10:30**
 - Again, a summary will be posted...
 - Rulemaking to begin in July
 - Wadeable streams only; larger rivers are site-specific
 - Lagoons are capped at current load, but long-term looking at alternatives other than discharging
 - Interim limits on facilities revisited every 3 years
 - Variance Policy is a major component; all facilities qualify except for Missoula.

State	Waterbody	Class	Constituent	Value	Units
Colorado	Lake	Drinking Water Supply	Water Column Chl a	5	ug/L
Colorado	Lake	Recreation	Benthic Chl a	150	mg/m2
Colorado	Lake	Coldwater Fish	Water Column Chl a	8	ug/L
Colorado	Lake	Warmwater Fish	Water Column Chl a	20	ug/L
Colorado	Lake	Coldwater Fish	Total Phosphorus	25	ug/L
Colorado	Lake	Warmwater Fish	Total Phosphorus	83	ug/L
Colorado	Lake	Coldwater Fish	Total Nitrogen	426	ug/L
Colorado	Lake	Warmwater Fish	Total Nitrogen	910	ug/L
Colorado	River/Stream	Coldwater Fish	Total Phosphorus	110	ug/L
Colorado	River/Stream	Warmwater Fish	Total Phosphorus	160	ug/L
Colorado	River/Stream	Coldwater Fish	Total Nitrogen	1250	ug/L
Colorado	River/Stream	Warmwater Fish	Total Nitrogen	2010	ug/L
Colorado	Effluent	Existing Facility	Total Phosphorus	1	mg/L
Colorado	Effluent	Existing Facility	Total Inorganic Nitrogen	15	mg/L
Colorado	Effluent	New Facility	Total Phosphorus	0.7	mg/L
Colorado	Effluent	New Facility	Total Inorganic Nitrogen	7	mg/L

Montana	Wadeable Streams	All	Total Phosphorus	0.025-0.13	mg/L
Montana	Wadeable Streams	All	Total Nitrogen	0.25-1.1	mg/L
Montana	Effluent	Facilities >1 MGD	Total Phosphorus	1	mg/L
Montana	Effluent	Facilities >1 MGD	Total Nitrogen	10	mg/L
Montana	Effluent	Facilities <1 MGD	Total Phosphorus	2	mg/L
Montana	Effluent	Facilities <1 MGD	Total Nitrogen	15	mg/L
Montana	Effluent	Lagoons	Capped at Current loads		

*note 1 ug/L = 0.001 mg/L or 1000 ug/L = 1.0 mg/L

Florida Court Decision

Time 17:00

Drew Bartlett

- Lawsuit was filed in 1998 that started it all...
- 2009. EPA made a “determination” was made, which compelled them to promulgate if the state doesn’t; based on a lawsuit settlement agreement.
- EPA set criteria for lakes and stream, which lead to ~34 lawsuits.
- Court Decisions
 - Upheld EPA’s right to do this
 - Criteria
 - Main Issue/Complaint: Were the criteria based on a cause-effect relationship?
 - Lakes and springs: these existed and were used to set criteria, but cause-effect couldn’t be found in streams, so reference percentiles were used.
 - The Judge found, as arbitrary & capricious, stream criteria because EPA did not demonstrate a “harmful” effect.
 - Any increase is different from a harmful increase
 - Sent EPA back to the drawing board by May 21st. Hence, speculation that EPA will use the same numbers, just a different justification.
 - Does FL like/support EPA numbers? **Time 28:00**
 - EPA and Florida came up with similar numbers for criteria
 - Florida includes a number of implementation procedures.
 - Most of the disagreement in on how the numbers are used/implementation issues and not the numbers themselves

Florida’s Approach and Lessons Learned

Time 32:00

- FL recognized EPA’s numbers, but focused on implementation. Now most, including the legislature, find the approach reasonable (especially in relation to those proposed by EPA).
- Adopted a priority process that discusses how we obtain a numbers:
 - 1) If TMDL or other site-specific indicator exists then that is the numeric criteria for the water body. [site-specific] (EPA’s proposal would have numeric criteria overrule existing site-specific criteria)

- 2) If not site-specific (#1), then any type of criteria that has established via cause-effect relationships applies.
 - 3) If neither 1&2, then use a reference approach coupled with a biological assessment:
 - Uses algae and macroinvertebrates
 - If both are healthy, then the site is in attainment.
 - If mixed, use a weight of evidence approach. Numeric indicators are fairly conservative, but also need to see a biological response. Considered healthy if algae/plants is okay and either bugs or reference condition is maintained.
- Permits are based on reasonable potential and would mostly be captured in the site-specific processes and evaluations. New discharges bare burden of proof that they will not cause a deleterious effect.
 - There has been much more buy-in with this approach; the rule had to go through their Board and get a bill passed in the legislature.
 - Variances were not used because there is a huge distaste among stakeholders; feeling was that site-specific and biological response approach is a cleaner way of addressing the issue.
 - Florida has eliminated over ½ of their discharges already.
 - Are there Independent Applicability roadblocks?...Not an issue because the biological and numeric criteria are part of the same standard. Plus, FL had to demonstrate that indicators could detect nutrient problems.

Conservation Perspectives (Merritt Frey, River Network)

Time 53:00

- Concern varies much across the country because the river network is essentially a consortium of local watershed groups (~500 nationwide)
- Riparian buffer initiative associated with nutrient criteria
- Ideas and approaches that the group would suggest to address nutrients:
- Technology-based limits (P & N) to gauge effectiveness
 - Something like 1mg/l **P** & 10 mg/l **N**
 - Tied to a response in a water body
 - Idea that progress must be shown within five years (or another reasonable period) or else effluent limits are reduced (Wisconsin model).
- Utah-Specific Criteria
 - Classification: water body type & ecoregion
 - Include variance policy and other areas of flexibility, this need is recognized by conservation groups
- Longer-term NPS Strategy
 - Trading policy? (stated skepticism and that often not frequently uses)
 - NPS include a cost-share strategy
- Question about both site-specific vs. variance approached
 - Both could be useful, probably depending on the circumstances: e.g., economic versus ecological considerations

- Site-specific, statewide criteria and variances are not necessarily exclusive, can work together.

Artemia Association

Time 1:08:00

- Brine shrimp naupilii are an essential food for young shrimp and some young fish
- The industry actually initiated the limitation of the commercial industry harvest
- The industry supports extensive research program that seeks to maintain an ecosystem perspective to ensuring the long-term health of the lake.
- Brine shrimp and eggs are critical sources of food for a large number of birds; the lake is of hemispheric importance for birds and brine shrimp are part of the reason why this is the case
- Aquaculture is viewed as among the most important protein sources for people around the world, important part of this is GSL
- Support research
- GSL is an important source of economic benefits to Utah, much of which positively influences the US and Utah trade balance
- Nutrients are sequestered in the deep brine layer, but this is only bioavailable when mixing occurs
- The lake does have high level of nutrients, but the brine shrimp grazing prevents extended algae blooms (at least in Gilbert Bay).
- Cyanobacteria are present, but they cannot effectively fix N at the salinity typically observed in GSL.
- GSL is more limited by N than by P
- Brine shrimp populations go through “boom and bust” cycle
- Spring cyst count, and algal abundance and composition are the two biggest factors influencing artemia population, growth and reproduction.
- Early stage brine shrimp cannot digest diatoms
- Overall: 1) ample nutrient availability is essential in GSL, & 2) there is no evidence to suggest that excess nutrients are harming the open waters of GSL
- Critical unknowns: 1) little information about nutrient loading and cycling, 2) N:P ratios, 3) effects of bioherms (biostomes), 4) nutrient transfer among different bays, 5) salinity effects, etc.
- We do not know enough to proceed with nutrient criteria for GSL; nutrients are critical to GSL health
- Any nutrient regulations need to be adaptive and site-specific
- Evaluate critical gaps on nutrients dynamics within the lake and external sources
- Determine what is necessary to support the ecosystem
- Artemia association is not making research requests to avoid regulation, they are willing to do what is necessary, but cannot support standard that does not demonstrate harm and that may harm the brine shrimp resource.

Questions

- **Timing** of nutrient inputs may be of critical importance
- The nitrogen cycle within the lake is not understood
- Farmington Bay is a valuable source of nutrients
- Bear River and Farmington Bay inputs are both important, the timing of inputs from each is very different

Report-out of Classification Scheme

Time 1:45:00

Technical Group Discussion

- Larger group, but any consideration of how the numbers get used should come back to the Core Team workgroup.
- Decide to focus on lakes/reservoirs and rivers/streams first. Not enough data to proceed with GSL or wetlands at this point
- DWQ is taking nominations if members think that a technical person from their stakeholder perspective would like to join the Technical Subgroup
- All are welcome to attend Subgroup meetings but would like to keep it science focused
- Technical Subgroup would report back to Core Team with timely results

Implementation Issues Discussion

Time 1:55:00

- This group needs to focus on implementation
- Look at numeric indicators first, then move toward criteria once we have the data to move forward
- Disagreement with regard to how the prioritization takes place
 - Merritt thinks this flips the priorities from where it is needed the most
 - Craig W. does not think that they are mutually exclusive
 - Florence wants to make sure that we that high water streams are protective
 - Site-specific considerations are important; even after conducting a regional approach

Wrap Up

Time 2:15:00

- Merritt would like to see a summary of data that are available so that this can help inform implementation discussions. Where do we have the largest and high quality data?
- How is this process different from a TMDL?
 - Not focused on a single pollutant it is a focus on the condition of the *overall biological health*
- Tasks or major issues to focus on first:

- Variances
- Classification Schemes: how many? How determined? Total number of classes?
- Prioritization approaches
- Use of responses in concern with numeric indicators
- NPS pollution
- Stormwater
- We'll send out a guiding document that describes an overarching approach for the types of things that need to be considered and addressed. Scoping Document.
- Next Time: Christine Pomeroy and Cameron Diehl will present their perspectives