Utah’s Approach to New WQ Criteria for Ammonia

Utah Division of Water Quality
Water Quality Standards Workgroup
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Utah Department of Environmental Quality
Utah’s Approach

Scoping
✓ Recalculation scenarios for presence/absence of sensitive species
✓ Presence of families with sensitive species using existing data
✓ Potential impacts on POTWs

Receiving Waters with Current UPDES permits
- Evaluate whether new ammonia criteria would be exceeded (informational only)
- Phase I: Determine whether sensitive species are present (genus level)
  - Present – adopt new ammonia criteria
  - Not present – discuss phase 2 research to determine if present historically

Non-Receiving Waters
- Evaluate whether new ammonia criteria would be exceeded (informational only)
- Adopt new ammonia criteria

Scoping
- New UPDES permittees could do research in support of site-specific standard when/if necessary

Historical presence or probability of occurrence using spatial statistical models; Potential teaming with other states
## Recalculated Acute Ammonia Criteria Scenarios

<table>
<thead>
<tr>
<th>Criteria¹ (mg TAN/L)</th>
<th>Final Acute Value (mg TAN/L)</th>
<th>Scenario</th>
<th>Species Used for Final Acute Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>33.85</td>
<td>Sensitive mussels and snails present and salmonids absent per USEPA (2013)</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>48</td>
<td>Salmonids and snails present and sensitive mussels absent per USEPA (2013)</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>58.43</td>
<td>Salmonids and sensitive snails present but no sensitive mussels²</td>
<td>Golden Shiner, Pebblesnail, Lost River sucker, Mountain whitefish</td>
</tr>
<tr>
<td>30</td>
<td>60.23</td>
<td>Salmonids present but no sensitive mussels or snails²</td>
<td>Shortnose sucker, Golden Shiner, Lost River sucker, Mountain whitefish</td>
</tr>
<tr>
<td>38</td>
<td>74</td>
<td>Snails present but no sensitive mussels or salmonids per USEPA (2013)</td>
<td></td>
</tr>
</tbody>
</table>

¹Current acute standard is 24 mg/L at 7 pH for Class 3A

²These were recalculated by DWQ by backing out the described species to show the potential impact of sensitive snails on the ammonia criterion. The difference observed between the values provided in the USEPA criteria document and these recalculated values requires further evaluation. The recalculations assume 7 pH and 20°C and that all genus mean acute values are above the 5th percentile.
2013 (new) maximum (acute) ammonia criteria compared to existing criteria at pH=7
2013 (new) maximum (acute) ammonia criteria compared to existing criteria at pH=7 and 8
2013 (new) chronic ammonia criteria compared to existing criteria at pH=8
Gastropod families in Utah that include sensitive species

- **Ancyliidae** (tribe in family Planorbidae): snails/limpets
- **Hydrobidae**: mud snails/spring snails
- **Valvatidae**: valve snails
Bivalve families in Utah that include sensitive species

- **Pisididae**: pill clams
- **Unionidae**: mussels
- **Corbiculidae**: Asian clams

Photo courtesy of CA Dept. of Fish and Wildlife, Aquatic Bioassessment Laboratory
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Determining Presence of Sensitive Mollusks

- Species occur at site if...
  - Are usually present at the site.
  - Are present at the site only seasonally due to migration.
  - Are present at the site intermittently because they periodically return to or extend their ranges into the site.
  - Were present at the site in the past, are not currently present at the site due to degraded conditions, but are expected to return to the site when conditions improve.

- Are these sensitive mollusks present today?
  - Historical records
  - Field surveys
  - eDNA
Discussion/Questions?