

**Chloride TAC Meeting Notes**  
**11/26/07**

**Attendees:** Dr. Robert Baumann, Jay Brady, Michael Coffey, Connie Dou, Susan Heathcote, Adam Schnieders, John Reyna, Greg Sindt, John Olson, Lori McDaniel, Chuck Corell, Lynette Seigley, Mary Skopec

**Chloride Recalculation Presentation:** Connie Dou, presenter; E-mailed to TAC on 11/27/07

**Discussion Issue 1: The Fingernail Clam**

- Are fingernail clams in Iowa streams?
  - Need to keep in mind that fingernail clams may not be in streams currently, but that does not mean they haven't been there in the past. Distribution has been impacted for a variety of reasons.
- Is the fingernail clam representative of other species (mussels?) in different types of streams? Should the fingernail clam be a species of concern?
- Should a broader mussel indicator be used instead of the fingernail clam? There is concern that the fingernail clam is too limited.
  - A more widespread mussel may not be as sensitive.
- About 25 mg/L difference if this species is removed from the calculation. If the fingernail clam is deleted: acute goes from 550 – 575 mg/L; chronic goes from 425 – 450 mg/L
- Acute value comparison

National 304(a) Acute Chloride Value	WI Acute Chloride Value (did not use fingernail clam data)	IA Recalculated Acute Chloride Value
860 mg/L	757* mg/L	550 mg/L

\* Recalculated by adding toxicity data from Wisconsin State Lab of Hygiene only

- The REMAP bioassessment data from Iowa DNR indicates that Fingernail clam (Sphaeriidae) was found in different streams from drainage ditches to relatively large rivers, and in both warmwater and coldwaters.
- Information per Ann Jacobs (EPA) contact with Dr. James Eckblad and Dr. Kelly Poole

*Dr. Eckblad:*

*I am working on water quality issues in Iowa, and I was wondering if You knew which species of finger nail clams occur in Iowa, and whether these species are lentic, lotic, or possibly found in both types of habitats.*

*Thanks in advance for your assistance. --Ann*

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*Ann,*

*There are three genera of fingernail clams [Sphaerium (8 species), Musculium (4 species), and Psidium (about 25 species)] and all three genera occur in Iowa. It really isn't known which of the species in each genus is found in Iowa. They also tend to be found in both lentic and lotic habitats, often associated with suitable substrate types. In studies I've conducted on backwaters of the Mississippi River we usually find just Musculium transversum, but upon occasion we also find Sphaerium striatinum. Sorry I can't give you better information on species distributions."*

- Information per Ann Jacobs contact with Kevin Cummings.

FYI - The Illinois database does not include locational information for fingernail clams.

*Dr. Cummings:*

*I'm working in water quality issues in Iowa and I spoke with Dr. Kelly Arbuckle Poole about collection information and she mentioned that I should contact you. I have used her list and used NatureServe to try to cobble together a list of species and county-level distribution information for Iowa mussels, but I was also wanting to get another source of information to try to be as complete as possible. I don't know if NatureServe would have the same collection information that the INHS database has as well.*

*Is there a way to search the INHS mussel database to get county level collection information for all of the species that occur in Iowa?*

*Response:*

*There sure is. Go to <http://ellipse.inhs.uiuc.edu:591/INHSCollections/mollsearch.html> and type in Iowa in the state field. You can sort it by county (below the search fields). You should get 239 records.*

*What about fingernail clams as well?*

*Sorry no. I don't know how to id a fingernail clam so we don't have any catalogued as yet.*

*Kevin S. Cummings*

*Illinois Natural History Survey*

*<http://www.inhs.uiuc.edu/cbd/collections/mollusk.html>*

*The Mussel Database Project*

*<http://clade.acnatsci.org/mussel/>*

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**Discussion Item 2: Hardness in Iowa**

- Currently there is not enough data at this time to develop a function to take hardness into account.
  - Evidence that hardness attenuates the effect of chloride
  - Is this a correct assumption? Need data to prove
- How variable are Iowa's waters in hardness
  - 300 (median) – 820 (maximum) mg/l hardness as CaCO<sub>3</sub>, as indicated from IDNR Ambient Monitoring data during 2000-2006.

**Discussion Item 3: Fiscal Impact/Technology in Iowa**

- Cities soften water with ion exchange - most of these may violate this new standard which may then "outlaw" ion exchange water softening.
- Hit small communities – never meet 300 standard
  - \$1 billion to meet a chloride standard
- Look at financial impact – look at monitoring data

**Discussion Item 4: Summary of Options**

- Gather more and replicate data.
  - No chronic tests with clams were found
  - Like to see acute test for clams - \$3,000
  - Fingernail clam – Would be nice to have replicated data or find more info on their presence & what would be the species or other species life stages that these represent. Why is fingernail clam more sensitive?
  - More data on snail
  - Tubifex tubifex – not included but may be one of the sensitive species
    - Should be retested; one test (performed at high temperature and high alkalinity conditions) indicated that it might be sensitive
    - High hardness – can also have high alkalinity
- Take fingernail clam out now and recalculate later when more data is available.
- Facilities could calculate site specific criteria - How do you determine if a fingernail clam should be there or not – need to know the reasonable expectation.
- Use recalculated values (still need to choose appropriate chronic option). In the meantime, acquire more toxicity data for Fingernail clam, snail and Tubifex tubifex species.
- Adopt EPA 1988 304(a) criteria

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**Discussion Topics for 12/14 Meeting**

- Chronic Options
- Differentiating between WW 1,2,3
  - Different numeric standards for the different uses
- Differences in chloride values for Coldwater vs. Warmwater streams
- Acquiring more data
  - Would acquiring more data be viable?
  - What would be the timeline for getting more data?
  - How much would it cost? What would be the funding source?
  - More data needed for:
    - 1) Fingernail clam – Acute – resident in Iowa (100 fingernail clams needed)
    - 2) Snail – Acute
    - 3) Tubifex tubifex – Acute
    - 4) Fathead minnow – chronic/acute
- Feasibility of Sulfate/TDS in same rule package