

GSL Science Panel Coordination

ATTENDEES: Theresa Presser
Anne Fairbrother
Bill Wuerthele
Theron Miller
Bill Moellmer

Harry Ohlendorf
Jeff DenBleyker
Martin Grosell
Bruce Wadell
Maunsel Pearce

FROM: Jeff DenBleyker

DATE: May 22, 2007

The following is a summary of key discussion items during the conference call:

Project 5 – Brine Shrimp Kinetics Study

Martin Grosell provided a brief update on progress.

- 1) He completed objective #1 a few weeks ago: *Determine the influence of salinity on selenium uptake and feeding rate by Artemia franciscana*. The Panel decided to proceed with experiments using a salinity of 100ppt. Martin has since nearly completed objective #2: *Determine selenium uptake rates in Artemia franciscana from dissolved selenium concentrations in artificial Great Salt Lake (GSL) water (uptake kinetics)*. He expects to have data for objective #2 available next week.
- 2) While working on objective #2, he has also started some preliminary experiments in preparation for objective #3: *Determine dietary selenium intake and subsequent selenium assimilation efficiency in Artemia franciscana fed a diet of selenium loaded algae cells (Dunaliella viridis)*. Initial observations identified an initial drop in the Se concentration of the culture medium as algae began uptake. The Se concentration in the medium has been measured and adjusted daily to remain near 2 ug/l Se. The Se concentration in the algae has, however, peaked near 120 ug Se/g dw at day 6 and has since dropped to what appears to be a steady state concentration of 12-20 ug Se/g dw at day 19. Algae populations grew exponentially but appear to have leveled out at day 18-19. Martin is seeking input from the Panel as to when to harvest the algae to feed to the brine shrimp.
- 3) Discussion of possible explanations for peak and drop in algae Se concentration:
 - a. Growth dilution? Data appears to show that population and Se concentration are both leveling at around day 18-19.
 - b. Algae are taking up the Se in the water? They are daily measuring Se concentrations and adding Se to maintain a steady concentration.
 - c. Physiology? This seems to be the best explanation.
- 4) The Panel agreed that algae at a “steady state” population and Se concentration should be used for future experiments.
- 5) Action Items.
 - a. Martin will verify the steady state condition over the coming days.
 - b. Martin will analyze the data he has from over the past weekend.
 - c. Martin will discuss and confirm with David Buchwalter.

- d. CH2M HILL will verify the recommended algae concentrations of 3, 15 and 50 ug Se /g dry weight with the Science Panel. There was some thought that perhaps we should look at concentrations closer to what has been measured on the GSL. The general recollection was that the higher concentrations are needed to better define the knee of the curve.

Other Discussion Items

1. CH2M HILL will update and finalize the deep brine analysis memorandum addressing previous low MS/MSD recoveries in deep brine samples. Frontier's most recent work has shown that eliminating oven digestion of the deep brine samples resulted in good recoveries. CH2M HILL will provide recommendations for how to handle deep brine analytical data in the memo and discuss with interested PIs and the Panel on June 12.
2. The Panel confirmed that we will wait with all blood analyses until the USGS finishes their comparison with LET.
3. Bill Adams and Brad Marden collected brine shrimp from the GSL using two sampling methods. LET will analyze samples to allow comparison of methods. Bill Adams is also sending some samples to Texas A&M for verification of results. Jeff DenBleyker reported that the Division of Wildlife Resources samples brine shrimp using a method similar to Brad Marden.
4. The Panel had no further comments on Dave Naftz' or John Cavitt's proposals for 2007 work. Both PIs are underway. Mike Conover has reported that he has completed California Gull sampling for this spring.
5. Jeff asked the Panel to provide any review comments for the Project 3 and 4 final draft reports by the end of May. The Panel agreed that both reports should clarify and describe the uncertainty of measurements made to date. The Project 4 report should give equal weight to all loss mechanisms in the executive summary and should describe ongoing work to refine results in the executive summary and in Section 3.7.
6. Theresa asked Jeff if all brine fly samples were analyzed or not. Table 2 in Wayne Wurtsbaugh's draft report seems to indicate that they were not. Bill Wurthele also asked that Wayne clarify which bird species are feeding upon what and where.
7. Harry summarized the findings reported in the marine bird memorandum. Generally, blood Se concentrations appear to be elevated in marine birds without apparent effects on nest success or egg viability. Maunsel Pearce offered to provide a paper that will soon be published studying the effects of Se in goldeneye in marine environments. He will send it to Jeff for dissemination to the Panel. Theresa asked that Harry also include relevant data available for gulls in fresh water habitats in the memorandum. The memo will continue to be a work in progress until the two bird reports are finalized. The memo will then likely be finalized.
8. Jeff will forward the workplan for sampling proposed at Hailstone NWR as soon as he has comments back from Joe Skorupa.
9. Upcoming Science Panel meetings:
 - a. June 12, 1:00pm MDT - conference call to discuss deep brine issue
 - b. June 19, 1:00pm MDT - conference call
 - c. July 31, 1:00pm MDT - conference call
 - d. August 21/22 - meeting in SLC
 - e. November 28/29 - meeting in SLC