South River Science Team

July 14, 2007 Meeting Minutes

Agenda and all presentations from meeting are on SRST ftp site
ftp://ftp.southriverscienceteam.org/

Meeting was held at DEQ, Harrisonburg and was also presented as a webmeeting for those unable to attend in person.

Agenda – posted below

Topic	Presenter
Welcome, Introductions	Don Kain
Outreach, safety, and community issues	Mike Liberati
Depletion fish sampling efforts, sediment quality triad	Greg Murphy
Field test of pore water samplers	Rich Landis
Update on mass balance evaluations	Jim Dyer
Wren Study	Anne Condon
Update on publications, scientific meetings	Ralph Stahl
Update from exposure task team	Annette Guiseppi-Elie Betty Ann Quinn
ROPS Team Update and plans for new pilot effort	Nancy Grosso
Update on Quantifying the Conceptual Pathway Exposure Model	Nancy Grosso Reed Harris
Nominations / decision on additions to expert panel	All
October expert panel meeting	Don Kain
Wrap–up, recap of action items	Don, all

Action Items:

- Send comments about new expert panel members to Don Kain, Ralph Stahl or Mike Liberati.
- It you have any format or content suggestions for the October Expert panel Meeting, please send comments to Don Kain, Ralph Stahl, Mike Liberati or Jim Dyer.
- Robert Brent commented during Trophic Modification Task Team presentation that we should not forget about the South Fork when looking into recreational opportunities.
- Please contact Paul Bugas or Calvin Jordan if you are interested in participating in or helping sponsor the South River Cleanup Day, scheduled for Sept 11.
- If you are developing a manuscript for publication, please let Ralph Stahl and Kathy Adams know.

South River Science Team

July 14, 2007 Meeting Minutes

Minutes:

Welcome, Introductions: ***Don Kain, DEQ***

Outreach, Safety, and community issues: ***Mike Liberati, DuPont***

- See slides from Mike's presentation
- 15th issue of newsletter has been distributed. It is available on the SRST web site (http://southriverscienceteam.org/).
- Mike shared information about the multiple efforts and tools in place to communicate consumption advisory information to the public (brochures, book marks (new!), wallet cards, river access sign postings, presentations to local groups, newsletters, web, etc.). Discussion of ways to better reach key demographic groups (immigrant populations, in particular). Suggestions to reach these groups through their community gatherings (churches, social events, etc.).
- Team is finalizing the Garden Study fact sheet. This is the 5th fact sheet. All are posted on the SRST website. Factsheets have been a huge success.
- Impressive numbers on SRST publications, presentations, public outreach, reports, references, and student support (internships and undergrad, MS and Ph.D projects). Ralph Stahl noted that the 2010 SETAC Meeting in Portland, OR in November will host a special session on South River mercury. 8 Presentations are planned.
- Ralph also shared status reports on pending publications. The SRST part I manuscript is drafted and is being circulated. Ralph would like feedback on individuals listed as authors. SRST part II is started and will be in draft form by end of summer. It will outline process of prioritizing studies. Ecostudy and garden study papers are underway. All are asked to let Kathy Adams know of any papers being prepared so she can keep the inventory up to date.
- Website is being updated. See slides to see how publications, presentations, public outreach, etc are being incorporated into new web format.
- Paul Bugas shared information on the 2nd annual South River cleanup event. Participation and sponsorship are encouraged. The cleanup covers the South River from Waynesboro to Port Republic and will be held on September 11. Crews will be cleaning up trash from boats and shoreline.

Ecostudy: ***Greg Murphy, URS***

- see slides
- Working on Phase II of ecostudy.
- First round of depletion fish sampling complete and waiting for results. Second round will occur in September. 37 species of fish found.
- Sediment chemistry and toxicity completed. Benthic macroinvertebrate community structure will be completed in October.
- First round In Situ uptake by aquatic insects complete.
- Data collections will continue in late summer/early fall. Phase II data evaluations and BASS modeling will be taking place.

- Also outlined work completed for bank soil, near-bank sediment, pore water, and uptake in seeded clams.
- Next status meeting with NRDC will occur in December.

SR DGT Probe Development: ***Rich Landis, DuPont***

- see slides
- Team is developing thin filmed degraded probe for to passively measure PW gradients in the sediment and compare data to PW collected using conventional methods.
- It has been safely deployed in gravel and FGCM deposits. "Emplacement" tool was important in these applications.
- Rich passed around a couple of probes for all to see and touch.
- deployed 15 depth profiling probes and 10 button types.
- Preliminary results expected in roughly 6 weeks.
- Probes were deployed at RRM 0.1, 3.5, and 11.6.
- Planning broader scale fall deployment along transects in the study areas.
- Focus so far has been on total Hg.

Mass Balance Update: ***Jim Dyer, DuPont***

- see slides
- Models have found a number of data gaps.
- Tribs, millraces, wetlands, and bedrock appear to be minor sources
- Data cannot account for the majority of the mercury in the Lyndhurst to Crimora reach. 90% of filtered inorganic and 36% of filtered methyl mercury cannot be accounted for.
- Benthic flux chambers appear to under-estimate total GW influx (or model over-estimates?). Diffusion cannot account for reach-wide river fluxes.
- Recommend increased focus on measuring "true" pore water concentrations.
- Mass transfer driving force probably not steady state
- Transient models appear to be more effective at showing how mass flux and Hg concentration change with depth, time, and sediment equilibrium partitioning.
- Colloidal transfer component needs to be included.
- DGT probe studies hold promise

Wren Study: ***Anne Condon, US Fish and Wildlife Service***

- see slides
- Fewer wrens using nesting tubes/boxes this year than last year. Occupancy rate was below 5%.
- Wrens are inventive and diverse in their selection of nesting sites. Crews were challenged, finding nesting sites places such as under roots, tree stumps, flower pots and uninhabited trailers.
- Data on reproductive success not yet available.
- Trail "motion sensor" cameras provided surveillance at several nesting sites. This technology is very helpful in determining if clutch size and survival is impacted

by external factors. Interesting video footage shown of bear tearing open nesting tube.

Update on publications, scientific meetings: *Ralph Stahl, DuPont*

- SRST Expert Panel meeting-October 5-6, 2010 in Harrisonburg @ DEQ. Seeking input on key questions for experts in advance of the meeting.
- SETAC Annual Meeting, November 7-11, 2010 in Portland, OR. Special session on South River has been approved. 8 technical presentations expected.
- New manuscripts:
  - J.R. Flanders / Ralph Turner-loading, accepted
  - SRST part 1-internal review
  - SRST part 2- draft at 50%
  - Ecostudy (biological)-outline in prep

Exposure Team Update: *Annette Guiseppi-Elie, DuPont*

- see slides
- Exposure team includes industry, health and environmental regulators, toxicologists, PR staff, and administrators. Placing priority on identifying potential human exposures, assessing those exposures, and communicating findings to the public.
- Garden crop study fact sheet almost complete.
- Assessing human dietary exposure and risk from domestic (beef, poultry) and wildlife (deer, waterfowl) consumption is underway.
- Adequate waterfowl data on hand for now.
- Samples from two deer (one from control site and another from AFC) have been sent for Hg analysis. More will be collected this fall.
- Have formed sub team for creating study plan to examine livestock (beef).
- Health survey completed, waiting for report.
- Communication in manner that reaches target audience is very important. Using multiple approaches (see slide 11).
- EPA has requested more floodplain sampling and the sampling of ponds in the floodplain.

ROPS team updates: *Nancy Grosso, DuPont*

- -see slides
- 3 Task Teams: Engineering Options, Methylation and Demethylation , and Trophic Modification

Engineering Options Team

- Conceptually design and cost out an amendment pilot (SediMite and Biochar), probably in ponded or former millrace areas.
- Conduct a survey of eroding banks and HRADs that might be significant sources of Hg loading to South River.
- Support development of Mescosm Test System for experimental manipulation at South River.
  - Mesocosm – Robert Brent provided an overview of this work. Initial 6-week deployment completed. Units have performed well

and may also have applications for study of GW flux. Doing 2x2 study of clean and dirty water and clean and dirty sediments. Sites at Forestry Center (South River) and JMU Farm (North River).

- Algae sampled at 2, 4, and 6-week intervals (ends Aug 12)
  - -Waiting for Hg data
  - -Mercury source experiment is underway

- **Methylation/Demethylation Processes Task Team**
  - Erin Mack presented - Draft table prepared with literature references on "turnable environmental knobs" that affect meHg production.
  - Literature review on demethylation processes in prep
  - Initial outreach to Oak Ridge as collaborators.
  - Draft figure and table prepared describing effects of nutrients on fish Hg
  - Review of Robert Brent's proposal to characterize SR response to decreased Phosphorus loading from STP
- **Trophic Modifications Task Team**
  - Mike Liberati leading this team
  - Bioaccumulation and Aquatic System Simulator (BASS) model to be used for predictions for stocked fish and other community modifications.
  - River temperature survey to be conducted to identify range of desirable habitat for different fish communities
  - Possible manipulations for increased fish growth rates? In general, higher rate of growth = lower mercury concentrations in tissue.
  - Team will make recommendation to ROPs group
  - Robert Brent encouraged the group to include options in the South Fork Shenandoah, not just South River. Achieving goal of a "safe" fishery may be more achievable in the South Fork and will have much larger effect on the fishing public, due to its much greater area, higher productivity, and higher public use.

Update on Quantifying the Conceptual Pathway Exposure Model: ***Nancy Grosso***

- See slides
- Original diagram created in 2009
- Expert panel requested that fluxes be quantified
- Diagram should identify pathways that can be interrupted, thus reducing exposure by fish.
- New diagram needs numbers to be plugged in
- Trophic level 1 should be subdivided into more categories (crayfish, caddisfly, midge, etc.)
- Identify fluxes for several fish species.
- How can we resolve uncertainties?
- Mike Newman just published a paper with many of the numbers needed for organisms and will get that info to the team for use in quantifying model.

Nominations/decision on additions to Expert Panel: ***All***

- see slides for list of candidates
- Don sent revised list to SRST on July 16 and asked for input to help.
- Panel will be updated before October meeting.

October Expert Panel meeting: ***Don Kain***

Don noted that the next meeting will be our annual Expert Panel Meeting. The meeting will be on October 5 and 6 and will be held at DEQ in Harrisonburg.

All were asked for their feedback on the process for this meeting. In general, we plan to follow the format used last year, with the full team meeting all day on day one and sharing status reports and planned work for the many projects. Then, the expert panel will have some time on the morning of the second day to meet alone, discuss what they have learned, and develop feedback and recommendations for the full team. All will reconvene by mid-morning for discussion/interaction and development of next steps..

Wrap-Up:

Action items (see above) were identified and discussed.

Next Meeting:

The next meeting will be the annual Expert Panel meeting, to be held at DEQ, Harrisonburg on October 5 and 6.