Hinkson Creek CAM Science Team
DRAFT Notes of the March 22, 2013 meeting

Team Members Present: Bob Angelo, Joe Engeln, John Holmes, Jason Hubbart, Robb Jacobson, Dave Michaelson, Dan Obrecht; Barry Poulton

The minutes from the February 2013 meeting were approved.

The Team discussed the status of the Habitat Assessment. MoRAP has received their funding and is working on this after a meeting with some of the science team members. We discussed the current situation concerning funding for the field component.

Jason expressed his concern about the density of points and the team discussed a variety of strategies for sampling with the focus on the number of sites that could be completed in the time allotted. The team discussed increasing sample spacing, not making every observation at every point and potential strategies for densification on a wider sampling spacing. The consensus reached was to sample every 100 meters with densification possible where indicated by the data. Jason will have the action to propose densification to the team when ready.

The team then discussed safety protocols for field work and Dave volunteered to send Jason materials used by DNR. Water conditions, sun, heat, etc. conditions were mentioned as were cell phone and PFD use as well as inoculations.

The Team then discussed the need for and a strategy for collecting replicate samples. Since tasks are assigned the greater concern was a shift in observations over time rather than inconsistency between team members making the same observation. One proposal mentioned was to collect replicate samples ½ day every two weeks or equivalent. Jason agreed to get a revised copy of this to the team about a week before the next meeting with the goal of having it approved at that meeting.

The team then turned to the science needs list from the last meeting and added invertebrate food quality to the list. This would require a measurement of leaf pack quantity and quality (particulate organics, paraphyton, sediment trapped, biofilms). Barry noted that the USGS has a partial protocol developed.

Questions arose as to how to best organize this list (priority, scale of effort, type). The decision was to sort by categories (Biological; Chemical/pollutant; Historical data mining; Modeling and synthesizing) and Joe was tasked with completing this task before the next meeting. (See Below; Note: the editor added a Foundational category)

Agenda for the next meeting: Habitat Assessment Protocol (approval?); Categorized list review; Possible meeting with Charlie Rabeni to discuss historical invertebrate and other data; MoRAP habitat assessment progress report. Subsequent addition: brief discussion of potential “Hot Spot” projects.

Identification of science need

Foundational

1. Is the stream truly impaired? How appropriate are the criteria? (Note that the latter question may be beyond our purview.)
2. Why is Hinkson Creek impaired (diagnoses of problems)?

Biological

1. Do we need increased spatial density of invertebrate data?
2. Can we look more closely at the invertebrate data to look at species based on: impacts of metals; functional feeding groups; pollutant groups?
3. Invertebrate sensitivity to environmental variables and stressors?
4. To what extent do we understand whether habitat or chemical impacts are most critical?
5. How can we assess relative impacts of stressors? (BMP and Hotspot report; John's scoring scale)
6. How critical are bed load and sediment flux and how do we measure these?
7. What do we know about the fish, mussel and other communities? What do they tell us that the invertebrates cannot?
8. Can mussels tell us more about metals, bed stability, siltation, and exposure pathways? (Metal concentrations likely too low; fish presence is additional factor)

Chemical/pollutant

9. What additional chemical data are most desired and under what conditions should they be collected? (Conductivity, Dissolved Oxygen (DO), Turbidity, Chloride, temperature, Total soluble solids (TSS), Poly-aromatic Hydrocarbons (PAH), coarse to fine sediments and adsorbed constituents
10. Are sediment contaminants more valuable as indicators of invertebrate stressors than water chemistry? (DNR did some microtoxicity testing during the 3-phase study in the early 2000's.)
11. Can we obtain salt usage data and how reflective would that data be of total use?

Historical Data mining

12. What historical data exist? (IBI, Species richness vs. reference streams)
13. Can we compare historical data between sites?
14. Is there additional information in the Hubbart data that can be discovered?
15. Will additional information be gained by examining historical invertebrate collections at MU?

Modeling and Synthesizing

16. Do we need to examine the tributaries? (DNR sites bracket some; Flat Branch does have an impact)
17. What is the influence of the tributaries and for what and when are we most concerned with their potential impacts?

18. How do we determine the cost-benefit ratio of additional data gathering?
19. To what extent do the spatial and temporal correlations provide clues to cause and effect?
20. What modeling is needed? Scaling – difficult and expensive? Precipitation vs. hydrology; can we use Sanborn field 5-minute data to gain insight?
21. How to design sampling events in such a way as to tie them to the conditions and then to model across a range of conditions?
22. Rainfall data vs. the design and effectiveness of BMP's?