CNH Lakes Monthly Videoconference

Meeting Minutes, 3/2/2018

1. Paper updates
   1. Framework paper: pending response from Ecosphere
   2. SDP-Cycles paper in progress, estimated May 2018
   3. New developing manuscript idea about lake associations (Leah & Mike)
   4. L&O letters DOC paper from Age of Water (Hilary, Paul, Chris) was accepted
   5. New manuscript in progress: LakeLine magazine
      1. Authorship memo sent out recently
      2. Audience of practitioners and citizens
      3. Short, non-academic, ~2,000 words
      4. Topic: behavioral response to changes in water quality, how we measure it, and why it’s important to understand
2. Modeling team updates
   1. Cycles
      1. Quarter 1, 2018
         1. Working to overlay public “Common Land Unit” data so that rotations can be associated with actual fields, not pixels. Shorthanded on defining representative land areas; would like done by May 31, 2018
         2. Making progress on phosphorus prototype; is conceptually far along, but needs development
      2. Quarter 2, 2018
         1. Identify hydrologically distinctive areas from PIHM by May 31, 2018
         2. Run Cycles for winter crop cover BMPs by May 31, 2018
         3. Incorporate phosphorus by April 30, 2018
   2. PIHM
      1. Quarter 1, 2018
         1. PIHM-Sunapee – Lele calibrating the model right now, conducting parameter sensitivity, complete by late March or April, 2018
         2. Finalized Mendota calibration and passed to GLM team, waiting on final GLM-PIHM runs to talk about papers
         3. Simplified (emulator) for PIHM (water and DOC)
      2. Quarter 2, 2018
         1. Combined PIHM-GLM modeling for Sunapee, write-up and paper development, 2nd-3rd quarter 2018
         2. PIHM Mendota analysis and papers, 2nd quarter 2018
         3. Advancing emulator model - working on making catchment model fully dynamic and add full suite of nutrients
      3. Discussion
         1. Chris will send preliminary Sunapee data to CC, Nicole, Kait for pilot GLM analysis, aim for 10 years
         2. Is there a lot of control on the outlet? Less controlled than Mendota. Have daily water level data from NH Dam Bureau, not regulated except for major drawdown in October, runs through ice-off, lake refills in March-April. Record already reconstructed, necessary for PIHM calibration. CC will send that data to Chris.
   3. SDP
      1. Quarter 1, 2018
         1. Calibrated model for Mendota completed. Land allocation for 6-year corn-alfalfa is held constant. Results: N leaching reaches a maximum in 2010 (question for team – is this realistic?)
         2. Next steps:
            1. Supply curve for N reductions
            2. Cycles BMP scenarios – cover crop is the most often-used in Mendota. Cost information is available. Land retirement and subsidy programs.
            3. Pass model results to GLM team – can we go directly from SDP to GLM?
      2. Quarter 2, 2018
         1. Determine BMPs for scenario analysis
         2. Simulate production effects, costs, and water quality improvements
   4. Hedonic
      1. Quarter 1, 2018
         1. Linked GLM and hedonic model, calculated implicit price under different nutrient loading scenarios
         2. Take TP into hedonic model? Work with CC to go over model outcomes and select best hedonic model to reflect all 3 water quality measures
         3. Hedonic model for Sunapee – same model as for Mendota. Discuss with Kathie last week. Number of observations is too small. Next step involves communicating with LSPA to get more property sales data.
      2. Quarter 2, 2018
         1. Confirm hedonic model results for Sunapee
         2. EMV identification using machine learning
         3. Manuscript for GLM-hedonic paper to be finished by May
   5. Civic Engagement
      1. Quarter 1, 2018
         1. Finish designing protocol for coding documents, working to clarify definitions and streamline process, working toward most systematic method of coding qualitative data (expected completion April/May)
         2. Plan for summer field season for Leah (expected completion May)
         3. Code lake association documents – right now looking at annual reports from LSPA, first step is to count number of donors, volunteers, staff members, etc. each year for the association over last 20-30 years, apply protocol to annual reports and move to other lake association docs (completion in September)
      2. Quarter 2
         1. Framework manuscript linking associations to theories on governance (authorship memo in late April/early May perhaps)
   6. Scaling Up
      1. Quarter 1
         1. Lake and stream connectivity and P retention – completed. Extended to a range of connectivity metrics. Connectivity related to lakes more important than that related to streams.
         2. Approximate P loads with simple modeling approach? Paul estimating time series of P loading in Mendota; thinking about how to extrapolate to larger set of lakes using less data (mean annual loads); by workshop rough comparison across models
      2. Quarter 2
         1. MS on connectivity and P retention submitted by June, 2018.
         2. With P loads in lakes, look at different retention for overall mass balance. (Approximating P loads must be completed first.)
   7. Broader Impacts
      1. Homeowners excited to hear about what we’re doing, think about what feedback we might like from them and how we can engage them.
   8. GLM
      1. Versioning has been a challenge, multiple GLM versions released over the duration of the project. Need to ensure GLM results for Mendota/Sunapee comparable. Driver data differs slightly. Underlying equations in the model versions differ so same driver data can give different results. Could cause large changes in hedonic model. 30-year Sunapee GLM is v2.1.8. The 30-year Mendota GLM is v2.7. Need to identify a long-term strategy for maintaining models. Goal is to put together a “how-to guide” by the end of the workshop. Could set an example for broader scientific community. Need a face-to-face meeting for managing the process (need to make time for this at the workshop!).
      2. Mendota calibration: Long-term dynamics evident in GLM output for Mendota. Total P not working, but speciation working and showing dynamics. Aviah’s project looks at P cycling in lakes/sediment.
      3. Lars – long-term dynamics in polymictic lakes; analyses of that data (P budget); interested in seeing whether Paul’s simple P model works for Oneida. New funding from NY State to look at bluegreen blooms and lake modeling (could happen even next Fall).
   9. Administrative
      1. Link to new project feedback survey sent out after video conference.
      2. New project logo complete! Various file formats are available for use.
      3. Short videos from Year 2 workshop footage will be posted online.