MEETING MINUTES

CNH Lakes – Monthly Video Conference

December 13th, 2019

2:00 – 3:30 pm EDT (1:00 - 2:30 pm CDT)

Attendance: all project team members

1. Welcome & items from the team (Kelly & Reilly)
2. Participant support costs in 2020 (Kelly)
   1. There is agreement among team that best way to use participant support funds will be to bring people to VT for various collaborations
   2. Let us know if you have other ideas along the way!
3. Quarterly check-in slides (everyone)
   * 1. What have you accomplished in 2019 relative to what you hoped to accomplish?
     2. What activities/accomplishments will you pursue in 2020?
   1. Broader Impacts
      1. CyanoSummit in March 2019, at LSPA’s request; Kak, Paul, and Nicole represented CNH
         1. Discussed: what do we know, what do we need to know, should we try to manage cyanobacterial blooms?
         2. We have been able to share with them that it is especially urgent to keep Phosphorus out of the lakes
         3. Decisions based on P concentration today are too late (time lags)
         4. These contributions will help drive monitoring efforts
      2. Brought lessons from CNH to Sunapee Region’s Watershed Plan
         1. LSPA has data on locations of P “hot spots”
      3. Engagement with Community partners (2019-2020)
         1. Nicole’s Chapter
         2. Potential visualization from Leah’s thesis?
   2. Scaling Up
      1. Submitted CNH-LAGOS Ag paper
         1. Major findings: TN and TP related to granular measures of ag activity
         2. TN was more sensitive to changes in watershed land use than TP
         3. Sensitivity to ag land use varied spatially for TN but not TP
         4. Diff in TN and TP sensitivity have implications for water policy effectiveness
      2. Responding to reviewer comments, resubmitting CNH-LAGOS AG paper
      3. Maybe have some input in the work that Kristen is leading
   3. Civic Engagement
      1. Finished document analysis of CLA and LSPA
         1. They are tough to compare, and this was an important result
         2. Leah also did onsite interviews with these organizations to understand the daily issues they face
      2. Submitted manuscript on effectiveness of lake associations
         1. Accepted with minor revisions
      3. Interested in continuing to work on scenario development
      4. Support Adam’s survey effort
      5. Support development of LakeLine effort
   4. Hedonic
      1. Goal was to collect sales data for a sample of lakes from LAGOS-NE
         1. Identified accessible data sources
         2. Collected data for over 1,000 lakes
         3. Will focus on lakes that have enough data for statistical significance
      2. Focusing on how to get info for remaining areas
         1. Some Michigan data are behind a paywall
      3. Was able to estimate initial hedonic models for each lake; refined modeling framework, collecting data for remaining variables besides sales
      4. Plan to finalize additional layers for meta-analysis
         1. Land use, ecological properties, socioeconomic characteristics, collective action, water policy and regulations
      5. Will finish collecting data over the winter, building web scrapers and contacting more Michigan tax assessors
      6. Weizhe’s Hedonic paper was accepted
         1. Plans to help Kristen with the scaling up hedonic paper
         2. Wants to start hedonic modeling on Oneida
         3. Still working on variable selection paper; interested in trying random forest model again
   5. GLM
      1. Two manuscripts in review at Ecological Modelling
      2. Nicole and Robert are working on Sunapee and Mendota 30+ year simulation manuscripts (both in prep for submission)
      3. Had multiple outreach and engagement efforts
         1. NALMS workshop led by Weathers, Ward, Klug
         2. ESA symposium led by Ward and Weathers
         3. Water quality visualization tool
            1. Feedback survey: interested in knowing if there are too many options, drop-down menus
         4. CyanoSummit presentations
         5. New Macrosystems EDDIE teaching modules with Mendota data
      4. Many edits to source code of GLM
      5. Have found that Mendota doesn’t show significant changes until higher degrees of warming, whereas Sunapee shows changes at lower levels of warming
      6. Robert is finding that climate changes is a big driver of anoxia, water quality, etc.
      7. Nicole’s work found that median chlorophyll will increase with increase in air temperature, even without change in land use/land cover
      8. For 2020, will run BMP scenarios
         1. Will submit Nicole and Robert’s long-term manuscripts
         2. Julia Hart had a Mendota carbon cycling MS that will be resubmitted
         3. Nicole plans to survey Lake Sunapee residents on effectiveness of water quality visualization tool during summer 2020
            1. May want to have an undergrad work with Nicole on this data collection
      9. Currently waiting on hydrology/BMP scenario input to run Mendota GLM, need to figure out the timeline for this
      10. Also need hydrology data from Yu and Chris 1979-2018
      11. Lars’s updates
          1. Spoke to Matt Hipsey, who thinks they are further ahead on modeling Oneida than thought; wants to compare 1, 2, and 3 dimensional models; this depends on whether Matt has the time, and when we can get the funding that was promised to have a grad student on this (which would come from NY state)
          2. Did some work on P sediment release
   6. PIHM
      1. Has been a slow period because of other work, hopes to get back to this very soon
      2. Has done some work on simplified flow and nitrate model, talked with Paul about adding in P, which would involve switching back to another version of the model
      3. Still need to complete calibration for Sunapee at Sub-catchment level; Lele will complete this soon
      4. What Cayelan/Paul need from PIHM – updated version of dataset that was previously shared
      5. Want to apply simplified N and possibly P models for Sunapee; this may be able to play a role with scenarios
   7. SDP
      1. Have drafted co-benefits (water quality/GHG) manuscripts
      2. Explored methods for estimating manure N and P contributions
      3. Ready to incorporate BMPs into model once switchgrass runs are complete
      4. Have found that the combined benefits from leaching and GHG reductions is 10 times greater the benefit from leaching reductions alone
      5. Plan to investigate livestock manure N and P
      6. Working with Adam on BMP adoption survey, integrating it with Cycles/econ
      7. Viewing the land management model as an integrator
      8. Weizhe – interested in working on another econ paper with co-benefits; how to design policy based on co-benefits
         1. Thinking of applying for some small grants from university that could bring in an undergrad to do data analysis
   8. Admin
      1. Some accomplishments include presenting at Science of Team Science conference, developing Team Management manuscript, and developing Lake association effectiveness manuscript
      2. Plant to work on presenting project results via video and infographic
4. WIRES journal – Kak suggests considering as a potential future venue for publications