



July 17, 2017 Meeting Minutes

Middlesex County Office of Planning

In attendance: Andy Still (Central Jersey Stream Team), Sophie Benaroya, Boyoung Park, JeanMarie Hartman (Rutgers), Colin Marx, Mark Lesko (Highland Park Environment and Ecology Group), Vince Rifici, Scott Yaede, Alexandra Walczak, Sayra Reyes (LRWP), Daryl Krasnuk (LRWP), Nick Tufaro, Kate Douthat, Johnny Quispe, Alex Zakrewsky (Middlesex County), Stan Olszewski (Middlesex County), Heather Fenyk (LRWP)

Minutes Recorded by Heather Fenyk

- I. Special Presentations by the Rutgers Hartman Lab (Landscape Architecture)
  - a. Colin Marx "Forest Status and Land Cover in the Raritan Basin"

Colin used the 2012 Raritan Basin Land Use dataset and the US Protected Areas Database (PADUS) to examine those variables that might reduce peak stream/river flows (e.g. permeability) and also examined those variables that would benefit the watershed. Colin found that upland forests are more important in the higher order streams, wetlands are more important in the lower order streams.

Forest cover represents 24.1% of land cover in the Raritan Basin. Of that 39.1% has protected status. Middlesex County / the Lower Raritan Watershed have the least amount of conserved forests. The analysis examined further the amount of forest in each of the HUC-9s. The Lower Raritan has 51 square miles of forest, with only 3% conserved. The goal is to focus on those areas where forests are not conserved, and to likewise focus on restoration/planting in those areas around headwater streams that do not have any forest. Monmouth Battlefield stands out as an area for focus. It is in a headwaters area and the streams are a source of drinking water for the LRW.

Future research will explore forest in the headwaters vs. wetlands in the higher order streams.

- b. BoYoung Park "Relationship between forest cover and water quality in NJ's Raritan Basin"

This presentation addresses the question: "To what extent does forest cover affect water quality". The research builds on data collected in 6 HUC 11s in the Raritan Basin. Data gathered includes information from GIS, Google Maps, Visual Habitat Assessments and Macroinvertebrates.

Linear Regression (R Square) was used to describe the relationship between the following variables:

- forest cover and macroinvertebrate assessment findings
- forest stream buffers and macroinvertebrate assessment findings
- forest cover and visual habitat assessment findings
- forest stream buffers and visual habitat assessment findings

Having identified relationships among variables regression analysis uses these relationships to make predictions.

Results: there is a significant relationship between headwater quality and macroinvertebrate/visual habitat assessment quality. The relationship between forest stream buffer and the assessment tools shows that the visual habitat assessments are better predictors than macroinvertebrate assessments. Forest cover is a strong factor in water quality. Wetlands have a negative association w/ macroinvertebrate quality and a positive association w/ visual habitat assessment quality findings. The research suggests that until we have a finer grained tool for understanding macroinvertebrates in wetlands areas that the LRWP should prioritize using visual habitat assessments in these areas.

c. Sophie Benaroya: Factors Affecting Soil Infiltration Rates in the LRW

Data was pulled from the USDA web soil survey. Currently there is no data on soil infiltration rates, so looked into hydrological soil groups, classifying these into 5 categories. Hydrologic soil groups were evaluated for organic matter content (organic matter is comprised of decomposing plant and/or animal material, lower organic matter generally leads to lower rates of infiltration), soil fragment percentage (soil fragments are unattached, cemented pieces of bedrock – they pose issues in that they take up pore space and lead to slow rates of infiltration), saturated hydraulic conductivity (this measures the ease w/ which water can move into and around saturated pores, and surface runoff class.

The land use comparisons show that generally wetland and forest areas have higher areas of conductivity, whereas urban areas have lower conductivity. However, in the Piedmont, because of the fragmented landscape, there is lower conductivity. Protection of forested areas, riparian buffers and wetlands would help mitigate the effects from worsening. Areas to focus on to increase infiltration include protecting green areas on urban land such as cemeteries, athletic fields and rec land. Increased Green Infrastructure and planting are tactics to take.

JeanMarie Hartman: This brings to light how we can go beyond measuring impervious cover, into how soil can serve as a sponge to help improve overall microclimate of an urban area. We want to see daytime evapotranspiration. Another goal is to work to establish and maintain as much forest interior as possible for improved connectivity.

Next step research suggestions for the LRW:

- Securing a small grant to look at ecological functionality of local rain gardens. How old they are, where they are, and whether they are functioning as promised.

-Examining the relationship of forest and protected forests to Municipal master plans and ordinances.  
Can new ordinances be introduced?

-The LRWP's monitoring activities must be consistent, and must sample at mouth of HUC-14. Need discernable limits. Permitted discharge points should be included in the analysis.

Nick Tufaro suggests setting up sensors at monitoring points.

## II. LRWP Project Updates

### a. NEA Artist in Residence - Jamie Bruno

- i. Boyd Park Frame Project update: coLAB, LRWP and Rutgers Cooperative Extension are designing two large scale sculptural frames for installation in Boyd Park and the Watershed Sculpture Gallery space. The frames will be constructed from wood reclaimed from a home damaged by Hurricane Sandy. The frames will be comprised of modular boxes and will reference "curiosity cabinets". They will house student artwork/sculptural pieces that either reference trash found in the watershed, or natural elements from the watershed. The frames will be designed to encourage viewers to interact with the artwork and take photos within the frame, and to upload the images to a centralized database. The frames at Boyd Park will be positioned so as to capture images of landscape changes (e.g. climate change) over time.
- ii. Mile Run Brook community project update: Jamie has been introduced to a number of Mile Run Brook neighbors, including Eleanor Molloy (Elmwood Cemetery), Charles Bergman and the Esperanza Residents, Greater Brunswick Charter School students and Board Members, and residents that live along Mile Run Brook. We are talking about developing an event at many sites along Mile Run Brook that will engage the various communities that care for the Brook.

### b. Regional Stormwater Management – Nick Tufaro

- i. To mark the 5<sup>th</sup> anniversary of Superstorm Sandy, the LRWP and Middlesex County are working with NOAA to host a resiliency conference scheduled for November 17. It will be held at the Middlesex County Fire Academy in Sayreville.
- ii. Middlesex County is developing a county-wide support group to help municipalities establish CRS rating status.
- iii. The LRWP and Middlesex County are working to develop a set of MS4 assistance tools for all municipalities (not just coastal municipalities)

## III. Partner Projects & Updates

### a. Highland Park Environment and Ecology Group – Mark Lesko

- i. Plastic Free Water: This is a multi-state group (NY/NJ) formerly spearheaded by EPA. There are many different working groups: plastic bottles, plastic straws. One of the goals is to get legislation changed, also to get refilling stations mapped (so people know their alternatives) and to bring awareness to the issues through website and facebook page

- ii. Proposal in HP for a plastic bag ban – train employees to ask “do you want a plastic bag, or did you bring your own”). Either a ban or a fee.

IV. Upcoming Events

- a. NO MEETING IN AUGUST
- b. Sept 10, 9-noon: LRWP-coLAB Riverfront clean-up and workshop in New Brunswick
- c. Sept 15: PARK(ing) Day 2017
- d. Sept 18, 10-noon: LRWP monthly meeting
- e. Sept 24, 11-5: Raritan River Festival (New Brunswick)
- f. October 15 (time TBD): community clean-up of New Brunswick’s Conservation Area
- g. October 16, 10-noon: LRWP monthly meeting
- h. November 17 (time TBD): NOAA Workshop on Resilient Communities