Lower Raritan Watershed Partnership

November 20, 2017

LRWP Meeting

I. Welcome / Introductions

Johnny Quispe, RU doctoral candidate; Jamie Bruno, NEA Resident Artist; John Keller, coLAB Arts; Alex Zakrewsky, Principal Planner with Middlesex County Planning; Kate Douthat, RU doctoral candidate; Rupika Ketu, RU EPIB Senior; Nicholas Tufaro, Middlesex County Planning; Heather Fenyk, LRWP; Mirah Becker, Middlesex County Planning (by phone); Louie Greenwell, Middlesex County Planning/PRIME Consulting (by phone); Amy Braunstein, LRWP

II. LRWP/NOAA Resiliency Workshop Recap & Feedback

The event was oversold – a huge success! The LRWP is talking with NOAA and Rutgers about conducting a "Part II" Resilience workshop in 2018.

III. Research Project Discussion & Feedback

a. Kate Douthat presented on her pre-doctoral study research which involves a database of Detention Basins in the Lower Raritan Watershed.
    i. Goals: Identifying Stormwater Basin Locations in the Lower Raritan watershed so as to better understand which ones should be focused on for retrofitting. Kate is gathering information that will first help her study the plant communities in the watershed. Having the info will allow her to set up the field study. Then will look at questions of optimization of contaminant removal. Kate: goal is to help to identify Green Infrastructure opportunities and where to prioritize them.
    ii. Findings to-date:
        1. # of basins in the database (only 25 Middlesex County municipalities so far) 1535+
        2. Incomplete list (some locations incorrectly located, some basins missing, roadside basins not included)
    iii. Models / Methodology
        1. Started w/ Urban Ecology & Forestry Models

a. Picket, et al
b. Matteo et al

2. Variety of conditions, sizes and managers
3. Opportunity for improvement of water quality, habitat, aesthetics

Comments: Need to attach maintenance history to this layer, Middlesex County (Louie) can assist.

Comments: Have not looked at soil classifications. Have not done any sort of analysis. Having identified the locations means that we can work with a lot of other data sources (soil, land use, land cover, impervious cover, proximity to natural water bodies)

Comments: Bringing hydrological database into play is where we start moving toward Green Infrastructure. Soils info should be in the database (Nick)

Comments: Use soil type to compare against as well (Louie)

Comments: Pictometry allows to see basin at a close angle. Aerials flown spring 2017.

Middlesex County agreed to set up user account for Kate for pictometry.

b. Rupika Ketu, NJ Section AWRA poster competition – poster draft
    i. Present history of New Brunswick and Lower Raritan River
    ii. Student work overview
    iii. History of New Brunswick
    iv. #lookfortheriver

c. Johnny Quispe, Rutgers doctoral student, is seeking funding to support graduate research in partnership with the LRWP which would do environmental education outreach. Johnny presented his research proposal and solicited feedback:
    i. Marsh Response to Sea Level Rise, survival of tidal marshes in the Raritan River
        1. Two responses, sink or survive (vertical accretion or lateral migration)
        2. Research Questions
            a. What is the current accretion rate of tidal wetlands in the Raritan River?
            b. Do accretion rates differ by vegetation species type and density?
            c. What is the probable accretion rate of tidal marshes under current and predicted SLR? – partnering w/ Julia Cherry. Using passive and active weir systems to manipulate tide height and tide rise – 1.4feet is central probability for SLR in our area
                i. Tidal marshes reduce flooding on Keasbey side of the Raritan.
                ii. Partners: Twp of Woodbridge, EPA, others

3. Anthropocene Research Question: how forest corridors and positioning aids water quality. Worked to focus on fixing a manipulative model on forest composition and placement and how it affects water quality.
    a. Urbanization increases e.g. fragmentation, impervious surfaces, flooding, sedimentation
    b. Conceptual framework uses the landscape ecology framework. Freshwater ecosystem variability. Spatial relationships among landscape elements or ecosystems. The flows of energy, mineral nutrients, etc.

Questions:

-how will future development of the RR Watershed affect water quality

-Can we ID areas that mitigate pollution loading?

-Does discharge from the RR impact water quality in Raritan Bay?

-How can these data be used to inform policy decisions on water quality issues?

ii. Into the Anthropocene: Developing Scenarios and Exploring the Effects on Land Use on Water Quality

Discussion of partnership w/ LRWP to disseminate findings, particularly in EJ communities.

John Keller: Not just access to info, but how info is presented so it's accessible. How to communicate this?

Nick: Red Root Creek project could be a venue for outreach/info dissemination

Johnny did biomimicry signage for Somerset Co Great Swamp