Introduction
Maintaining the natural integrity of streams and wetlands has become increasingly important as human populations expand and put ever-greater demands on limited freshwaters sources. Commercial, residential, and agricultural development all require water, but threaten natural sources. The state of New Jersey is at the forefront of the conflict between freshwater use and its degradation. Undeveloped watersheds have become increasingly rare and important, yet surrounding development threatens them through point, non-point, and groundwater sources of pollution.

Objective
To determine the level of pollutants and their source for Kearny Marsh and Pompeston Creek. This was done as the first step for developing restoration plans.

Methods
- Kearny Marsh and Pompeston Creek aerial maps grids were constructed to take water and soil samples, and make visual assessments.
- All sections of the grid were first visually assessed and given a number 1 (poor) to 10(excellent), based on channel condition, pools, hydrologie alteration, invertebrate habitat, riparian zone, bank stability, canopy cover, water appearance nutrient enrichment, salinity, barriers to fish movement, riffle embeddedness and in-stream fish cover.
- Upon prioritizing the sections of the grid by their visual assessment scores, water and soil samples were taken based on high priority.
- Grids superimposed over an aerial photographs of the study areas were used to determine sample locations. The photo above is of Kearny Marsh.

Results
- Point and non-point sources were residential septic systems, groundwater contaminated from fertilizer, and a nearby landfill.
- Main pollutants were nitrogen, phosphorus, fecal coliform and E. coli bacteria.
- Contaminants were found to be significantly higher during rainy periods.
- Pollutants increased production of aquatic plants and algae, causing night-time depletion of O2, which killed benthic fauna.

Conclusions
- Humans were clearly responsible for the degradation of Kearny Marsh and Pompeston Creek.
- Since a major source of pollutants were unmaintained septic systems, new policies for septic management were put into place.
- New policies regarding groundwater and storm water were implemented to prevent run-off into the marsh and creek.

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