Using a Field-scale model of Phosphorus Loss to Examine Watershed-Scale Pollution Problems: Linking the VT P Index with Spatial Data

Eutrophication of water-bodies is one of the most significant environmental impacts of agriculture. In freshwater bodies, phosphorus loading can cause eutrophication, which threatens native species, increases water-treatment requirements, and reduces recreation value. In the state of Vermont, Lake Champlain has been declared impaired by phosphorus pollution, and the Environmental Protection Agency has drawn up load allocations to reduce phosphorus emissions to levels consistent with the health of the Lake.

I build a model to spatialize the Vermont P Index, a model used for legally-mandated nutrient management planning. By linking this model with delineated crop fields in the Lake Champlain basin, this model can predict phosphorus loss from crop fields across a broad range of scenarios. These scenarios