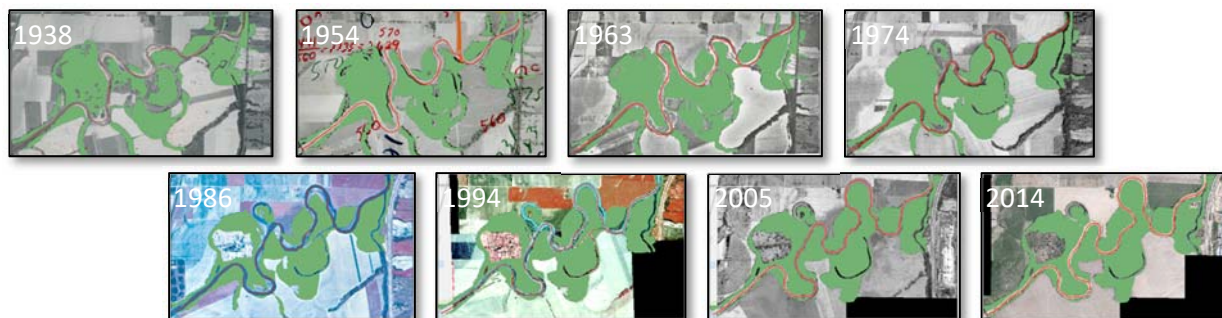


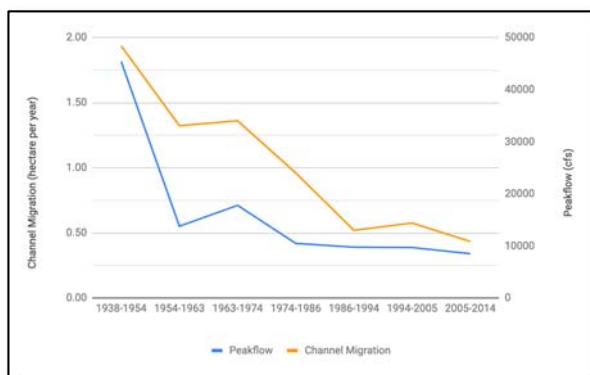
NEW YORKVIEW 2018 – 2019 ACTIVITIES

Water quality is a priority issue in New York State and this was the primary focus for NYView during the 2018–2019 grant period. NYView continued developing strategic partnerships within the state, promoting growth of remote sensing skills for graduate and undergraduate students, and sought to improve communication between state and federal agencies. However, these efforts were framed within a broader context of better understanding the types of data and information needed by communities within New York. NYView activities this grant year focused on applying remotely sensed data to answer questions about land cover condition and change in critical zones that are known to impact water quality, in particular, focusing on channel migration zones.

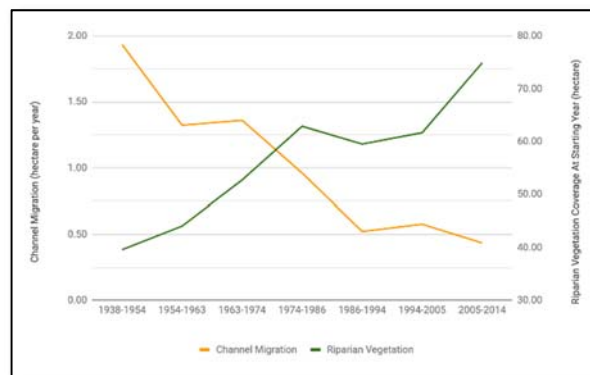


Time series of channel migration and riparian vegetation change along a section of the Genesee River near Mount Morris, NY. Eight aerial photos acquired from 1938–2014 were utilized to delineate channel centerline and vegetation coverage within the selected study site.

NYView selected a study area covering approximately 7 kilometers of the Genesee River near Mount Morris, in western NY to study changes in channel migration. This area is located in an intensive agriculture region, and researchers have long observed bank erosion and channel meandering. For the selected site, a graduate student collected eight aerial images spanning 1938–2014 from US Geological Survey, US Department of Agriculture, ESF, Syracuse University, and New York State Department of Transportation archives. The student used the aerial images to manually delineate channel boundaries and document channel migration, and also to map riparian vegetation within 100 meters of the river. This analysis showed that channel migration exceeded 10 meters/year in some sections, with a total change in area ranging from 0.5–2 hectares/year. The figure on the left below shows that temporal variations of channel migration are generally decreasing, likely corresponding to a reduction of annual peak flow through control structures. The figure on the right below shows that as channel migration rate decreases, riparian vegetation extents within the buffer zone have increased. Visual assessment suggests that the majority of channel migration occurs where no riparian vegetation is in place. Further research will focus on quantifying the benefits of vegetation in reducing bank erosion.



Annual peakflow is a large driver of the variation of river channel migration at the Genesee River site. Channel locations were produced using aerial photo interpretation. Peakflow information was recorded at USGS gage 04227500 near Mount Morris, NY.



As channel migration rates along the Genesee River decrease, riparian vegetation regrowth occurs, particularly on newly formed river banks. Channel locations and riparian vegetation extent were produced using aerial photo interpretations.

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