

Mapping Flood Reduction Benefits of Potential Wetlands Restoration

Public officials and environmental managers face difficult decisions when allocating funds to prioritize the most beneficial wetlands conservation or restoration projects, and often face difficulty characterizing benefits. One benefit of natural and constructed wetlands is that they abate floodwaters, in part, by detaining stormwater that would otherwise contribute to local flooding. Environmental assessments can estimate a wetland's ability to retain water during flood events; here we link this function to flood abatement benefits provided to people downstream. Many hydrologic and hydraulic models used for flood modeling do not incorporate water retention in wetlands explicitly. We present tools (python toolboxes) to adapt those models (HEC-HMS and HEC-RAS), and show how the overall modeling process can accommodate water retention in wetlands. We also discuss simple rapid indicators/metrics of downstream flood abatement benefits.