

Restoration of rivers and their associated ecosystems is a growing priority for government agencies (e.g., NOAA, USEPA), as well as conservation organizations. Dam removal is a major component of many restoration projects credited with reintroducing fish species, improving water and habitat quality, and increasing recreation potential. In this study, methods and approaches were tested to assess changes in contaminant fluxes resulting from dam removal. Sediment traps and passive samplers were deployed to measure suspended particulate and dissolved polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) in the water column prior to and following removal of a low head dam in the Pawtuxet River, an urbanized river located in Cranston, RI, USA. During the course of the study, concentrations of particulate and dissolved PAHs ranged from 25-103 ug/g and 49-164 ng/L. Trends of PAHs showed no increases in either following dam removal. Dissolved concentrations of PCBs were low, remaining below 1.5 ng/L, while particulate PCB concentrations showed slightly greater variability, ranging from 80-469 ng/g throughout the study. There was no indication that dam removal influenced any increases in either particulate or dissolved PCBs. Variations in river flow during the study did not have an effect on the concentration of contaminants in the dissolved or particulate phases, but did influence the flux rate of contaminants exiting the river. Overall, the employment of passive sampling technology and sediment traps was highly effective in monitoring the concentrations and flux of contaminants moving through the river system. Results from this study will be used to improve methods that assess the short and long-term impacts ecological restoration activities such as dam removal have on the release of previously discharged, sediment-bound contaminants.