

Presenter	Mitchel R. Strain, U.S. Army Corps of Engineers
Type	oral presentation
Category	Innovative watershed and stream restoration approaches/methods
Title	<i>Effects of Removal of Two Lowhead Dams on Habitat and Macroinvertebrate in an Ohio Stream</i>
Abstract	<p>Dam removal is often proposed as a way to restore ecological integrity to rivers and streams, but ecological responses to dam removals are poorly understood, especially for benthic communities. We examined the responses of habitat characteristics and benthic macroinvertebrate in upstream and downstream reaches to the removal of two lowhead dams on Alum Creek, Columbus, Ohio. The lower Alum Creek watershed drains 100 square miles and contains almost 27 miles of Alum Creek. The Friends of Alum Creek & Tributaries (FACT), in the Alum Creek Action Plan, identified lowhead dam removal as the No.1 action because of the high likelihood of preserving or restoring Alum Creek. Rosgen Level III stream assessment protocols were used to provide a valid framework to collect, analyze, and organize the geomorphic data necessary to develop detailed stream restoration (dam removal) designs. Benthic macroinvertebrates and habitat characteristics were monitored upstream and downstream of the dams for six weeks prior to removal and six weeks after removal. A total of six sites were sampled, four free flowing and two impounded. The Qualitative Habitat Index (QHEI) was used to determine effects of dam removal on habitat quality and the Invertebrate Community Index (ICI) was used to establish effects of lowhead dam removal on macroinvertebrate. Free-flowing sites had higher QHEI than impounded sites, indicating higher quality stream habitat and free flowing sites ultimately had higher ICI scores than impounded sites. Our results and other studies of dam removal suggest that habitat improvement occurs rapidly with lowhead dam removal and downstream sedimentation following dam removal can reduce densities of macroinvertebrates and may reduce benthic diversity, but for small dams such impacts may be relatively minor and will usually be temporary.</p>