

Challenges for Restoring Agricultural Headwater Streams in the Midwest

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Agricultural headwater streams are common throughout the Midwest (Midwestern United States) and are often managed to facilitate agricultural drainage without considering the subsequent environmental impacts. The focus of restoration efforts for many of these streams is the improvement of water quality via reduction of nutrient, pesticide, and sediment inputs, while physical habitat improvement is rarely considered. Subsequently, many stream restoration efforts are not addressing the full spectrum of agricultural impacts. Holistic stream restoration efforts hold much promise for mitigating the effects of agriculture on headwater streams. However, challenges for restoring agricultural streams in the Midwest consist of: 1) a hesitancy of the agricultural community towards restoration; 2) a lack of understanding by the agricultural community as to their role in stream management; and 3) limited information on the ecological impacts of restoration practices on agricultural headwater streams, especially channelized agricultural headwater streams. Increasing our understanding of the impacts of restoration practices on agricultural headwater streams is a promising starting point for addressing the challenges associated with stream restoration. I will review long-term research results from agricultural headwater streams in Indiana, Michigan, and Ohio related to the evaluation of biota-habitat relationships and the effects of a widely used conservation practice (i.e., grass filter strips). These results indicate that future restoration strategies for agricultural headwater streams need to consider: 1) physical habitat conditions; 2) taxa-specific responses of the biota; and 3) the limited benefits of planting grass filter strips alone. These results suggest that increasing our understanding of the impacts of stream restoration practices will increase the knowledge base for restoration science, will provide information that help develop effective restoration strategies, and will provide information that can assist with increasing the agricultural community's buy-in of proposed stream restoration projects.

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