

# GENETIC DIVERSITY OF BROOK TROUT POPULATIONS IN SEVERAL SUBWATERSHEDS OF THE WEST BRANCH SUSQUEHANNA RIVER WATERSHED<sup>1</sup>

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**Abstract:** The West Branch Susquehanna River watershed is located in north central Pennsylvania. The watershed contains some of the most pristine brook trout (*Salvelinus fontinalis*) habitat in Pennsylvania. However, water quality issues such as abandoned mine drainage (AMD) and acid deposition have contributed to the decline of brook trout in the watershed. Over 20% (1,200 stream miles) of the watershed is impaired by AMD alone. One of the negative consequences of AMD in the watershed is the isolation of brook trout populations and the loss of genetic diversity in these populations. The purpose of this study was to evaluate the genetic diversity of brook trout populations in the West Branch Susquehanna River watershed in Pennsylvania. As part of an ongoing study to locate and evaluate natural re-producing brook trout populations, fin samples were collected and preserved in 70% ethanol for genetic studies of these isolated populations. Results to date indicate that distinct material lineages occur in each of these populations suggesting that genetic bottlenecks may exist in these isolated populations. The results of this study will aid management decisions for reconnecting and reestablishing populations of wild brook trout throughout the West Branch Susquehanna River watershed.

**Additional Key Words:** Abandoned Mine Drainage, Genetic Diversity, Genetic Bottleneck

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