

Improvements in the Fish Populations Due to Reduced Acid Mine Drainage

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Abstract: Over a century of coal mining in the Cheat River watershed in northern West Virginia resulted in abandoned coal mines that have generated massive amounts of acid mine drainage (AMD) and depressed or eliminated fish populations in Cheat River and Cheat Lake. However, approximately 185 land reclamation and water treatment projects have been completed since 1994 in order to reduce AMD in the Cheat watershed and restore fish populations. A rotary drum neutralization station was constructed on Blackwater River in the upper Cheat watershed in 1994. This restored 6.5-km of trout water on the Blackwater River and provides some alkalinity to the Cheat River. Fish surveys at Seven Islands on Cheat River downstream of the Blackwater in 1959, 1973, 1980, and 1999 produced standing crops of 67, 30, 24, and 65 kg/ha. Historic AMD input from Blackwater River and improvements from neutralization in 1994 are reflected in this data. Three additional surveys over a 42-km reach downstream of Seven Islands in 1999 documented a 69% decrease in SC from AMD. Farther downstream, a sport fishery had been non-existent since 1970. This 22-km reach upstream of Cheat Lake is inaccessible for traditional survey techniques, but can be characterized by angling. One angler's float trip in this lower reach during 1997 produced one yellow perch (*Perca flavescens*). Four similar trips in 2005 produced 132 fish of seven species (76% smallmouth bass, *Micropterus dolomieu*) that substantiated improvements in water quality. Smallmouth bass now constitute the sport fishery in most of the Cheat River mainstem. Fishing in Cheat Lake, which is located at the bottom of the Cheat watershed, has improved over the last 15 years. From the 1960s to the late 1980s, Cheat Lake's sport fishery was essentially non-existent due to AMD. Fish monitoring since 1997 indicates that species composition once dominated by acid-tolerant bullheads (*Ameiurus* species) has shifted and is now more diverse. Thirty-eight species have been collected and channel catfish (*Ictalurus punctatus*), black bass (*Micropterus punctulatus*, *M. salmoides*, *M. dolomieu*), and yellow perch are abundant. Consequently, Cheat Lake is now a destination for bass tournaments and recreational anglers. Recent changes to the 1977 Surface Mining Control and Reclamation Act will increase the amount of money released to states for AMD treatment. Without adequate funding for AMD treatment, fish populations and angling opportunities in Cheat River and Cheat Lake will decline, potentially to pre-AMD treatment levels. This program has been and will continue to be the major factor in maintaining and enhancing fish populations in the Cheat watershed.

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