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REFERENCES

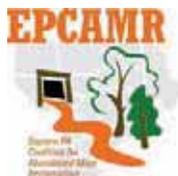
- Bradford, A. 1969. Stream Survey: West Branch Susquehanna River, Clearfield County. Pennsylvania Fish and Boat Commission.
- Brady, K.B.C., R.J. Hornberger, and G. Fleeger. 1998. Influence of Geology on Postmining Water Quality: Northern Appalachian Basin. *In* Coal Mine Drainage and Pollution Prevention in Pennsylvania. Pennsylvania Department of Environmental Protection Publication. 8-1 - 8-92.
- Clark, T. 2006. Bear Run Restoration Plan. Indiana County Conservation District. Pennsylvania Department of Environmental Protection Growing Greener Project. SW20538. Document #3521140.
- _____. 2006. Paint Creek Restoration Plan. Paint Creek Regional Watershed Association. Pennsylvania Department of Environmental Protection. Growing Greener Project. SW20071. ME #3521094
- Clearfield Creek Watershed Association. 2007. Clearfield Creek Watershed Association website. <http://www.clearfieldcreekwatershed.org/projects/brubaker.html>.
- Commonwealth of Pennsylvania. 2005. Pennsylvania Code, Title 25. Environmental Protection, Department of Environmental Protection, Chapter 93. Water Quality Standards.
- Dodge, C. H. and W. E. Edmunds. 2003. Coal Geology of Pennsylvania. *In* Keystone Coal Industry Manual. Mining and Construction Group. Coal Age, Concrete Products, Engineering and Mining Journal, Rock Products, and Cement Americas. Primedia Business Magazines and Media. Chicago, Illinois.
- Drupieski, R. 1960. Letter to Marlin Wilt, Regional Sanitary Engineer, about Fish Kill: West Branch Susquehanna River, Williamsport, Lycoming County. Pennsylvania Department of Health. Division of Sanitary Engineering. Pennsylvania Department of Environmental Protection Williamsport Regional Office.
- Earle, J. and T. Callaghan. 1998. Impacts of Mine Drainage on Aquatic Life, Water Uses, and Man Made Structures. *In* K. B. C. Brady et al. (eds.). Coal Mine Drainage Prediction and Pollution Prevention in Pennsylvania. Pennsylvania Department of Environmental Protection. Bureau of Abandoned Mine Reclamation. Harrisburg, Pennsylvania. 4-1 - 4-10.
- Edmunds, W.E., V.W. Skema, and N.K. Flint. 1998. Pennsylvania Part III: Stratigraphy and Sedimentary Tectonics. *In* Geology of Pennsylvania.
- Federal Water Quality Administration. 1968. Mine Drainage Study of the Susquehanna River Basin. United States Environmental Protection Agency.
- Glover, C. R. 1957. Letter to Mr. Raymond Schroll, Jr., about a Fish Kill on the West Branch Susquehanna River. Pennsylvania Department of Health. Division of Sanitary Engineering. Pennsylvania Department of Environmental Protection Williamsport Regional Office.
- Gwin, Dobson, and Foreman, Inc. 1972. West Branch Susquehanna River Mine Drainage Pollution Abatement Project, Operation Scarlift Project Number SL 163-3.
- Hainly, R.A. and J.L. Barker. 1993. Water Quality of the Upper West Branch Susquehanna River and Tributary Streams between Curwensville and Renovo, Pennsylvania, May and July 1984. Water Resources Investigations Report 90-4011. United States Geological Survey.
- Hedin Environmental. 2007. Twomile Run Watershed AMD Remediation Master Plan. Pennsylvania Department of Environmental Protection Moshannon District Mining Office.

- Hempt, F. 1962. Letter to Mr. Walt V. Kohler, Chief Staff Services Section, about Fish Kill: West Branch Susquehanna River, Williamsport, Lycoming County. Pennsylvania Department of Health. Division of Sanitary Engineering. Pennsylvania Department of Environmental Protection Williamsport Regional Office.
- Kimmel, W.G., D.J. Murphey, W.E. Sharpe, and D.R. Dewalle. 1985. Macroinvertebrate Community Structure and Detritus Processing Rates in Two Southwestern Pennsylvania Streams Acidified by Atmospheric Deposition. *Hydrobiologia*. 124. 97-102.
- Kirby, C.S., Cravotta III, C.A. 2005. Net Alkalinity and Net Acidity 2: Practical Considerations. *Applied Geochemistry* 20 (2005) 1941-1964.
- LeFevre, S. 2003. West Branch Susquehanna Subbasin Survey: A Water Quality and Biological Assessment. Susquehanna River Basin Commission Publication 226.
- Palombo, A.V., P.J. Mulholland, and J.W. Elwood. 1987. Microbial Communities on Leaf Material Protected from Macroinvertebrate Grazing in Acidic and Circumneutral Streams. *Canadian Journal of Fisheries and Aquatic Science*. 44. 1064-1070
- Pennsylvania Department of Conservation and Natural Resources. 2007. Map Layers. <http://www.dcnr.state.pa.us/topogeo/openfile/acidmaplayers.aspx>.
- Pennsylvania Department of Environmental Protection. 2004. A Detailed Analysis of Watershed Restoration Costs for the Bennett Branch Sinnemahoning Creek and Kettle Creek Watersheds and a Preliminary Analysis of Watershed Restoration and Abandoned Mine Land (AML) Reclamation Costs for the entire West Branch Susquehanna River Watershed. Mineral Resources Deputate.
- _____. 2006. Pennsylvania Annual Reports on Mining Activities. <http://www.dep.state.pa.us/dep/deputate/minres/bmr/historicalminingreports/index.html>.
- Office of Surface Mining. 2006. AMDTreat Version 4.1B. <http://amd.osmre.gov>.
- Reese, J.F. and J.D. Sisler. 1928. Bituminous Coal Fields of Pennsylvania. Part III: Coal Resources. Mineral Resources Report 6. Commonwealth of Pennsylvania. Department of Environmental Resources. Bureau of Topographic and Geologic Survey.
- Rightnour, T. 2007. Clarification of WRAM Model Output for the West Branch AMD Remediation Strategy. Water's Edge Hydrology Inc. Clearfield, Pennsylvania. Susquehanna River Basin Commission Files. Harrisburg, Pennsylvania.
- Roller, M. 1958. Memorandum Report: Fish Killing West Branch Susquehanna River Williamsport to Lewisburg. Pennsylvania Department of Health. Division of Sanitary Engineering. Pennsylvania Department of Environmental Protection Williamsport Regional Office.
- Sisler, J.D. 1926. Bituminous Coal Fields of Pennsylvania Part II. Detailed Description of Coal Fields. Mineral Resource Report 6. Commonwealth of Pennsylvania. Department of Environmental Resources. Bureau of Topographic and Geologic Survey.
- Smith, M.W., K.B.C. Brady, and J.W. Hawkins. 2002. Effectiveness of Pennsylvania's Remining Program in Abating Abandoned Mine Drainage: Water Quality Impacts. *Transactions of the Society for Mining, Metallurgy, and Exploration*. pp. 166 - 170.
- Sorenson, D. 1931. Commonwealth of Pennsylvania Board of Fish Commissioners Stream Survey Report: West Branch Susquehanna River, Clearfield County, Pennsylvania.
- _____. 1932. Commonwealth of Pennsylvania Board of Fish Commissioners Stream Survey Report: West Branch Susquehanna River, Clinton County, Pennsylvania.

- Thompson, P.L. and F. Barlocher. 1989. Effect of pH on Leaf Breakdown in Streams and in the Laboratory. *Journal of the North American Benthological Society* 8: 203-210.
- Vuori, K. 1996. Acid-Induced Acute Toxicity of Aluminum to Three Species of Filter Feeding Caddis Larvae (Trichoptera, Arctopsychidae, and Hydropsychidae). *Freshwater Biology*. 35: 179-188.
- Western Pennsylvania Coalition for Abandoned Mine Reclamation. 2007. Basics of SMCRA Title IV. Informational Document. http://www.wpcamr.org/projects/smcra_reauth.
- West Branch Susquehanna River Task Force. 2005. West Branch Susquehanna River Watershed: State of the Watershed Report. Pennsylvania Department of Environmental Protection.
- Western Pennsylvania Conservancy. 2006. Anderson Creek Watershed Assessment, Restoration and Implementation Plan. Pennsylvania Department of Environmental Protection Growing Greener Program and United States Environmental Protection Agency Section 319 Non-point Management Program Project.
- Wilt, M. 1958. Letter to Mr. Walter V. Kohler, Chief Staff Services Section, about Fish Killing-West Branch Susquehanna River Williamsport to Jersey Shore. Pennsylvania Department of Health. Division of Sanitary Engineering. Pennsylvania Department of Environmental Protection Williamsport Regional Office.



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