

in the Mechanicsburg area (PADEP, 2003). PAWC treats about 5.4 mgd and serves more than 87,400 people, in addition to industrial and commercial customers (PADEP, 2003). According to the SWAP reports, the primary contaminant concerns for the Yellow Breeches Creek are associated with low-intensity development and agricultural activity (PADEP, 2003). Runoff from development and agriculture often are associated with increased bacteria levels. The primary goals of this Year-2 study were to characterize the extent of bacteria contamination in the Yellow Breeches Creek Watershed and to compare the outcomes of sampling three different types of pathogen indicator bacteria. The data from this study can be used as background information by PADEP for future Total Maximum Daily Load (TMDL) or water quality standards work, and by other interested parties, such as water suppliers, watershed associations, and conservation groups in the Yellow Breeches Creek Watershed.

DESCRIPTION of the Yellow Breeches Creek Watershed

The Yellow Breeches Creek drains 219 square miles and flows east through Adams, York, and Cumberland Counties before joining the Susquehanna River at New Cumberland, Pa. The creek is designated as High-Quality Cold Water Fishes, and in 1992 it also was designated as a Scenic River by the Commonwealth of Pennsylvania. In addition, Mountain Creek, a tributary of the Yellow Breeches Creek, is designated for trout stocking from Mt. Holly Springs to the mouth.

About 79 percent of the Yellow Breeches Creek Watershed is located in Cumberland County, 18 percent is in York County, and just 3 percent is in Adams County. The origin of the mainstem of the Yellow Breeches Creek is west of the town of Walnut Bottom, Cumberland County, and the creek

flows eastward toward Mt. Holly Springs, Cumberland County. The largest tributary, Mountain Creek, begins in northern Adams County and joins the Yellow Breeches Creek in Mt. Holly Springs. For more than 21 miles of its length, from Williams Grove to New Cumberland, the Yellow Breeches Creek serves as the boundary between Cumberland and York counties. There are 22 municipalities fully or partially located in the Yellow Breeches Creek Watershed, with the majority being in Cumberland County: Camp Hill, Lemoyne, Mechanicsburg, Mt. Holly Springs, New Cumberland, and Shiremanstown Boroughs; Cooke, Dickinson, Hampden, Lower Allen, Monroe, Penn, Southampton, South Middletown, and Upper Allen Townships. The remaining municipalities are: Dillsburg Borough, and Carroll, Fairview, Franklin, and Monaghan Townships in York County; and Huntington and Menallen Townships in Adams County.

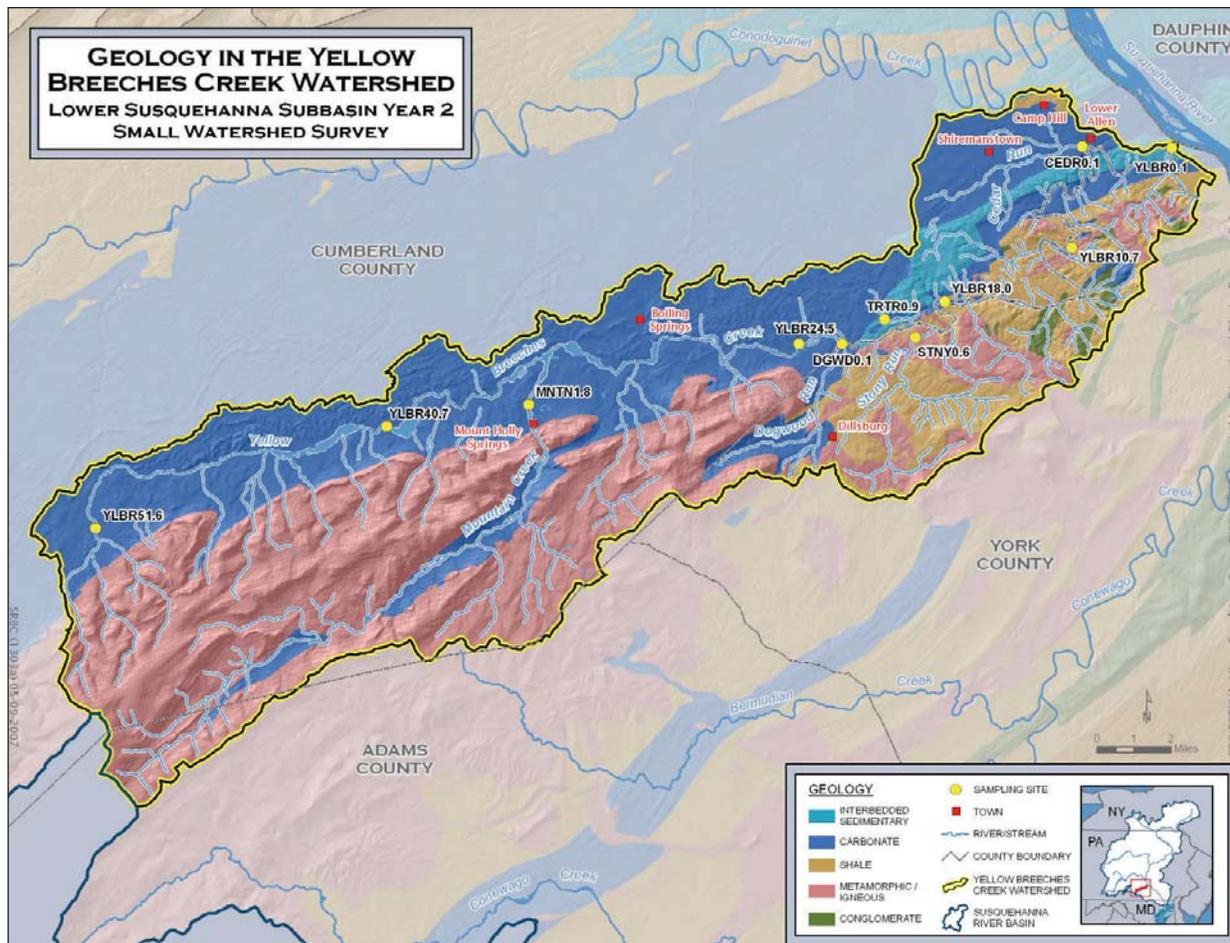


Figure 2. Geology and Sampling Site Locations in Yellow Breeches Creek Watershed.

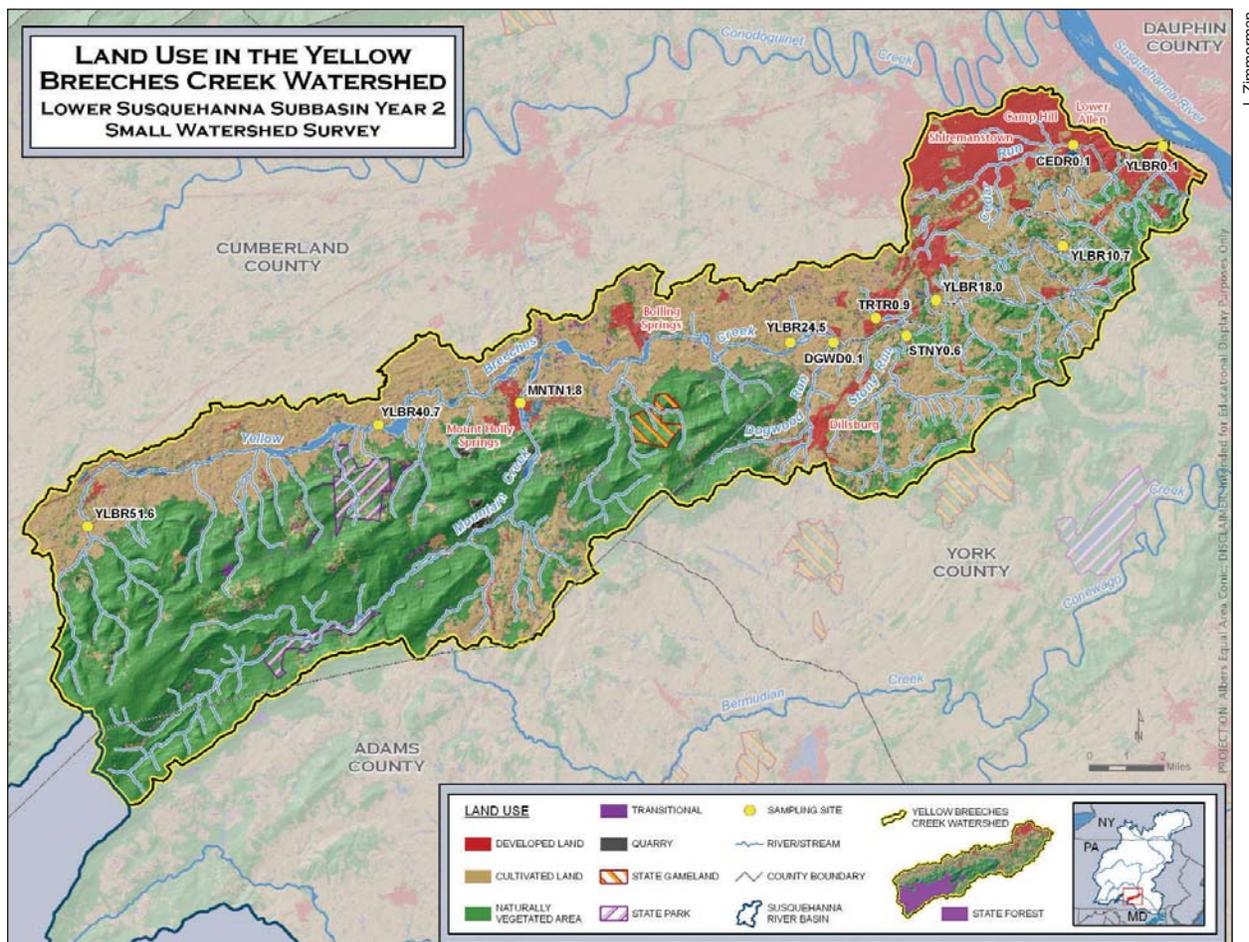


Figure 3. Land Use and Sampling Site Locations in Yellow Breeches Creek Watershed.

The Yellow Breeches Creek and its tributaries flow within three physiographic provinces: Central Appalachian Ridge and Valley (Ecoregion 67), Blue Ridge (Ecoregion 66), and Northern Piedmont (Ecoregion 64). Within the Ridge and Valley province, the majority of the mainstem Yellow Breeches Creek falls into the Northern Limestone/Dolomite Valley subcoregion (67a). The headwaters of the Yellow Breeches Creek and most of Mountain Creek flow through the Blue Ridge province, including subcoregions 66a and 66b, Northern Sedimentary and Metasedimentary Ridges, and Northern Igneous Ridges, respectively. A short segment of the Yellow Breeches Creek and a few small southeastern tributaries are located in the Northern Piedmont province, in the Triassic Lowlands subcoregion (64a).

The surficial geology in the watershed is composed of 38 percent carbonate, 49 percent metamorphic/igneous, 10 percent shale and the remaining 3 percent are interbedded sedimentary and conglomerate

rock (PADEP, 2003). Metamorphic and carbonate are the two dominant rock types and comprise the entire southwestern portion of the watershed, including all areas in which headwaters originate. Carbonate rock lies primarily along the northern border of the watershed in Cumberland County and surrounds most of the mainstem Yellow Breeches Creek. Metamorphic rock is prevalent along the southern border of the watershed and is the underlying geology for all of the tributaries that join the Yellow Breeches Creek from the south. Shale, sandstone, and interbedded sedimentary rock begin along the southern border of the watershed in York County

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and along the York and Cumberland County border. These rock types primarily are contained between the span of Route 15 and the southern border of the watershed, continuing to the confluence of the Yellow Breeches Creek and the Susquehanna River (Figure 2).

The land use in the Yellow Breeches Creek Watershed is also mixed. Overall, more than 50 percent of the watershed is forested, 38 percent is agricultural land, and about 8 percent is urbanized land (Figure 3). The majority of the agricultural land follows the carbonate geology surrounding the upper 75 percent of the mainstem Yellow Breeches Creek Watershed. The southern tributaries, including Mountain Creek, run through primarily forested land, including parts of the 85,000-acre Micheaux State Forest and all of the 696-acre Pine Grove Furnace State Park. The lower quarter of the Yellow Breeches Creek Watershed contains most of the developed land, including the Cedar Run Watershed, which is 70 percent urbanized.