

Description of the Lower Susquehanna Subbasin

The Lower Susquehanna Subbasin is a diverse watershed that drains approximately 5,913 square miles of sandstone ridges, shale/limestone/dolomite valleys, urban areas, and rural landscape from Sunbury, Pennsylvania, to where the Susquehanna River empties into the Chesapeake Bay in Havre de Grace, Maryland. The counties that are located entirely or partially in this subbasin include Adams, Berks, Centre, Chester, Columbia, Cumberland, Dauphin, Franklin, Juniata, Lancaster, Lebanon, Mifflin, Northumberland, Perry, Schuylkill, Snyder, Union, and York in Pennsylvania and Baltimore, Carroll, Cecil, and Harford Counties in Maryland (Figure 2). Ecoregions that fall within the Lower Susquehanna Subbasin are (Figure 2):

- Northern Piedmont (Ecoregion 64);
- Blue Ridge (Ecoregion 66);
- Ridge and Valley (Ecoregion 67); and
- Central Appalachians (Ecoregion 69).

Ecoregion 64 is renowned for agriculture and consequently is dominated by this land use. The low hills, irregular plains, and open valleys are comprised of metamorphic, igneous, and sedimentary rocks. Only a small section of Ecoregion 66 occurs in the Lower Susquehanna Subbasin. This ecoregion has varying terrain comprised of ridges, hills, and mountains and is mostly forested with freestone streams on a mix of metamorphic, igneous, and sedimentary rock. Ecoregion 67 is characterized by nearly parallel ridges and valleys formed by folding and faulting events. The predominant geologic materials include sandstone, shale, limestone, dolomite, siltstone, chert, mudstone, and marble.

Springs and caves are common in this ecoregion. Ecoregion 69 is mainly a plateau formation that is predominantly sandstone, shale, conglomerate, and coal. The soils are not conducive to agriculture, so this ecoregion is mostly forested. Only a very small portion of the subbasin is in Ecoregion 69. Eleven different subecoregions are found in the Lower Susquehanna Subbasin (Figure 2):

- 64A - Triassic Lowlands;
- 64B - Trap Rock and Conglomerate Uplands;
- 64C - Piedmont Uplands;
- 64D - Piedmont Limestone/Dolomite Lowlands;
- 66B - Northern Sedimentary and Metasedimentary Ridges;
- 67A - Northern Limestone/Dolomite Valleys;
- 67B - Northern Shale Valleys;
- 67C - Northern Sandstone Ridges;
- 67D - Northern Dissected Ridges and Knobs;
- 67E - Anthracite Subregion; and
- 69A - Northern Igneous Ridges.

The mixed land use in the Lower Susquehanna Subbasin is connected to the geology of the region (Figure 2 and Figure 3). In Ecoregion 67 the ridges are mostly forested, and the limestone/dolomite and shale valleys are predominately agricultural. There is little urban development in this Ecoregion portion of the subbasin, probably due to the steep, folded nature of the ridges. In the Anthracite Subregion (67E), there are abandoned mine land sites and problem areas, depicted in black (Figure 3). The Northern Piedmont (Ecoregion 64) is dominated by cultivated and developed land. More natural vegetated areas are located in the upland and ridge areas, as in the subecoregions of 66B, 69A, and 64B. The largest urban centers in the Lower Susquehanna Subbasin are the Harrisburg, Lancaster, and York areas.

Many environmental organizations throughout the Lower Susquehanna Subbasin are working to restore and protect watersheds. Table 1 lists some of the watershed groups associated with the streams sampled in this survey. Many other local entities, such as county conservation districts and land conservation groups, protect and conserve land and water resources in the subbasin. There are also numerous Pennsylvania

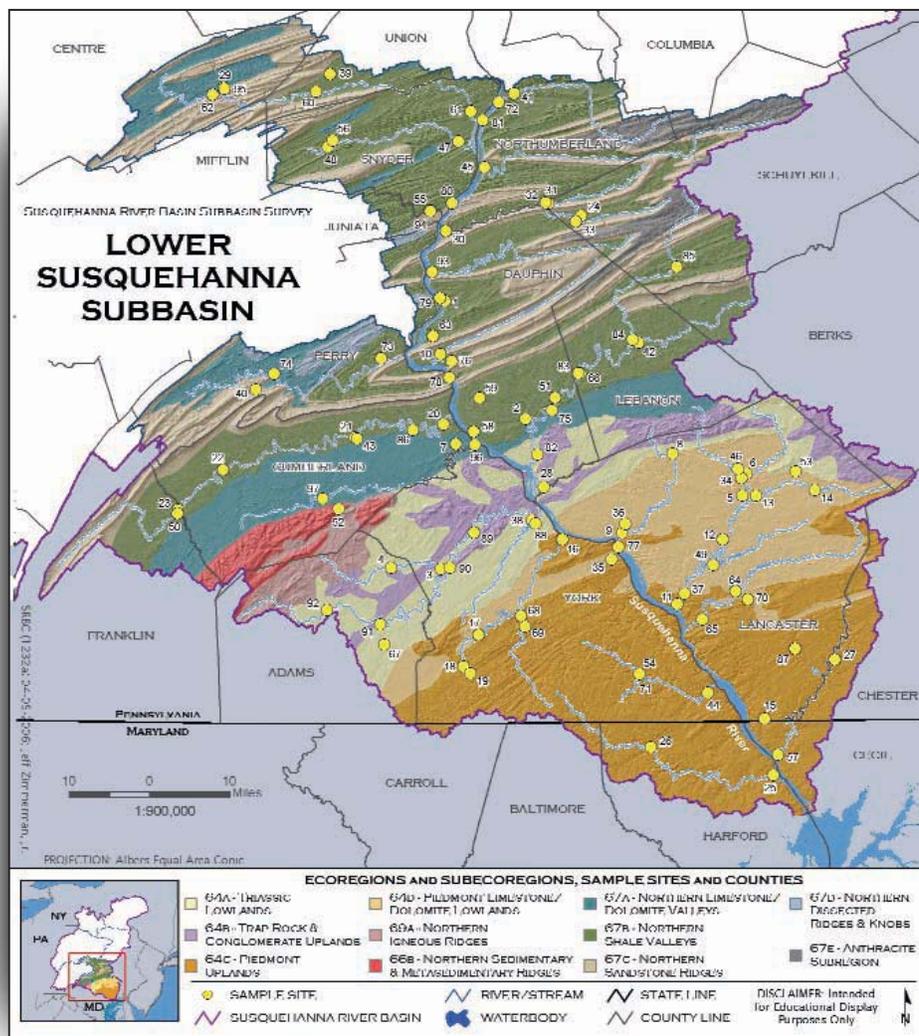


Figure 2. Ecoregions, Subecoregions, Sample Sites, and Counties in the Lower Susquehanna Subbasin

Senior Environment Corps (PaSEC) groups throughout the Lower Susquehanna Subbasin that include senior citizens who volunteer to protect and improve watersheds. The website for this organization is <http://www.easi.org/programs/program1.html>, which includes a list of the local PaSEC group locations.

Methods Used in the 2005 Subbasin Survey
DATA COLLECTION

During summer and fall of 2005, SRBC staff collected samples from 97 sites throughout the Lower Susquehanna Subbasin. The appendix contains a list with the sample site number, the station name (designated by approximate stream mile), the latitude and longitude, a description of the sampling location, the drainage size, and reference category. All sites also were sampled in 1996 except the two sites listed in green, CEDR 0.1 and CHIQ 20.0. The reference category designation was based on subcoregions and grouped according to similarities between subcoregions as described in Traver (1997). Macroinvertebrate samples were collected at all 97 sites except BERM 11.0, which lacked riffle habitat. Habitat was rated at the sites where a macroinvertebrate sample was collected, except for the river sites.

The sites were sampled once during this Year-1 sampling effort to provide a point-in-time picture of stream characteristics throughout the whole subbasin.

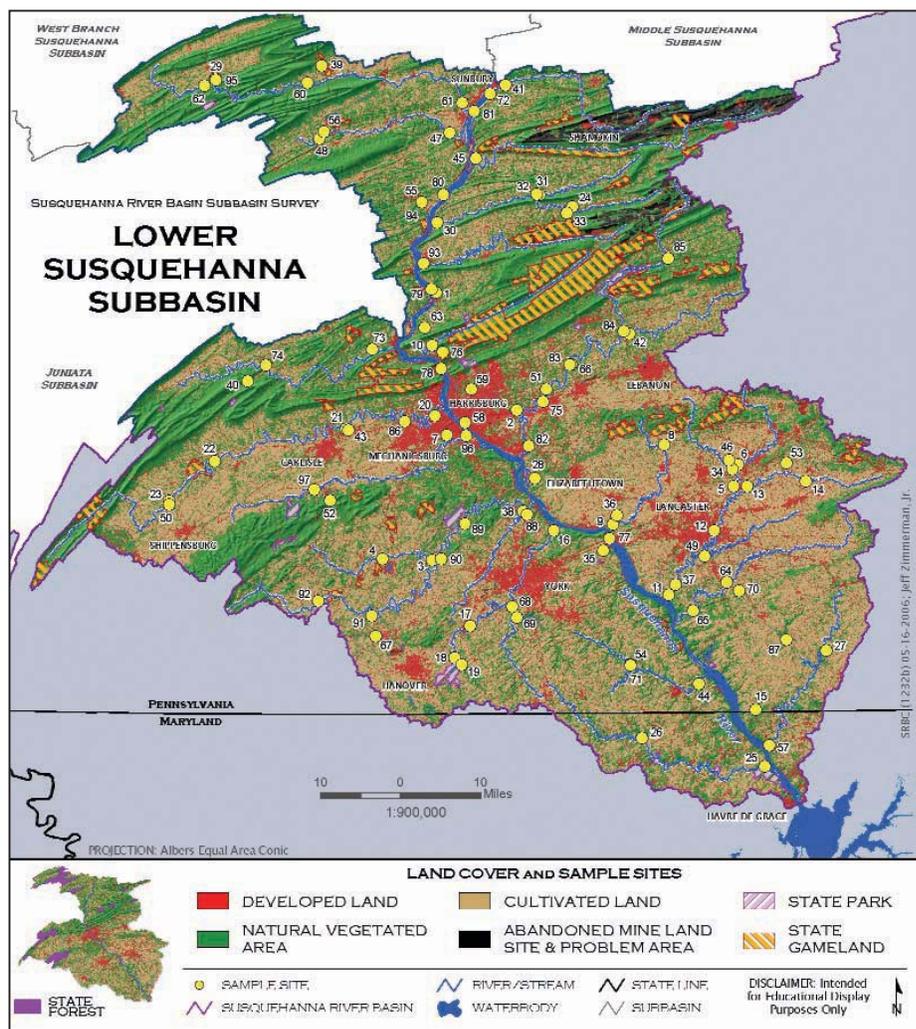


Figure 3. Land Cover and Sample Sites in the Lower Susquehanna Subbasin

Samples were collected using a slightly modified version of USEPA's Rapid

Bioassessment Protocols for Use in Streams and Wadeable Rivers (RBP III) (Barbour and others, 1999).

Table 1. Contact Information for Watershed Organizations of Streams Sampled in the Lower Susquehanna Subbasin

Organization Name	County	Contact	Person Address	Phone	Email or Website
Chiques Creek Watershed Alliance	Lancaster	Ms. Nancy Halliwell	971 N. Colebrook Rd., Manheim, PA 17545	(717) 665-3827	nancy@raphotownship.com
Cocalico Creek Watershed Association	Lancaster	Mr. Mike Ashton	P.O. Box 121, Reinholds, PA 17569	(717) 733-6931	bbachman@ptd.net
Codorus Creek Improvement Partnership	York	Mr. Michael Helfrich	11 W. Philadelphia Street, York, PA 17403	(717) 848-1900	
Codorus Creek Watershed Association	York	Mr. Gary Peacock	PO Box 288, York, PA 17401	(717) 840-7430	
Codorus Creek Watershed Project	York	Ms. Genevieve Ray	101 Rathton Road, York, PA 17403	(717) 848-3320	creekstudy@aol.com
Codorus Monitoring Network, Inc.	York	Mr. John Klunk	60 New York Rd., Dover, PA 17315	(717) 308-0070	
Conodoguinet Creek Watershed Association	Cumberland	Mr. Gil Freedman	49 Sample Bridge Rd., Mechanicsburg, PA 17050	(717) 697-2513	gil49@comcast.net
Hammer Creek Watershed Association	Lancaster	Mr. Gary Trostle	21 Buch Mill Rd., Lititz, PA 17543	(717) 738-1597	dgtrost@dejazzd.com
Letort Regional Authority	Cumberland	Ms. Brian Fischbach	415 Franklin St., Carlisle, PA 17013	(717) 245-0508	executive_director@letort.org
Little Chiques Watershed Association	Lancaster	Mr. Bob Hernandez	Mt. Joy Borough, P.O. Box 25, 21 E. Main St., Mt. Joy, PA 17552	(717) 653-5938	
Little Conestoga Watershed Alliance	Lancaster	Ms. Michelle Spitko	P.O. Box 6355, Lancaster, PA 17607		littleconestoga@cs.com
Little Shamokin Creek Watershed Association	Northumberland	Mr. Bob Herman	c/o Jack Neidig, RR 1, Box 151 A, Sunbury, PA 17801	(570) 286-7044	rjherman@ptd.net
Lower Susquehanna Riverkeeper	York	Mr. Michael Helfrich	11 West Philadelphia Street, York, PA 17403	(717) 779-7915	lowsusriver@hotmail.com
Mahanoy Creek Watershed Association	Northumberland	Ms. Roseann Weinrick	936 Centre Street, Ashland, PA 17921	(570) 875-3993	rbwbionerd@yahoo.com
Middle Creek Watershed Association	Lancaster	Mr. Russ Gooding	Golden Witch Tech., Inc. P.O. Box 159, Hopeland, PA 17533	(717) 738-4803	gw@dejazzd.com
Northern Swatara Watershed Association	Schuylkill	Mr. Bob Evanchalk	629 Mountain Rd., Pine Grove, PA 17963	(570) 628-1229	revanchalk@co.schuylkill.pa.us
Octoraro Watershed Association	Lancaster	Mr. Anders Alfelt	389 Pine Grove Rd., Nottingham, PA 19362	(717) 529-2132	owa@desuper.net
Paxton Creek Watershed & Education Association	Dauphin	Mr. David Sheridan	P.O. Box 61674, Harrisburg, PA 17106	(717) 731-5683	wateradvise@aol.com
Penns Creek Watershed Association	Centre	Ms. Molly Buchanan	RR #1, Woodward, PA 16882	(814) 349-5100	
Penns Valley Conservation Association	Centre	Mr. Gary Gyekis	415 Lower Georges Valley Road, Spring Mills, PA 16875	(814) 349-5100	gyekis@uplink.net
Quittapahilla Watershed Association	Lebanon	Mr. David Lasky	610 East Walnut St., Annville, PA 17003	(717) 867-4837	
Shamokin Creek Restoration Alliance	Northumberland	Mr. Jim Koharski	828 W. Gowen Street, Coal Twp. 17866	(570) 339-3846	jkoharski@verizon.net
Shermans Creek Conservation Association	Perry	Ms. Linda Sieber	385 Dark Hollow Rd., Shermansdale, PA 17090	(717) 582-3376	lsieber@pa.net
Stony Creek Watershed Association	Dauphin	Mr. Shane Taylor	Dauphin Borough, P.O. Box 487 or 200 Church St., Dauphin, PA 17018	(717) 921-2633	dauphinboro@juno.com
Swatara Creek Watershed Association	Lebanon	Ms. Jo Ellen Litz	2501 Cumberland Street, Suite 2, Lebanon, PA 17042	(717) 274-1175	swatara@mbcomp.com
Tri-County Conewago Creek Association	Dauphin, Lancaster, Lebanon	Mr. Matt Royer	P.O. Box 107, Elizabethtown, PA 17022		conewagocreek@yahoo.com
Tri-Valley Watershed Association	Schuylkill	Mr. Jeffrey Stutzman	743 Union St., Millersburg, PA 17061	(717) 692-5066	jstutzman@co.schuylkill.pa.us
Twin Valley Conservation	Dauphin	Ms. Rudi Erb	4533 Back Road, Halifax, PA 17032	(717) 362-4123	frogwild@pa.net
Watershed Alliance of Adams County	Adams	Ms. Michelle Kirk	PO Box 4329, Gettysburg, PA 17325	(717) 334-0636	waterstartshere@yahoo.com
Watershed Alliance of York County	York	Mr. Gary Peacock	York County Conservation District, 118 Pleasant Acres Rd., York PA 17402	(717) 840-7430	Gpeacock@yorkccd.org
Wiconisco Creek Restoration Association	Schuylkill	Mr. Walt Finch	1021 East Market St., Williamstown, PA 17098	(717) 647-4043	waltfinch@adelphia.net
Yellow Breeches Watershed Association	Cumberland	Mr. Rich Pugh	Gannett Fleming, Inc., 207 Senate Ave., Camp Hill, PA 17011	(717) 763-7211	rpugh@GFNET.com