

CHAPTER 2 STATE BACKGROUND INFORMATION

Population

The Commonwealth of Virginia covers 42,775 square miles and ranks 35th among the states in size. This area is divided into six Department of Environmental Quality (DEQ) regional offices, with two satellite offices. According to the most recent census (2010), the population of the Commonwealth was estimated to be 8,001,024 or 2.5% of the total United States population. It has grown approximately 13% between 2000 and 2010, ranking 12th nationally, and continues to grow. Approximately 72% of all Virginians live in eight metropolitan areas: Northern Virginia, Norfolk-Virginia Beach-Newport News, Richmond-Petersburg, Roanoke, Lynchburg, Charlottesville, Danville and Johnson City-Kingsport-Bristol. Approximately 9% of the population lives in seven smaller urban areas and 19% live in rural areas.

Geography

Virginia is over 400 miles in length along its southern boundary, reaching from the Atlantic Ocean in the east, crossing the eastern continental divide into the Mississippi Basin to the west. Along the way, Virginia crosses five physiographic provinces. The southwestern edge of the state touches upon the margin of the Cumberland Plateau, which is characterized by rugged terrain with formations of sandstone and shale. Virginia's coal mining industry is concentrated in this area. The Valley and Ridge province encompasses the long, parallel ridges of the Appalachian Mountain chain in western Virginia. Erosion-resistant quartzites and sandstones form the ridgetops, while streams have carved valleys into the softer limestones and shales. The narrow Blue Ridge Mountain province is made up of hard greenstone, quartzites, and granites, igneous and metamorphic rocks that originated as ancient lava flows. These mountains are among the oldest on earth. East of the Blue Ridge Mountains lies the rolling Piedmont district of central Virginia. A complex layer of igneous and metamorphic rocks underlies this area. The Triassic Basins, ancient down-faulted basins filled with sedimentary rocks and igneous intrusions are major sub-units of this province. A distinctive fall line, marked by waterfalls and rapids across the major rivers, divides the Piedmont from the Coastal Plain. Virginia's flat Tidewater area consists of deep, unconsolidated deposits of sand, gravel, fossil shells, and clay. The basement formation of granite, exposed at the fall line, is buried under 2,900 feet of sediment at the Atlantic Coast.

Water Resources

A summary of Virginia's water resources is provided in Table 2-1. Virginia has an estimated 100,923 miles of streams and rivers divided into nine major river basins. This estimate represents mileage determined by the United States Geological Survey National Hydrography Dataset (NHD). Annual rainfall averages almost 43 inches. Total combined flow of all freshwater streams in the state is estimated at about 25 billion gallons per day. The 248 publicly owned lakes in the Commonwealth have a combined area of 117,158 acres. Of these lakes, 123 are considered "significant lakes" for monitoring purposes, totaling approximately 113,545 acres. Many hundreds of other smaller, privately owned lakes, reservoirs and ponds, some of significant size, dot the landscape.

Other important water features of Virginia include approximately 236,900 acres of tidal and coastal wetlands, 808,000 acres of freshwater wetlands, 120 miles of Atlantic Ocean coastline, and approximately 2,308 square miles of Chesapeake Bay estuarine waters. Virginia's highly indented shoreline, including the Chesapeake Bay and its sub-estuaries, is conservatively estimated to be 3,315 miles long.

Table 2-1 Virginia Water Resources Atlas

State Population (2006 census) – 7,642,884 (2010 census) – 8,001,024
State Surface Area – 42,775 square miles
Major River Basins
Potomac/Shenandoah James York Roanoke/Yadkin Chowan/Dismal Swamp
Tennessee/Big Sandy Chesapeake Bay/Small Coastal Rappahannock New
Total Non-Tidal River/Stream Miles - 100,923
Miles of Border River (Potomac) - 180
Publicly-Owned Significant Lakes and Reservoirs - 123
Significant Lake/Reservoir Acres - 117,158
Total Acres of Palustrine Wetlands - 1,075,443
Total Acres of Riverine Wetlands - 380
Total Acres of Lacustrine Wetlands - 193
Total Acres of Estuarine Wetlands - 190,996
Total Acres of Isolated Wetlands - ≈ 250,000
Estuary Square Miles (excluding small coastal areas) - 2,308
Atlantic Ocean Coastal Miles – 120
Total Coastal Shoreline Miles Including Chesapeake Bay and Tidal Tributaries to a Width of 110 Feet - 3,315
Statewide Average Annual Rainfall - 42.8 inches
Average Freshwater Discharge of All Rivers – Approximately 25 billion gallons per day

Land Use

Virginia's landscape is dominated by forests, which cover approximately 57% of the state's total area (Table 2-2). However, according to USDA's *Virginia's Forests, 2007*, forested area has declined by less than 1% since 2001. Most (60%) of the loss can be attributed to expanding urban land use, 30% to agriculture, and the rest to other land uses. Water quality is greatly impacted by land use. Specifically, high quality waters are most commonly associated with forested areas. Forested ecosystems act as natural filters, absorbing nutrients and other pollutants that would otherwise be washed into nearby waterbodies. Water quality can be protected in developed areas by creating vegetated buffer zones and maintaining sewer infrastructure.

Table 2-2 Virginia Statewide Land Use Summary

Commercial Forests	23,818 mi ²	97%
Reserved/Unproductive Forests	752 mi ²	3%
Total Forested Land¹	24,570 mi²	57%
Harvested Cropland	4091 mi ²	32%
Pasture and Grazing	231 mi ²	2%
Other	6,249 mi ²	66%
Total Agricultural Land²	12,973 mi²	30%
Other (Including Urban)	2,261 mi²	5%
Total Land Area	39,493 mi ²	92%
Inland Waters	3,282 mi²	8%
TOTAL AREA	42,775 mi²	100%

¹ Source: [2007 8th Forest Inventory of Virginia, US Department of Agriculture](#)

² Source: [2012 Census of Agriculture, US Department of Agriculture](#)