

Water-use data are important for the management of Virginia's water resources. The Virginia Department of Environmental Quality requires water users who withdraw 10,000 gallons per day (300,000 gallons per month) or more of water to report the amounts withdrawn and the locations and uses of the withdrawals. The reported withdrawals are either indirectly estimated or directly metered. During 1992, more than 2,300 users in Virginia reported withdrawals that totaled greater than 5,400 million gallons per day (Mgal/d), of which 96 percent was from surface-water sources and 4 percent was from ground-water sources. The U.S. Geological Survey cooperates with State and local government agencies in Virginia, to describe and observe conditions that affect water use and availability. This Fact Sheet summarizes reported surface-water and ground-water withdrawals in Virginia during 1992 and compares withdrawals by physiographic province.

Surface-Water Withdrawals During 1992

Reported surface-water withdrawals in Virginia during 1992 were greater than 5,280 Mgal/d. Surface-water withdrawals are summarized, by type of use and physiographic province, in figure 1. Electric-power generation¹ accounted for most of the surface-water withdrawals—about 4,100 Mgal/d, or 79 percent, nearly all this water was returned to surface water. Withdrawals for electric-power generation have been divided into nuclear power (42 percent) and fossil-fuel power (58 percent). Excluding electric-power generation,

¹ More than 2,500 Mgal/d of surface water was used for hydroelectric-power generation during 1992. Most hydroelectric plants, however, divert water a very short distance and return it to surface water immediately after use. For this reason, hydroelectric-power generation is considered to be an in-stream use rather than a withdrawal and is not included in any of the calculations in this Fact Sheet.

manufacturing and public-water supply accounted for 36 and 56 percent of the remaining withdrawal, respectively.

Reported surface-water withdrawals in Virginia during 1992 are summarized, by county, in figure 2. The largest surface-water withdrawals (including electric-power generation) were in Louisa, Chesterfield, and York Counties—58 percent of total withdrawal and 60 percent of surface-water withdrawal. Excluding withdrawals for electric-power generation, the largest withdrawals were in Prince George and Loudoun Counties and the cities of Richmond and Suffolk—25 percent of total withdrawal and 30 percent of surface-water withdrawal.

Ground-Water Withdrawals During 1992

Reported ground-water withdrawals in Virginia during 1992 were about 195 Mgal/d. Ground-water withdrawals are summarized, by type of use and physiographic province, in figure 3. Manufacturing accounted for about 52 percent of reported ground-water withdrawal. Public-water supply, agriculture, commercial, mining, and electric-power generation accounted for about 48 percent of reported ground-water withdrawals.

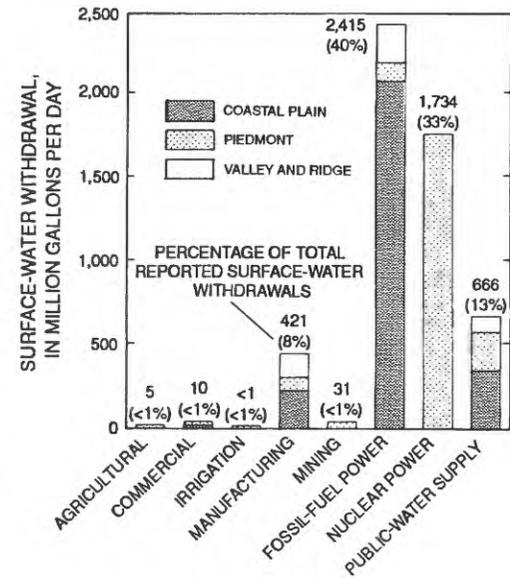


Figure 1. Surface-water withdrawals, by type of use and physiographic province, 1992.

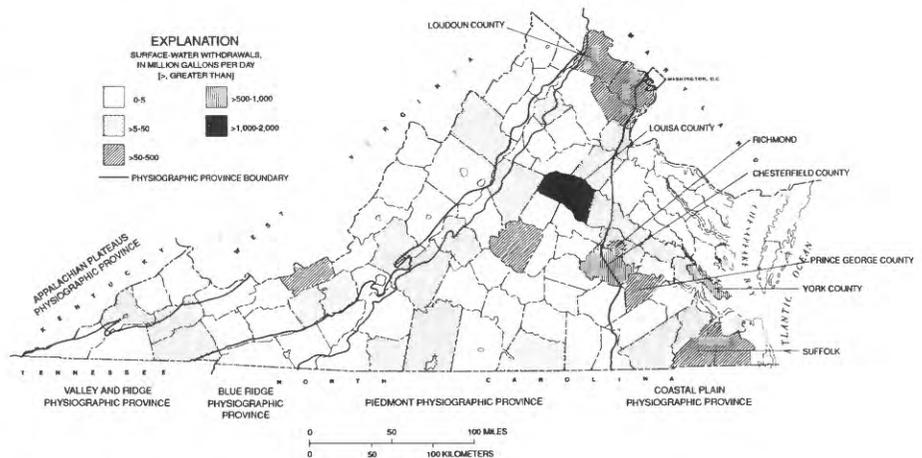


Figure 2. Surface-water withdrawals, by county, 1992.

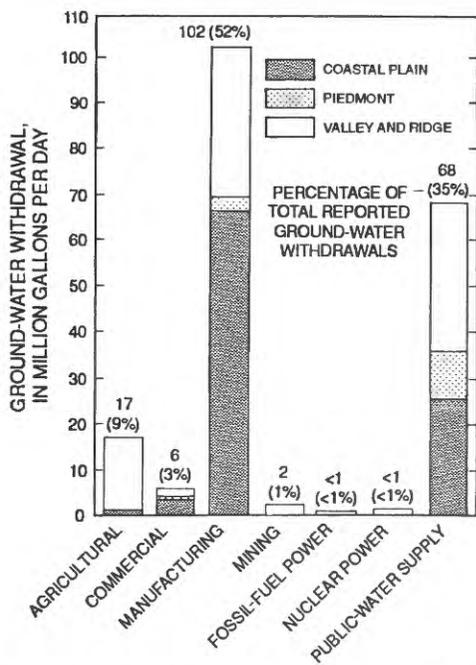


Figure 3. Ground-water withdrawals, by type of use and physiographic province, 1992.

Comparison of Withdrawals by Physiographic Province

Virginia lies within five physiographic provinces (figs. 2, 4). Reported withdrawals in Virginia during 1992 are summarized, by type of use, for the Coastal Plain, the Piedmont, and the Valley and Ridge Physiographic Provinces (figs. 1, 3). Reported withdrawals in the Blue Ridge and the Appalachian Plateaus Physiographic Provinces each

accounted for only 3.4 percent of the total Statewide reported withdrawal and are, therefore, not included in any of the calculations.

Reported withdrawals in the Coastal Plain exceeded 2,700 Mgal/d and accounted for about 50 percent of the total Statewide reported withdrawals. Surface-water withdrawal for fossil-fuel power generation was the largest use (76 percent). Excluding withdrawals for electric-power generation, 98 percent of surface water (about 550 Mgal/d) and 97 percent of ground water (about 91 Mgal/d) withdrawn in the Coastal Plain was used for manufacturing and public-water supply.

Reported withdrawals in the Piedmont were about 2,200 Mgal/d and accounted for 40 percent of the total Statewide reported withdrawals. Surface-water withdrawals for nuclear-power generation accounted for the largest use (79 percent). Excluding withdrawals for electric-power generation, 93 percent of surface water (about 300 Mgal/d) and 90 percent of ground water (about 13 Mgal/d) withdrawn in the Piedmont was used for public-water supply and manufacturing.

Reported withdrawals in the Valley and Ridge exceeded 560 Mgal/d and accounted for 10 percent of the total Statewide reported withdrawals. Surface-water withdrawal for fossil-fuel power generation was the largest use (41 percent). Excluding withdrawals for electric-power generation, 94 percent of surface water (about

230 Mgal/d) and 77 percent of ground-water (about 65 Mgal/d) withdrawn in the Valley and Ridge was used for public-water supply and manufacturing.

In summary, surface-water withdrawal for electric-power generation accounted for most of the total reported withdrawals in the three provinces. In the three provinces, most of the water not used for electric-power generation was used for public-water supply and manufacturing; however, about twice the amount of water was used in the Coastal Plain for public-water supply and manufacturing than in the other provinces. Although ground-water withdrawals accounted for only 4 percent of total withdrawals, the amount of ground water withdrawn differed greatly from one province to another. The smallest amount was withdrawn in the Piedmont and the largest amount was withdrawn in the Valley and Ridge.

Selected References

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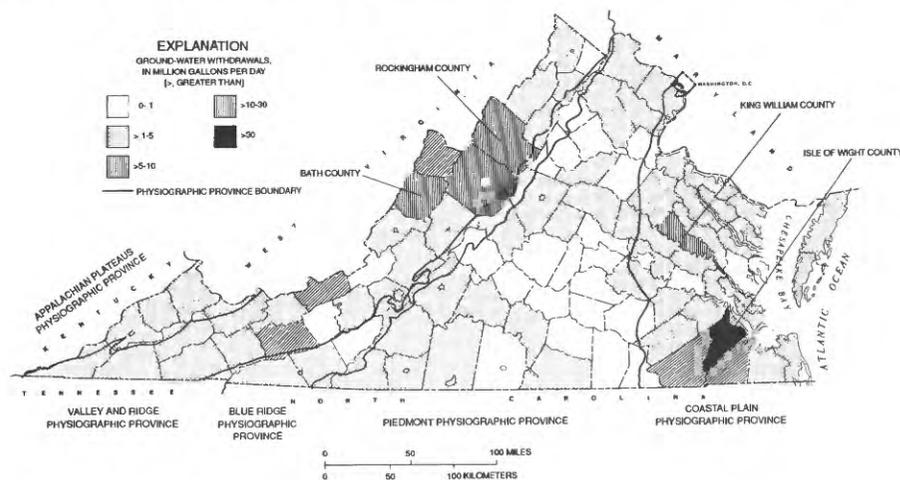


Figure 4. Ground-water withdrawals, by county, 1992.