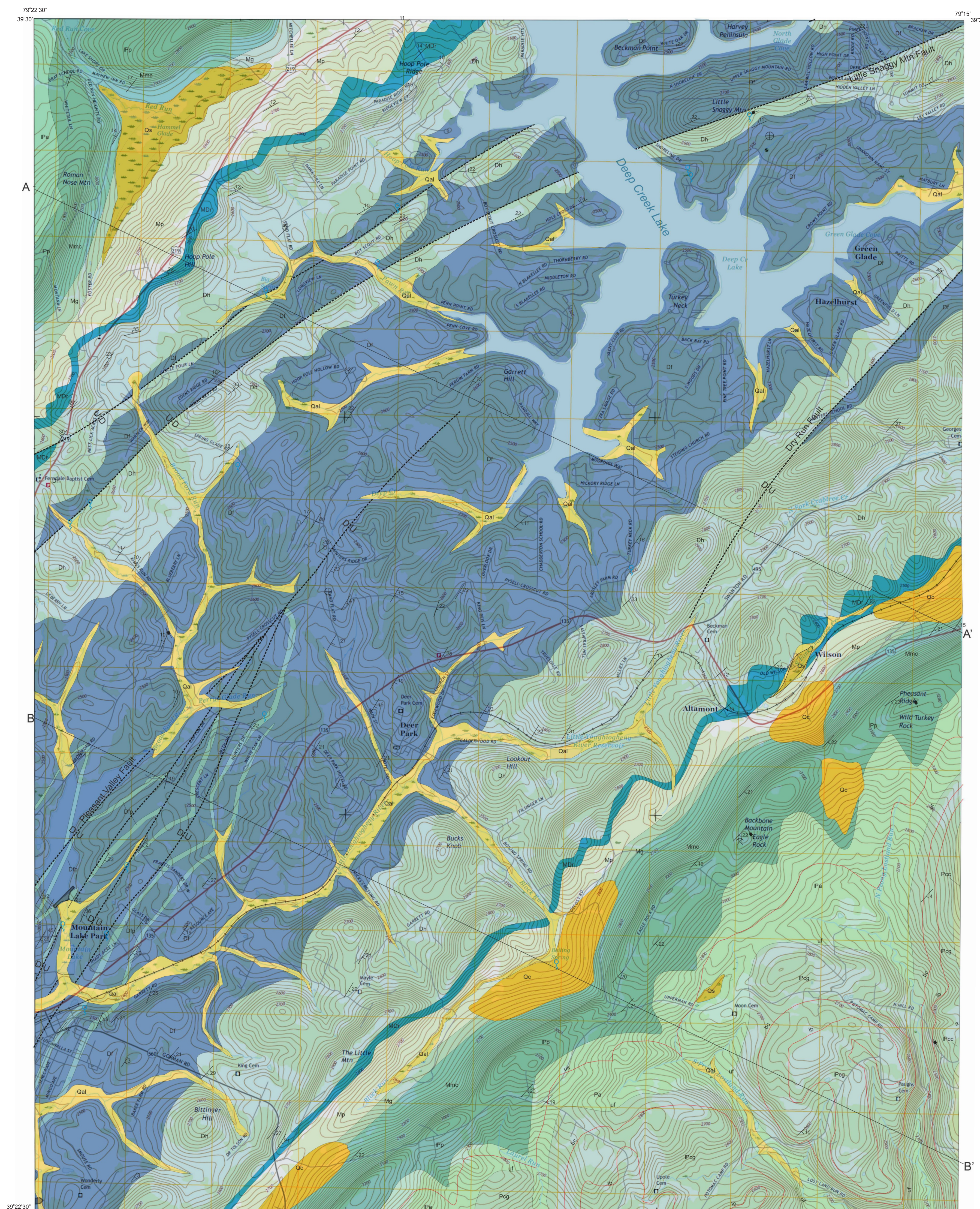


**DESCRIPTION OF MAP UNITS**

- Qal** **Alluvium**  
Pebbles, cobbles, and boulders in a sandy matrix. Clasts weather yellowish orange, and orange-brown. These deposits are present along both modern and ancient streams and may have a thick humic component near the top. The thickness of alluvium varies from a thin veneer to more than 30 feet. Thicker accumulations tend to be concentrated where colluvium at the edge of valleys overlies the alluvium.
- Qs** **Swamp**  
Unconsolidated, dark gray, organic-rich, sandy soil to fibrous peat. These materials accumulated in boggy, low-lying, poorly drained areas and many are remnants of late Pleistocene glades or lakes. These silty sediments are water-logged during part or most of the year and are poor agricultural lands. Thickness ranges from less than three feet to nearly 10 feet.
- Qc** **Colluvium/Landslide**  
Unconsolidated and unsorted boulders and cobbles present on steep slopes, or at the base of steep slopes below outcrops of sandstone units. These deposits are largely the result of frost wedging or mass movement (i.e., landslide). Topographically, these accumulations exhibit an irregular upper surface, thin upslope, and rarely have soil cover. Thickness ranges from several feet on steep slopes to more than 50 feet.
- Pcc** **Conemaugh Group**  
Interbedded sandstone, shale, siltstone, and nonmarine limestone. The aggregate thickness of the Conemaugh Group is approximately 700 to 800 feet in the Deer Park Quadrangle.
- Pcg** **Casselman Formation**  
Interbedded, tan, medium- to coarse-grained, locally conglomeratic, cross-bedded sandstone, gray to reddish gray mudstone, medium gray, silty shale, siltstone, and light gray to grayish brown, buff-weathering non-marine limestone. Less than 100 feet of the Casselman Formation are preserved in the Deer Park Quadrangle.
- Pg** **Glenshaw Formation**  
Gray, tan-weathering, micaceous, medium- to coarse-grained, cross-bedded sandstone containing abundant coaly plant fragments; interbedded with gray, reddish gray, and locally reddish brown, silty shale, siltstone, light gray, bioturbated, non-marine limestone, and brittle, dark gray, fossiliferous, marine shale. The base of the Glenshaw Formation is placed at the top of the Upper Freeport coal bed; and the top of the formation is considered to be at the top of the Ames marine shale. Marginal marine intervals are underlain by mined coal beds. These include the Bush Creek (bc), Lower Bakerstown (lb), and Ames (a) coals. The Glenshaw Formation is approximately 350 feet thick.
- Pa** **Allegheny Formation**  
Interbedded, medium to dark gray shale and siltstone, and tan to light gray, coarse-grained, cross-bedded sandstone, with thin, light gray claystones. The top of the formation is at the top of the Upper Freeport (uf) coal bed, and the base of the formation is the top of the white, massive, conglomeratic, Homewood Member of the underlying Pottsville Formation. The Upper Kittanning (uk) coal bed is locally mined. The Allegheny Formation is between 200 to 250 feet thick.
- Pp** **Pottsville Formation**  
Dominantly tan to light grayish brown, medium- to coarse-grained, cross-bedded sandstone and conglomeratic sandstone with abundant coaly plant fragments and thin intervals of dark gray, coaly shale, siltstone, or coal beds. The massive, pebbly to granular, light gray, highly cross-bedded Homewood Sandstone constitutes a resistant, mappable sandstone layer at the top of the formation and is exposed at Eagle and Wild Turkey Rocks on Backbone Mountain. Total thickness for the unit is 200 to 250 feet.
- Mmc** **Mauch Chunk Formation**  
Interbedded, reddish brown shale, variegated mudstone and siltstone, and reddish brown to greenish gray, medium-grained, micaceous sandstone. Sandstone intervals are lenticular, cross-bedded, exhibit sharp bases, and fine upsection. Several thin, greenish gray, marine calcareous shale to argillaceous limestone units are present near the base of the formation. The Mauch Chunk Formation is approximated at 400 feet in thickness in the Deer Park Quadrangle.
- Mg** **Greenbrier Formation**  
Interbedded, gray to reddish brown sandstone, fossiliferous and variegated shale, and fossiliferous limestone. The light gray, cross-bedded, sandy limestone (Loyalhanna Member) is at the base and is overlain by interbedded, reddish, fossiliferous mudstone, and white to tan and reddish brown, fine-grained sandstone, and reddish brown siltstone and variegated shale (Savage Dam Member). The Savage Dam Member is overlain by thin- to medium-bedded, light to medium gray, argillaceous, fossiliferous limestone at the top of the formation (Wymps Gap Member). The Greenbrier Formation is 150 to 200 feet thick.
- Mp** **Purslane Formation**  
Tan to light gray, coarse-grained sandstone to conglomerate. Thick-bedded, pebbly conglomerate occurs near the base and at the top of the formation. Thin beds of gray shale and coaly shale are locally interbedded with the sandstone intervals. The Purslane Formation is 300 to 400 feet thick in southern Garrett County.
- Mdr** **Rockwell Formation**  
Interbedded, greenish gray, tan-weathering, argillaceous, bioturbated sandstone, and reddish gray to gray, coaly siltstone and shale. The greenish gray bioturbated sandstones at the base of the formation (Oswayo Member) are locally interbedded with the reddish strata of the upper Hampshire Formation. These basal marine strata are overlain by light gray to tan, thin- to medium-bedded, cross-bedded, lenticular sandstone, and rooted, gray mudstone. The top of the formation consists of well-sorted, burrowed, locally fossiliferous, buff sandstone of the Riddleburg Member. The Rockwell Formation is between 100 and 200 feet thick in the Deer Park Quadrangle.
- Dh** **Hampshire Formation**  
Interbedded, reddish brown to reddish gray, and brownish red, locally greenish gray, cross-bedded, upward-fining, argillaceous, lenticular sandstone; reddish brown micaceous siltstone, shale, and red-brown rooted claystone. The Hampshire Formation ranges from approximately 1,600 to 2,000 feet thick in Garrett County.
- Df** **Foreknobs Formation**  
Interbedded, olive gray, tan-weathering, medium- to coarse-grained, cross-bedded, bioturbated sandstone; greenish gray to dusky red, fossiliferous shale and siltstone. Top of the formation is mapped at the top of the medium- to thick-bedded, cross-bedded, light gray to white (c.30 feet) sandstone considered equivalent to the Pound Sandstone Member of the Valley and Ridge Province. The base of the formation is characterized by an interval of interbedded greenish gray siltstone, and thick-bedded, quartz-pebble conglomerate. This interval is considered equivalent to the Park Head Sandstone (Dp) of the Valley and Ridge Province. The Foreknobs Formation is approximately 1,500 feet thick in Garrett County.

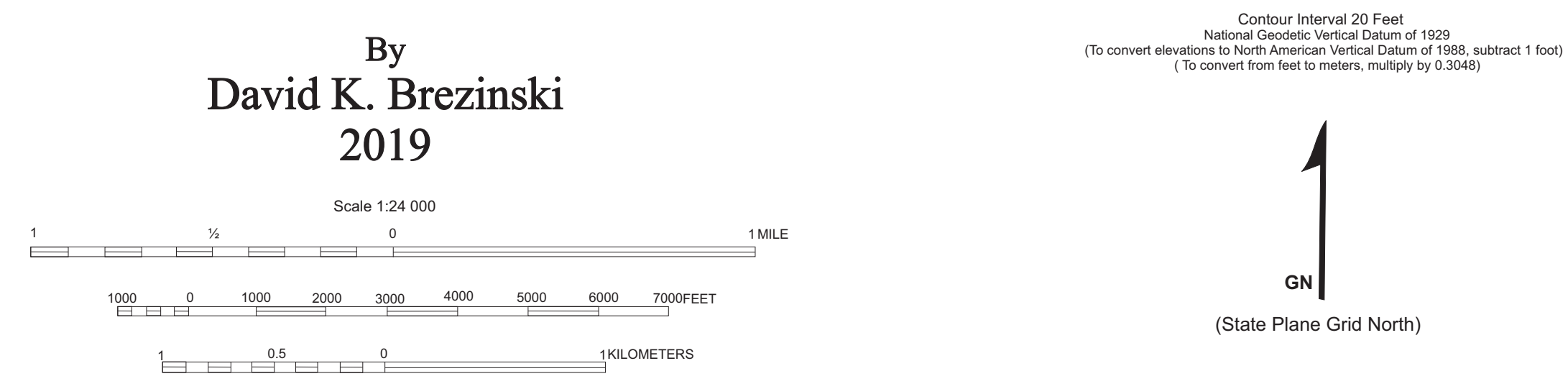
Quaternary  
Pennsylvanian  
Mississippian  
Devonian



**Geologic Map of the Deer Park Quadrangle, Garrett County, Maryland**

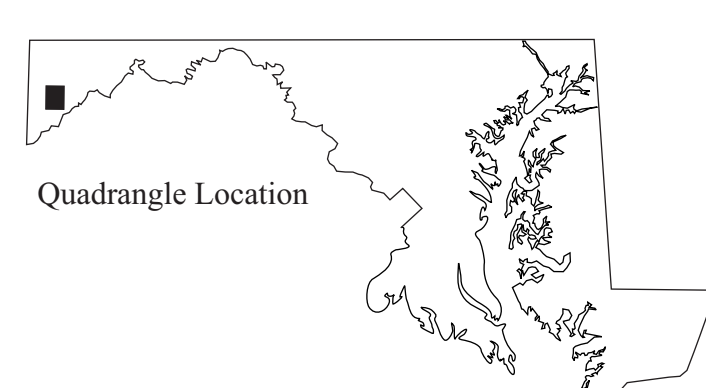
U.S. Geological Survey (USGS) US Topo 7.5-minute Series  
Baltimore, MD quadrangle, 2016  
Maryland State Plane Coordinate System 1983  
(Projection: Lambert Conformal Conic, 1980 geodetic reference system)  
(Horizontal Datum: North American Datum 1983)  
Geographic coordinates (latitude-longitude). Shown near corners  
Reported magnetic north declination (center of Deer Park quadrangle): 9.3°W  
To determine current magnetic declination see: (<http://www.ngdc.noaa.gov/geomag/declination.shtml>)

By  
**David K. Brezinski**  
2019



Adjoining 7.5-minute quadrangles (Deer Park quadrangle shaded)

1	2	3	1 Sang Run
4	5	6	2 Mchenery
7	8	7	3 Blittinger
		8	4 Oakland
			5 Kitzmiller
			6 Table Rock
			7 Gorman
			8 Mt. Storm



**Explanation of Map Symbols**

**Contacts**  
Geologic contacts, definite, approximate, and concealed location

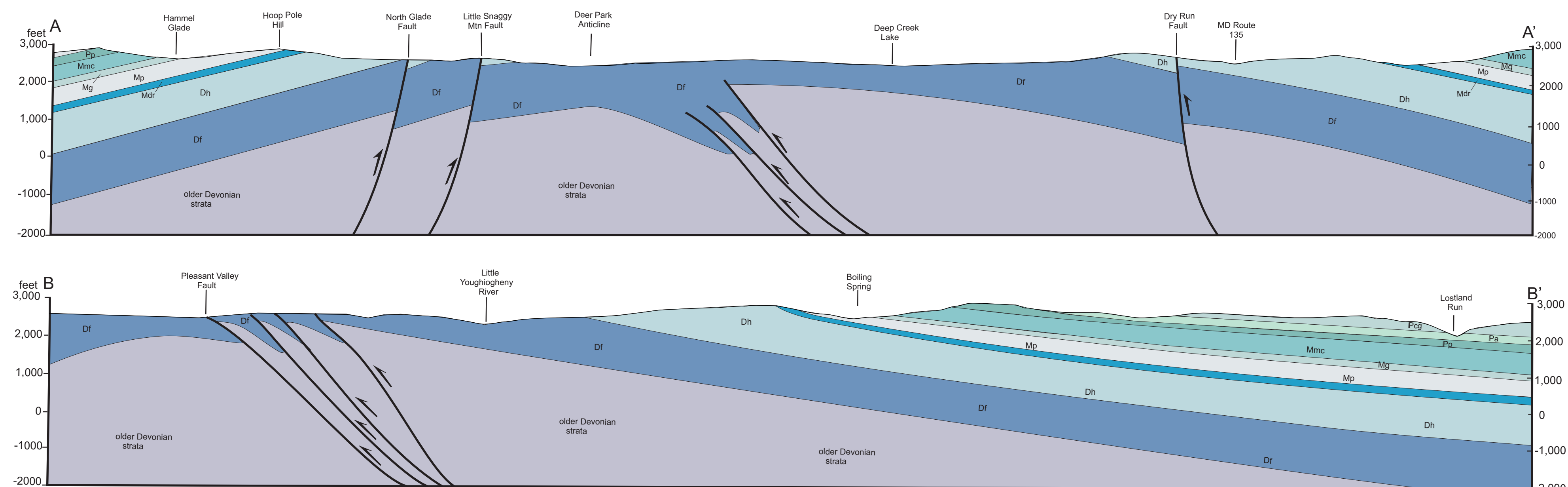
**Faults**  
Fault: approximately located. U refers to down thrown side, D to the up thrown side.

**Planar Features**  
Inclined bedding strike and degree of dip shown  
Horizontal bedding  
Inclined joint strike and degree of dip shown  
Vertical joint strike shown

**Coal Beds**  
Projected outcrop trace of coal bed  
Quarry/mine

**Transportation**  
Primary route, class 1 (divided lanes)  
Primary route, class 1 (undivided)  
Secondary route, class 2  
Light duty road or street, class 3

**Topography**  
Topographic index contour (100-ft interval)  
Topographic intermediate contour (20-ft interval)  
Stream  
Spring  
Water body (eg. lakes, ponds, rivers)



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Geologic field mapping conducted in 2018-2019.

The facilities and services of the Maryland Department of Natural Resources are available to all without regard to race, color, religion, sex, sexual orientation, age national origin or physical and mental disability.

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