

Maryland Department of Natural Resources
Resource Assessment Service
Maryland Geological Survey
Richard A. Ort, Jr., Director

ADMINISTRATIVE REPORT NO. 16-02-03

HYDROGRAPHS AND TABLES SHOWING GROUNDWATER LEVEL
RECORDS FOR SELECTED OBSERVATION WELLS IN CHARLES
COUNTY, MARYLAND

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Prepared in cooperation with the
Charles County Department of Planning
and Growth Management

July 2016

SUMMARY

This report presents water-level data for 29 observation wells in Charles County updated through 2016. Water-level are tabulated for measurements from 2014 through June, 2016. Water-level hydrographs are shown for the entire period of record at each site. Data were obtained from the National Water Information System, Ground-Water Site Inventory database, which is maintained by the U.S. Geological Survey. Historical and additional ground-water data may be obtained from the U.S. Geological Survey website at <http://waterdata.usgs.gov/nwis/gw>.

Water levels in the **Magothy aquifer** continue to fluctuate in response to pumpage, but generally show slightly declining or flat trend. Current water levels range from 63.56 feet below sea level at Sun Valley (CH Be 43) to 130.21 feet below sea level at St. Charles (CH Bf 133).

Water levels in the **Upper Patapsco aquifer** have generally continued to decline in the last year. Current water levels range from 15.29 feet below sea level at Douglas Point (CH Da 21) to as much as 77.45 feet below sea level at St. Charles (CH Bf 157). A slight increase was noted at St. Charles (CH Bf 151).

Water levels in the **Lower Patapsco aquifer** in wells in the far northern and northwestern parts of the county (CH Be 72, CH Bc 24, CH Bc 81, and CH Cc 31) have recovered as much as 30 ft since late 2007, and have either continued to recover or have held steady since 2012. These recoveries, beginning in 2008, resulted from a drop in usage of the Lower Patapsco aquifer system in the western part of the County when the new Patuxent aquifer system wells were added to the system. Lower Patapsco water levels at St. Charles (CH Bf 146), La Plata (CH Ce 56), Chapel Point Woods (CH De 52), and Douglas Point (CH Da 20) show a generally flat trend. Current water levels in the Lower Patapsco aquifer range from 16.90 feet below sea level at Douglas Point (CH Da 20) to 143.62 feet below sea level at La Plata (CH Ce 56).

For all monitored areas of the county, water levels in the **Patuxent aquifer** continue to decline. Water levels in the Patuxent aquifer are declining at rates of 2.5 to 5 ft per year at Waldorf, La Plata, and Indian Head area wells, while Chapmans Landing/Bryans Road area wells (CH Bc 75, 77, and 78) record the fastest declines at up to 7 ft per year. Current water levels in the Patuxent aquifer range from 11.82 feet below sea level in the western part of the county at Douglas Point (CH Da 18) to 113.03 feet below sea level at Bryans Road (CH Bc 78).

OBSERVATION WELLS

Magothy aquifer

<u>Well Number</u>	<u>Location</u>	<u>Aquifer</u>
CH Be 43	Sun Valley	Magothy
CH Bf 133	St. Charles	Magothy
CH Bf 134	John Hanson Middle School	Magothy

Upper Patapsco aquifer system

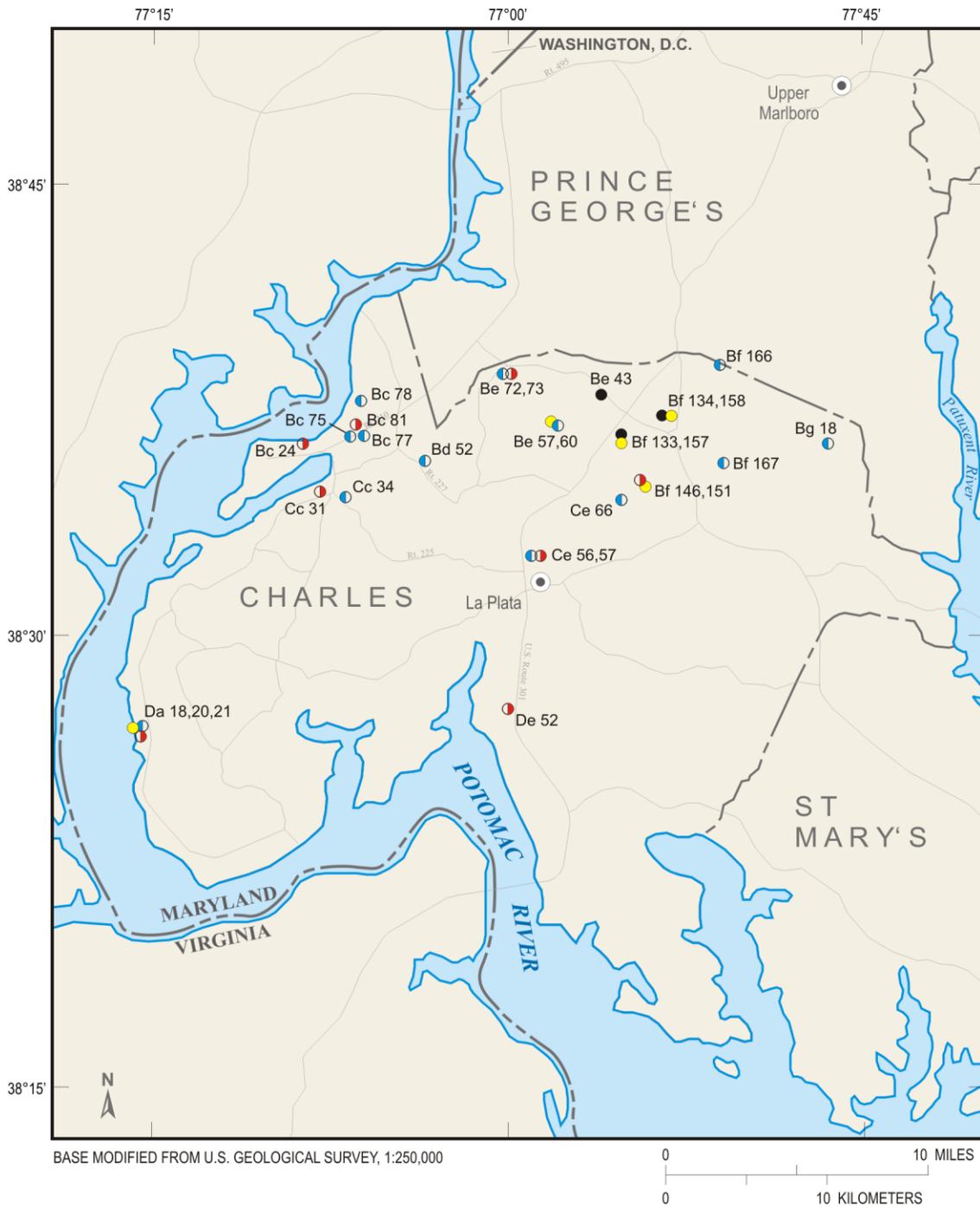
<u>Well Number</u>	<u>Location</u>	<u>Aquifer</u>
CH Be 60	Smallwood West	Upper Patapsco
CH Bf 151	near St. Charles	Upper Patapsco
CH Bf 157	St. Charles	Upper Patapsco
CH Bf 158	John Hanson Middle School	Upper Patapsco
CH Da 21	Douglas Point	Upper Patapsco

Lower Patapsco aquifer system

<u>Well Number</u>	<u>Location</u>	<u>Aquifer</u>
CH Bc 24	Potomac Heights	Lower Patapsco
CH Bc 81	Montrose Farms	Lower Patapsco
CH Be 72	Saw Mill Place	Lower Patapsco
CH Bf 146	near St. Charles	Lower Patapsco
CH Cc 31	Dravo well	Lower Patapsco
CH Ce 56	Heritage Green, La Plata	Lower Patapsco
CH Da 20	Douglas Point	Lower Patapsco
CH De 52	Chapel Point Woods	Lower Patapsco

Patuxent aquifer system

<u>Well Number</u>	<u>Location</u>	<u>Aquifer</u>
CH Bc 75	Chapman's Landing Well 2	Patuxent
CH Bc 77	Chapman's Landing Well 1	Patuxent
CH Bc 78	Bryans Road Well 5	Patuxent
CH Bd 52	Route 227 test site	Patuxent
CH Be 57	Smallwood West	Patuxent
CH Be 73	Saw Mill Place	Patuxent
CH Bf 166	Pinefield	Patuxent
CH Bf 167	Gardiner Road	Patuxent
CH Bg 18	near Malcolm	Patuxent
CH Cc 34	Mattawoman Waste-Water Treatment Plant	Patuxent
CH Ce 57	Heritage Green, La Plata	Patuxent
CH Ce 66	White Plains Regional Park	Patuxent
CH Da 18	Douglas Point	Patuxent



EXPLANATION	
Bf 133 ●	Magothy aquifer
●	Upper Patapsco aquifer
●	Lower Patapsco aquifer
●	Patuxent aquifer
	OBSERVATION WELL - CH for Charles County omitted.

Figure 1. Location of observation wells.

MAGOTHY AQUIFER

WELL NUMBER: CH Be 43

PERMIT NUMBER: CH-71-0066

LOCATION: Sun Valley

LAT. 38° 38' 19", LONG. 76° 55' 55"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 459 ft;

Casing diameter: 6 in. to 428 ft;

Screen diameter: 5 in. from 433 to 459 ft.

INSTRUMENTATION: Periodic measurements.

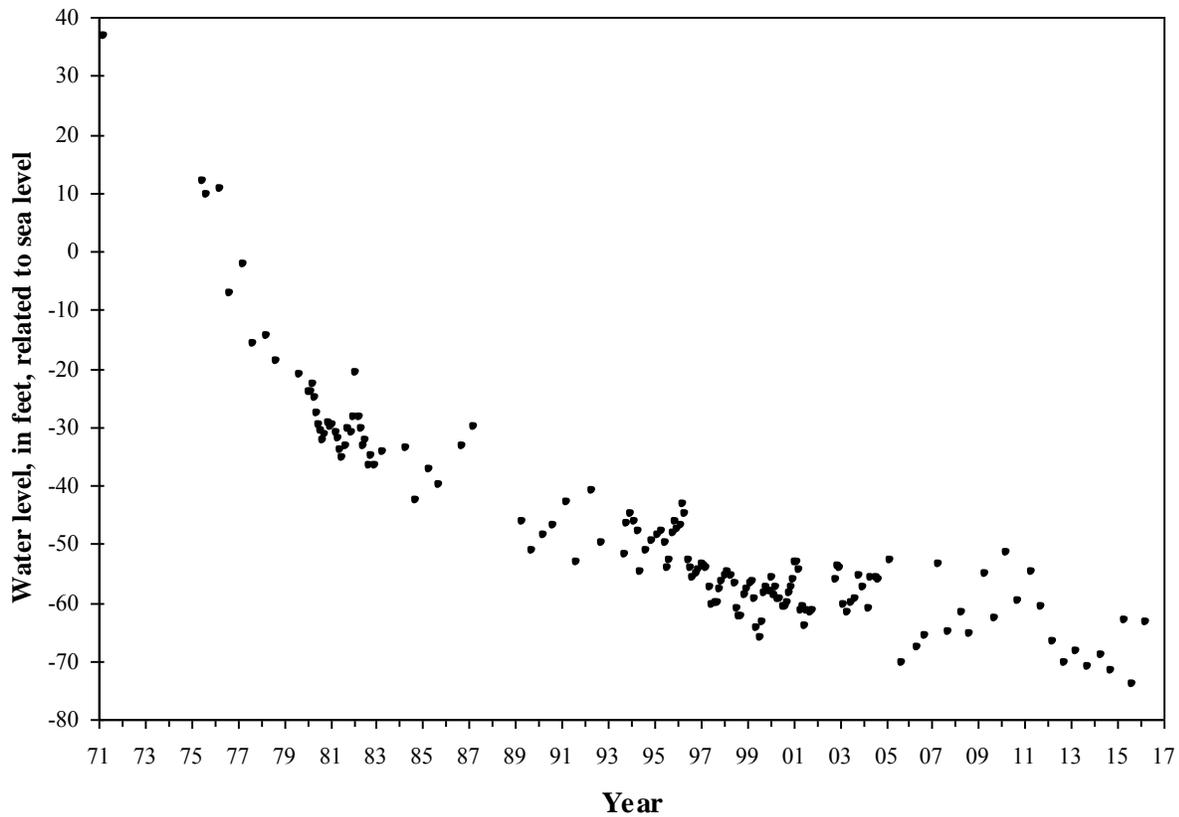
DATUM: Altitude of land surface is 216.79 ft above NGVD of 1929.

MEASURING POINT: Top of casing 1.95 ft above land surface.

PERIOD OF RECORD: February 1971 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 17, 2014	285.95	Apr 24, 2015	279.90	Apr 11, 2016	280.40
Sep 30, 2014	288.57	Sep 02, 2015	290.73		



WELL NUMBER: CH Bf 133

PERMIT NUMBER: CH-70-0069

LOCATION: St. Charles

LAT. 38° 36' 40", LONG. 76° 54' 59"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 510 ft;

Casing diameter: 10 in. to 77 ft; 6 in. from -2 to 420 ft; 4 in. from 420 to 436 ft, and 506 to 510 ft;

Screen diameter: 4 in. from 436 to 506 ft.

INSTRUMENTATION: Periodic measurements.

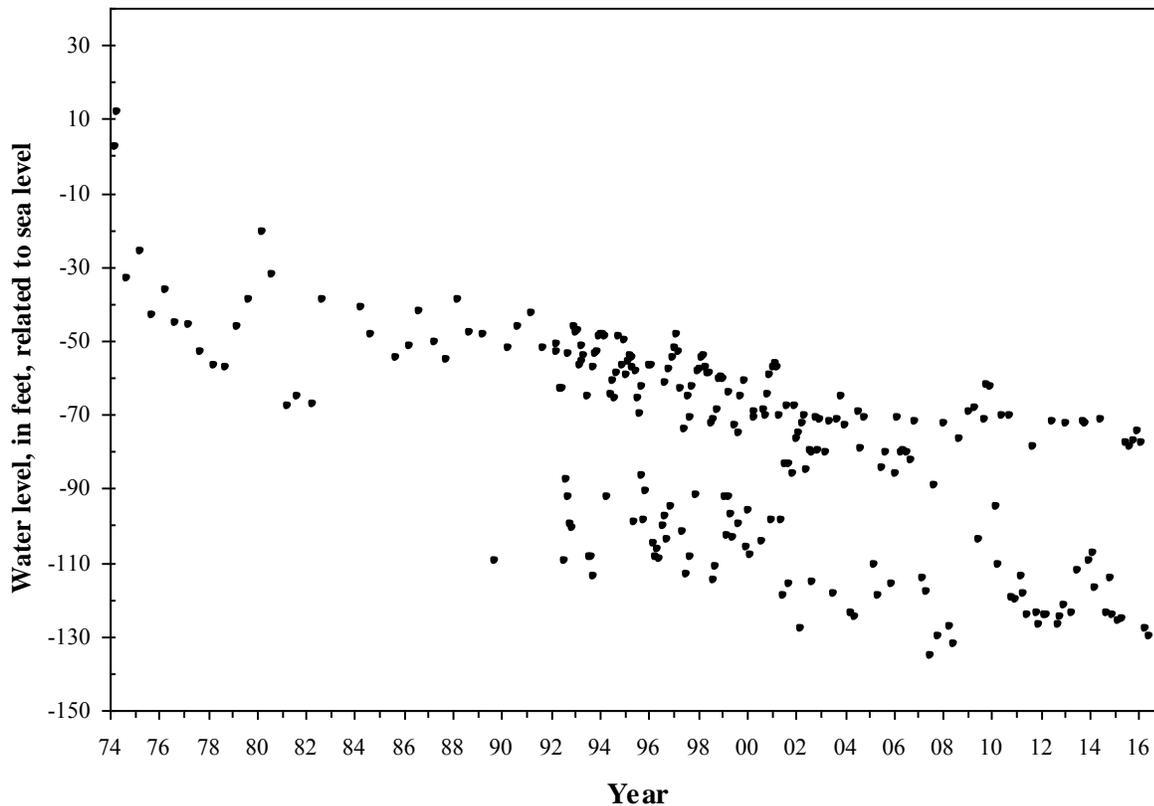
DATUM: Altitude of land surface is 223.50 ft above NGVD of 1929.

MEASURING POINT: Top of casing 0.82 ft above land surface.

PERIOD OF RECORD: April 1974 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	331.26	Mar 13, 2015	349.30	Mar 02, 2016	301.07
Apr 02, 2014	340.47	Apr 24, 2015	348.73	Apr 11, 2016	351.38
Jun 17, 2014	295.20	Jun 30, 2015	301.03	Jun 08, 2016	353.71
Sep 30, 2014	347.07	Sep 02, 2015	302.11		
Nov 12, 2014	338.05	Oct 22, 2015	300.65		
Dec 15, 2014	347.63	Dec 10, 2015	298.21		



WELL NUMBER: CH Bf 134

PERMIT NUMBER: CH-70-0067

LOCATION: John Hanson Middle School

LAT. 38° 37' 28", LONG. 76° 53' 17"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 546 ft;

Casing diameter: 6 in. to 402 ft; 4 in. from 422 to 485 ft;

Screen diameter: 4 in. from 402 to 422 ft, and 485 to 546 ft.

INSTRUMENTATION: Periodic measurements.

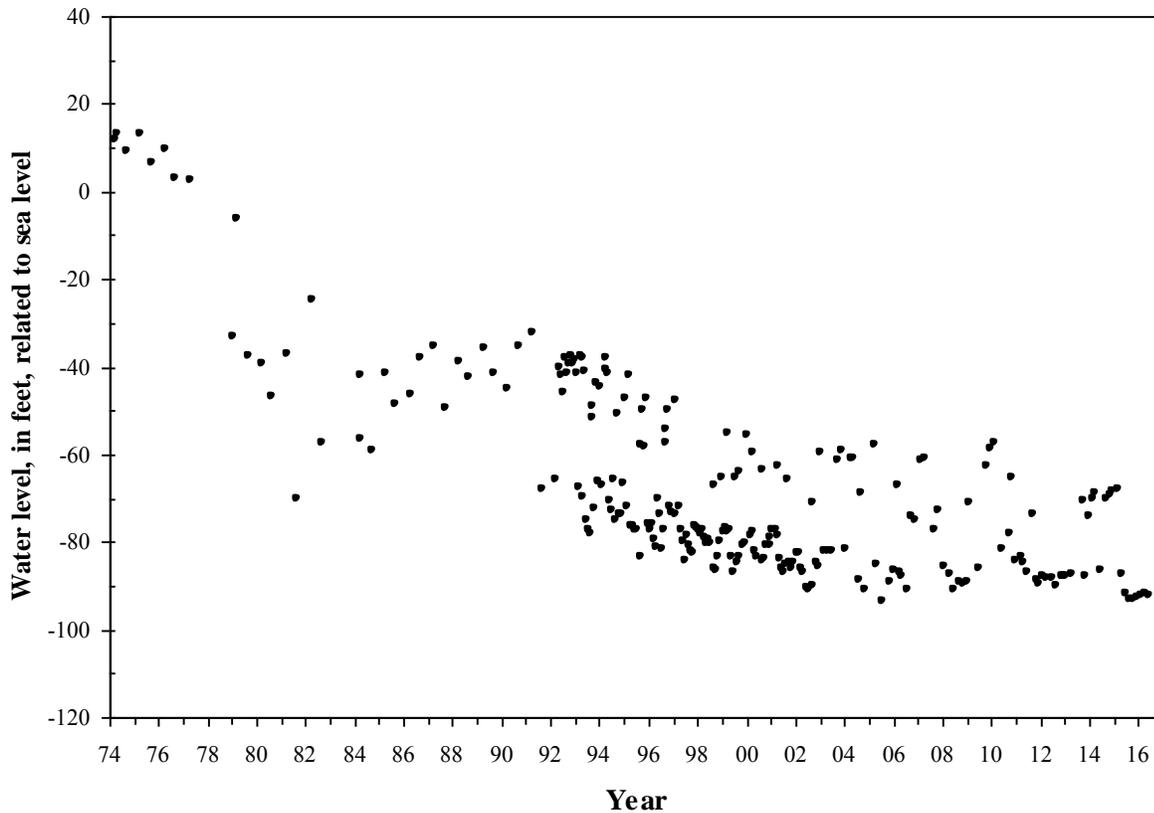
DATUM: Altitude of land surface is 202.09 ft above NGVD of 1929.

MEASURING POINT: Top of casing 1.51 ft above land surface.

PERIOD OF RECORD: April 1974 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	272.21	Mar 13, 2015	270.06	Mar 02, 2016	294.40
Apr 02, 2014	270.84	Apr 24, 2015	289.45	Apr 11, 2016	293.87
Jun 17, 2014	288.64	Jun 30, 2015	294.03	Jun 08, 2016	294.30
Sep 30, 2014	272.16	Sep 01, 2015	295.12		
Nov 12, 2014	271.44	Oct 22, 2015	295.16		
Dec 15, 2014	270.73	Dec 10, 2015	294.96		



UPPER PATAPSCO AQUIFER SYSTEM

WELL NUMBER: CH Be 60
LOCATION: Smallwood West

PERMIT NUMBER: CH-81-1468
LAT. 38° 37' 06", LONG. 76° 57' 56"

AQUIFER: Upper Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 635 ft;
Casing diameter: 6 in. to 401 ft; 4 in. from 401 to 610 ft, and 625 to 635 ft;
Screen diameter: 4 in. from 610 to 625 ft.

INSTRUMENTATION: Periodic measurements.

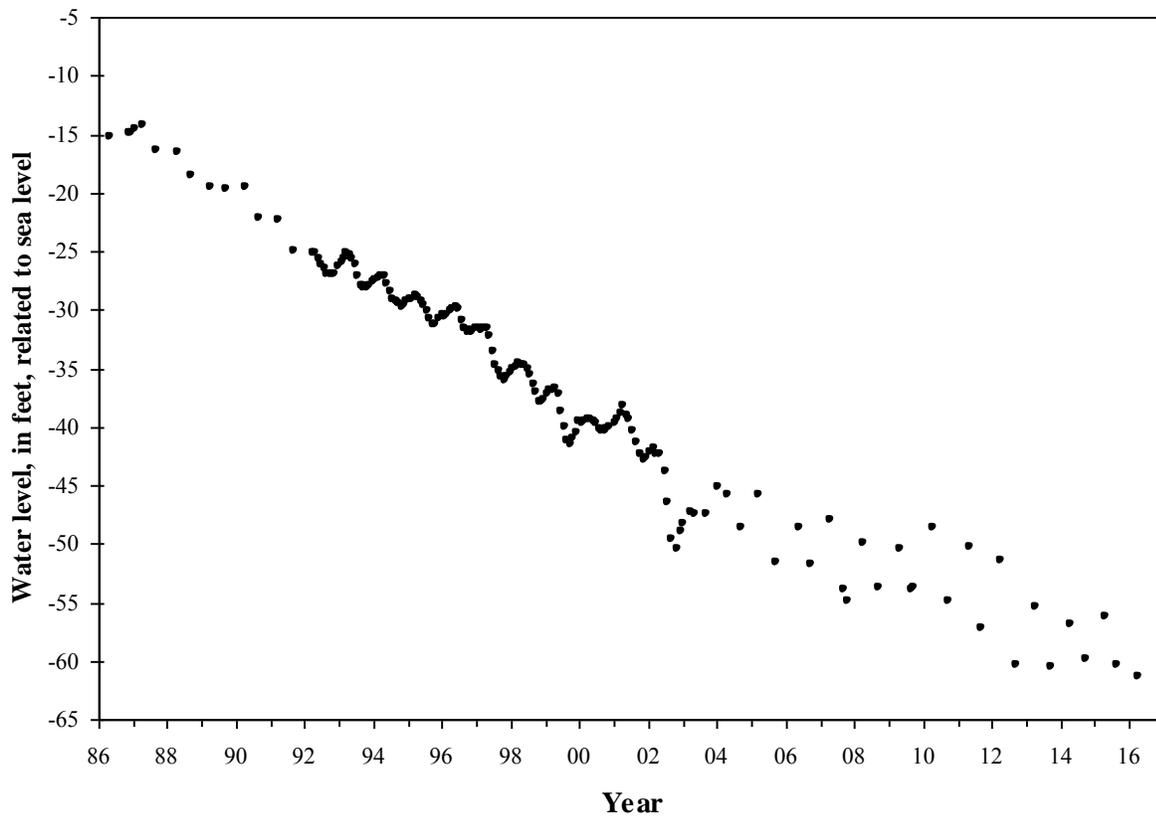
DATUM: Altitude of land surface is 212.8 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.2 ft above land surface.

PERIOD OF RECORD: November 1986 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 17, 2014	269.66	Apr 24, 2015	269.04	Apr 11, 2016	274.24
Sep 30, 2014	272.62	Sep 02, 2015	273.22		



WELL NUMBER: CH Bf 151

PERMIT NUMBER: CH-81-1265

LOCATION: near St. Charles

LAT. 38° 35' 08", LONG. 76° 54' 07"

AQUIFER: Upper Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 660 ft;

Casing diameter: 6 in. to 339 ft; 4 in. from 399 to 645 ft;

Screen diameter: 4 in. from 645 to 660 ft.

INSTRUMENTATION: Periodic measurements.

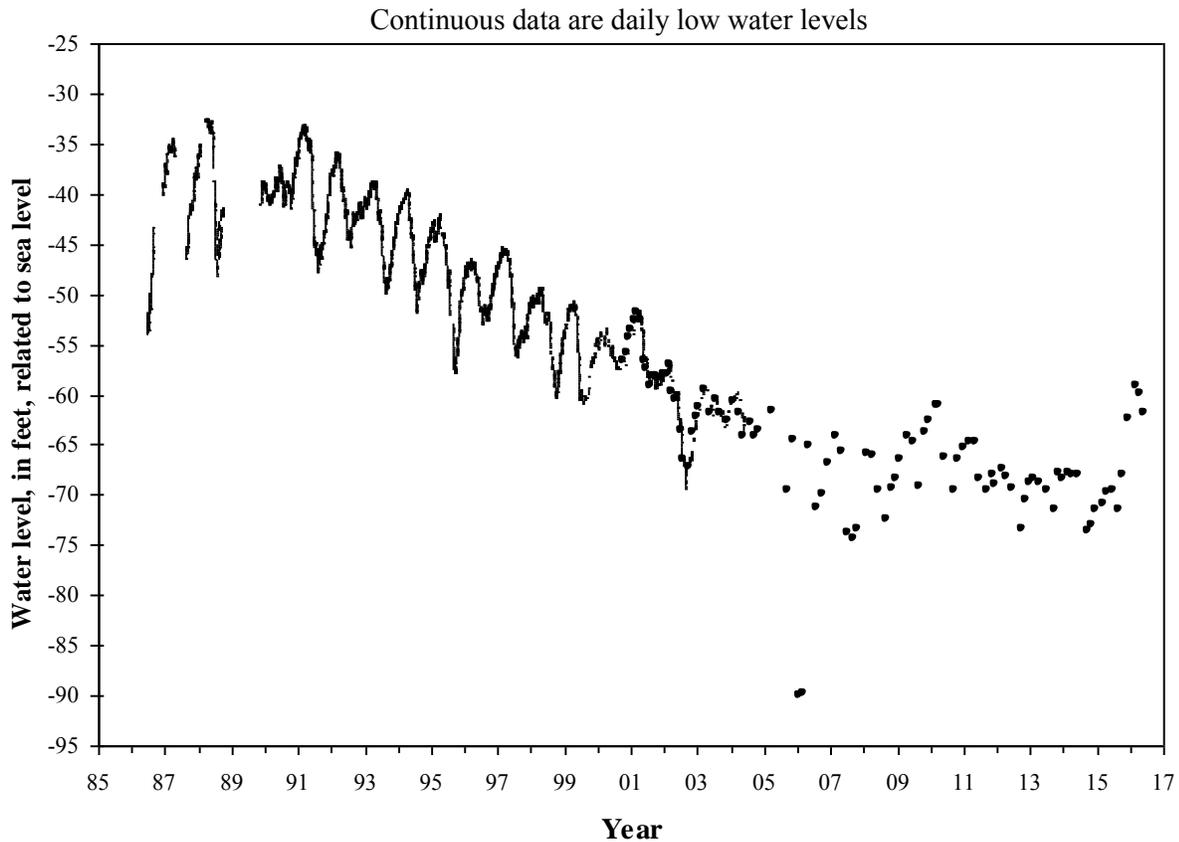
DATUM: Altitude of land surface is 192.8 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.20 ft above land surface.

PERIOD OF RECORD: August 1985 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	260.63	Mar 13, 2015	263.67	Mar 02, 2016	251.84
Apr 02, 2014	260.85	Apr 24, 2015	262.56	Apr 11, 2016	252.75
Jun 17, 2014	260.71	Jun 30, 2015	262.42	Jun 08, 2016	254.63
Sep 30, 2014	266.34	Sep 02, 2015	264.34		
Nov 12, 2014	265.79	Oct 22, 2015	260.73		
Dec 15, 2014	264.28	Dec 10, 2015	255.26		



WELL NUMBER: CH Bf 157

PERMIT NUMBER: CH-81-1846

LOCATION: St. Charles

LAT. 38° 36' 40", LONG. 76° 54' 59"

AQUIFER: Upper Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 623 ft;

Casing diameter: 6 in. to 396 ft; 4 in. from 396 to 608 ft;

Screen diameter: 4 in. from 608 to 623 ft.

INSTRUMENTATION: Periodic measurements.

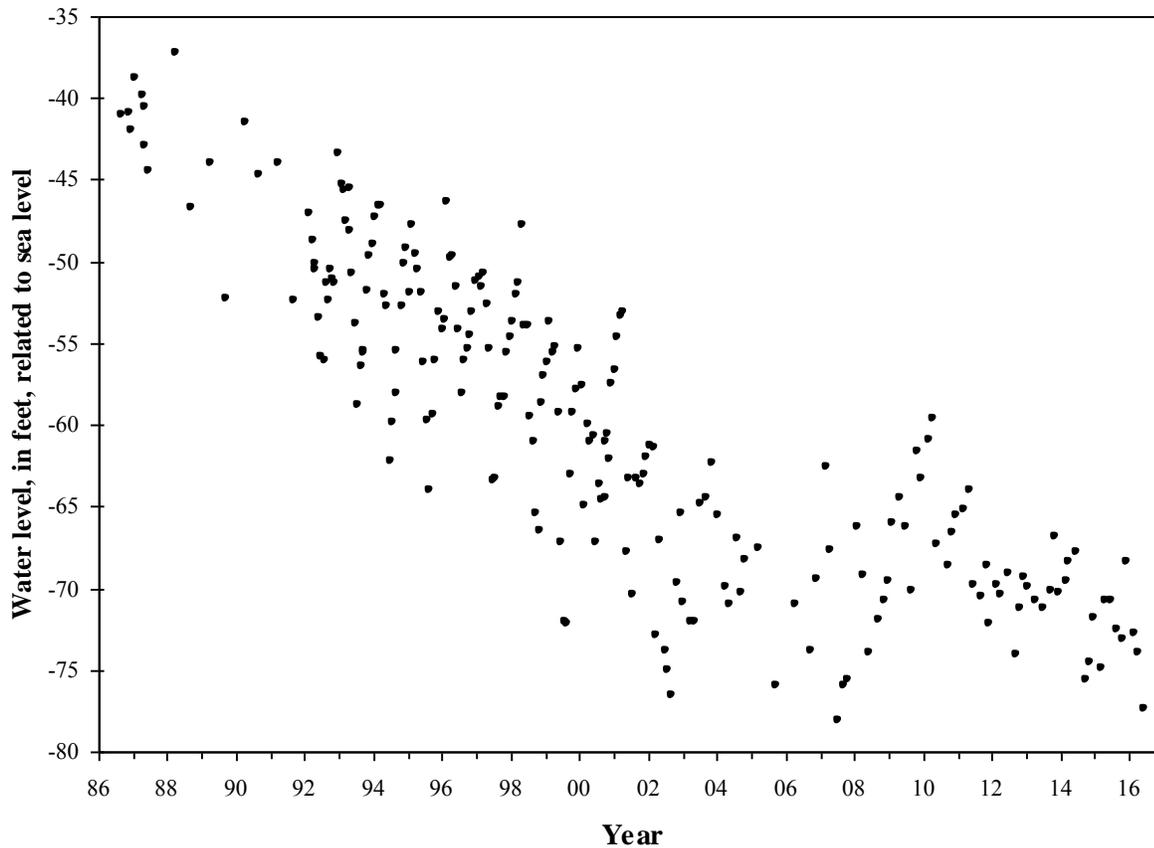
DATUM: Altitude of land surface is 225.0 ft above NGVD of 1929.

MEASURING POINT: Top of casing 1.70 ft above land surface.

PERIOD OF RECORD: November 1986 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	294.58	Mar 13, 2015	299.86	Mar 02, 2016	297.78
Apr 02, 2014	293.39	Apr 24, 2015	295.71	Apr 11, 2016	298.97
Jun 17, 2014	292.75	Jun 30, 2015	295.81	Jun 08, 2016	302.45
Sep 30, 2014	300.61	Sep 02, 2015	297.53		
Nov 12, 2014	299.59	Oct 22, 2015	298.10		
Dec 15, 2014	296.88	Dec 10, 2015	293.35		



WELL NUMBER: CH Bf 158

PERMIT NUMBER: CH-81-1847

LOCATION: John Hanson Middle School

LAT. 38° 37' 32", LONG. 76° 53' 19"

AQUIFER: Upper Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 645 ft;

Casing diameter: 6 in. to 398 ft; 4 in. from 398 to 630 ft;

Screen diameter: 4 in. from 630 to 645 ft.

INSTRUMENTATION: Periodic measurements.

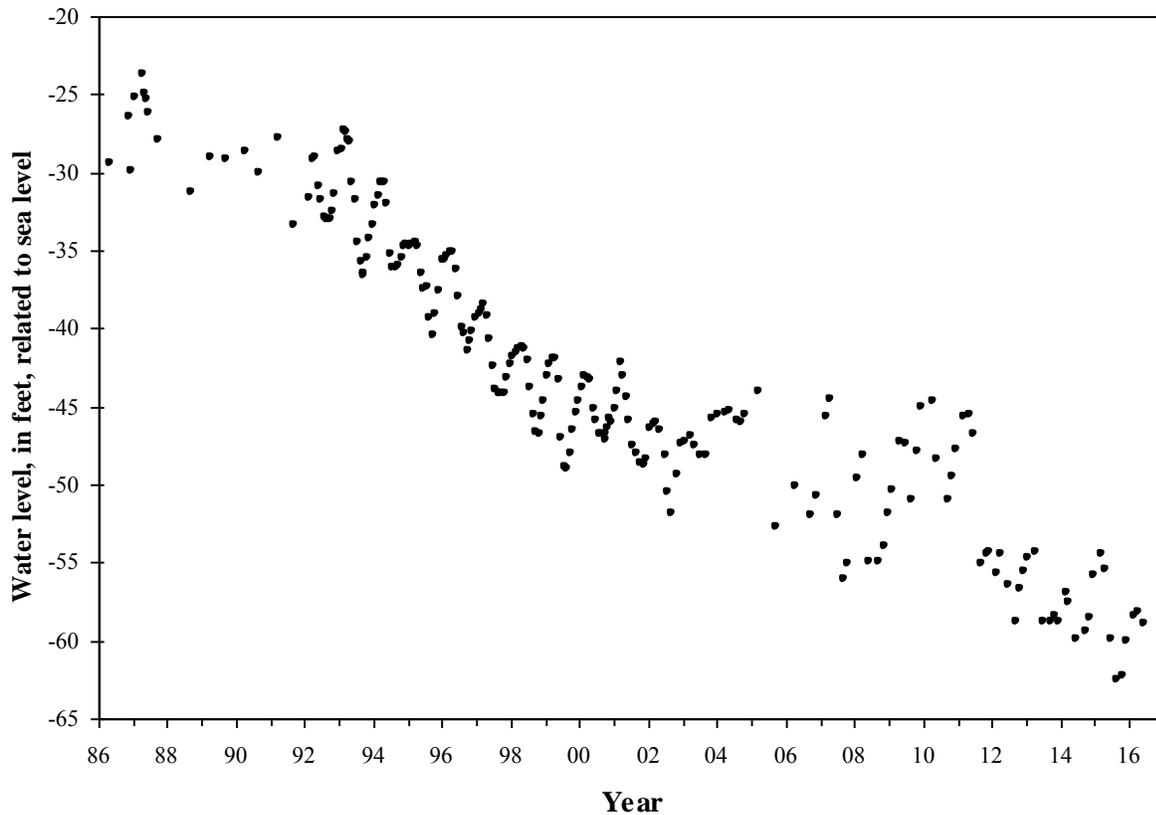
DATUM: Altitude of land surface is 193 ft above NGVD of 1929.

MEASURING POINT: Top of casing 2.0 ft above land surface.

PERIOD OF RECORD: April 1986 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	249.92	Mar 13, 2015	247.41	Mar 02, 2016	251.47
Apr 02, 2014	250.53	Apr 24, 2015	248.45	Apr 11, 2016	251.22
Jun 17, 2014	252.88	Jun 30, 2015	252.86	Jun 08, 2016	251.88
Sep 30, 2014	252.45	Sep 02, 2015	255.46		
Nov 12, 2014	251.59	Oct 22, 2015	255.29		
Dec 15, 2014	248.85	Dec 10, 2015	253.08		



WELL NUMBER: CH Da 21
LOCATION: Douglas Point

PERMIT NUMBER: CH-73-0592
LAT. 38° 26' 59", LONG. 77° 15' 24"

AQUIFER: Upper Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 381 ft;

Casing diameter: 6 in. to 366 ft;

Screen diameter: 6 in. from 366 to 381 ft.

INSTRUMENTATION: Periodic measurements.

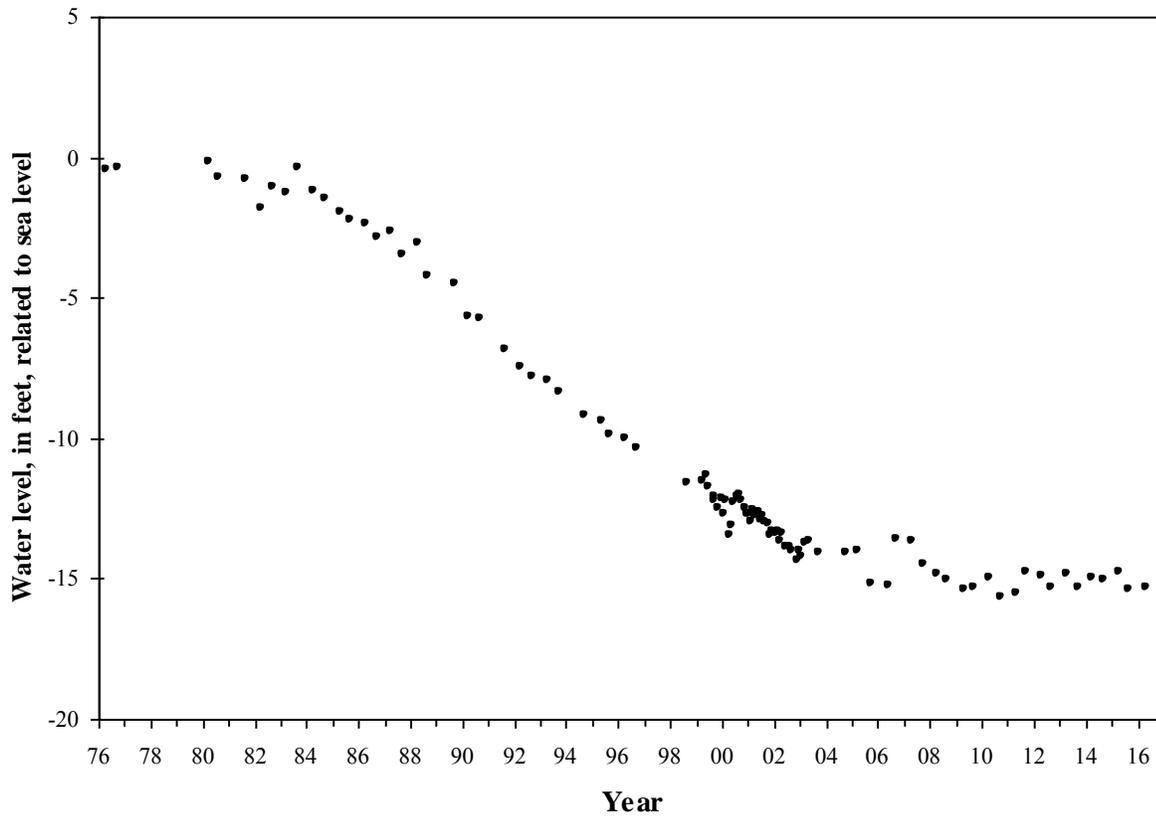
DATUM: Altitude of land surface is 90 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.0 ft above land surface.

PERIOD OF RECORD: 1976 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 02, 2014	104.94	Apr 21, 2015	104.78	Apr 19, 2016	105.29
Sep 12, 2014	105.07	Sep 11, 2015	105.38		



LOWER PATAPSCO AQUIFER SYSTEM

WELL NUMBER: CH Bc 24
 LOCATION: Potomac Heights

PERMIT NUMBER: CH-02-0874
 LAT. 38° 36' 33", LONG. 77° 08' 30"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 435 ft;
 Casing diameter: 10 in. to 383.5 ft and 398.5 to 415 ft;
 Screen diameter: 10 in. from 383.5 to 398.5 and 415 to 435 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 72 ft above NGVD of 1929.

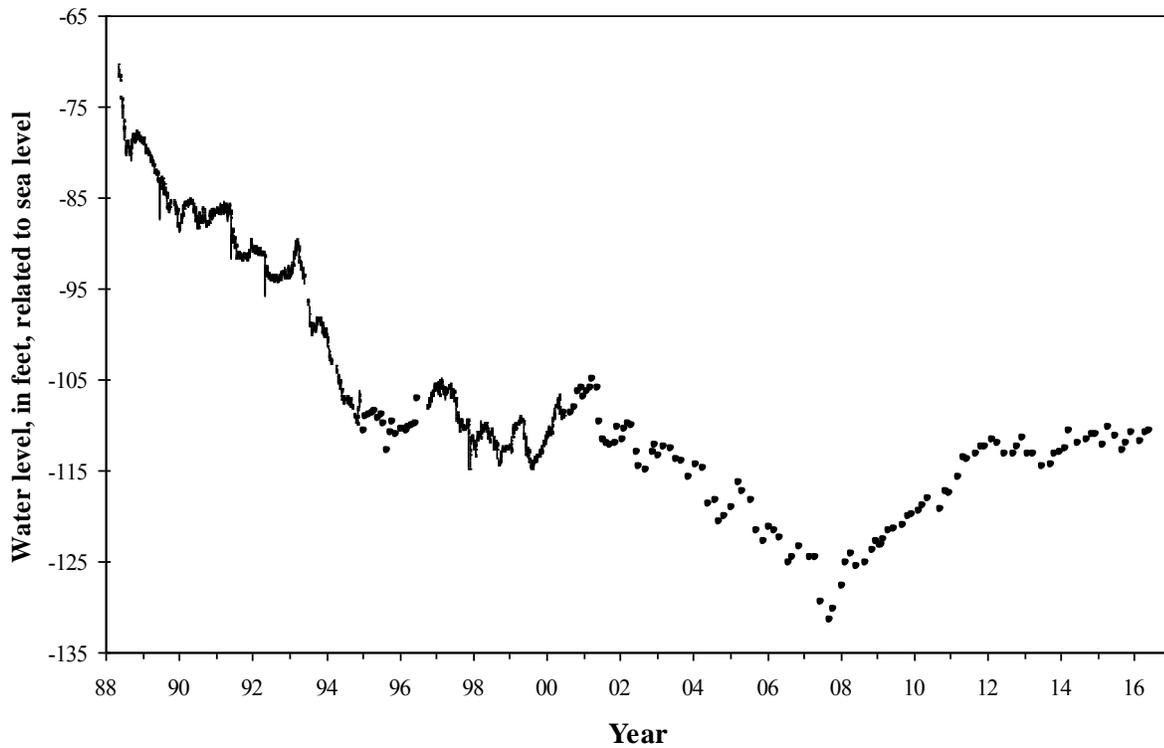
MEASURING POINT: Top of recorder platform 1.6 ft above land surface.

PERIOD OF RECORD: May 1988 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	184.55	Mar 03, 2015	184.29	Mar 02, 2016	183.84
Apr 02, 2014	182.62	Apr 21, 2015	182.21	Apr 19, 2016	182.94
Jun 17, 2014	184.00	Jun 30, 2015	183.33	Jun 08, 2016	182.70
Sep 12, 2014	183.57	Sep 11, 2015	184.90		
Nov 12, 2014	183.12	Oct 22, 2015	184.08		
Dec 15, 2014	183.17	Dec 16, 2015	182.90		

Continuous data are daily low water levels



WELL NUMBER: CH Bc 81
 LOCATION: Montrose Farms

PERMIT NUMBER: CH-88-0482
 LAT. 38° 37' 09", LONG. 77° 06' 10"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 656 ft;
 Casing diameter: 6 in. to 541 ft; 4 in. from 531 to 556 ft, 588 to 642 ft, and 646 to 656 ft;
 Screen diameter: 4 in. from 556 to 588 ft, and 642 to 646 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 156 ft above NGVD of 1929.

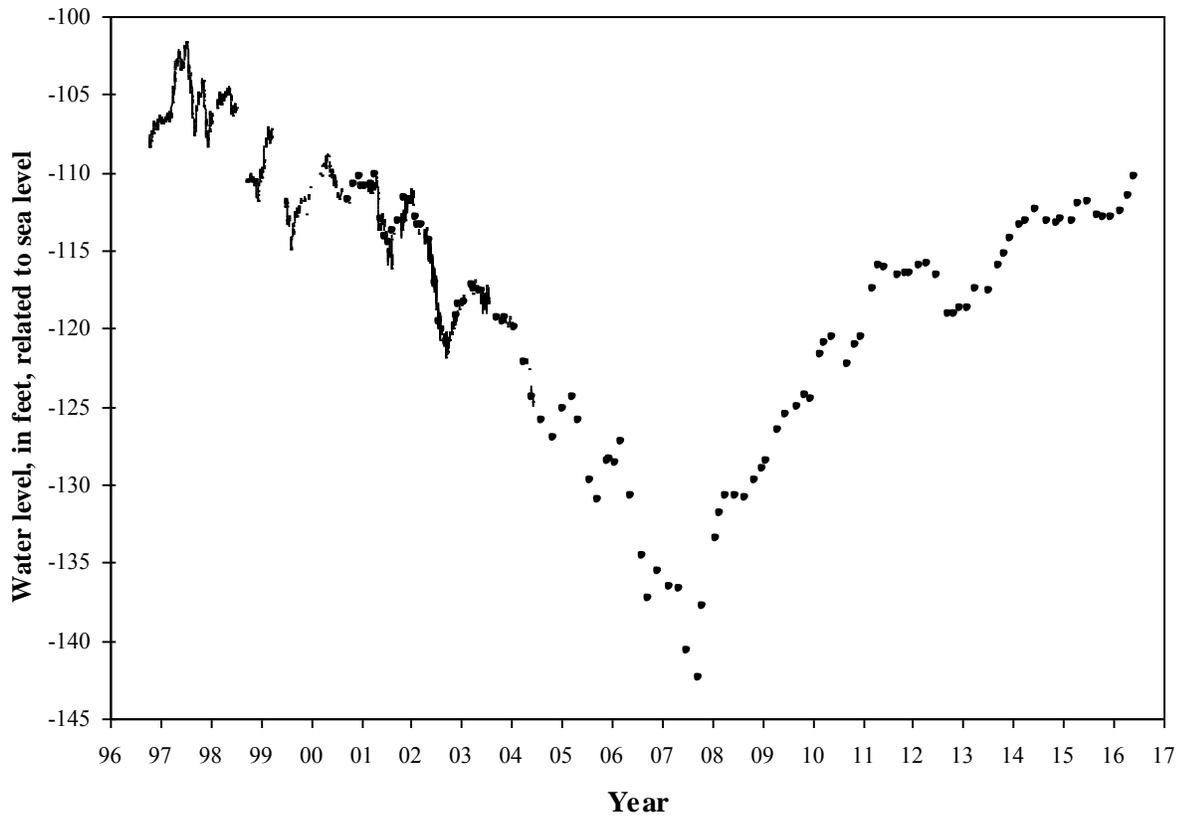
MEASURING POINT: Top of recorder platform 2.07 ft above land surface.

PERIOD OF RECORD: August 1996 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	269.90	Mar 13, 2015	269.58	Mar 02, 2016	269.03
Apr 02, 2014	269.54	Apr 21, 2015	268.43	Apr 19, 2016	268.04
Jun 17, 2014	268.81	Jun 30, 2015	268.40	Jun 08, 2016	266.79
Sep 12, 2014	269.65	Sep 11, 2015	269.18		
Nov 12, 2014	269.75	Oct 22, 2015	269.39		
Dec 15, 2014	269.47	Dec 16, 2015	269.32		

Continuous data are daily low water levels



WELL NUMBER: CH Be 72

PERMIT NUMBER: CH-95-0275

LOCATION: Saw Mill Place

LAT. 38° 39' 03", LONG. 76° 59' 43"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 905 ft;

Casing diameter: 4 in. to 720 ft, and 730 to 880 ft, and 900 to 905 ft;

Screen diameter: 4 in. from 720 to 730 ft, and 880 to 900 ft.

INSTRUMENTATION: Periodic measurements.

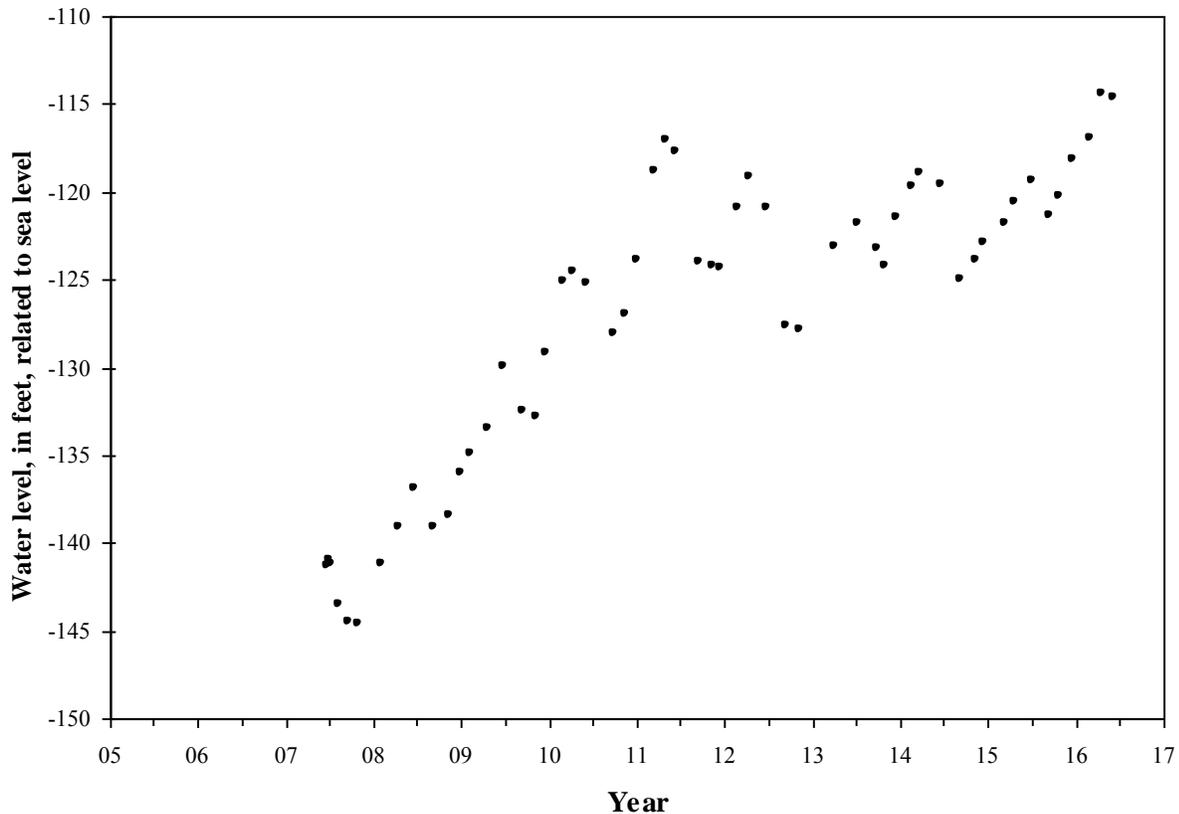
DATUM: Altitude of land surface is 110 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.3 ft above land surface.

PERIOD OF RECORD: June 2007 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 18, 2014	229.65	Mar 13, 2015	231.80	Mar 02, 2016	226.95
Mar 24, 2014	228.92	Apr 21, 2015	230.55	Apr 19, 2016	224.36
Jun 17, 2014	229.60	Jun 30, 2015	229.35	Jun 08, 2016	224.61
Sep 12, 2014	235.02	Sep 11, 2015	231.35		
Nov 12, 2014	233.89	Oct 22, 2015	230.22		
Dec 15, 2014	232.87	Dec 16, 2015	228.18		



WELL NUMBER: CH Bf 146

PERMIT NUMBER: CH-81-0593

LOCATION: Near St. Charles

LAT. 38° 35' 08", LONG. 76° 54' 07"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,427 ft;

Casing diameter: 6 in. to 1,059 ft, 1,069 to 1,073 ft, 1,083 to 1,161 ft, 1,166 to 1,170 ft, 1,180 to 1,184 ft, 1,189 to 1,195 ft, 1,205 to 1,244 ft, 1,249 to 1,252 ft, 1,262 to 1,298 ft, 1,328 to 1,342 ft, and 1,417 to 1,427 ft;

Screen diameter: 6 in. from 1,059 to 1,069 ft, 1,073 to 1,083 ft, 1,161 to 1,166 ft, 1,170 to 1,180 ft, 1,184 to 1,189 ft, 1,195 to 1,205 ft, 1,244 to 1,249 ft, 1,252 to 1,262 ft, 1,298 to 1,328 ft and 1,342 to 1,417 ft.

INSTRUMENTATION: Periodic measurements.

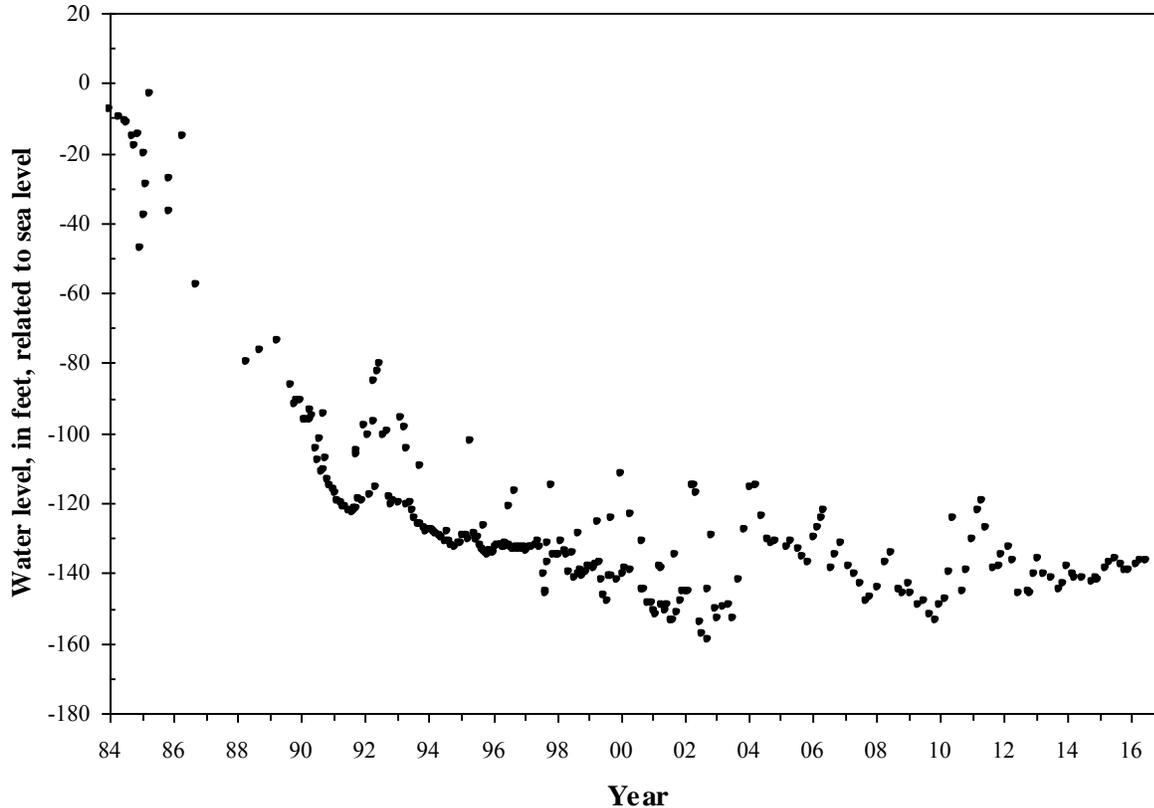
DATUM: Altitude of land surface is 192.8 ft above NGVD of 1929.

MEASURING POINT: Top of casing 2.10 ft above land surface.

PERIOD OF RECORD: April 1984 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	332.99	Mar 13, 2015	331.58	Mar 02, 2016	330.21
Apr 02, 2014	334.03	Apr 24, 2015	329.60	Apr 11, 2016	329.52
Jun 17, 2014	334.04	Jun 30, 2015	328.80	Jun 08, 2016	329.51
Sep 30, 2014	335.47	Sep 02, 2015	330.23		
Nov 12, 2014	334.26	Oct 22, 2015	332.08		
Dec 15, 2014	334.93	Dec 10, 2015	332.16		



WELL NUMBER: CH Cc 31

PERMIT NUMBER: CH-73-1416

LOCATION: Dravo well

LAT. 38° 34' 55", LONG. 77° 07' 44"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 559 ft;

Casing diameter: 6 in. to 200 ft; 4 in. from 200 to 438 ft, 453 to 480 ft, 505 to 544 ft, and 554 to 559 ft;

Screen diameter: 4 in. from 438 to 453 ft, 480 to 505 ft, and 544 to 554 ft.

INSTRUMENTATION: Periodic measurements.

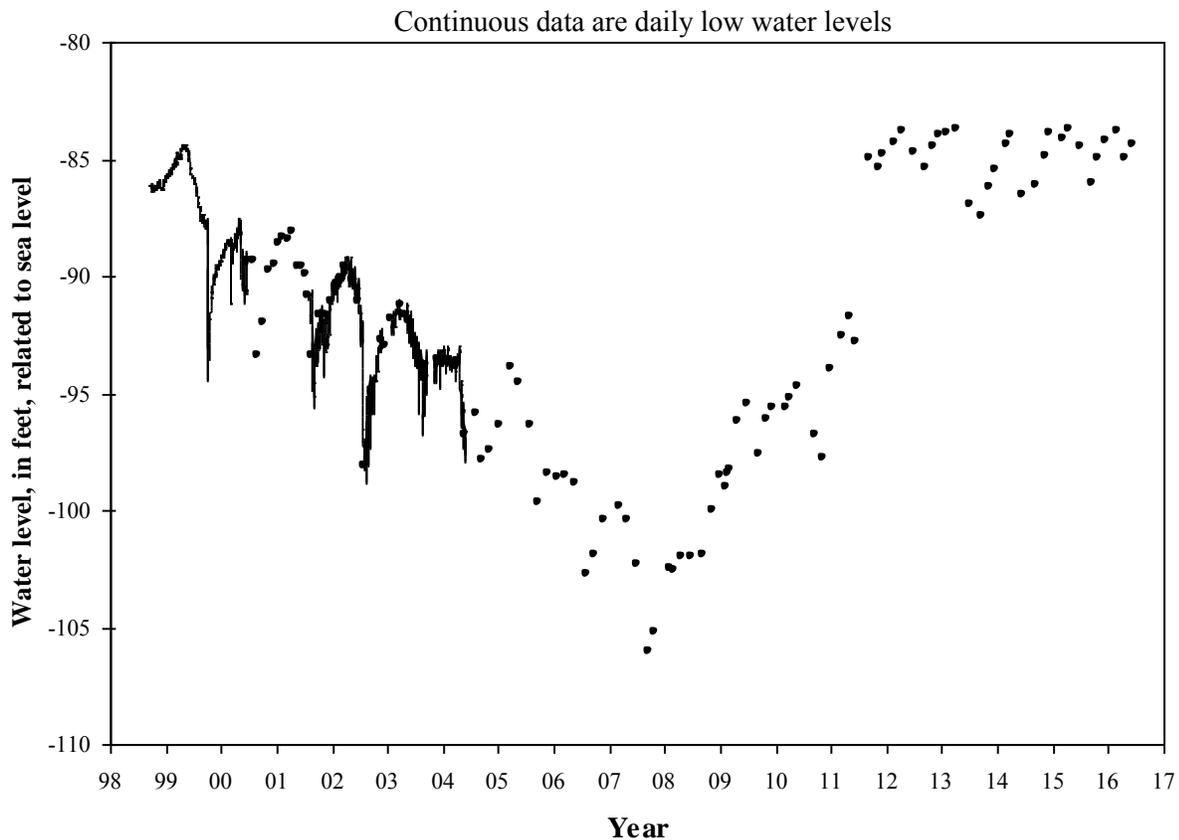
DATUM: Altitude of land surface is 35 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2 ft above land surface.

PERIOD OF RECORD: 1998 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	119.35	Mar 13, 2015	119.11	Mar 02, 2016	118.83
Apr 02, 2014	118.97	Apr 21, 2015	118.70	Apr 19, 2016	119.98
Jun 17, 2014	121.55	Jun 30, 2015	119.44	Jun 08, 2016	119.40
Sep 12, 2014	121.14	Sep 11, 2015	121.05		
Nov 12, 2014	119.87	Oct 22, 2015	119.95		
Dec 15, 2014	118.90	Dec 16, 2015	119.25		



WELL NUMBER: CH Ce 56

PERMIT NUMBER: CH-94-1111

LOCATION: Heritage Green, La Plata

LAT. 38° 32' 51", LONG. 76° 58' 39"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,268 ft;

Casing diameter: 6 in. to 475 ft; 4 in. from 475 to 896 ft, 906 to 945 ft, 950 to 957 ft, 962 to 993 ft, 1,008 to 1,024 ft, 1,029 to 1,037 ft, 1,042 to 1,094 ft, 1,134 to 1,166 ft, 1,186 to 1,204 ft, 1,214 to 1,248 ft, and 1,258 to 1,268 ft;

Screen diameter: 4 in. from 896 to 906 ft, 945 to 950 ft, 957 to 962 ft, 993 to 1,008 ft, 1,024 to 1,029 ft, 1,037 to 1,042 ft, 1,094 to 1,134 ft, 1,166 to 1,186 ft, 1,204 to 1,214 ft, and 1,248 to 1,258 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 196.48 ft above NGVD of 1929.

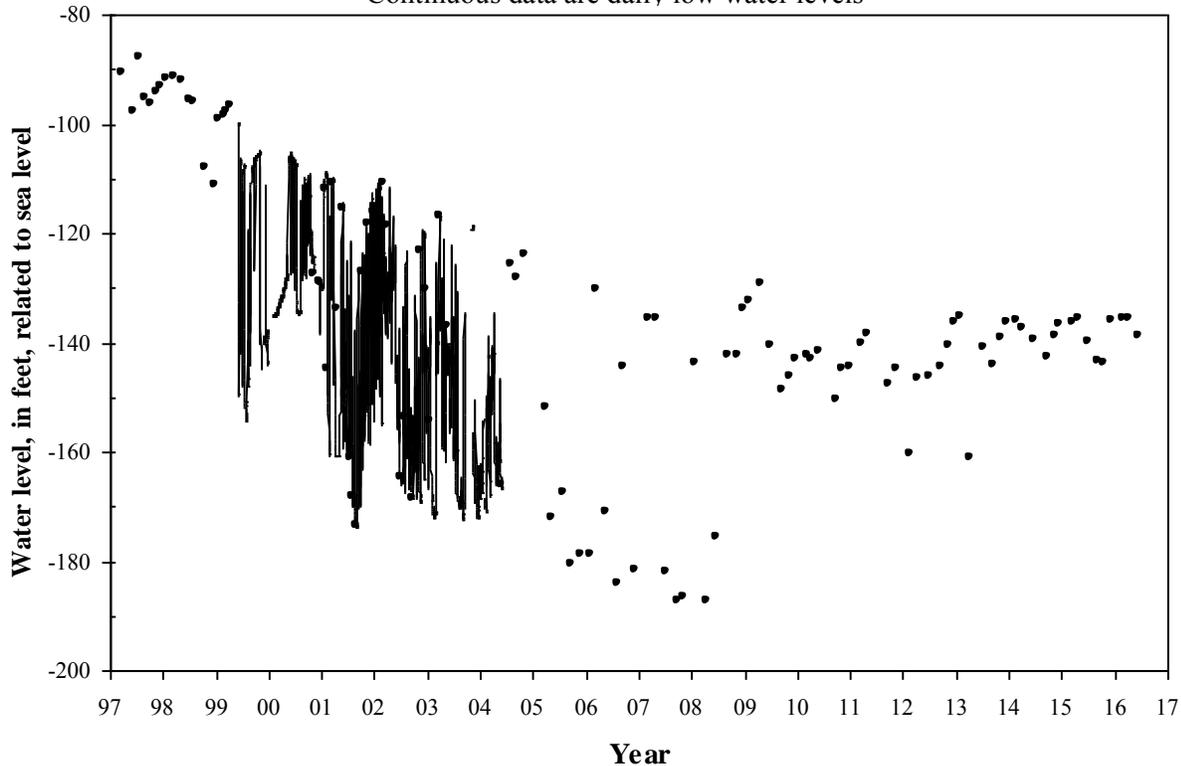
MEASURING POINT: Top of recorder platform 2.85 ft above land surface.

PERIOD OF RECORD: March 1997 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	332.27	Mar 13, 2015	332.93	Mar 02, 2016	331.94
Apr 02, 2014	333.77	Apr 24, 2015	332.08	Apr 11, 2016	332.23
Jun 17, 2014	335.95	Jun 30, 2015	336.40	Jun 08, 2016	335.34
Sep 29, 2014	339.27	Sep 02, 2015	339.94		
Nov 12, 2014	335.33	Oct 22, 2015	340.10		
Dec 15, 2014	333.17	Dec 10, 2015	332.46		

Continuous data are daily low water levels



WELL NUMBER: CH Da 20

PERMIT NUMBER: CH-73-0590

LOCATION: Douglas Point

LAT. 38° 26' 54", LONG. 77° 15' 27"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 522 ft;

Casing diameter: 6 in. to 420 ft, 425 to 444 ft, 449 to 481 ft, and 486 to 517 ft;

Screen diameter: 6 in. from 420 to 425 ft, 444 to 449 ft, 481 to 486 ft, and 517 to 522 ft.

INSTRUMENTATION: Periodic measurements.

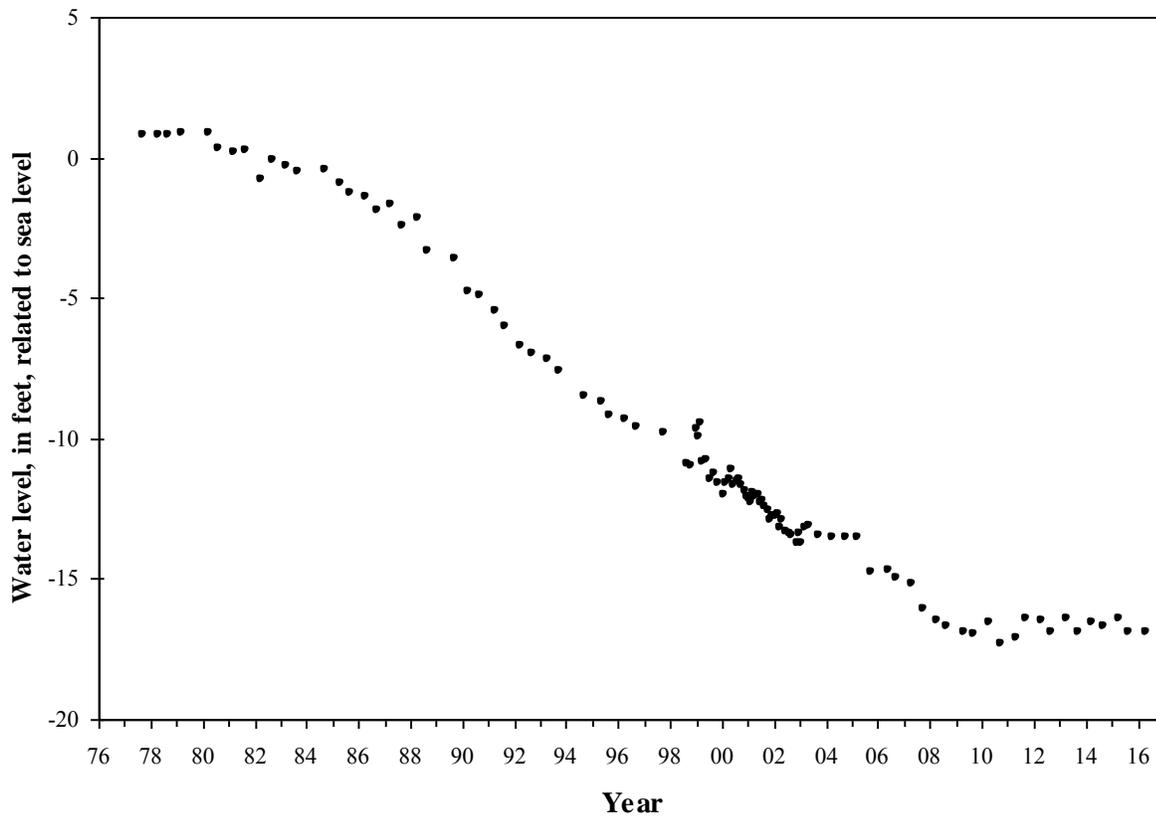
DATUM: Altitude of land surface is 90 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.0 ft above land surface.

PERIOD OF RECORD: 1977 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 02, 2014	106.58	Apr 21, 2015	106.45	Apr 19, 2016	106.90
Sep 12, 2014	106.71	Sep 11, 2015	106.91		



WELL NUMBER: CH De 52

PERMIT NUMBER: CH-94-6280

LOCATION: Chapel Point Woods

LAT. 38° 27' 52", LONG. 76° 59' 36"

AQUIFER: Lower Patapsco aquifer of the Patapsco Formation of Lower Cretaceous age

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1220 ft;

Casing diameter: 6 in. to 1128 ft, and 1158 to 1190 ft, and 1210 to 1220 ft;

Screen diameter: 6 in. from 1128 to 1158 ft, and 1190 to 1210 ft.

INSTRUMENTATION: Periodic measurements.

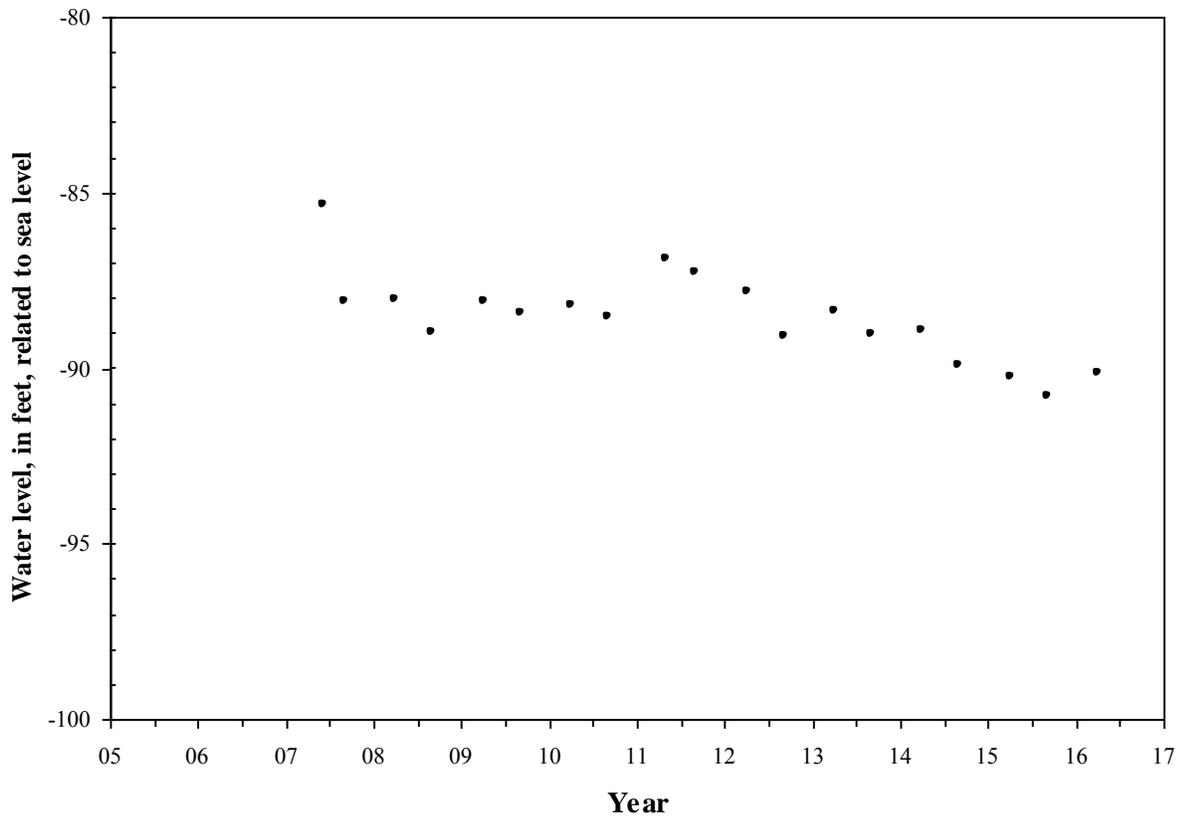
DATUM: Altitude of land surface is 160 ft above NGVD of 1929.

MEASURING POINT: Top of steel casing 1.09 ft above land surface.

PERIOD OF RECORD: June 2007 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 02, 2014	247.85	Apr 22, 2015	249.16	Apr 11, 2016	249.03
Sep 12, 2014	248.85	Sep 02, 2015	249.71		



PATUXENT AQUIFER SYSTEM

WELL NUMBER: CH Bc 75

PERMIT NUMBER: CH-92-0500

LOCATION: Chapman's Landing Well 2

LAT. 38° 36' 45", LONG. 77° 06' 24"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, artesian well, depth 940 ft;

Casing diameter: 8 in. to 820 ft, 825 to 860 ft, 880 to 898 ft, and 923 to 940 ft;

Screen diameter: 8 in. from 820 to 825 ft, 860 to 880 ft, and 898 to 923 ft.

INSTRUMENTATION: Periodic measurements.

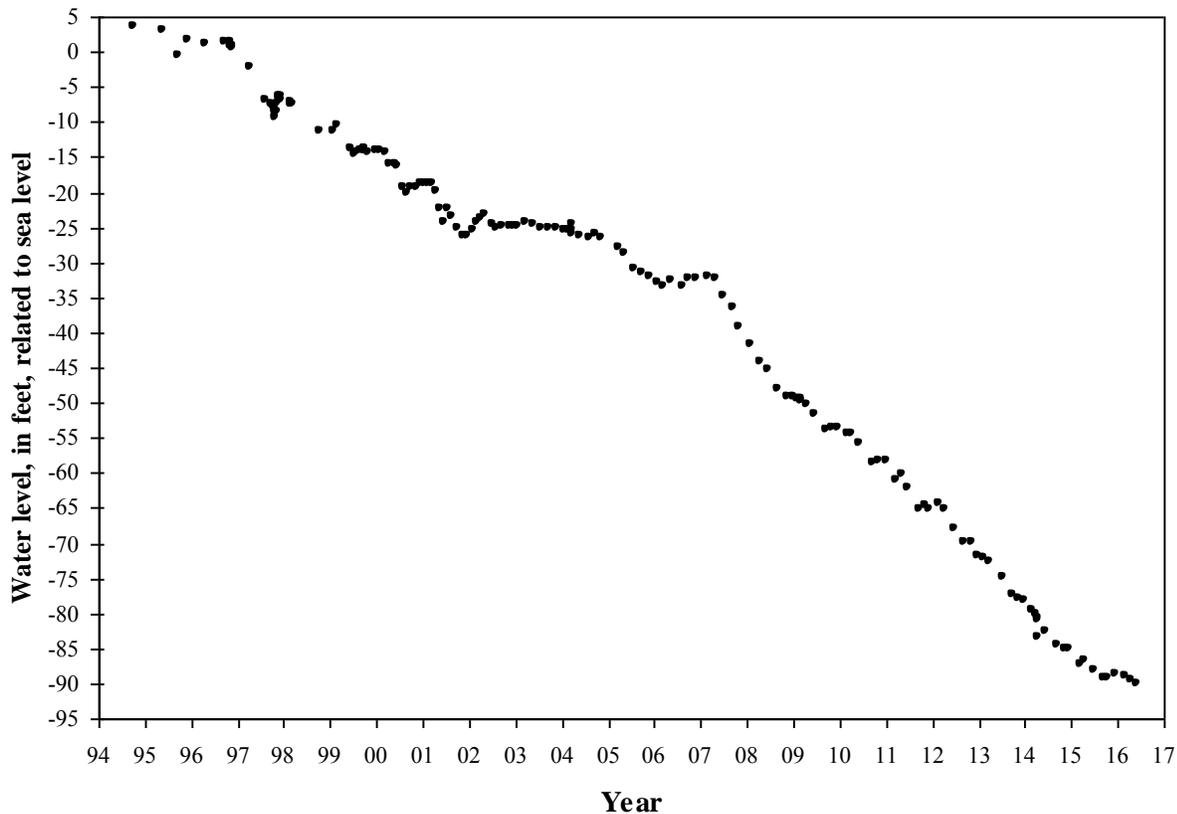
DATUM: Altitude of land surface is 124.59 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 1.98 ft above land surface.

PERIOD OF RECORD: June 1993 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	204.15	Sep 12, 2014	209.16	Sep 11, 2015	213.92
Apr 02, 2014	204.65	Nov 12, 2014	209.67	Oct 22, 2015	213.75
Apr 11, 2014	205.29	Dec 15, 2014	209.77	Dec 16, 2015	213.23
Apr 14, 2014	205.57	Mar 13, 2015	211.77	Mar 02, 2016	213.53
Apr 17, 2014	207.87	Apr 21, 2015	211.27	Apr 19, 2016	213.98
Jun 17, 2014	207.28	Jun 30, 2015	212.70	Jun 08, 2016	214.65



WELL NUMBER: CH Bc 77

PERMIT NUMBER: CH-88-1028

LOCATION: Chapman's Landing Well 1

LAT. 38° 36' 44", LONG. 77° 05' 55"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 955 ft;

Casing diameter: 16 in. to 60 ft; 8 in. from 0 to 845 ft; and 6 in. from 845 to 925 ft;

Screen diameter: 6 in. from 925 to 955 ft.

INSTRUMENTATION: Periodic measurements.

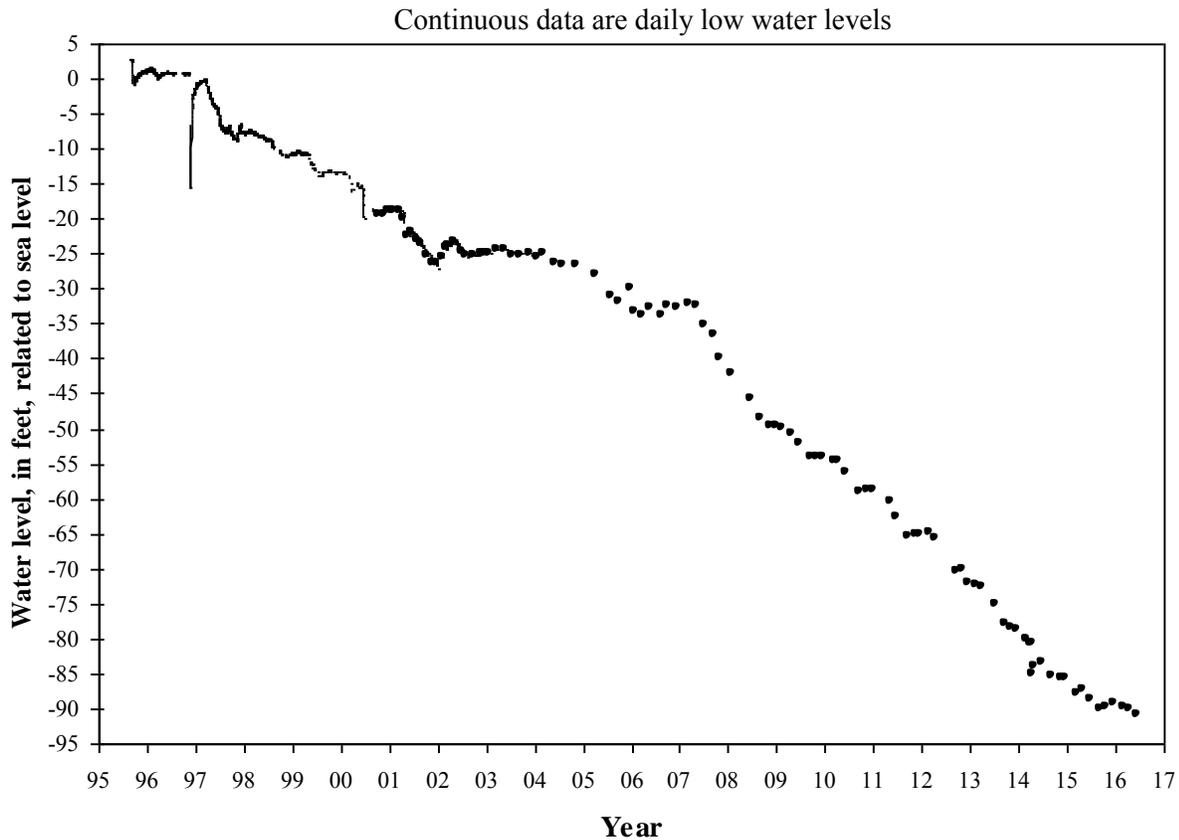
DATUM: Altitude of land surface is 96.64 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.38 ft above land surface.

PERIOD OF RECORD: August 1995 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	176.73	Sep 12, 2014	181.84	Sep 11, 2015	186.65
Mar 24, 2014	177.33	Nov 12, 2014	182.27	Oct 22, 2015	186.43
Apr 11, 2014	177.22	Dec 15, 2014	182.35	Dec 16, 2015	185.82
Apr 17, 2014	181.75	Mar 13, 2015	184.41	Mar 02, 2016	186.25
Apr 25, 2014	180.52	Apr 21, 2015	183.87	Apr 19, 2016	186.68
Jun 17, 2014	179.99	Jun 30, 2015	185.30	Jun 08, 2016	187.37



WELL NUMBER: CH Bc 78

PERMIT NUMBER: CH-94-0394

LOCATION: Bryans Road Well 5

LAT. 38° 38' 09", LONG. 77° 05' 34"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, artesian well, depth 790 ft;

Casing diameter: 10 in. to 550 ft; 6 in. from 550 to 675 ft, and 685 to 710 ft;

Screen diameter: 6 in. from 675 to 710 ft, and 685 to 790 ft.

INSTRUMENTATION: Periodic measurements.

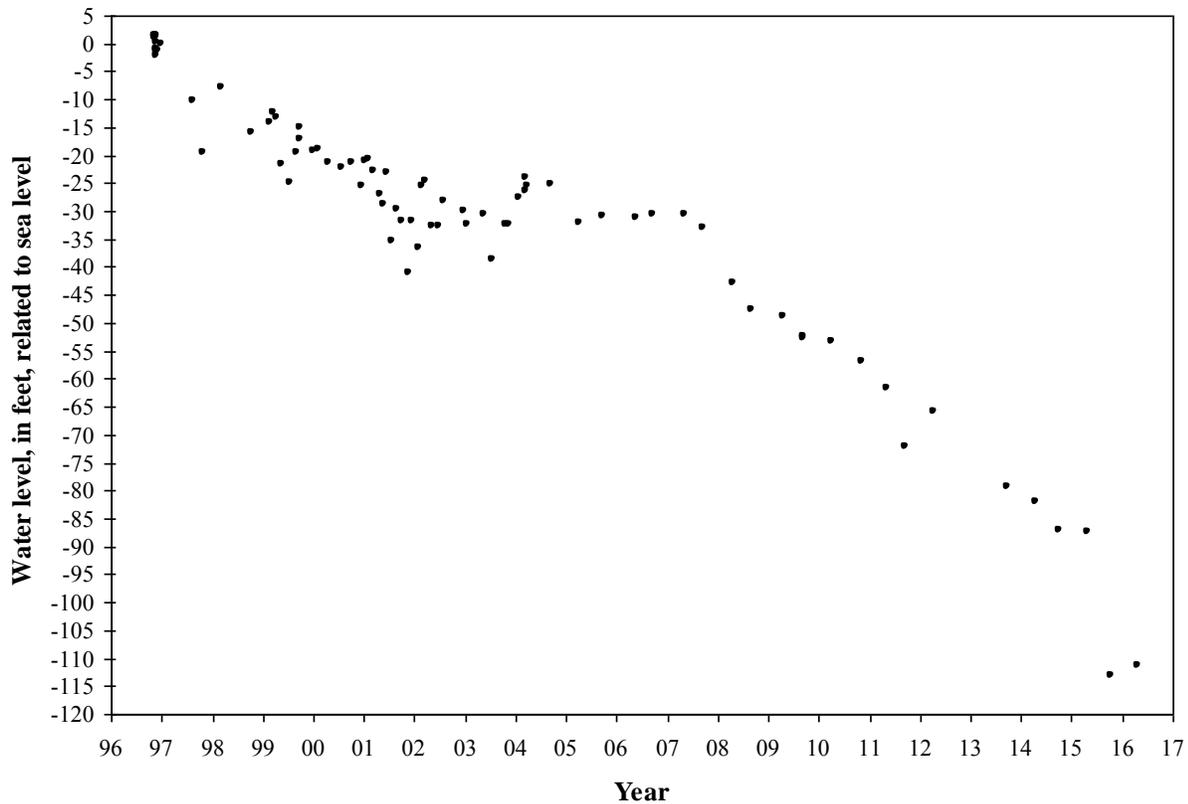
DATUM: Altitude of land surface is 20.13 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 1.0 ft above land surface.

PERIOD OF RECORD: November 1996 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 11, 2014	102.28	Apr 21, 2015	107.51	Apr 19, 2016	131.55
Sep 30, 2014	107.27	Oct 07, 2015	133.16		



WELL NUMBER: CH Bd 52

PERMIT NUMBER: CH-94-0899

LOCATION: Route 227 test site

LAT. 38° 35' 53", LONG. 77° 03' 24"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,105 ft;

Casing diameter: 4 in. to 1,040 ft, and 1,050 to 1,085 ft, and 1,095 to 1,105 ft;

Screen diameter: 4 in. from 1,043 to 1,050 ft, and 1,085 to 1,095 ft.

INSTRUMENTATION: Periodic measurements.

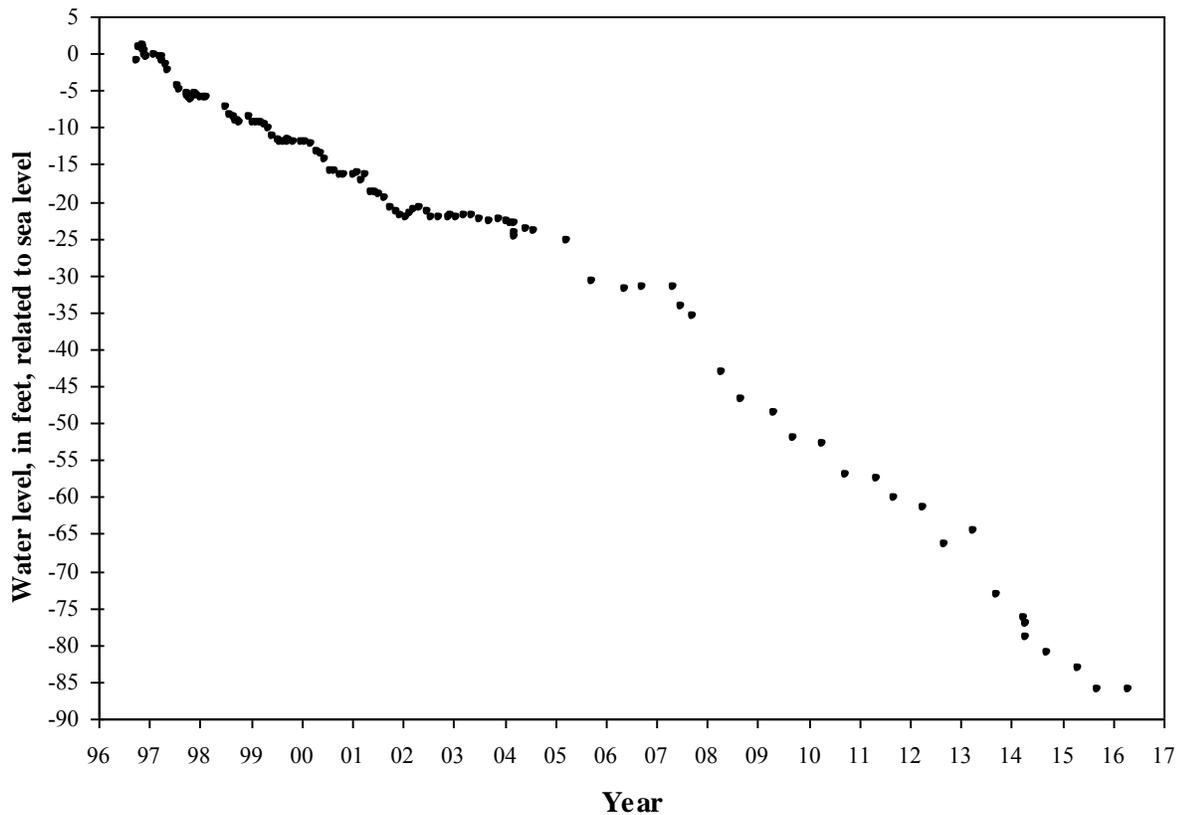
DATUM: Altitude of land surface is 47.5 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.0 ft above land surface.

PERIOD OF RECORD: October 1996 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 02, 2014	124.00	Apr 24, 2015	130.61	Apr 19, 2016	133.62
Apr 11, 2014	124.55	Sep 11, 2015	133.49		
Apr 14, 2014	124.80				
Apr 17, 2014	126.42				
Sep 12, 2014	128.64				



WELL NUMBER: CH Be 57
 LOCATION: Smallwood West

PERMIT NUMBER: CH-81-1194
 LAT. 38° 37' 06", LONG. 76° 57' 56"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.
 WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,696 ft;
 Casing diameter: 6 in. to 400 ft; 4 in. from 400 to 1,660 ft;
 Screen diameter: 4 in. from 1,660 to 1,696 ft.

INSTRUMENTATION: Periodic measurements.

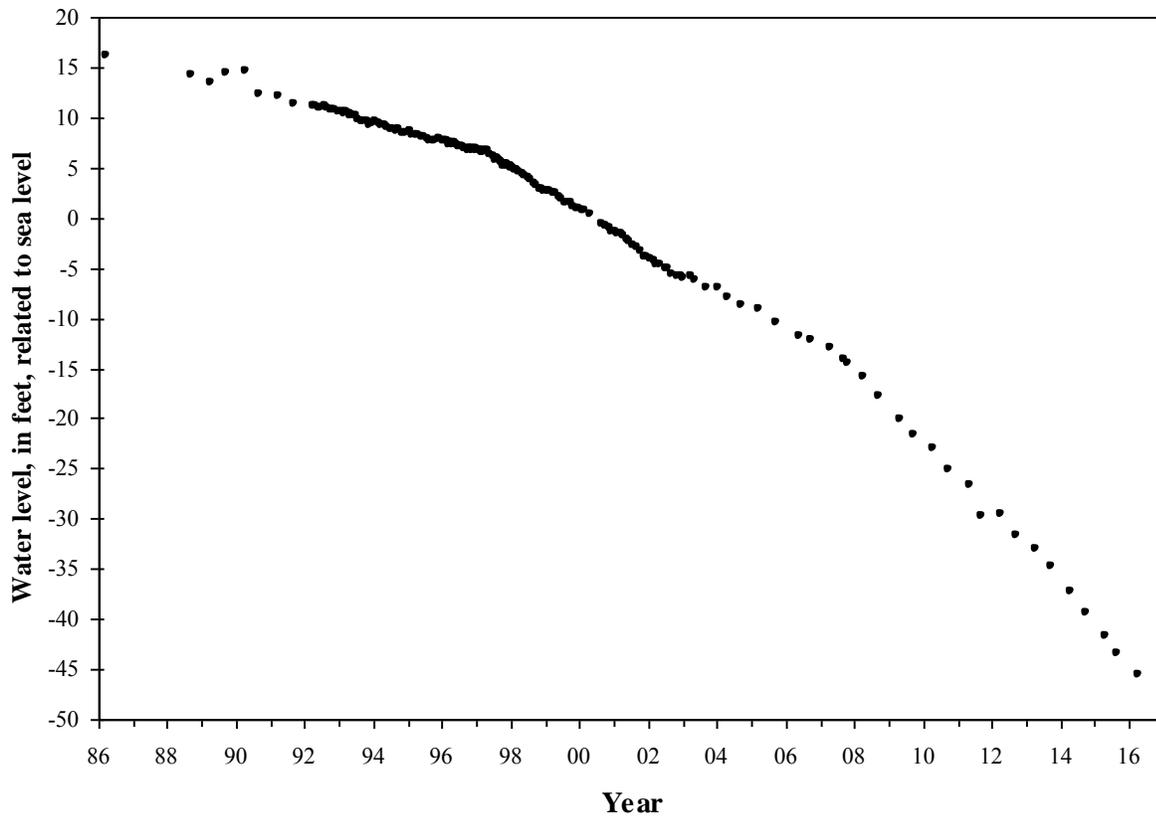
DATUM: Altitude of land surface is 213.0 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.0 ft above land surface.

PERIOD OF RECORD: April 1986 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 17, 2014	250.29	Apr 24, 2015	254.70	Apr 11, 2016	258.56
Sep 30, 2014	252.46	Sep 02, 2015	256.47		



WELL NUMBER: CH Be 73

PERMIT NUMBER: CH-12-0183

LOCATION: Saw Mill Place

LAT. 38° 39' 03", LONG. 76° 59' 43"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1400 ft;

Casing diameter: 4 in. to 1120 ft; 1135 to 1140 ft; 1150 to 1186 ft; 1196 to 1256 ft; 1261 to 1314 ft; 1324 to 1357 ft.; 1362 to 1372 ft.; 1377 to 1385 ft.; 1395 to 1400 ft.;

Screen diameter: 4 in. from 1120 to 1135 ft.; 1140 to 1150 ft.; 1186 to 1196 ft.; 1256 to 1261 ft.; 1314 to 1324 ft.; 1357 to 1362 ft.; 1372 to 1377 ft.; 1385 to 1395 ft.

INSTRUMENTATION: Periodic measurements.

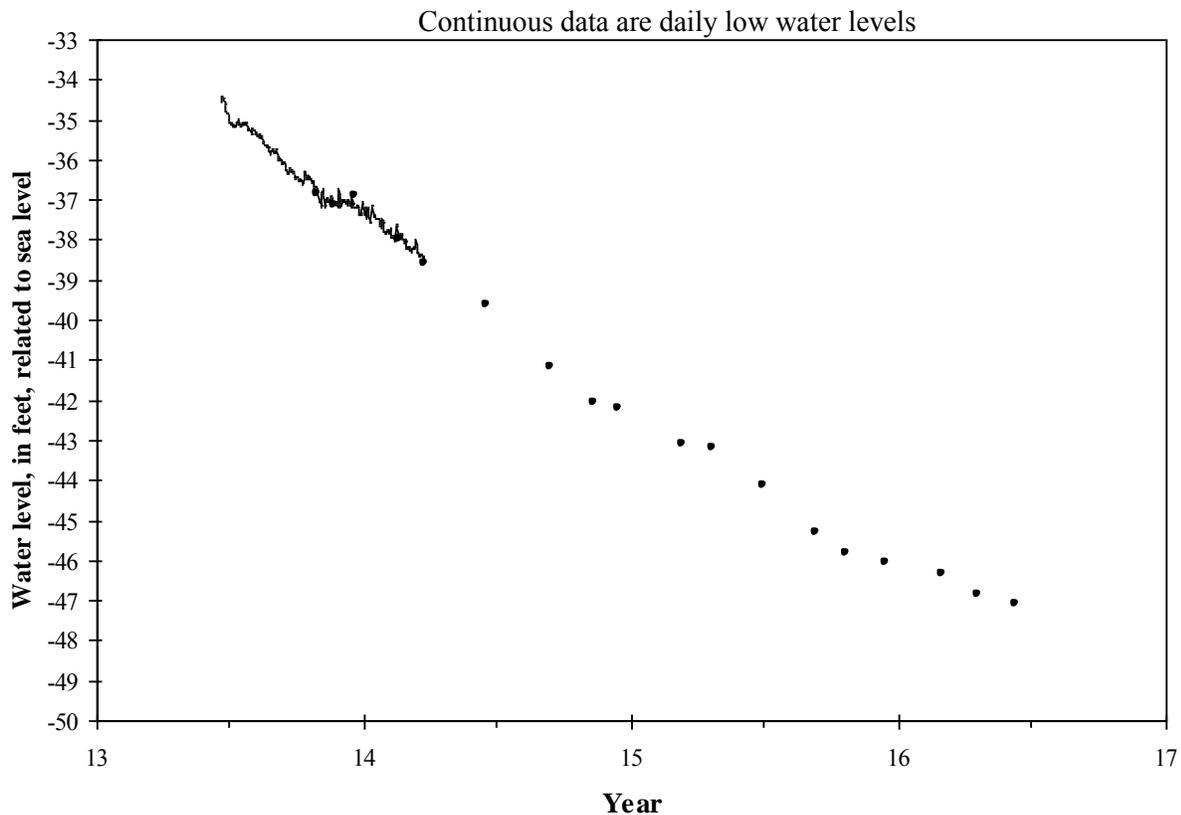
DATUM: Altitude of land surface is 110 ft above NGVD of 1929.

MEASURING POINT: Top of casing 2.3 ft above land surface.

PERIOD OF RECORD: October 2013 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 18, 2014	147.99	Mar 13, 2015	153.12	Mar 02, 2016	156.33
Mar 24, 2014	148.58	Apr 21, 2015	153.21	Apr 19, 2016	156.84
Jun 17, 2014	149.62	Jun 30, 2015	154.15	Jun 08, 2016	157.11
Sep 12, 2014	151.18	Sep 11, 2015	155.30		
Nov 12, 2014	152.08	Oct 22, 2015	155.82		
Dec 15, 2014	152.22	Dec 16, 2015	156.04		



WELL NUMBER: CH Bf 166

PERMIT NUMBER: CH-12-0182

LOCATION: Pinefield

LAT. 38° 38' 47", LONG. 76° 51' 20"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1975 ft;

Casing diameter: 4 in. to 1717 ft; 1727 to 1747 ft; 1752 to 1774 ft; 1784 to 1819 ft; 1854 to 1960 ft; 1970 to 1975 ft.;

Screen diameter: 4 in. from 1717 to 1727 ft.; 1747 to 1752 ft.; 1774 to 1784 ft.; 1819 to 1854 ft.; 1960 to 1970 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 211 ft above NGVD of 1929.

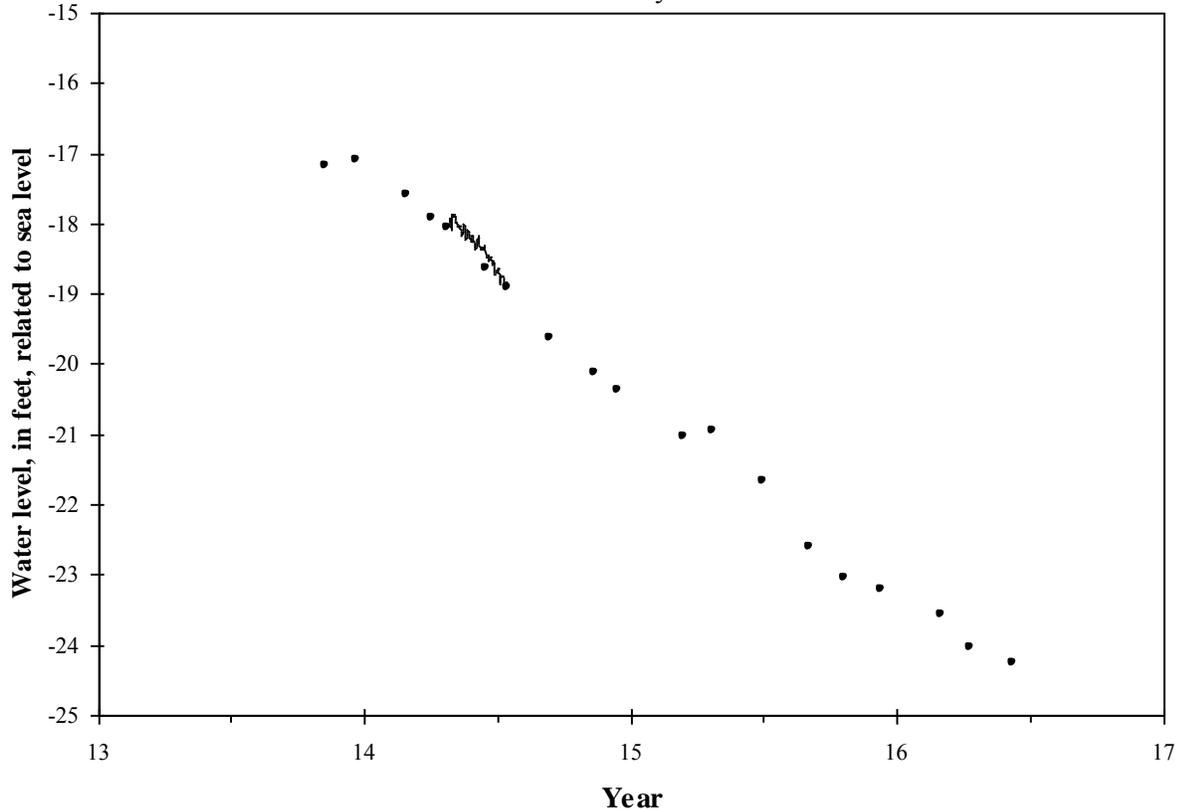
MEASURING POINT: Top of casing 2.6 ft above land surface.

PERIOD OF RECORD: November 2013 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	228.59	Nov 12, 2014	231.12	Oct 22, 2015	234.05
Apr 02, 2014	228.93	Dec 15, 2014	231.38	Dec 10, 2015	234.22
Apr 25, 2014	229.05	Mar 13, 2015	232.04	Mar 02, 2016	234.58
Jun 17, 2014	229.65	Apr 22, 2015	231.94	Apr 11, 2016	235.03
Jul 15, 2014	229.90	Jun 30, 2015	232.68	Jun 08, 2016	235.26
Sep 12, 2014	230.64	Sep 02, 2015	233.59		

Continuous data are daily low water levels



WELL NUMBER: CH Bf 167

PERMIT NUMBER: CH-12-0185

LOCATION: Gardiner Road

LAT. 38° 35' 56", LONG. 76° 50' 52"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 2073 ft;

Casing diameter: 4 in. to 1818 ft; 1848 to 1934 ft; 1954 to 2008 ft; 2018 to 2048 ft; 2068 to 2073 ft.;

Screen diameter: 4 in. from 1818 to 1848 ft.; 1934 to 1954 ft.; 2008 to 2018 ft.; 2048 to 2068 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 182 ft above NGVD of 1929.

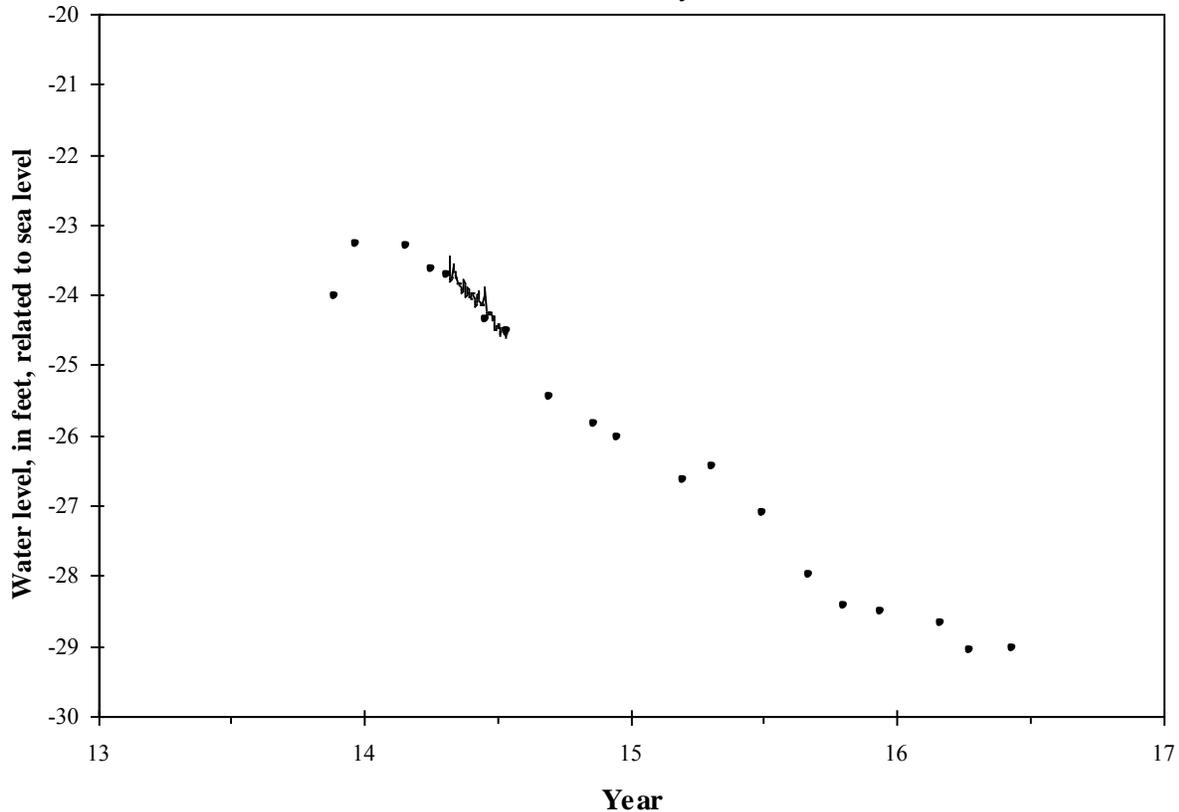
MEASURING POINT: Top of casing 2.5 ft above land surface.

PERIOD OF RECORD: November 2013 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	205.30	Nov 12, 2014	207.85	Oct 22, 2015	210.44
Apr 02, 2014	205.65	Dec 15, 2014	208.04	Dec 10, 2015	210.52
Apr 25, 2014	205.71	Mar 13, 2015	208.64	Mar 02, 2016	210.68
Jun 17, 2014	206.35	Apr 22, 2015	208.46	Apr 11, 2016	211.06
Jul 15, 2014	206.51	Jun 30, 2015	209.12	Jun 08, 2016	211.04
Sep 12, 2014	207.45	Sep 02, 2015	209.98		

Continuous data are daily low water levels



WELL NUMBER: CH Bg 18

PERMIT NUMBER: CH-95-1036

LOCATION: near Malcolm

LAT. 38° 36' 21", LONG. 76° 46' 28"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 2300 ft;

Casing diameter: 4 in. to 1914 ft; 1924 to 2034 ft; 2049 to 2151 ft; 2161 to 2200 ft; 2205 to 2228 ft; 2233 to 2257 ft; 2267 to 2288 ft; 2298 to 2300 ft;

Screen diameter: 4 in. from 1914 to 1924 ft; 2035 to 2049 ft; 2151 to 2161 ft; 2200 to 2205 ft; 2228 to 2233 ft; 2257 to 2267 ft; 2288 to 2298 ft.

INSTRUMENTATION: Periodic measurements.

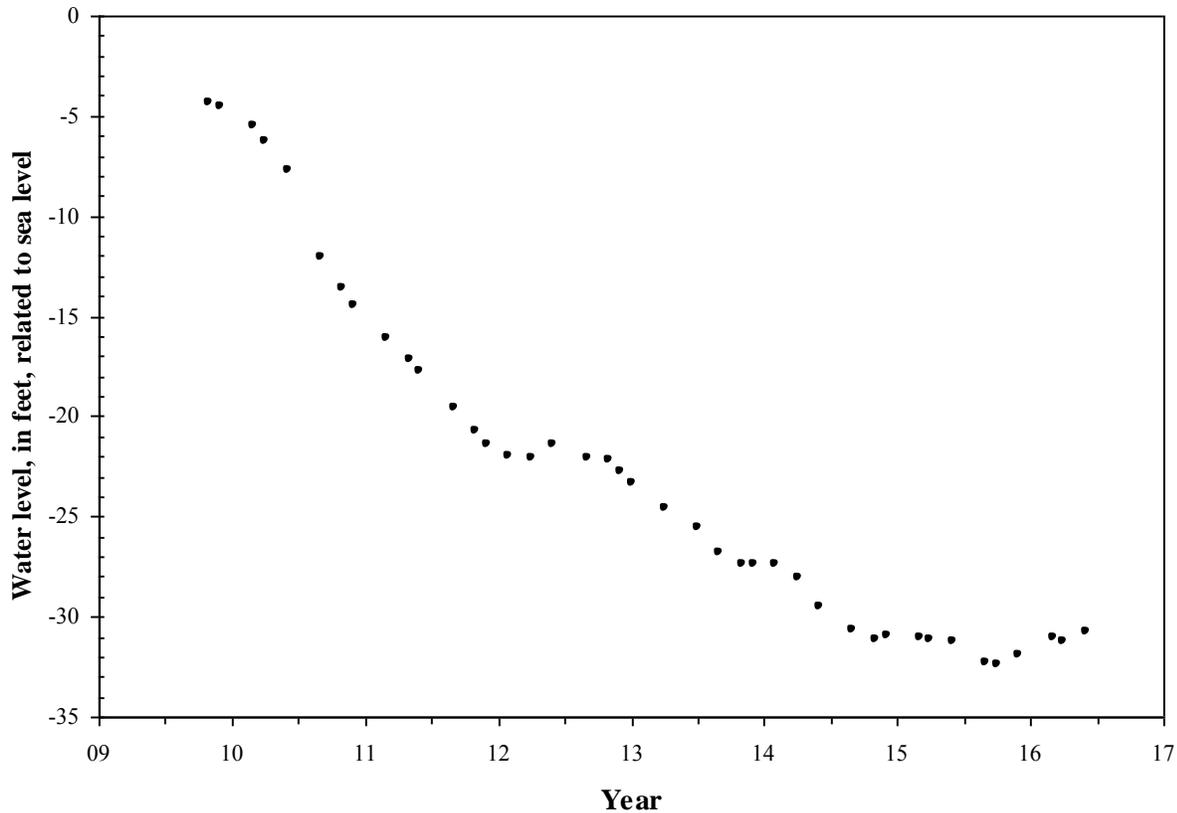
DATUM: Altitude of land surface is 190 ft above NGVD of 1929.

MEASURING POINT: Top of casing 2.6 ft above land surface.

PERIOD OF RECORD: November 2009 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 27, 2014	217.35	Mar 13, 2015	221.02	Mar 02, 2016	221.08
Apr 01, 2014	218.04	Apr 22, 2015	221.11	Apr 11, 2016	221.28
Jun 17, 2014	219.51	Jun 30, 2015	221.21	Jun 08, 2016	220.72
Sep 12, 2014	220.70	Sep 02, 2015	222.27		
Nov 12, 2014	221.13	Oct 22, 2015	222.43		
Dec 15, 2014	220.94	Dec 10, 2015	221.90		



WELL NUMBER: CH Ce 57

PERMIT NUMBER: CH-94-1112

LOCATION: Heritage Green, La Plata

LAT. 38° 32' 50", LONG. 76° 58' 40"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,703 ft;

Casing diameter: 6 in. to 400 ft; 4 in. from 400 to 1,406 ft, 1,421 to 1,500 ft, 1,515 to 1,668 ft, and 1,698 to 1,703 ft;

Screen diameter: 4 in. from 1,406 to 1,421 ft, 1,500 to 1,515 ft, and 1,668 to 1,698 ft.

INSTRUMENTATION: Periodic measurements.

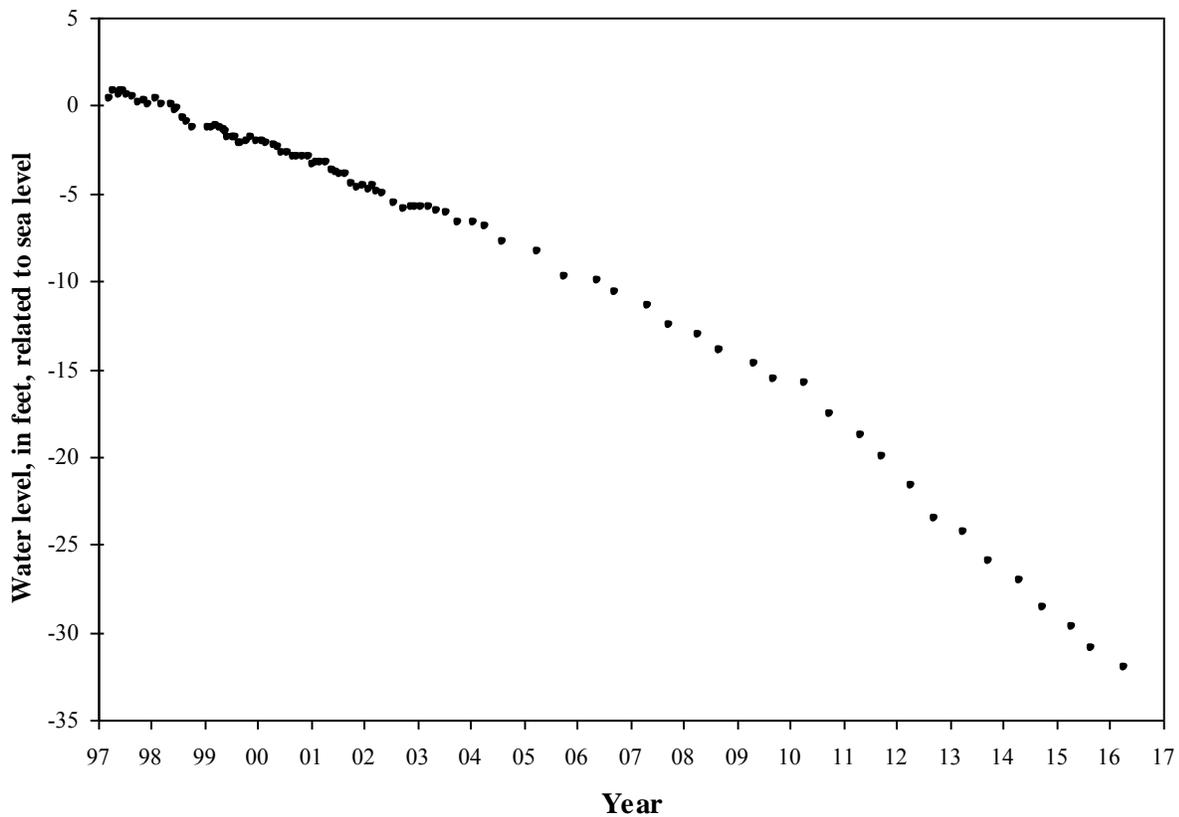
DATUM: Altitude of land surface is 193.47 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 5.0 ft above land surface.

PERIOD OF RECORD: March 1997 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 23, 2014	220.49	Apr 24, 2015	223.23	Apr 11, 2016	225.47
Sep 29, 2014	222.11	Sep 02, 2015	224.36		



WELL NUMBER: CH Ce 66

PERMIT NUMBER: CH-12-0184

LOCATION: White Plains Regional Park

LAT. 38° 34' 44", LONG. 76° 55' 12"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1925 ft;

Casing diameter: 4 in. to 1512 ft; 1522 to 1605 ft; 1645 to 1714 ft; 1724 to 1794 ft; 1809 to 1814 ft.; 1824 to 1876 ft.; 1886 to 1900 ft.; 1910 to 1925 ft.;

Screen diameter: 4 in. from 1512 to 1522 ft.; 1605 to 1645 ft.; 1714 to 1724 ft.; 1794 to 1809 ft.; 1814 to 1824 ft.; 1876 to 1886 ft.; 1900 to 1910 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 179 ft above NGVD of 1929.

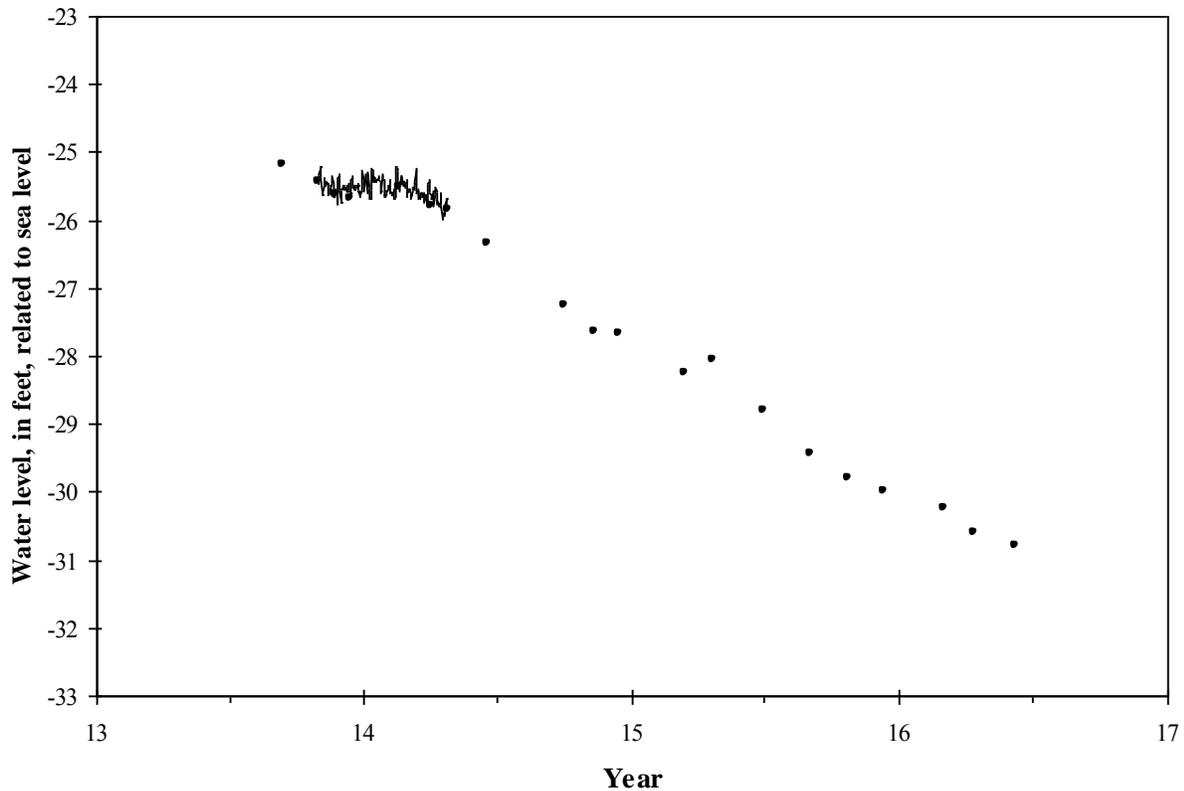
MEASURING POINT: Top of casing 2.35 ft above land surface.

PERIOD OF RECORD: September 2013 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Feb 18, 2014	204.51	Dec 15, 2014	206.67	Dec 10, 2015	208.98
Apr 02, 2014	204.79	Mar 13, 2015	207.24	Mar 02, 2016	209.25
Apr 25, 2014	204.85	Apr 22, 2015	207.06	Apr 11, 2016	209.61
Jun 17, 2014	205.35	Jun 30, 2015	207.79	Jun 08, 2016	209.80
Sep 30, 2014	206.25	Sep 02, 2015	208.43		

Continuous data are daily low water levels



WELL NUMBER: CH Da 18

PERMIT NUMBER: CH-73-0586

LOCATION: Douglas Point

LAT. 38° 26' 54", LONG. 77° 15' 25"

AQUIFER: Patuxent aquifer of the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 740 ft;

Casing diameter: 8 in. to 684 ft, and 694 to 730 ft;

Screen diameter: 8 in. from 684 to 694 ft, and 730 to 740 ft.

INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 90 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.10 ft above land surface.

PERIOD OF RECORD: September 1976 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr 02, 2014	101.10	Apr 21, 2015	101.20	Apr 19, 2016	101.84
Sep 12, 2014	101.38	Sep 11, 2015	101.72		

