

Water-Data Report 2013

344323076451301 Local number CT-153 (NC-139) NCDENR CAMP GLENN RESEARCH STATION X17j5 AT MOREHEAD CITY, NC

Castle Hayne aquifer
Castle Hayne Limestone

Carteret County, NC

LOCATION.--Lat 34°43'24", long 76°45'12" referenced to North American Datum of 1983, Carteret County, NC, Hydrologic Unit 03020106, on west edge of Morehead City, and south of U.S. Highway 70 at NCDENR Marine Fisheries Facility on north shore of Bogue Sound. Owner: NCDENR (North Carolina Department of Environment and Natural Resources).

GROUNDWATER RECORDS

WELL CHARACTERISTICS.--Drilled observation well, drilled to 238 ft, diameter 4 in., cased to 180 ft, open hole to 191 ft, hole collapsed from 191 to 238 ft.

DATUM.--Land-surface datum is 8.72 ft above National Geodetic Vertical Datum of 1929 (levels by NCDENR). Measuring point: Top of collar on casing, 2.85 ft above land-surface datum.

PERIOD OF RECORD.--January 1976, June 2005, April 2007 to current year. Continuous record January 1976 to June 2005.

GAGE.--Measured periodically with and steel and electric tapes.

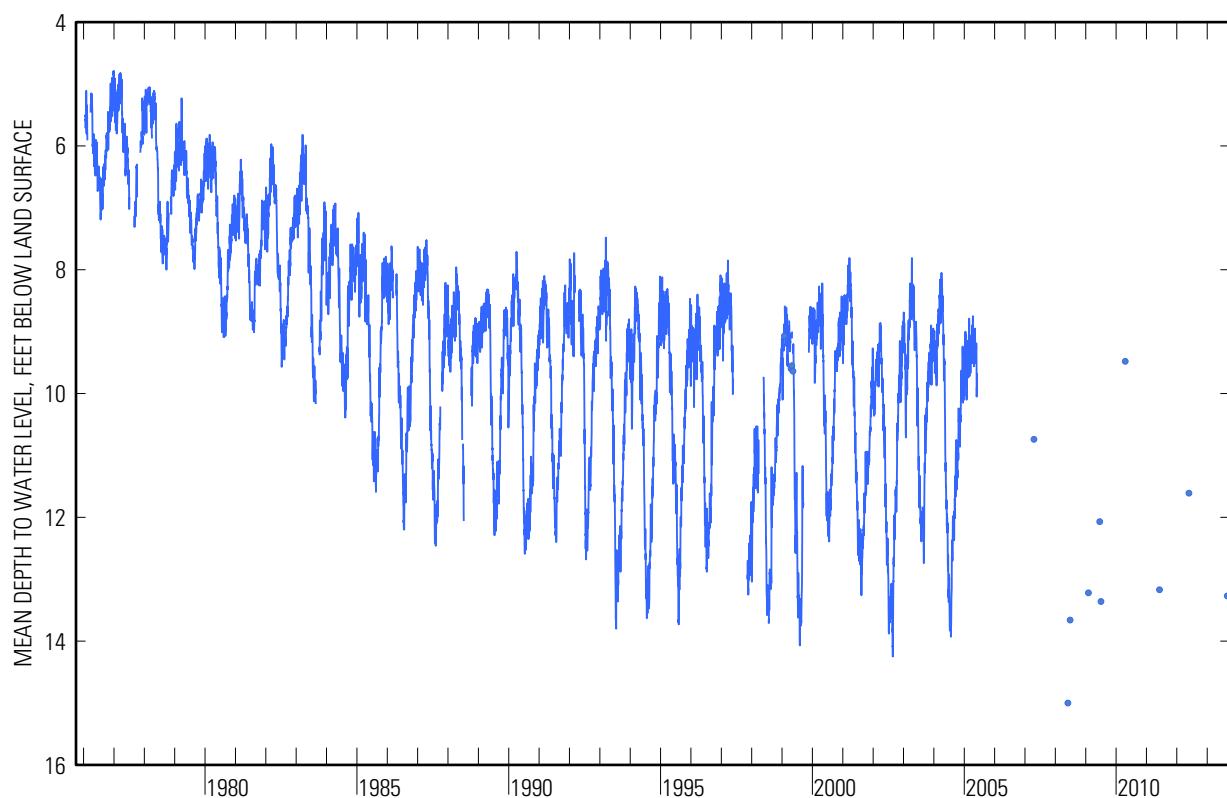
REMARKS.--Well measured as part of the National Water Quality Assessment (NAWQA) Program. Water levels influenced by nearby tidal fluctuations.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.23 ft below land-surface datum, December 7, 1976; lowest water level measured, 15.00 ft below land-surface datum, May 30, 2008.

WATER LEVELS IN FEET BELOW LAND-SURFACE DATUM

Date	Water level
Aug 29, 2013	13.27

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344323076451301 Local number CT-153 (NC-139) NCDENR CAMP GLENN RESEARCH STATION X17j5 AT MOREHEAD CITY, NC—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 2003, 2009, 2013.

REMARKS.--Well is sampled as part of the National Water Quality Assessment (NAWQA) Program.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

Part 1 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Depth to water level, ft below land surface (72019)	Dissolved oxygen, water, unfiltered, mg/L (00300)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)
08-29-2013	1030	Groundwater	Regular	763	13.27	0.1	7.1	519	20.2

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

Part 2 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Water level, depth below measuring point, feet (61055)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Alkalinity, water, filtered, inflection-point, incremental titration method, mg/L as CaCO ₃ (39086)	Bicarbonate, water, filtered, inflection-point, incremental titration method, mg/L, field, method, field, mg/L (00453)
08-29-2013	1030	2.2	16.12	95.1	6.42	6.79	9.32	258	314

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)	Orthophosphate, water, filtered, mg/L as P (00671)
08-29-2013	1030	0.037	11.3	0.28	38.7	0.11	0.764	< .040	< .001	0.013

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 4 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Total nitrogen, water, filtered, analytically determined, mg/L (62854)	Aluminum, water, filtered, µg/L (01106)	Barium, water, filtered, µg/L (01005)	Beryllium, water, filtered, µg/L (01010)	Cadmium, water, filtered, µg/L (01025)	Chromium, water, filtered, µg/L (01030)	Cobalt, water, filtered, µg/L (01035)	Copper, water, filtered, µg/L (01040)	Iron, water, filtered, µg/L (01046)
08-29-2013	1030	0.85	< 2.2	1.73	< .006	< .016	0.17	0.068	< .80	1,280

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 5 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Lead, water, filtered, µg/L (01049)	Lithium, water, filtered, µg/L (01130)	Manganese, water, filtered, µg/L (01056)	Molybdenum, water, filtered, µg/L (01060)	Nickel, water, filtered, µg/L (01065)	Silver, water, filtered, µg/L (01075)	Strontium, water, filtered, µg/L (01080)	Thallium, water, filtered, µg/L (01057)	Vanadium, water, filtered, µg/L (01085)
08-29-2013	1030	< .025	12.5	8.95	0.112	0.43	< .005	571	< .010	< .08

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 6 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Zinc, water, filtered, µg/L (01090)	Antimony, water, filtered, µg/L (01095)	Arsenic, water, filtered, µg/L (01000)	Boron, water, filtered, µg/L (01020)	Selenium, water, filtered, µg/L (01145)	Dichloroethane, water, unfiltered, recoverable, µg/L (32103)	Dichlorobenzene, water, unfiltered, recoverable, µg/L (34571)	Bromo-methane, water, unfiltered, recoverable, µg/L (34413)	Carbon disulfide, water, unfiltered, µg/L (77041)
08-29-2013	1030	< 1.4	< .027	< .04	30	< .03	< .08	< .026	< .2	< .1

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	cis-1,3-Dichloro-propene, water, unfiltered, recoverable, µg/L (34704)	trans-1,3-Dichloro-propene, water, unfiltered, recoverable, µg/L (34699)	Tetra-chloro-ethane, water, unfiltered, recoverable, µg/L (77562)	1,1,1-Tri-chloro-ethane, water, unfiltered, recoverable, µg/L (34506)	1,1,2-Tri-chloro-ethane, water, unfiltered, recoverable, µg/L (34511)	1,1-Di-chloro-ethane, water, unfiltered, recoverable, µg/L (34496)	1,1-Di-chloro-benzene, water, unfiltered, recoverable, µg/L (34501)	1,2,4-Tri-chloro-benzene, water, unfiltered, recoverable, µg/L (34551)	1,2,4-Tri-methyl-benzene, water, unfiltered, recoverable, µg/L (77222)
08-29-2013	1030	< .10	< .14	< .040	< .030	< .046	< .044	< .022	< .08	< .032

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 8 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	1,2-Dichloro-benzene, water, unfiltered, recoverable, µg/L (34536)	Ketotestos terone, water, filtered, recoverable, e, nanograms per liter (64507)	17-alpha-Estradiol, water, filtered, recoverable, e, nanograms per liter (64508)	17-alpha-Ethynodiol, water, filtered, recoverable, e, nanograms per liter (64509)	17-beta-Estradiol, water, filtered, recoverable, e, nanograms per liter (64510)	3-beta-Coprostan ol, water, filtered, recoverable, e, nanograms per liter (64512)	4-androstenedione, water, filtered, recoverable, e, nanograms per liter (64513)	Bisphenol A, water, unfiltered, recoverable, µg/L (34030)	
08-29-2013	1030	< .028	< 2.00	< .80	< .80	< .80	< 200	< .80	< .026	< 100

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Bromo-chloro-methane, water, unfiltered, recoverable, µg/L (77297)	Bromo-dichloro-methane, water, unfiltered, recoverable, µg/L (32101)	Chloro-benzene, water, unfiltered, recoverable, µg/L (34301)	Chloro-methane, water, unfiltered, recoverable, µg/L (34418)	Cholesterone, l, water, filtered, recoverable, nanograms per liter (64514)	cis-1,2-Di-chloro-ethene, water, filtered, recoverable, µg/L (77093)	cis-androsterone, water, filtered, recoverable, µg/L (64515)	Dibromo-chloro-methane, water, unfiltered, recoverable, µg/L (32105)	Dichloro-methane, water, unfiltered, recoverable, µg/L (34423)
08-29-2013	1030	< .06	< .034	< .026	< .1	< 200	< .022	< .80	< .12	< .04

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Dihydrotestosterone, water, filtered, recoverable, nanograms per liter (64524)	Epitestosterone, water, filtered, recoverable, nanograms per liter (64517)	Equilenin, water, filtered, recoverable, nanograms per liter (64518)	Equilin, water, filtered, recoverable, nanograms per liter (64519)	Estriol, water, filtered, recoverable, nanograms per liter (64520)	Estrone, water, filtered, recoverable, nanograms per liter (64521)	Ethylbenzene, water, unfiltered, recoverable, µg/L (34371)	Mestranol, water, filtered, recoverable, nanograms per liter (64522)	m-Xylene plus p-xylene, water, unfiltered, recoverable, µg/L (85795)
08-29-2013	1030	< 4.00	< 2.00	< 2.00	< 8.00	< 2.00	< .80	< .036	< .80	< .08

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Naphthalene, water, unfiltered, recoverable, µg/L (34696)	Norethindrone, water, filtered, recoverable, nanograms per liter (64511)	n-Propylbenzene, water, unfiltered, recoverable, µg/L (77224)	Organic carbon, water, filtered, mg/L (00681)	o-Xylene, water, unfiltered, recoverable, µg/L (77135)	Progesterone, water, recoverable, nanograms per liter (64523)	sec-Butylbenzene, water, unfiltered, recoverable, µg/L (77350)	Styrene, water, unfiltered, recoverable, µg/L (77128)	Testosterone, water, filtered, recoverable, nanograms per liter (64525)
08-29-2013	1030	< .18	< .80	< .036	3.97	< .032	< 8.00	< .034	< .042	< 1.60

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 12 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Tetra-chloro-ethene, unfiltered, recoverable, µg/L (34475)	Tetra-chloro-methane, unfiltered, recoverable, µg/L (32102)	Toluene, water, unfiltered, recoverable, µg/L (34010)	trans-1,2-Dichloro-ethene, water, unfiltered, recoverable, µg/L (34546)	bestrol, nanograms per liter (64516)	Tribromo-methane, filtered, recoverable, µg/L (64516)	Trichloro-ethene, unfiltered, recoverable, µg/L (32104)	Trichloro-methane, unfiltered, recoverable, µg/L (39180)	Vinyl chloride, unfiltered, recoverable, µg/L (32106)
08-29-2013	1030	<.026	<.06	0.03	<.018	<.80	<.10	<.022	<.03	<.06

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 13 of 14

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Date	Sample start time	Gross alpha radioactivity, 30-day picocuries per liter (62639)	Gross alpha radioactivity, 72-hour picocuries per liter (62636)	Gross beta radioactivity, 30-day picocuries per liter (62645)	Gross beta radioactivity, 72-hour picocuries per liter (62642)	Lead-210, Lead-210, picocuries per liter (17503)	Polonium-210, water, filtered, picocuries per liter (19503)	Radium-224, water, filtered, picocuries per liter (50833)	Radium-226, water, filtered, picocuries per liter (09503)	Radium-228, water, filtered, picocuries per liter (81366)
08-29-2013	1030	R .0	R .8	8.1	8.3	R .1	R .04	0.48	0.09	0.5

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 14 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; R, radchem non-detect, below ssLc]

Date	Sample start time	Oxygen-Deuterium/		
		Uranium (natural), water, filtered, µg/L (22703)	18/Oxygen-16 ratio, water, unfiltered, per mil (82085)	Protium ratio, water, unfiltered, per mil (82082)
08-29-2013	1030	< .004	-3.50	-17.70