Cow Pen Slough Condition Report for 2025

!

CAUTION

CHL N P DO

3 out of 4 primary indicators were rated as **PASS**.

"Primary" are nutrient related (Chl, N, P) and bacteria (B) parameters.

All four indicators must pass for the creek to be rated as **PASS**.

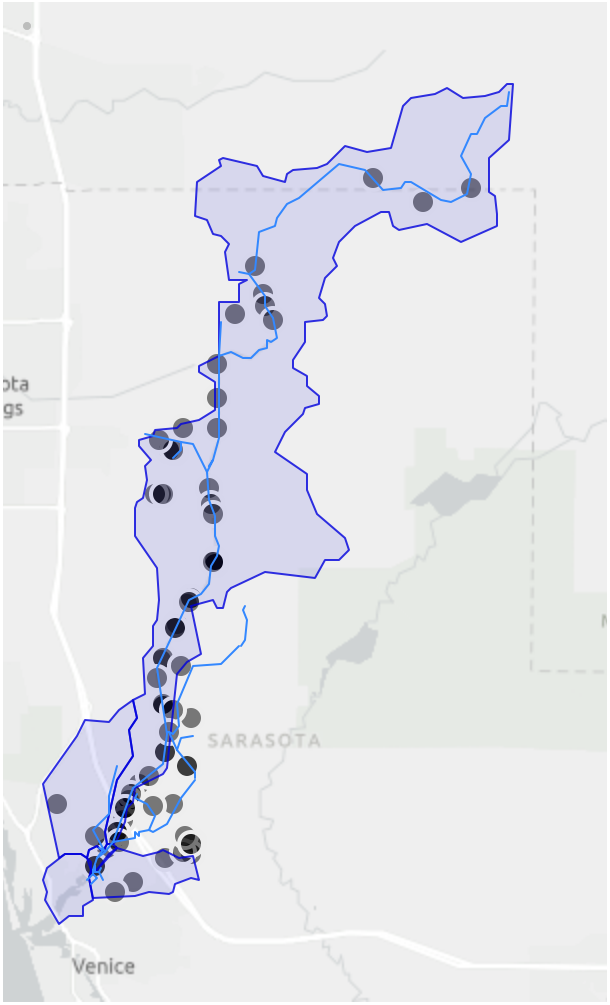
Greyed out values indicate no data for the report year.

Size: 47,518 acres
Location: North and central Sarasota County, south Manatee County
Discharges into: Dona Bay

For more information, please see: **Cow Pen Slough Basin Master Plan (USDA Report, 1997)**

View county-wide water quality trends »

Cow Pen Slough



Water Chemistry Ratings

Monitoring data is analyzed to determine stream health based on State water quality standards. Official determination of impairment or attainment of the water quality standards is performed by FDEP and is based on at least three years and up to seven and a half years of data. Information on approximately 17 different parameters are collected at stream sites, but only total nitrogen, total phosphorus, chlorophyll *a*, dissolved oxygen (percent saturation), and bacteria are assessed according to established water quality criteria mandated by the Clean Water Act. Additionally, the floral and faunal communities (SCI) are assessed at some sites to determine whether waters support a healthy aquatic community.

The "pass/fail" conditions presented here do not indicate impairment as determined by the official **Florida Department of Environmental Protection** Impaired Waters Rule assessment but, rather, give an indication of stream condition in a particular year in relation to the set regulatory numeric limits. Streams receive an annual "PASS" rating for each parameter if the mean value is below the regulatory value and a "FAIL" rating if the mean value exceeds the regulatory value. Not all water quality parameters have an established numeric criterion, so only some of the graphs below show the regulatory limit, represented by a horizontal red line.

The graphs here illustrate results over the past five years. Data from sites monitored within a single waterbody identification basin (WBID) are combined to determine water quality status for each WBID, and the annual geometric mean of sample results is indicated on the graph for the most recent year. The table to the left of the graph gives the annual and historic range of values for the indicator.

Chart Legend

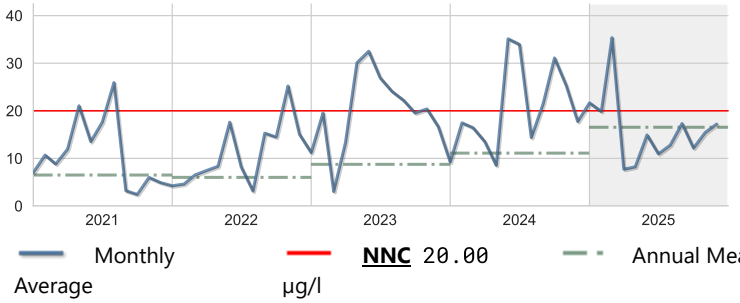
- **Monthly Average**
- **Threshold**
- **Annual Mean**

Click the graph to view a larger image and to download the full dataset.

Freshwater Portion of the Creek

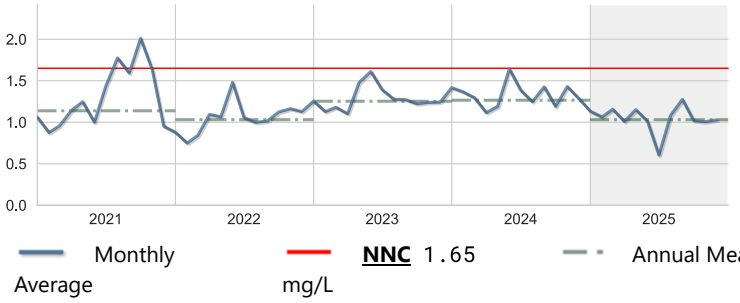
Chlorophyll a

Units: µg/l	Year 2025	Historical period of record
High	191.00	312.00
Mean	16.5409	10.8201
Low	1.00	0.314
No. of Samples	88	1,290



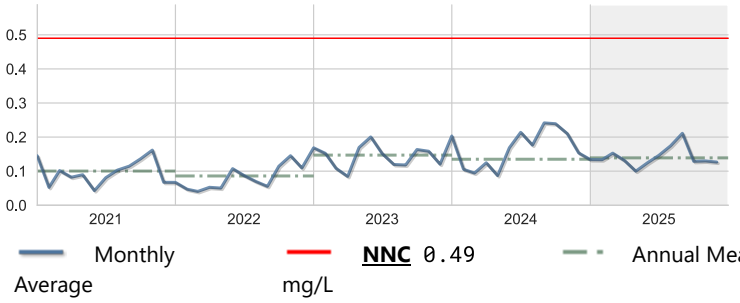
Nitrogen, Total

Units: mg/L	Year 2025	Historical period of record
High	2.017	3.695
Mean	1.0309	1.1671
Low	0.035	0.035
No. of Samples	70	1,041



Phosphorus, Total

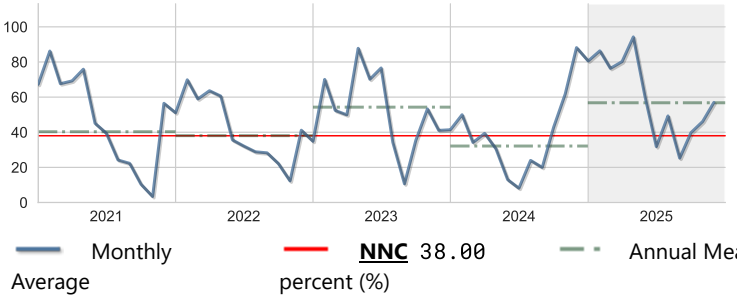
Units: mg/L	Year 2025	Historical period of record
High	0.452	1.19
Mean	0.139	0.1316
Low	0.029	0.008
No. of Samples	70	1,147



Dissolved Oxygen Saturation

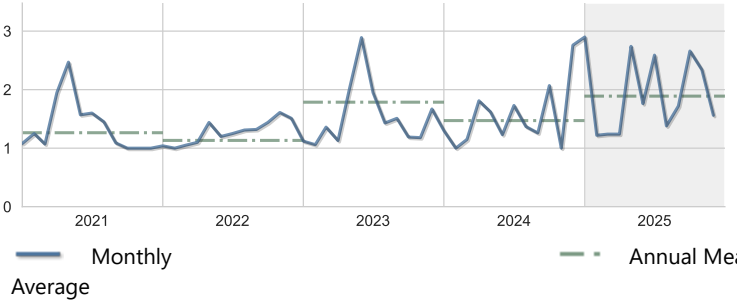
Note: Dissolved oxygen saturation percentages above the regulatory threshold meet established water quality targets.

Units: percent (%)	Year 2025	Historical period of record
High	146.44	227.16
Mean	56.78	53.22
Low	4.47	0.00
No. of Samples	65	1,187



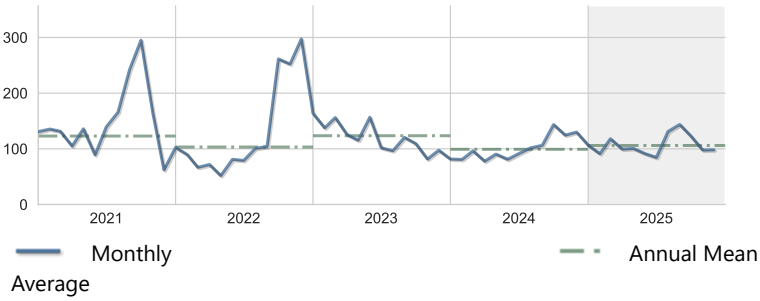
BOD, Biochemical oxygen demand

Units: mg/l	Year 2025	Historical period of record
High	8.62	11.80
Mean	1.89	1.49
Low	1.00	0.00
No. of Samples	65	978



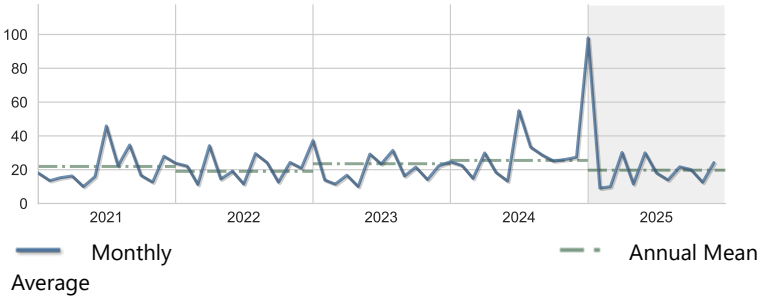
Color

Units: PCU	Year 2025	Historical period of record
High	220.00	650.00
Mean	106.05	110.16
Low	37.00	10.00
No. of Samples	65	1,136



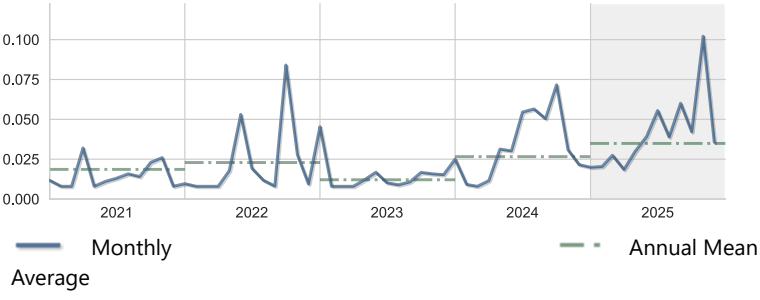
Escherichia coli

Units: MPN/100ml	Year 2025	Historical period of record
High	2755.00	2755.00
Mean	19.72	21.01
Low	4.10	1.00
No. of Samples	68	691



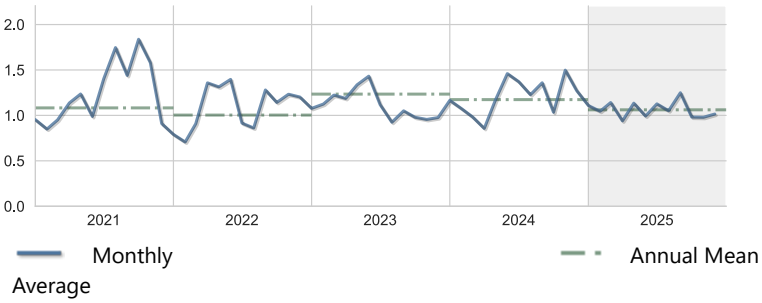
Nitrogen, Ammonia + Ammonium as N

Units: mg/L	Year 2025	Historical period of record
High	0.78	0.812
Mean	0.03	0.01
Low	0.003	0.00
No. of Samples	70	1,109



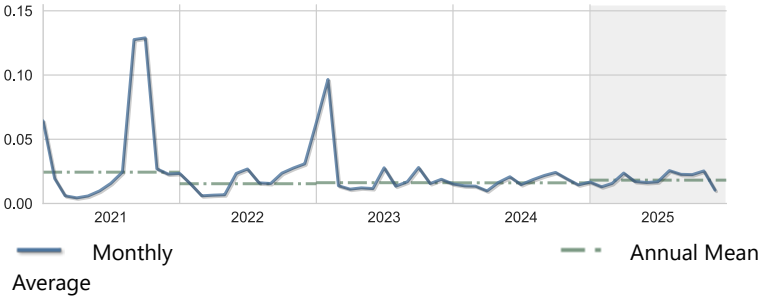
Nitrogen, Kjeldahl

Units: mg/L	Year 2025	Historical period of record
High	1.99	8.40
Mean	1.06	1.12
Low	0.47	0.00
No. of Samples	70	1,143



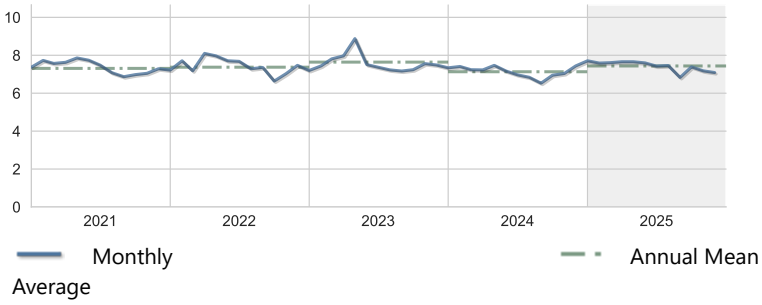
Nitrogen, Nitrite + Nitrate as N

Units: mg/L	Year 2025	Historical period of record
High	0.29	1.36
Mean	0.02	0.02
Low	0.004	0.00
No. of Samples	69	995



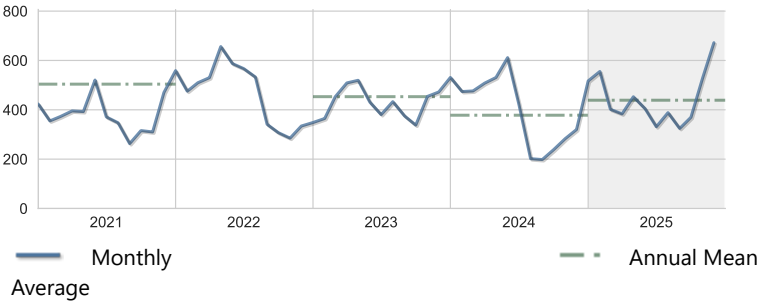
pH

Units: None	Year 2025	Historical period of record
High	8.27	11.50
Mean	7.44	7.56
Low	6.59	5.70
No. of Samples	65	4,524



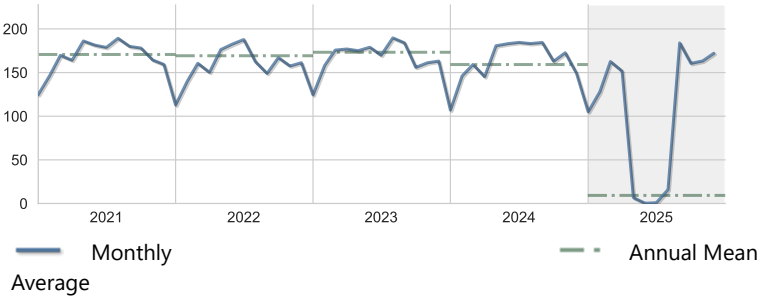
Specific conductance

Units: µmho	Year 2025	Historical period of record
High	1118.61	59844.40
Mean	438.85	10288.05
Low	187.41	0.10
No. of Samples	74	4,479



Temperature, water

Units: °F	Year 2025	Historical period of record
High	196.8116	348.7984
Mean	9.29	78.33
Low	0.00	0.00
No. of Samples	185	4,382

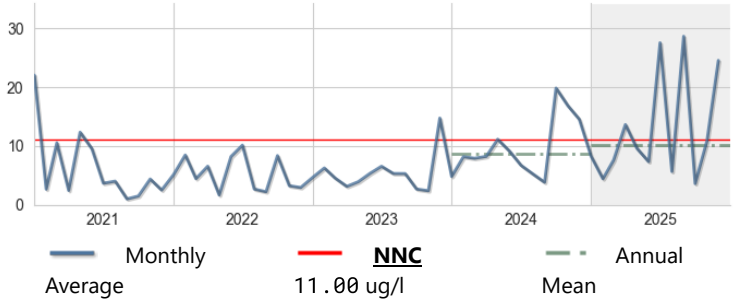


Tidal Portion of the Creek

Chlorophyll a

Score: Pass

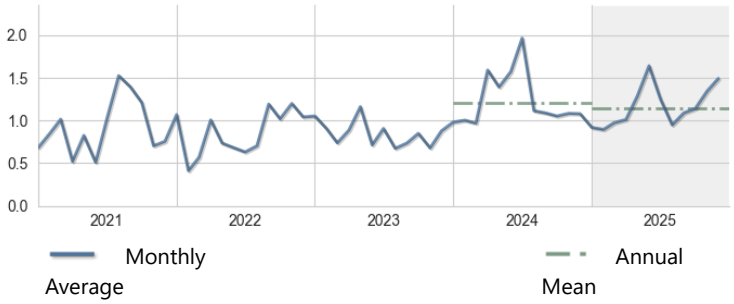
Units: µg/l	Year 2025	Historical period of record
High	28.6	159.0
Mean	10.0575	8.1939
Low	3.56	0.568
No. of Samples	12	346



Nitrogen, Total

Score: Pass

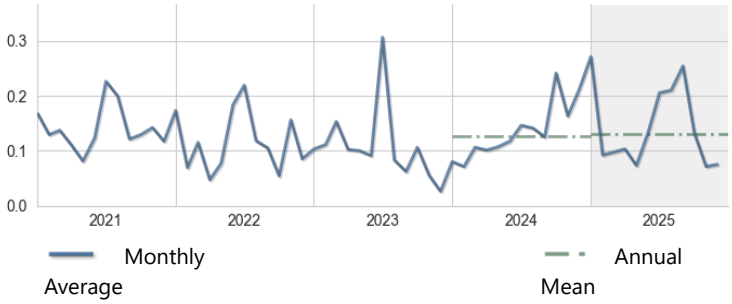
Units: mg/L	Year 2025	Historical period of record
High	1.6	2.2
Mean	1.1433	0.8729
Low	0.894	0.16
No. of Samples	12	278



Phosphorus, Total

Score: Pass

Units: mg/L	Year 2025	Historical period of record
High	0.3	0.8
Mean	0.1308	0.1553
Low	0.071	0.026
No. of Samples	11	352

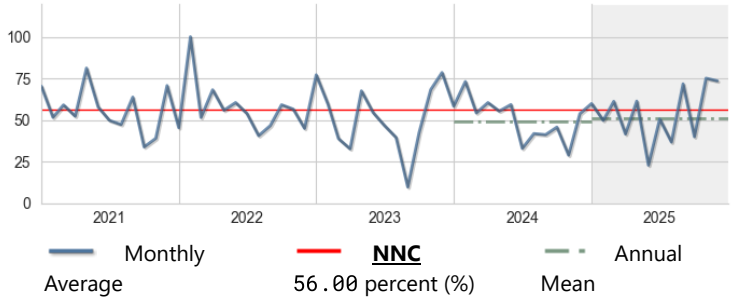


Dissolved Oxygen Saturation

Note: Dissolved oxygen saturation percentages above the regulatory threshold meet established water quality targets.

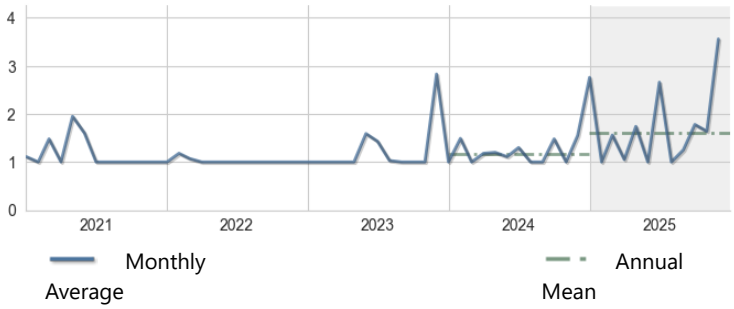
Score: Caution

Units: percent (%)	Year 2025	Historical period of record
High	75.1	159.3
Mean	50.94	61.98
Low	22.72	1.80
No. of Samples	12	407



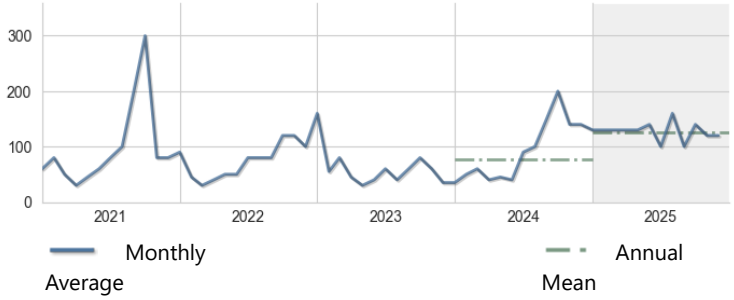
BOD, Biochemical oxygen demand

Units: mg/l	Year 2025	Historical period of record
High	3.6	13.9
Mean	1.6	1.6
Low	1.00	0.50
No. of Samples	12	315



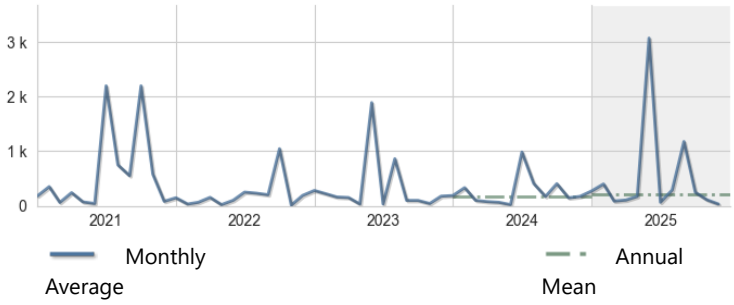
Color

Units: PCU	Year 2025	Historical period of record
High	160.0	500.0
Mean	126.48	72.63
Low	100.00	5.00
No. of Samples	12	400



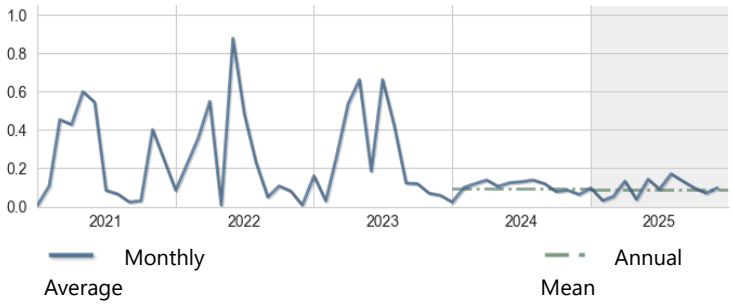
Enterococcus Group Bacteria

Units: MPN/100ml	Year 2025	Historical period of record
High	3,076.0	8,200.0
Mean	213.33	274.98
Low	31.00	10.00
No. of Samples	12	166



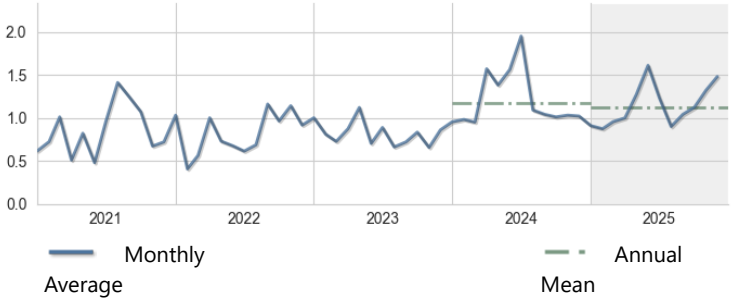
Nitrogen, Ammonia + Ammonium as N

Units: mg/L	Year 2025	Historical period of record
High	0.2	0.9
Mean	0.09	0.02
Low	0.032	0.00
No. of Samples	12	398



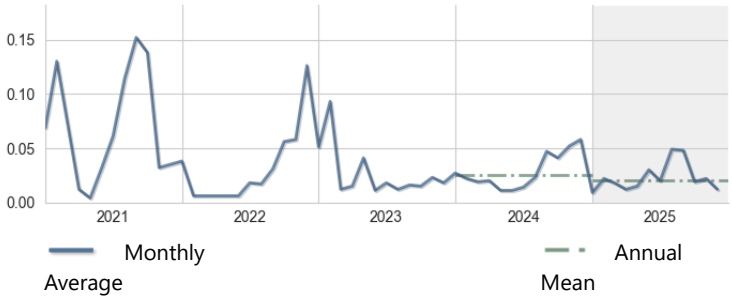
Nitrogen, Kjeldahl

Units: mg/L	Year 2025	Historical period of record
High	1.6	2.2
Mean	1.12	0.86
Low	0.872	0.05
No. of Samples	12	392



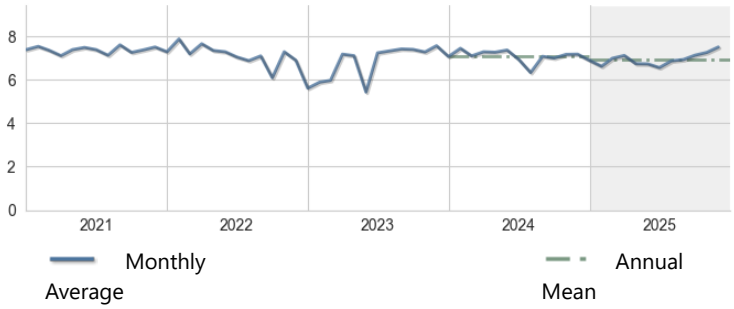
Nitrogen, Nitrite + Nitrate as N

Units: mg/L	Year 2025	Historical period of record
High	0.0	0.3
Mean	0.02	0.03
Low	0.009	0.00
No. of Samples	12	332



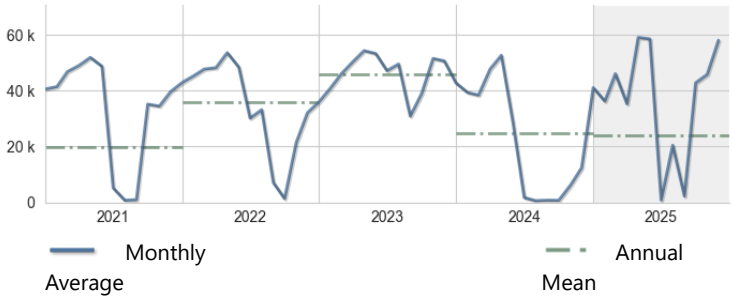
pH

Units: None	Year 2025	Historical period of record
High	7.5	22.3
Mean	6.95	7.42
Low	6.57	5.44
No. of Samples	12	485



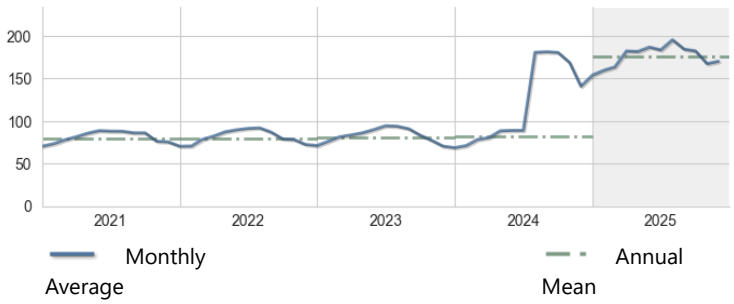
Specific conductance

Units: µmho	Year 2025	Historical period of record
High	59,038.3	59,038.3
Mean	23866.05	16305.6
Low	795.87	20.209
No. of Samples	12	3,390



Temperature, water

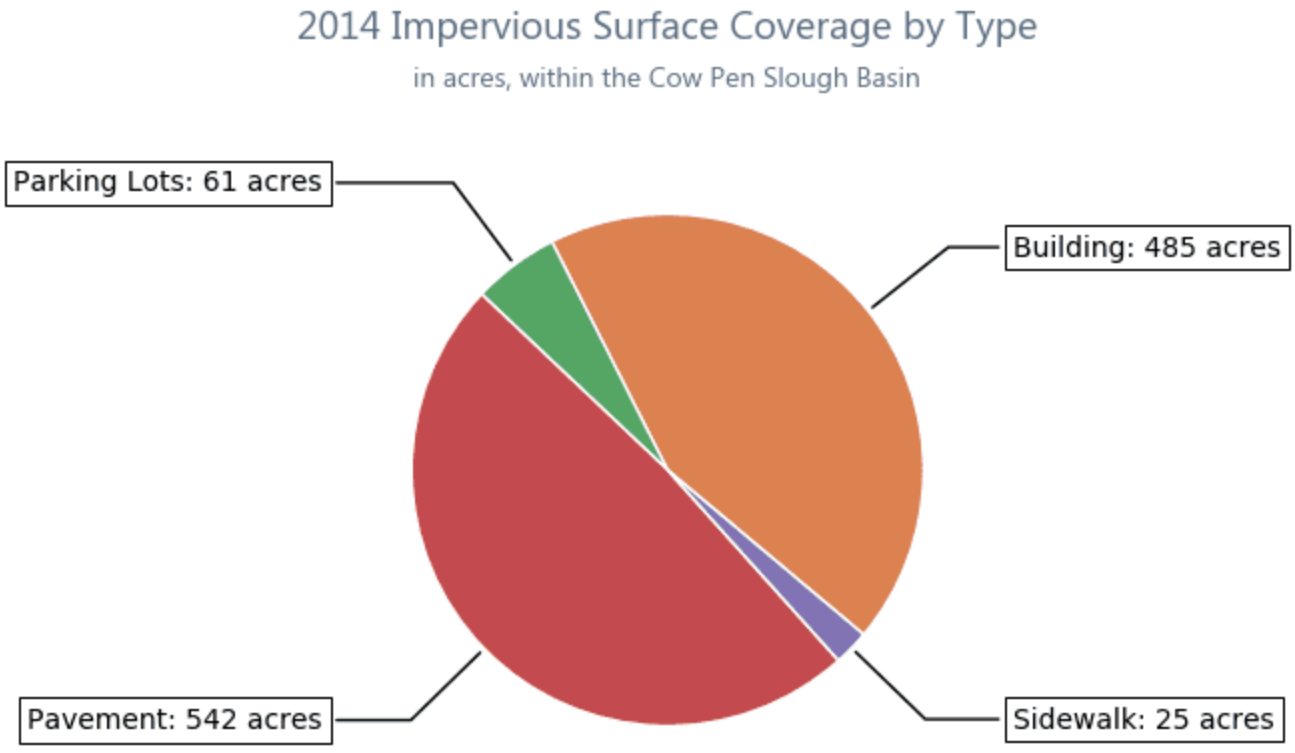
Units: °F	Year 2025	Historical period of record
High	195.7	211.6
Mean	175.75	80.54
Low	154.2056	51.224
No. of Samples	12	3,293



Impervious Features

Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes it way into underground aquifers. However, in developed areas, "impervious surfaces" impede this process and contribute to polluted urban runoff entering surface waters. These surfaces include human infrastructure like roads, sidewalks, driveways and parking lots that are covered by impenetrable materials such as asphalt, concrete, brick and stone, as well as buildings and other permanent structures. Soils that have been disturbed and compacted by urban development are often impervious as well.

2% of the land area within the **Cow Pen Slough Basin** is covered by impervious surfaces



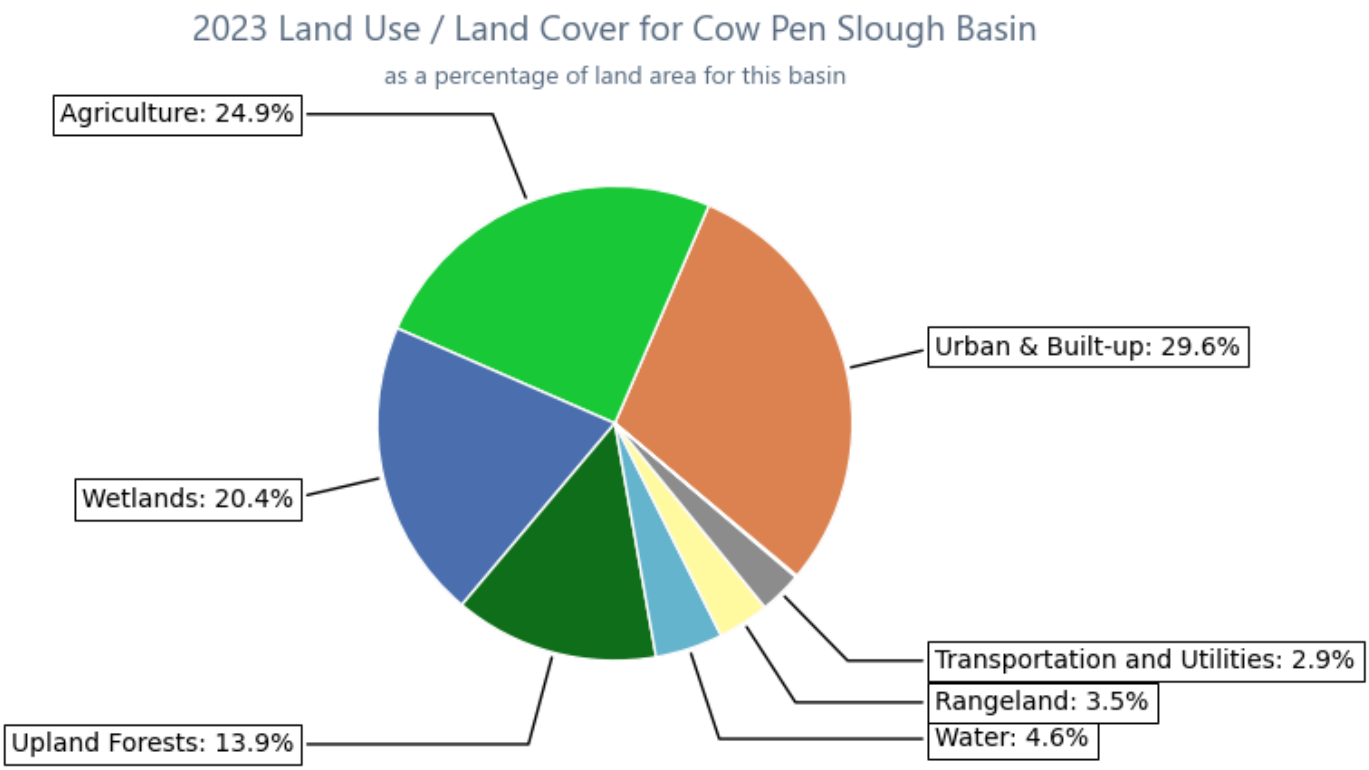
Land Use / Land Cover

Land use within a creek's watershed has a major effect on its water quality. In general, less development means better water quality. Land Cover/Land Use classifications categorize land in terms of its observed physical surface characteristics (e.g. upland or

wetland), and also reflect the types of activity that are taking place on it (agriculture, urban/built-up, utilities, etc.). Florida uses as its standard a set of statewide classifications which were developed by the Florida Department of Transportation.

Acreage and Percentage within each Land Use / Land Cover Category for Cow Pen Slough Basin

Land Use Classification	1990	1995	1999	2005	2011	2014	2017	2020	2023	Trend
Urban & Built-up	4,508 9.5%	6,038 12.7%	8,975 18.9%	11,001 23.2%	11,730 24.7%	11,974 25.2%	12,400 26.1%	13,131 27.6%	14,086 29.6%	
Agriculture	13,320 28%	14,164 29.8%	14,112 29.7%	14,347 30.2%	13,512 28.4%	13,227 27.8%	13,184 27.7%	12,677 26.7%	11,853 24.9%	
Rangeland	7,041 14.8%	6,168 13%	4,056 8.5%	2,448 5.2%	2,307 4.9%	2,488 5.2%	2,050 4.3%	1,757 3.7%	1,682 3.5%	
Upland Forests	11,445 24.1%	10,059 21.2%	8,503 17.9%	7,483 15.7%	7,376 15.5%	7,309 15.4%	7,131 15%	6,791 14.3%	6,588 13.9%	
Water	816 1.7%	1,345 2.8%	1,521 3.2%	1,644 3.5%	1,763 3.7%	1,817 3.8%	1,941 4.1%	1,976 4.2%	2,198 4.6%	
Wetlands	10,035 21.1%	9,310 19.6%	9,367 19.7%	9,471 19.9%	9,507 20%	9,397 19.8%	9,441 19.9%	9,826 20.7%	9,716 20.4%	
Barren Land	16 0%	5 0%	2 0%	49 0.1%	110 0.2%	77 0.2%	82 0.2%	18 0%	45 0.1%	
Transportation and Utilities	337 0.7%	430 0.9%	982 2.1%	1,075 2.3%	1,213 2.6%	1,230 2.6%	1,288 2.7%	1,342 2.8%	1,355 2.9%	


2023 Land Use / Land Cover for Cow Pen Slough Basin
as a percentage of land area for this basin
Agriculture: 24.9%
Urban & Built-up: 29.6%
Wetlands: 20.4%
Transportation and Utilities: 2.9%
Rangeland: 3.5%
Water: 4.6%
Upland Forests: 13.9%