2025 LRNow Community Science Water Quality Report

Healthy waterways depend on community stewardship. The water quality data in this report shows how rainfall and runoff can quickly increase bacteria levels and carry nutrients and debris into creeks, rivers, and lakes. Long-term improvements come from actions we take in our neighborhoods and backyards to slow runoff, reduce pollution, and support natural systems

A big thank you to our team of volunteers that gather data and samples monthly as part of LRNow's Community Science Water Quality Monitoring Program. This program provides year-round data that helps:

- Identify sudden changes in water quality
- Track long-term trends
- Support restoration, outreach, and public education
- Guide decision-making for healthier waterways

Rainfall Was the Biggest Driver of Short-Term Water Quality Changes

- Heavy rain events caused increases in both Enterococci and E. coli across multiple waterways.
- Runoff transporting pet waste, lawn fertilizer, and organic debris contributed to these spikes.

Clarity Varied Widely by Waterway Type

- Tidal creeks showed generally higher clarity values, while several lakes and areas with lower tidal action exhibited cloudier water.
- The typical turbidity median across sites was 43.5 (on a 0–60 clarity index), with higher numbers indicating clearer water.

Nutrient Levels Were Generally Stable

- Total Nitrogen and Total Phosphorus medians remained low to moderate across the waterways.
- Lakes had noticeably higher nutrient levels than tidal sites, driven by greater runoff following seasonal patterns of lawn fertilization.

Bacteria Levels Showed Site-Specific Patterns

- Bacteria frequently spiked following storm events.
- Long-term patterns varied across creeks, lakes, and canals depending on flow and land use.

Ways You Can Make a Difference

- Pick up pet waste every time. Pet waste left on lawns, sidewalks, or trails washes directly into waterways during rainstorms, increasing bacteria levels.
- Reduce fertilizer use. Only fertilize after testing your soil to assess what is needed. Excess nutrients wash into waterways and can harm aquatic life.
- Use native plants and create buffer zones. Native vegetation absorbs runoff, stabilizes soil, and naturally filters pollution.
- Install a rain barrel or rain garden. Capturing stormwater reduces flooding and prevents contaminated runoff from reaching local creeks.
- Keep yard waste out of streets and storm drains. Leaves and grass clippings carry nutrients that contribute to algae growth.
- Dispose of trash properly and join cleanup events. Community cleanups remove debris before it moves downstream.
- Maintain your shoreline. Consider living shorelines to restore the natural environment along the water.
- Help neighbors understand how small daily actions improve water quality by becoming a Pearl Home.
- Checkout the LRNOW website and social media for tips, tricks, and ways to get involved in programs and volunteer opportunities.

Testing Sites

View monthly and historical water quality data at LRNow.org

2024 - 2025 Data Comparison

Median data comparison for sites tested in 2024 and 2025

▲ **Improved**   ■ **Little change**   ▼ **Declined**

| Waterway	Turbidity		Clarity	Bacteria		Bacteria	Nitrogen		Phosphorus		Nutrients
	2024	2025		2024	2025		2024	2025	2024	2025	
Broad Bay - Bay Island	60.0	57.0	▼	10.0	10.0	■	0.5	0.5	0.1	0.1	■
Broad Bay - Narrows	48.0	35.9	▼	10.0	10.0	■	0.6	0.5	0.1	0.1	■
Crab Creek	60.0	60.0	■	52.0	10.0	▲	0.5	0.5	0.1	0.1	■
EB Elizabeth River	38.5	36.5	■	786.5	121.0	▲	1.0	0.9	0.1	0.1	■
EB Lynnhaven R South	42.0	47.5	▲	121.0	207.5	▼	0.9	0.8	0.1	0.1	■
Great Neck Creek	44.2	44.0	■	93.0	194.0	▼	0.7	0.8	0.1	0.1	■
Great Neck Lake Site 1	54.5	44.5	▼	31.0	31.0	■	1.1	1.3	0.1	0.1	▼
Great Neck Lake Site 2	38.0	42.0	▲	31.0	10.0	▲	1.3	1.4	0.2	0.1	■
Lake Joyce	24.0	34.0	▲	57.5	20.0	▲	1.7	2.0	0.1	0.1	▼
Little Neck Creek	36.5	54.0	▲	1290.0	792.5	▲	1.0	0.8	0.3	0.1	▲
London Bridge Creek - Church	--	--	■	249.0	166.5	▲	1.3	1.5	0.2	0.2	▼
London Bridge Creek - Clubhouse	--	--	■	400.5	195.0	▲	1.4	1.3	0.2	0.2	■
London Bridge Creek - Park	--	--	■	385.5	147.5	▲	1.2	1.3	0.1	0.1	■
Newbern Canal	52.8	51.6	■	20.0	20.0	■	0.5	0.5	0.1	0.1	■
Pleasure House Creek	24.5	29.0	▲	20.0	20.0	■	0.8	0.6	0.1	0.1	▲
Thalia Creek	44.0	36.0	▼	1020.0	316.5	▲	1.1	1.2	0.1	0.1	■
Wolfsnare Creek	40.0	30.5	▼	345.0	211.0	▲	0.9	0.9	0.1	0.1	■

GNL 04 — Great Neck Lake – Site 1

Sampling events in 2025: 11
Date range: Jan 07, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)
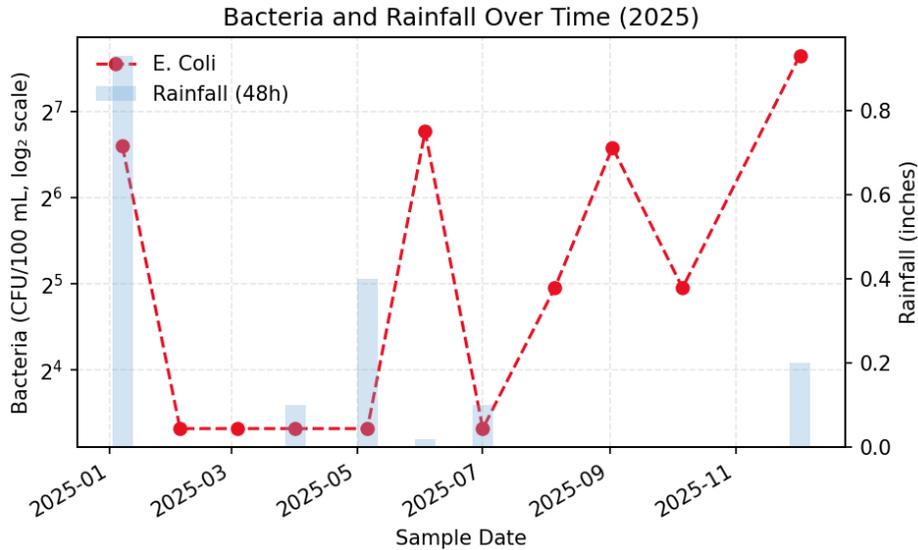
Parameter	Median
Total Phosphorus	0.130
Total Kjeldahl Nitrogen	1.27
Total Nitrogen	1.27
Nitrate/Nitrite	0.010
E. Coli	31.00
Water Turbidity	44.50
Salinity	5.00
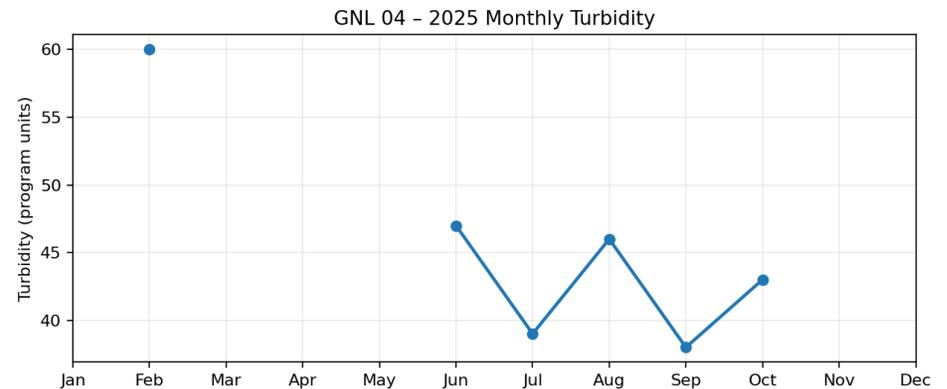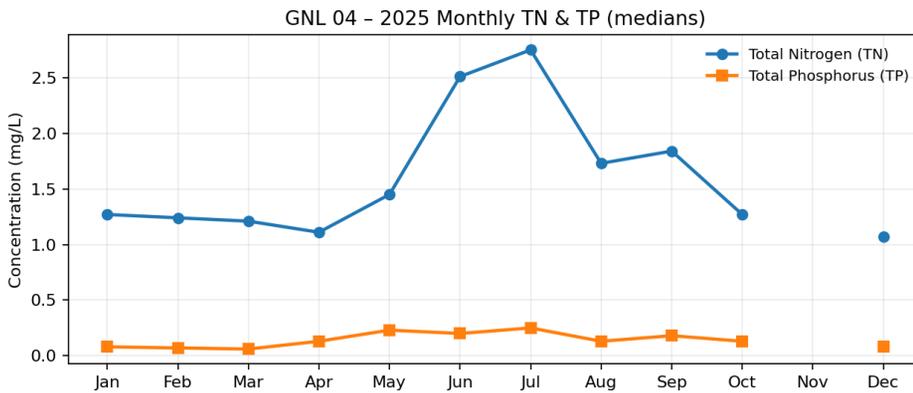
GNL 04 – 2025 Monthly TN & TP (medians)

GNL 04 – 2025 Monthly Turbidity

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

GNL 05 — Great Neck – Site 2

Sampling events in 2025: 12

Date range: Jan 07, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)
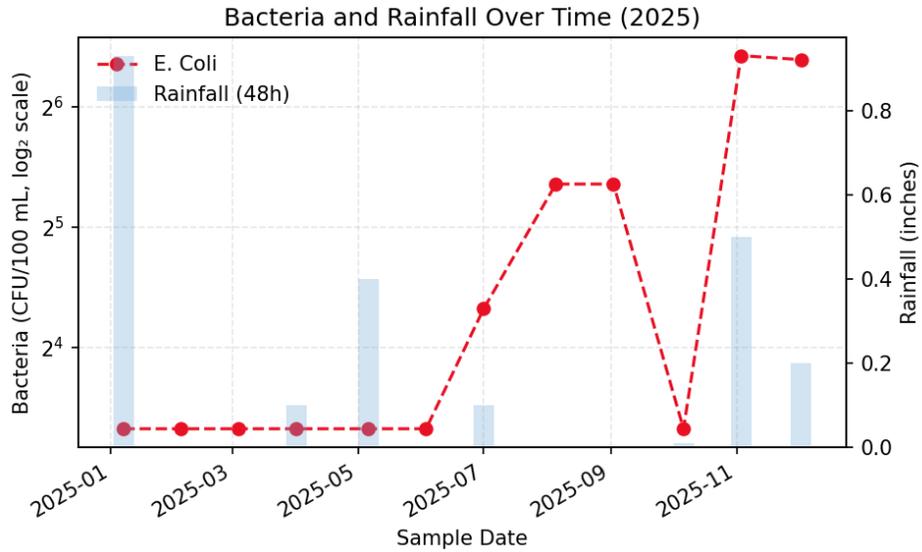
Parameter	Median
Total Phosphorus	0.135
Total Kjeldahl Nitrogen	1.35
Total Nitrogen	1.36
Nitrate/Nitrite	0.010
E. Coli	10.00
Water Turbidity	42.00
Salinity	6.00
pH	6.80
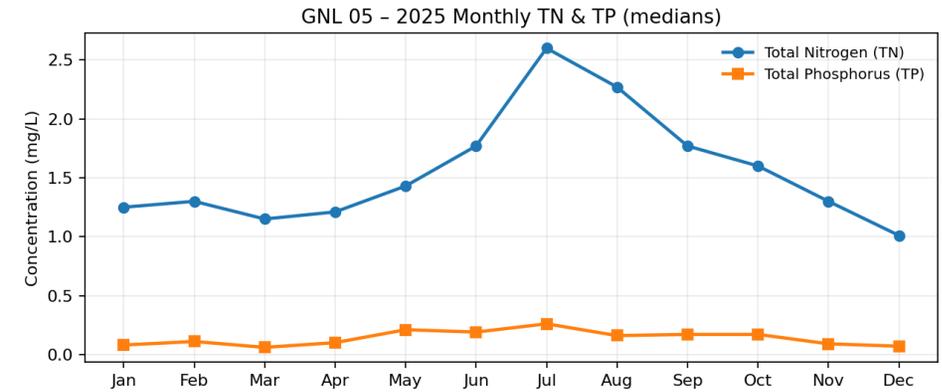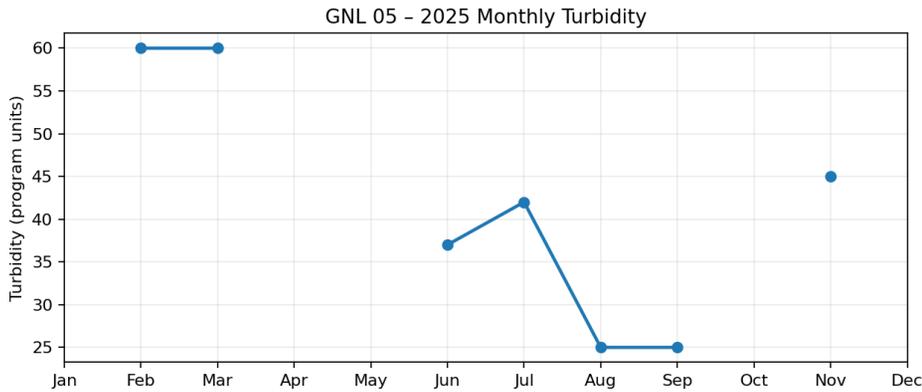
GNL 05 – 2025 Monthly Turbidity

GNL 05 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 01 — Little Neck Creek – Beach Garden Park

Sampling events in 2025: 11

Date range: Jan 13, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)
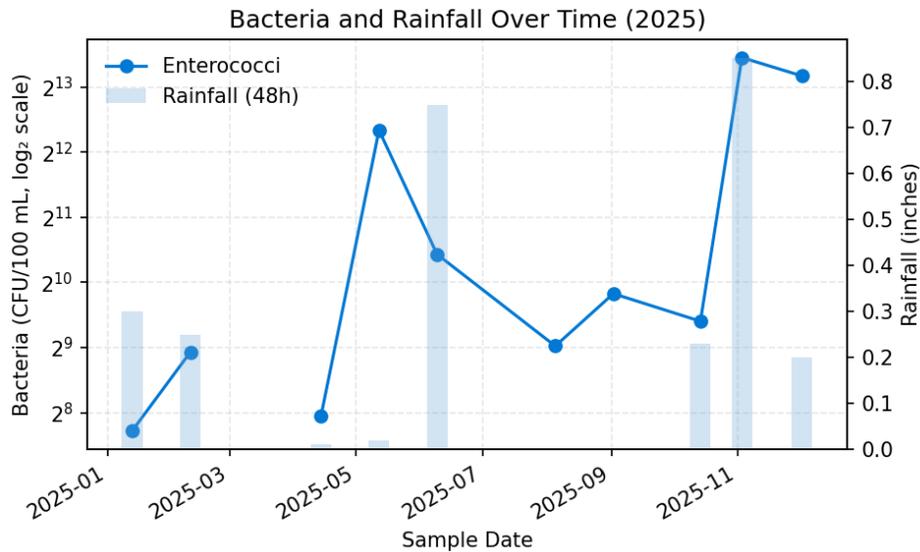
Parameter	Median
Total Phosphorus	0.150
Enterococci	792.50
Total Kjeldahl Nitrogen	0.730
Total Nitrogen	0.750
Nitrate/Nitrite	0.025
Water Turbidity	54.00
Salinity	21.00
pH	6.00
Debris Cleanup	12.25 lbs (total)
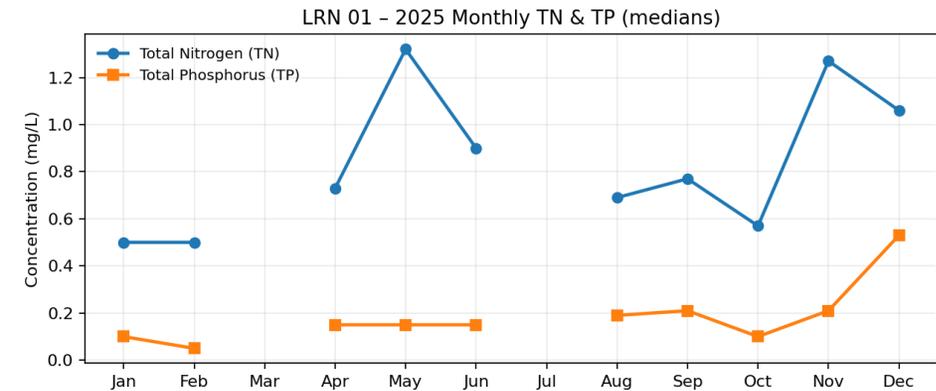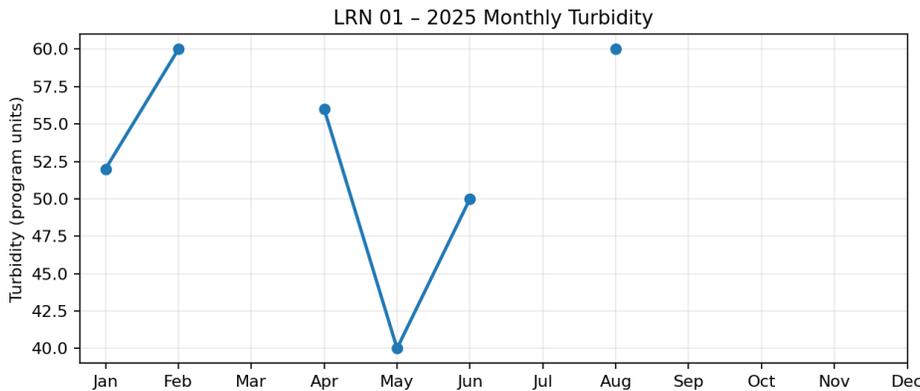
LRN 01 – 2025 Monthly Turbidity
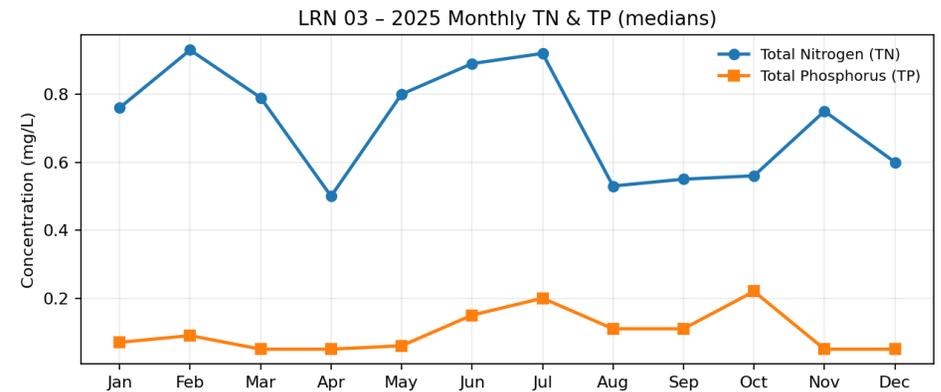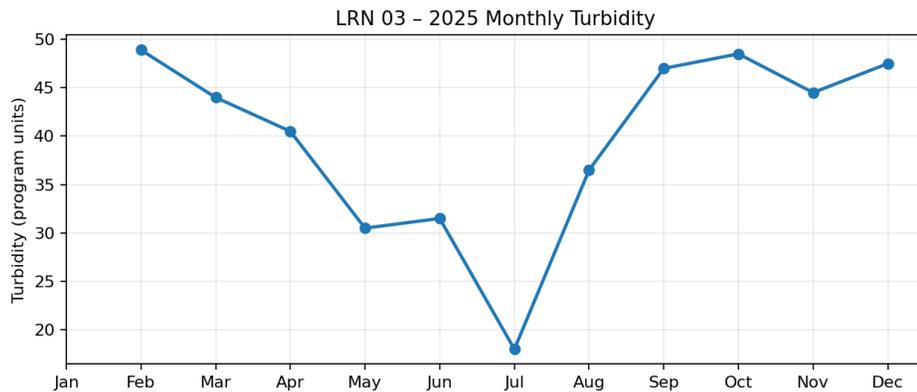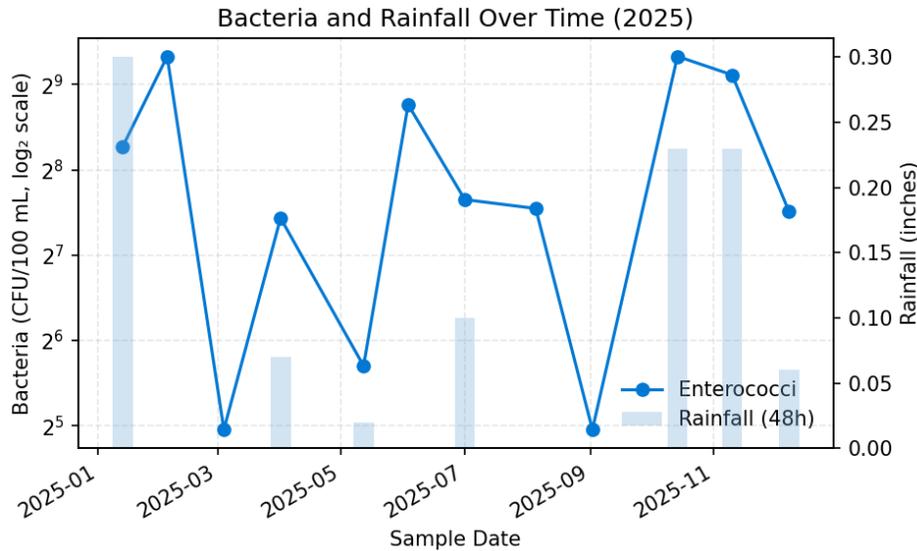

LRN 01 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 02 — Broad Bay – The Narrows

Sampling events in 2025: 12
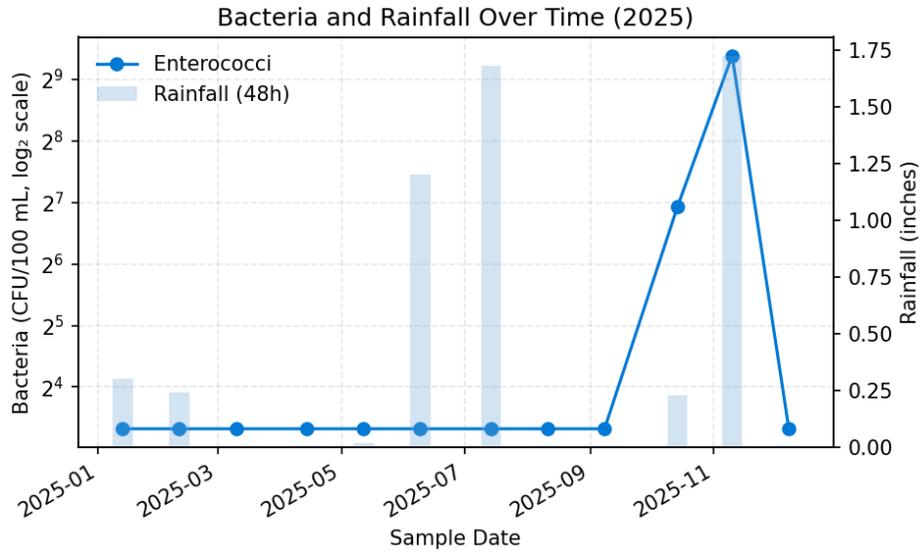
Date range: Jan 13, 2025 – Dec 08, 2025

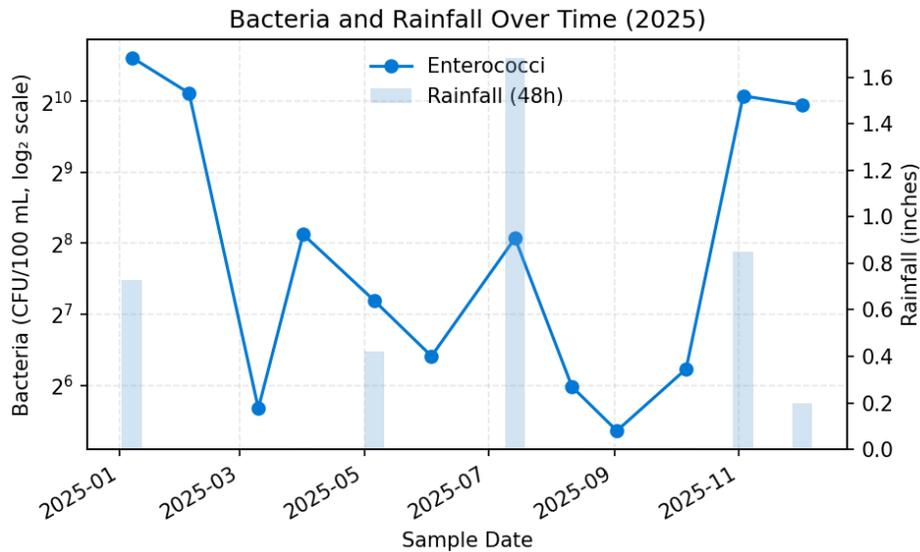| Parameter	Median
Total Phosphorus	0.050
Enterococci	10.00
Total Kjeldahl Nitrogen	0.500
Total Nitrogen	0.500
Nitrate/Nitrite	0.010
Water Turbidity	35.90
Salinity	26.50
pH	7.61
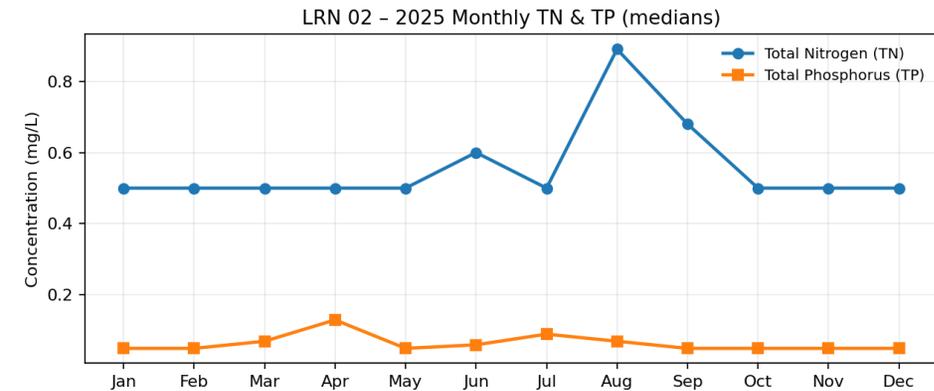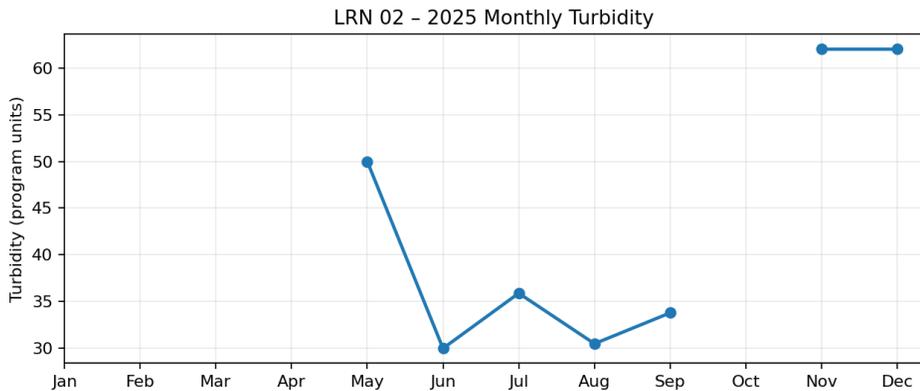
Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 03 — Great Neck Creek – Birdneck Kayak Launch

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.080
Enterococci	194.00
Total Kjeldahl Nitrogen	0.690
Total Nitrogen	0.755
Nitrate/Nitrite	0.015
Water Turbidity	44.00
Salinity	16.00
pH	7.10
Site Debris Cleanup	25 lbs (total)

LRN 03 – 2025 Monthly Turbidity
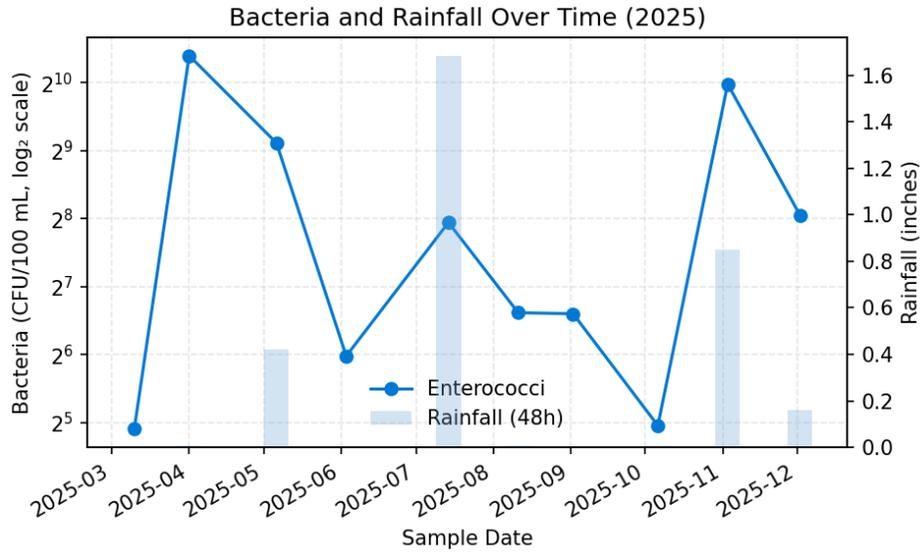

LRN 03 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 04 — Eastern Branch Lynnhaven River South - Hutton Kayak Launch

Sampling events in 2025: 12

Date range: Jan 07, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.110
Enterococci	207.50
Total Kjeldahl Nitrogen	0.770
Total Nitrogen	0.850
Nitrate/Nitrite	0.025
Water Turbidity	47.50
Salinity	8.00
pH	6.00
Debris Cleanup	173 lbs (total)
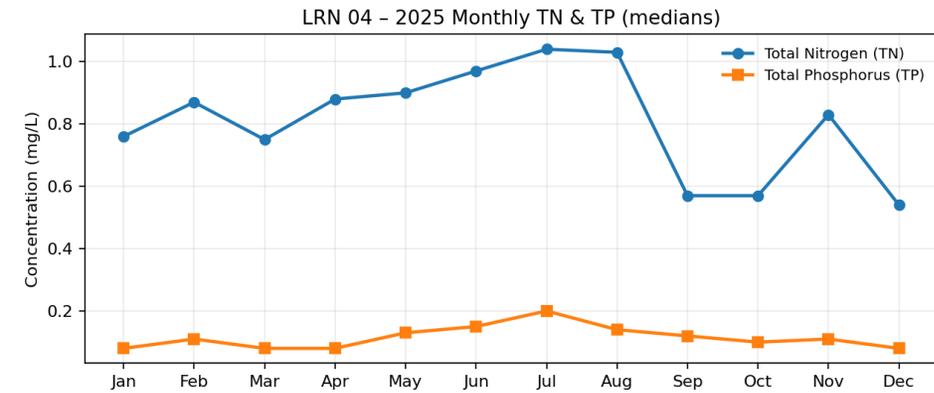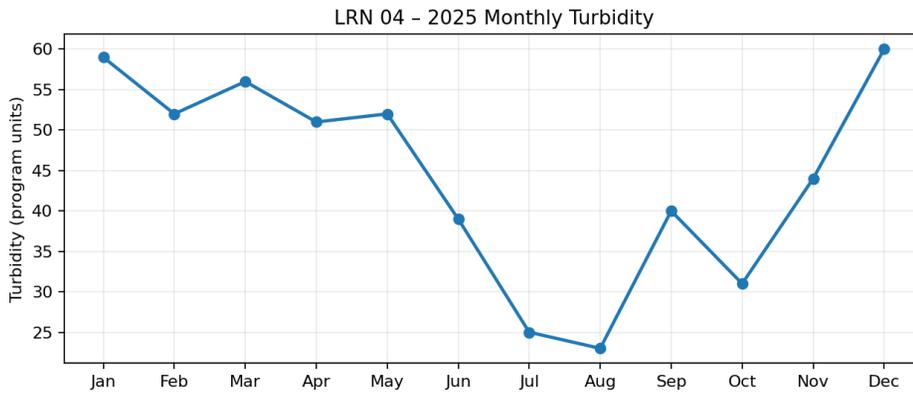
LRN 04 – 2025 Monthly Turbidity
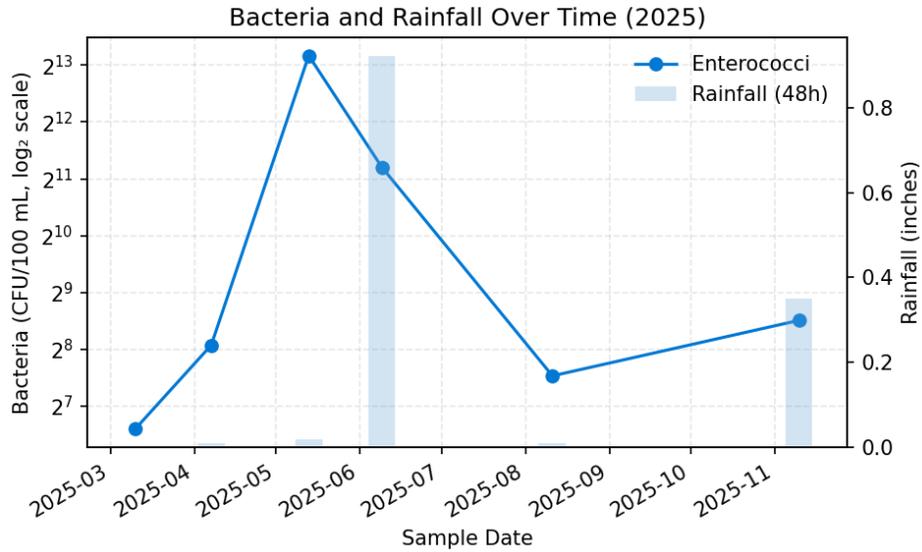

LRN 04 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 06 — Hebden Cove

Sampling events in 2025: 10

Date range: Mar 10, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.070
Enterococci	172.00
Total Kjeldahl Nitrogen	0.600
Total Nitrogen	0.620
Nitrate/Nitrite	0.010
Water Turbidity	51.50
Salinity	14.00
pH	6.00
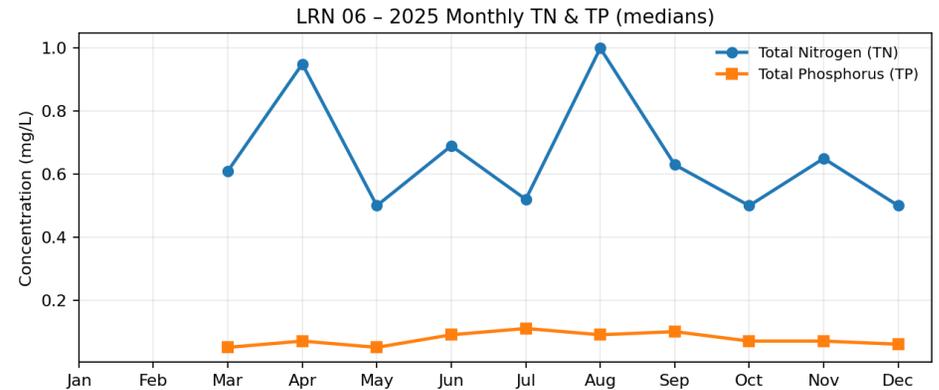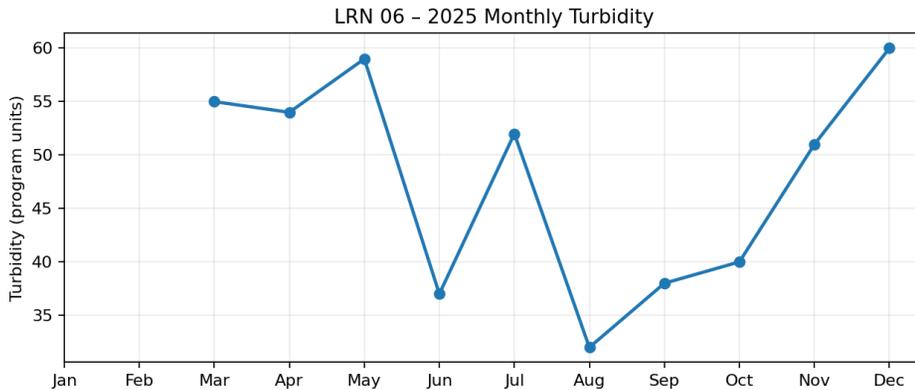
LRN 06 – 2025 Monthly Turbidity
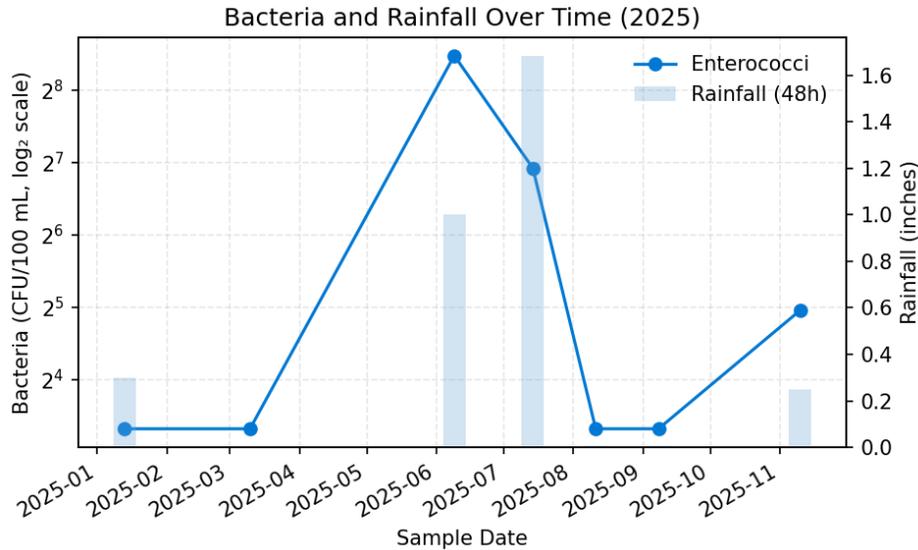

LRN 06 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 07 — Thalia Creek

Sampling events in 2025: 6

Date range: Mar 10, 2025 – Nov 10, 2025

Parameter	Median
Total Phosphorus	0.100
Enterococci	316.50
Total Kjeldahl Nitrogen	1.21
Total Nitrogen	1.23
Nitrate/Nitrite	0.020
Water Turbidity	36.00
Salinity	1.02
pH	6.00
Site Debris Cleanup	2.25 lbs (total)
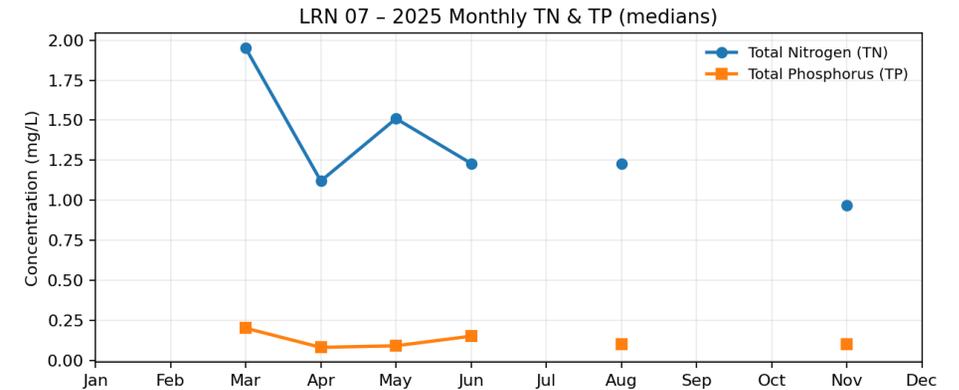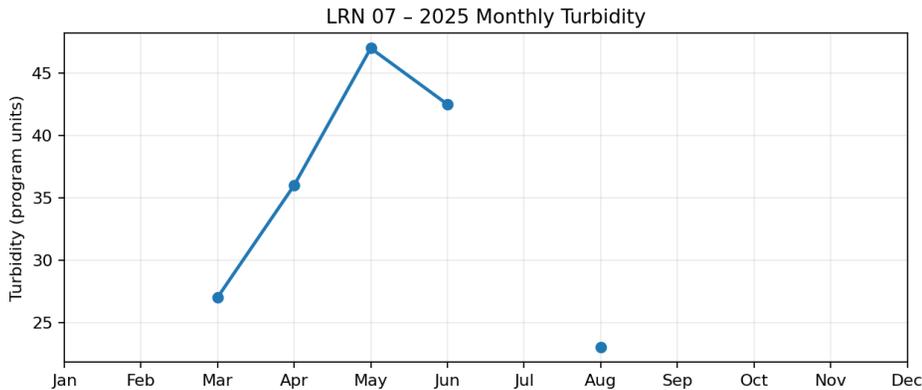
Note: Bacteria are shown on a log$_2$ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
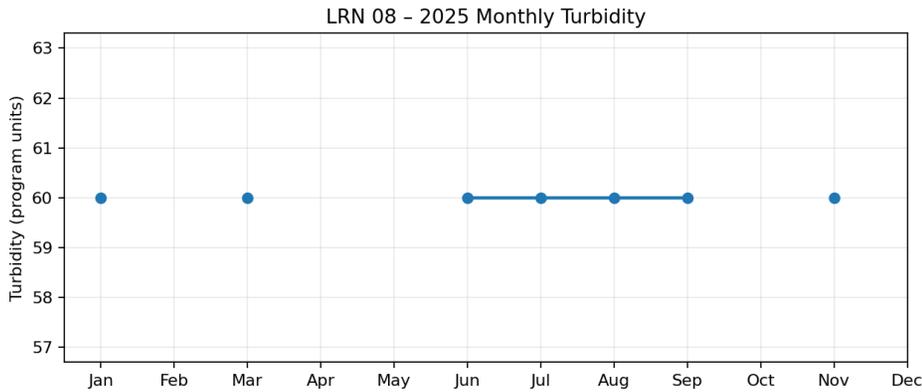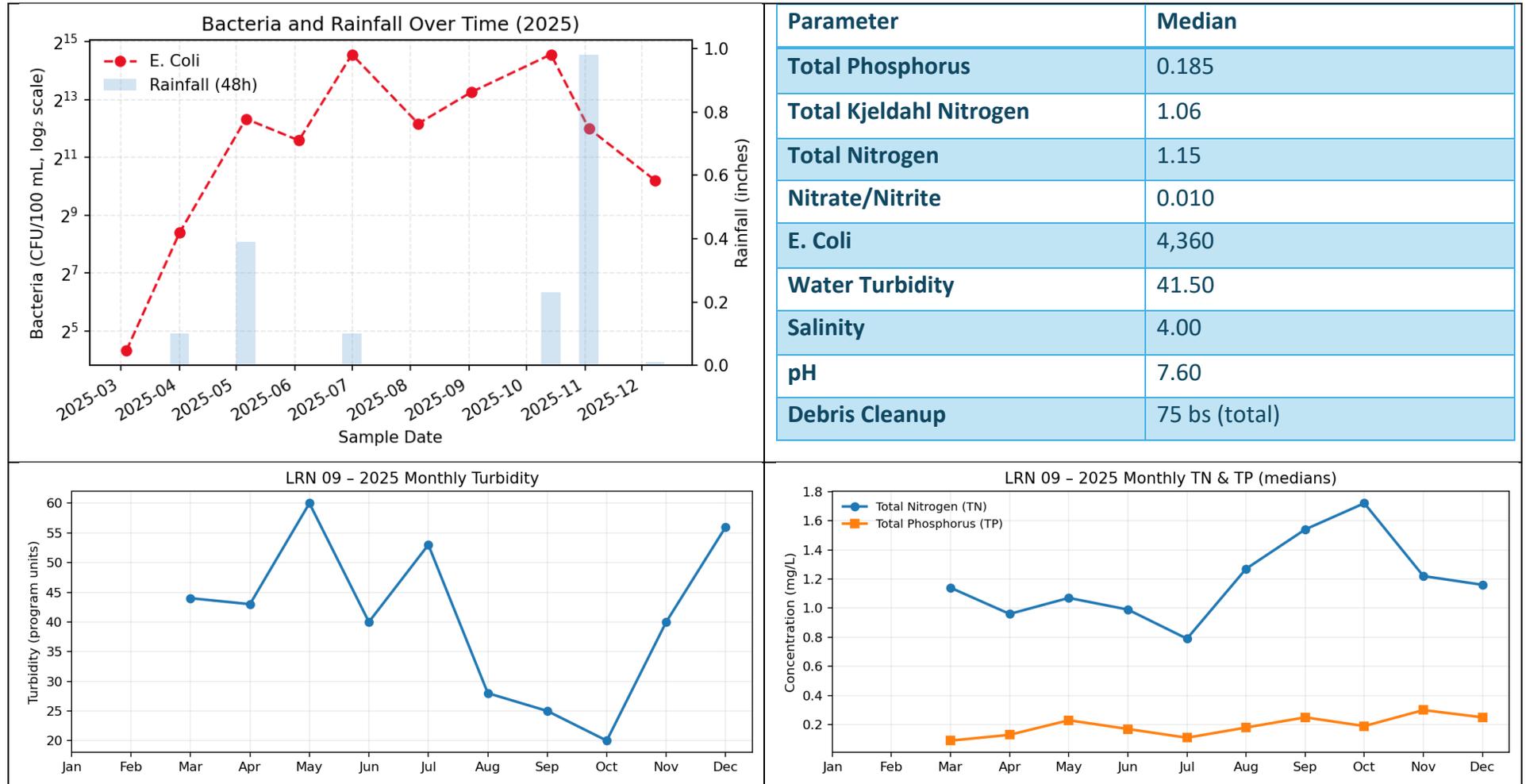
LRN 08 — Crab Creek

Sampling events in 2025: 7

Date range: Jan 13, 2025 – Nov 10, 2025

Parameter	Median
Total Phosphorus	0.050
Enterococci	10.00
Total Kjeldahl Nitrogen	0.500
Total Nitrogen	0.500
Nitrate/Nitrite	0.020
Water Turbidity	60.00
Salinity	21.00
pH	8.06
Debris Cleanup	7 lbs (total)
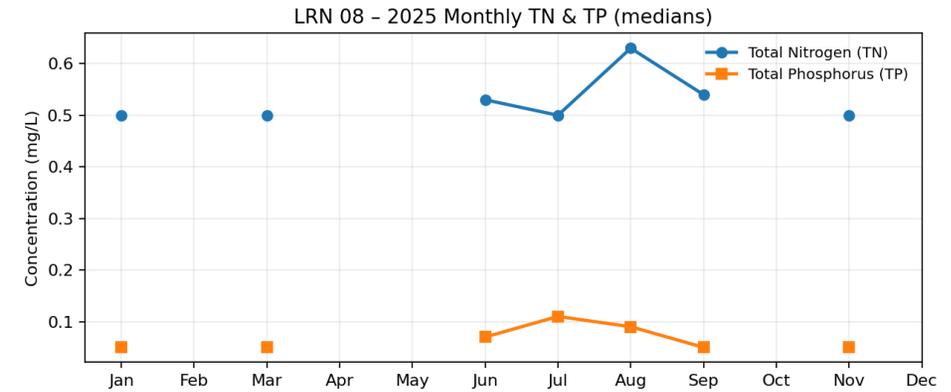
Note: Bacteria are shown on a log$_2$ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.

LRN 09 — Lake Windsor – Fishing Inlet

Sampling events in 2025: 10

Date range: Mar 04, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.185
Total Kjeldahl Nitrogen	1.06
Total Nitrogen	1.15
Nitrate/Nitrite	0.010
E. Coli	4,360
Water Turbidity	41.50
Salinity	4.00
pH	7.60
Debris Cleanup	75 bs (total)

LRN 09 – 2025 Monthly Turbidity

LRN 09 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log$_2$ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
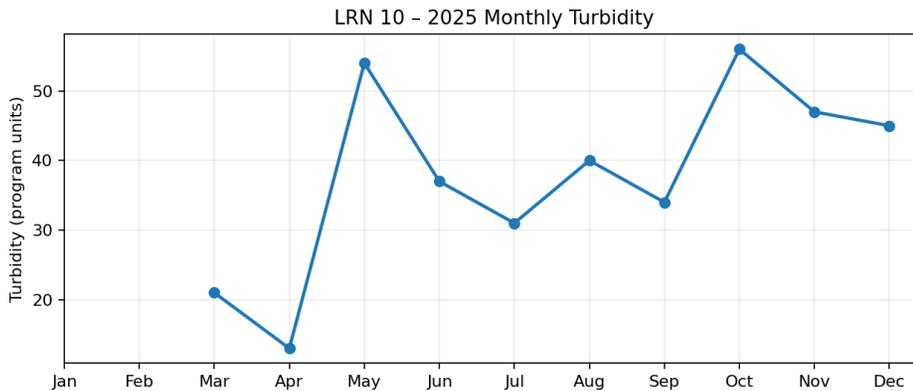
LRN 10 — West Neck Creek - Easement

Sampling events in 2025: 11

Date range: Feb 10, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)
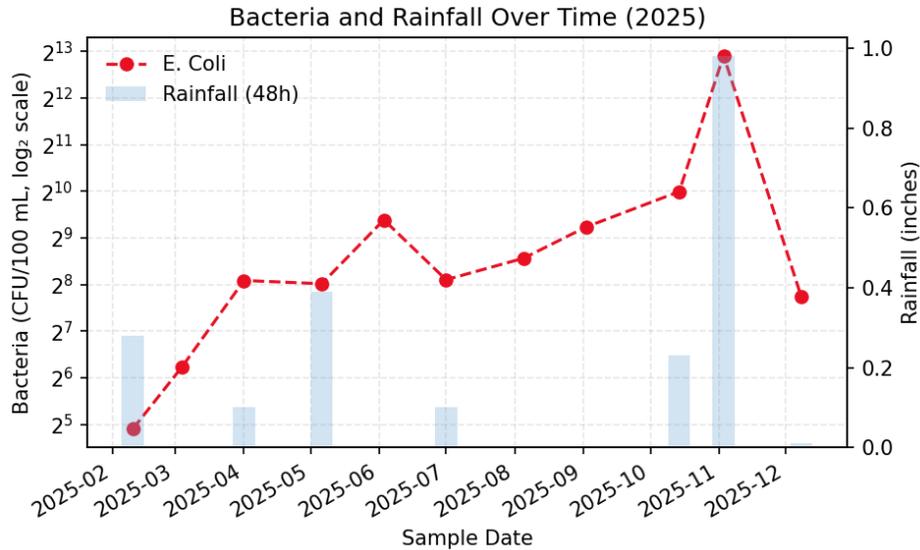
Parameter	Median
Total Phosphorus	0.220
Total Kjeldahl Nitrogen	1.31
Total Nitrogen	1.36
Nitrate/Nitrite	0.050
E. Coli	275.00
Water Turbidity	38.50
Salinity	0.500
pH	7.80
Debris Cleanup	74 lbs (total)
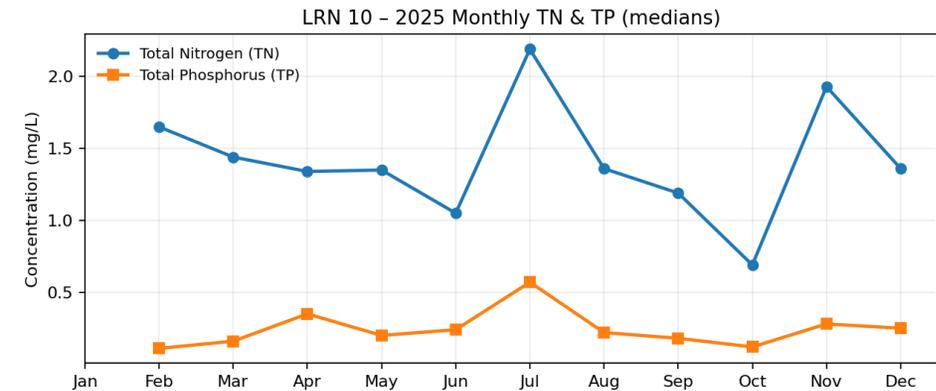
LRN 10 – 2025 Monthly Turbidity

LRN 10 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
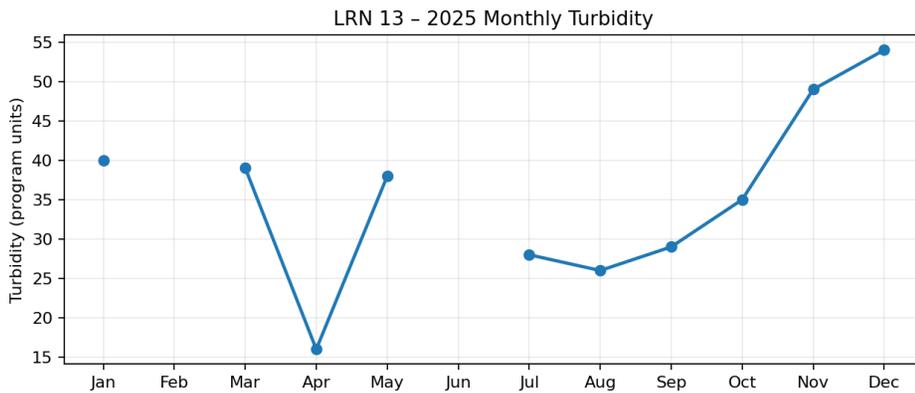
LRN 13 — Eastern Branch Elizabeth River

Sampling events in 2025: 11

Date range: Jan 07, 2025 – Dec 02, 2025

Bacteria and Rainfall Over Time (2025)
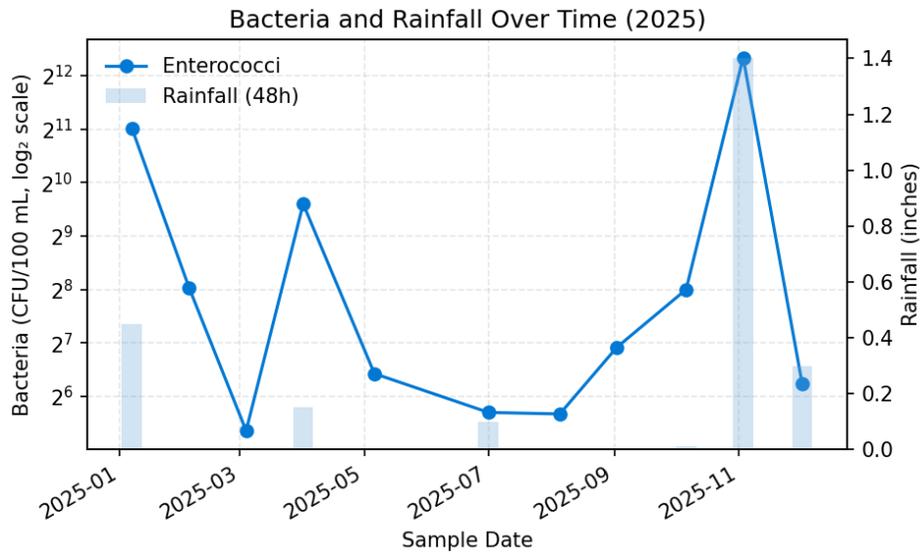
Parameter	Median
Total Phosphorus	0.130
Enterococci	121.00
Total Kjeldahl Nitrogen	0.900
Total Nitrogen	0.950
Nitrate/Nitrite	0.020
Water Turbidity	36.50
Salinity	9.00
Debris Cleanup	288 lbs (total)
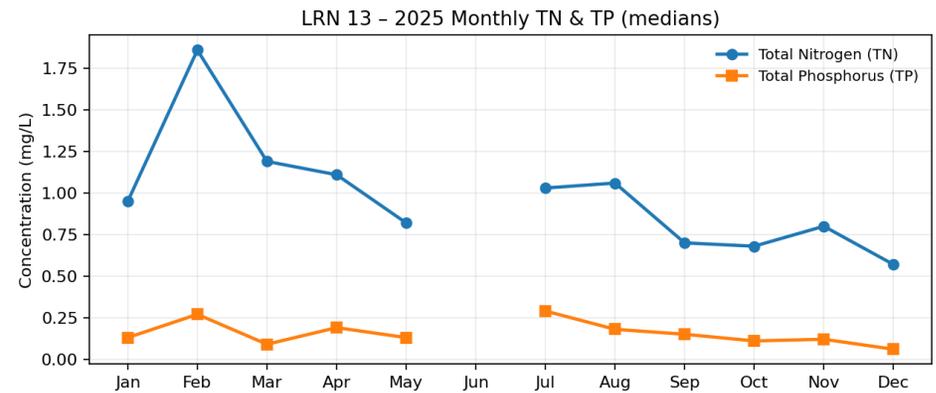
LRN 13 – 2025 Monthly Turbidity

LRN 13 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
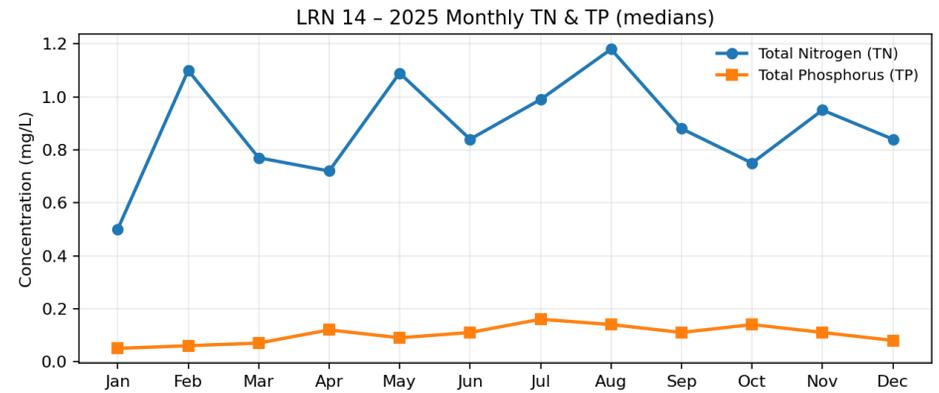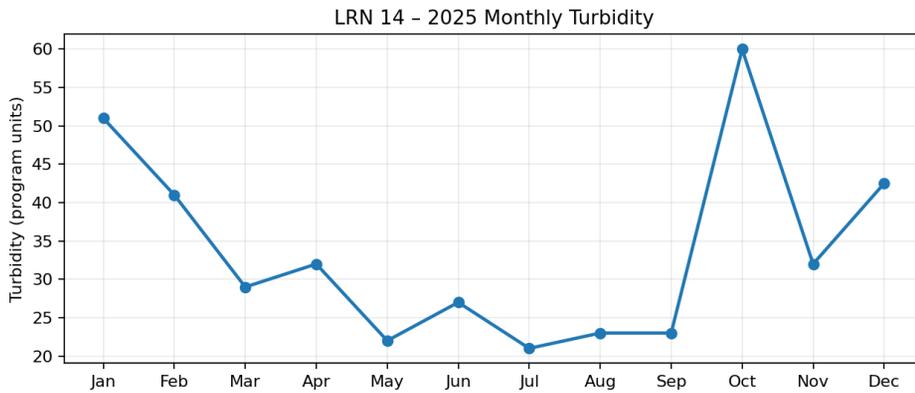
LRN 14 — Wolfsnare Creek

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)
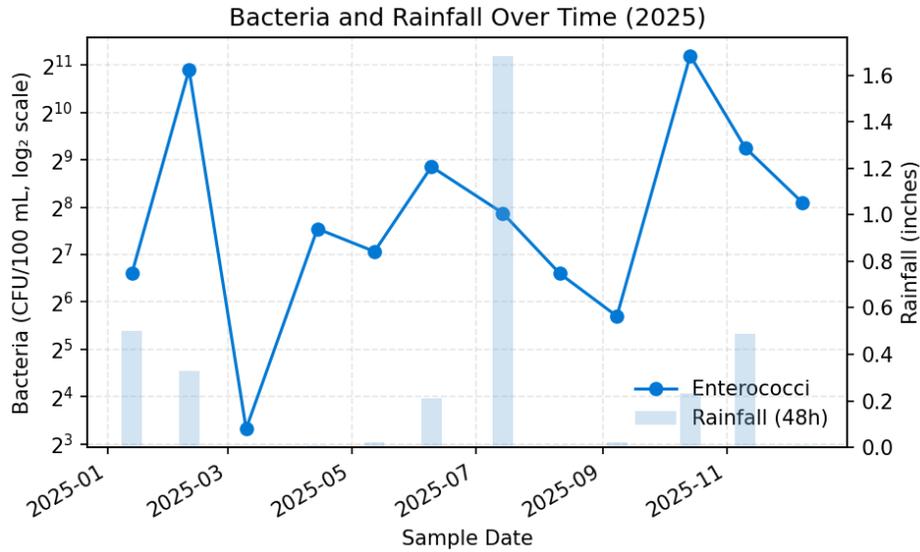
Parameter	Median
Total Phosphorus	0.110
Enterococci	211.00
Total Kjeldahl Nitrogen	0.855
Total Nitrogen	0.860
Nitrate/Nitrite	0.010
Water Turbidity	30.50
Salinity	24.00
pH	7.22

LRN 14 – 2025 Monthly Turbidity

LRN 14 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
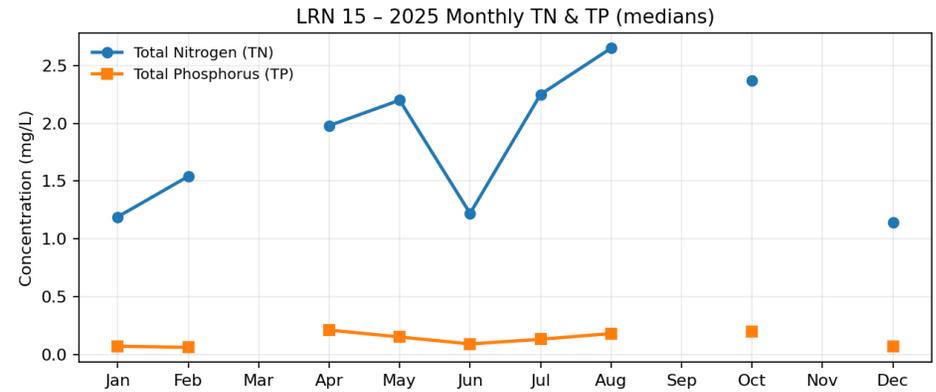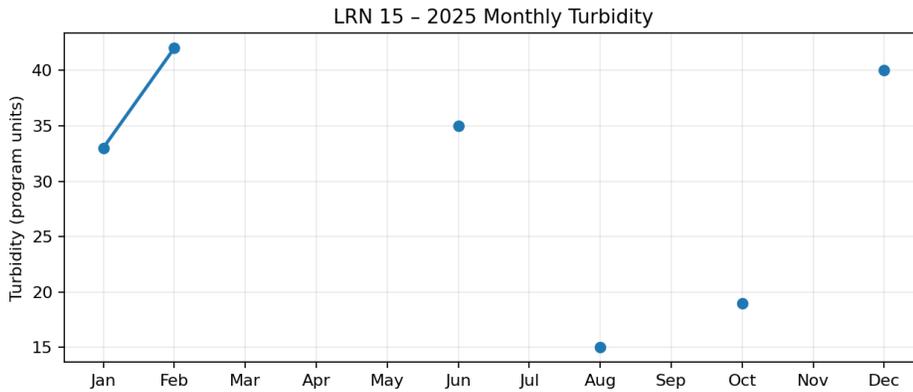
LRN 15 — Lake Joyce

Sampling events in 2025: 9

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)
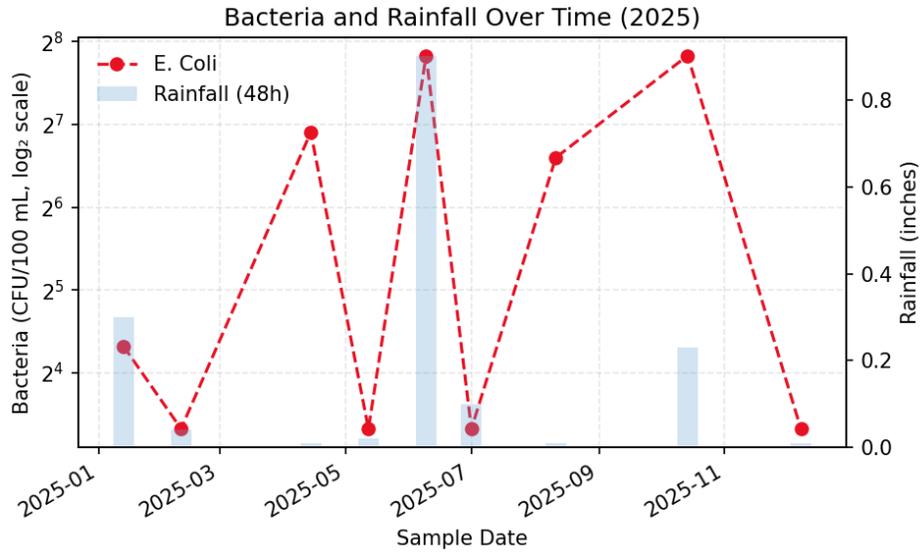
Parameter	Median
Total Phosphorus	0.130
Total Kjeldahl Nitrogen	1.95
Total Nitrogen	1.98
Nitrate/Nitrite	0.010
E. Coli	20.00
Water Turbidity	34.00
pH	7.25

LRN 15 – 2025 Monthly Turbidity

LRN 15 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
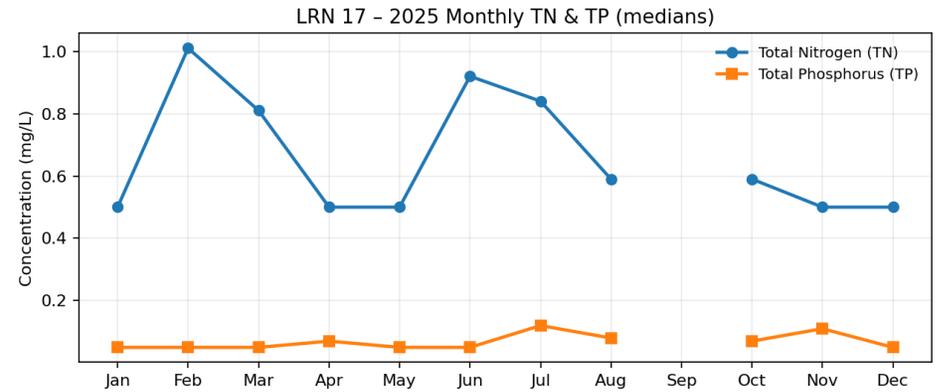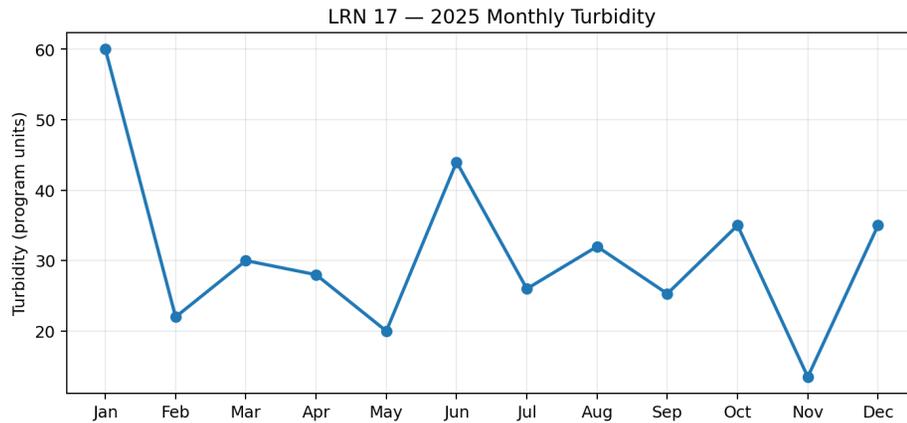
LRN 17 — Pleasure House Creek

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025
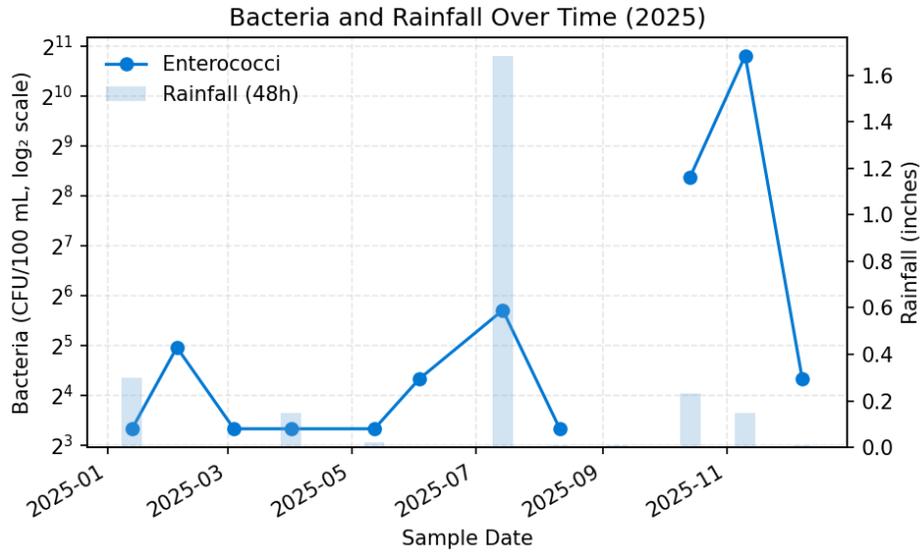
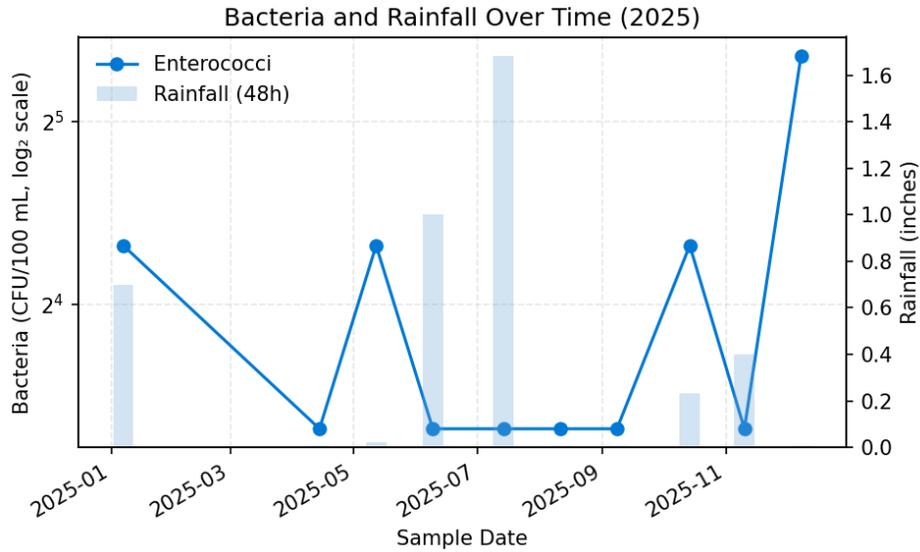| Parameter	Median
Total Phosphorus	0.050
Enterococci	20.00
Total Kjeldahl Nitrogen	0.560
Total Nitrogen	0.590
Nitrate/Nitrite	0.010
Water Turbidity	28.00
Salinity	28.00
pH	6.00

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
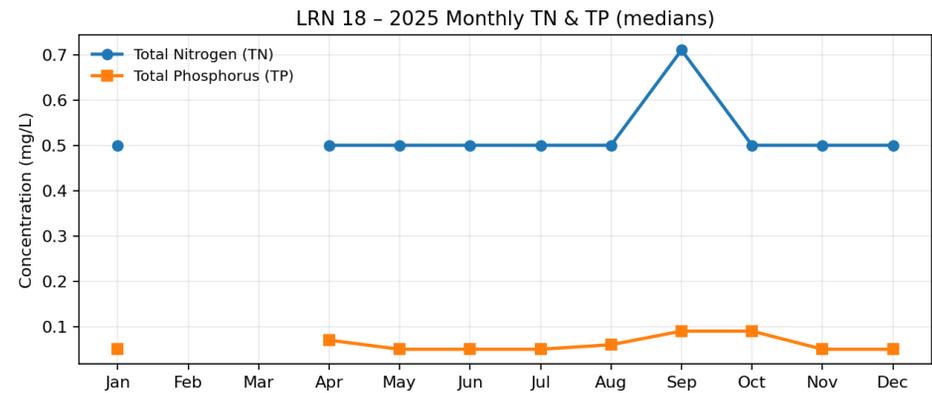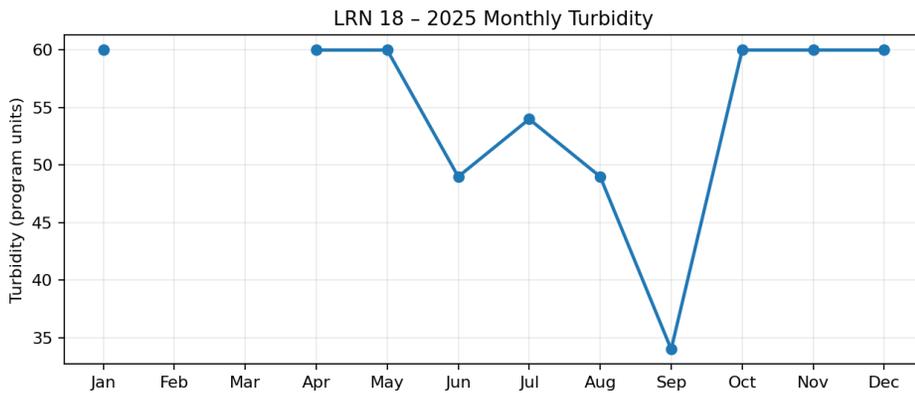
LRN 18 — Broad Bay - Bay Island

Sampling events in 2025: 10

Date range: Jan 07, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.050
Enterococci	10.00
Total Kjeldahl Nitrogen	0.500
Total Nitrogen	0.500
Nitrate/Nitrite	0.020
Water Turbidity	60.00
Salinity	23.00
pH	6.50

LRN 18 – 2025 Monthly Turbidity
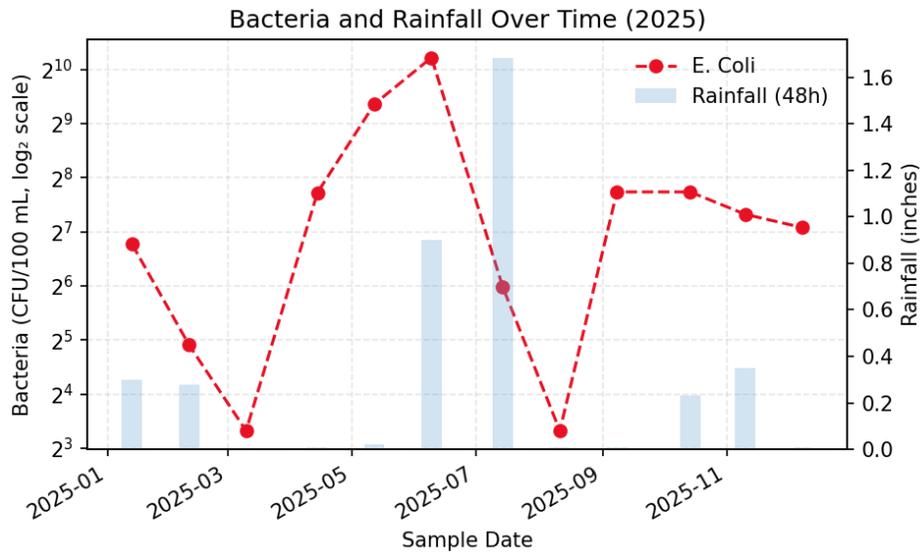

LRN 18 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
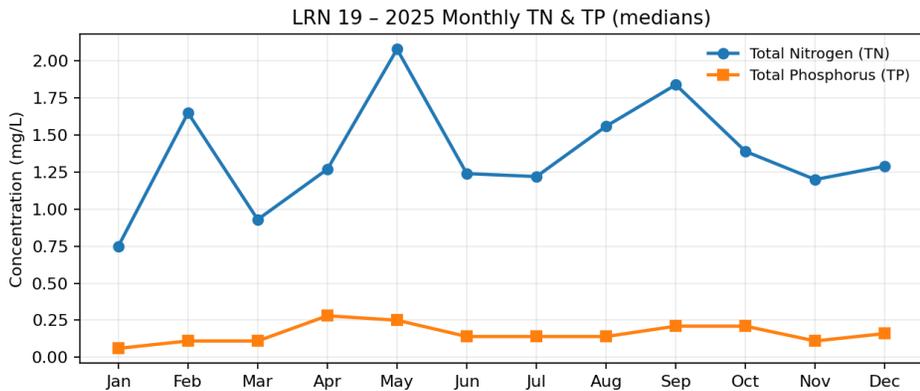
LRN 19 — London Bridge Creek – Green Run Park

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

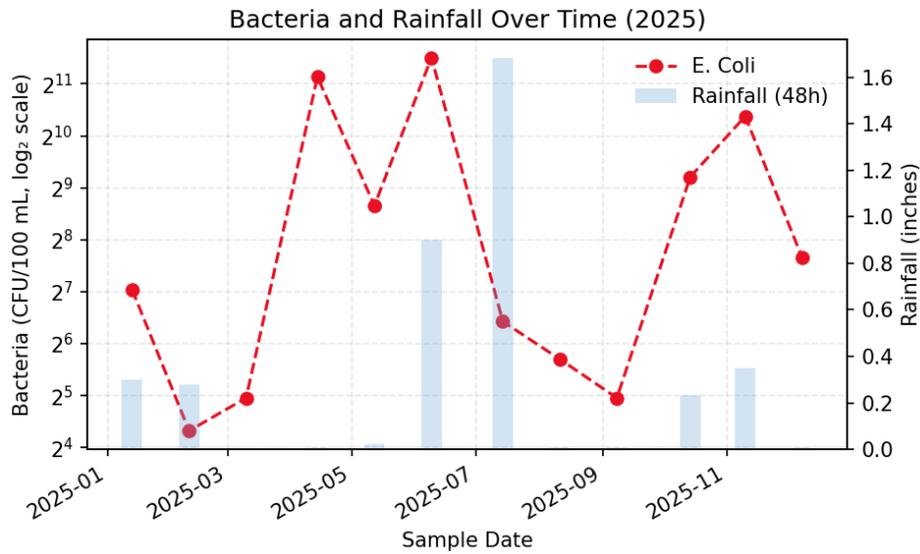| Parameter	Median
Total Phosphorus	0.140
Total Kjeldahl Nitrogen	1.27
Total Nitrogen	1.28
Nitrate/Nitrite	0.010
E. Coli	147.50

LRN 19 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
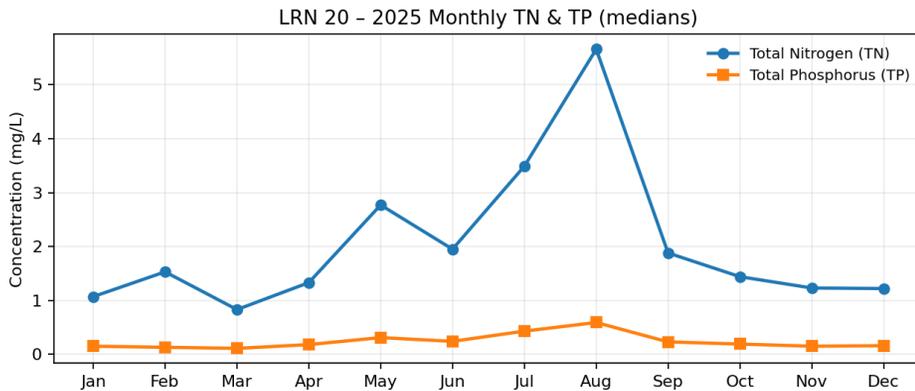
LRN 20 — London Bridge Creek - Church

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

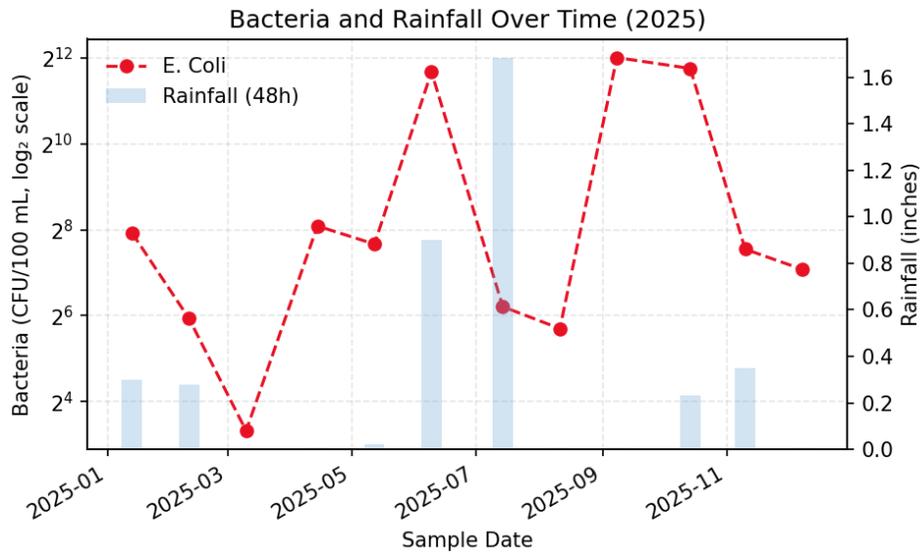| Parameter	Median
Total Phosphorus	0.185
Total Kjeldahl Nitrogen	1.40
Total Nitrogen	1.48
Nitrate/Nitrite	0.020
E. Coli	166.50

LRN 20 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
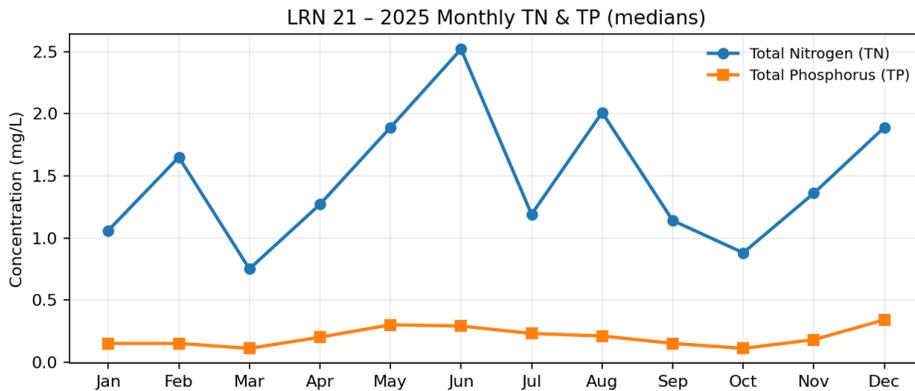
LRN 21 — London Bridge Creek - Clubhouse

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

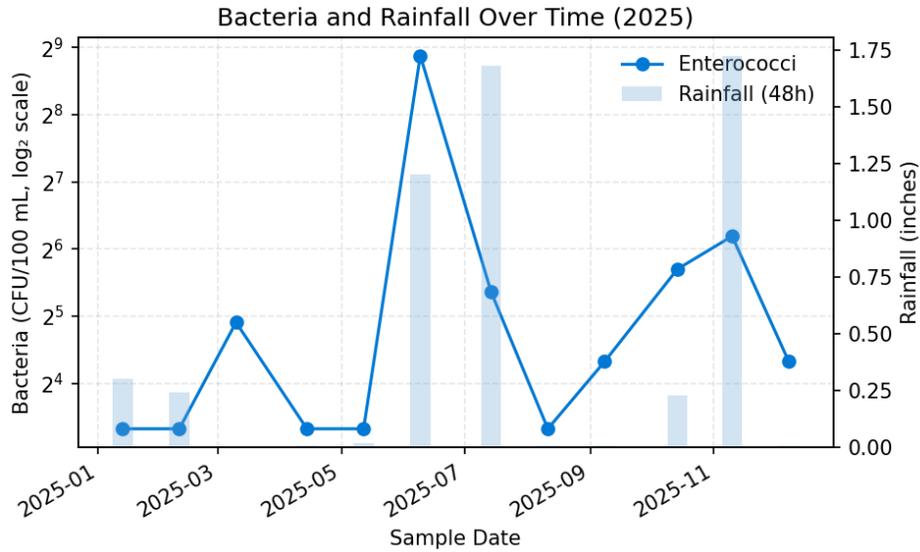| Parameter	Median
Total Phosphorus	0.190
Total Kjeldahl Nitrogen	1.29
Total Nitrogen	1.31
Nitrate/Nitrite	0.030
E. Coli	195.00

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.
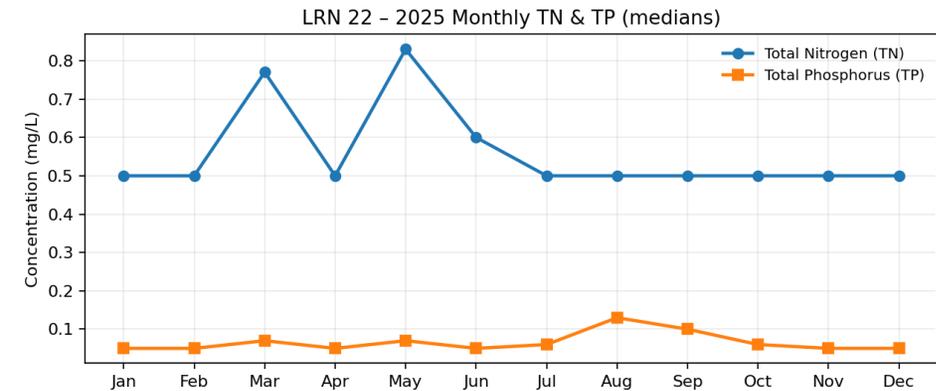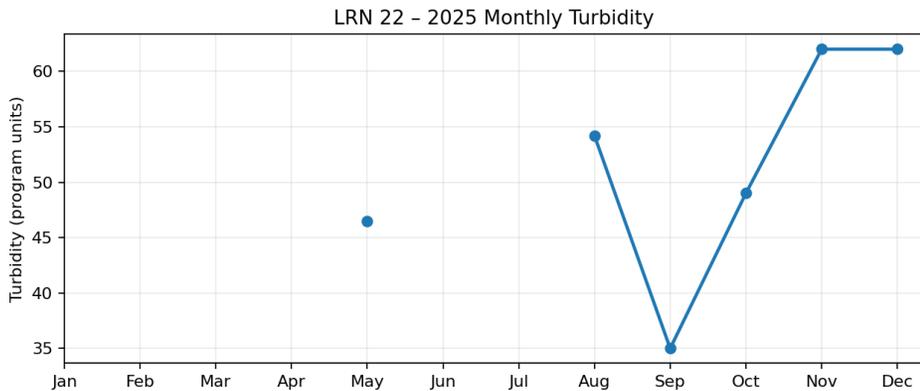
LRN 22 — Newbern Canal

Sampling events in 2025: 12

Date range: Jan 13, 2025 – Dec 08, 2025

Bacteria and Rainfall Over Time (2025)

Parameter	Median
Total Phosphorus	0.055
Enterococci	20.00
Total Kjeldahl Nitrogen	0.500
Total Nitrogen	0.500
Nitrate/Nitrite	0.020
Water Turbidity	51.60
Salinity	27.00
pH	7.66

LRN 22 – 2025 Monthly Turbidity

LRN 22 – 2025 Monthly TN & TP (medians)

Note: Bacteria are shown on a log₂ (base-2) scale. Each step up the axis represents a doubling of concentration (for example, 100 to 200 CFU/100 mL). This scale helps make changes before and after rain events easier to compare over time. Gaps in the graphs are due to lack of data for those sample dates.