

Water Quality Trend Assessment and Dashboard Development

WATER QUALITY IMPROVEMENT



Location: CHNEP Area

Partners: ECCO Scientific

Implemented: 2026

Status: Ongoing

CHNEP Cost: \$59,117

Funding Source: Environmental Protection Agency (EPA)

2025 CHNEP Plan Activity: 

Water Quality Improvement 1.3:
Assess and report water quality status and trends to identify water quality.

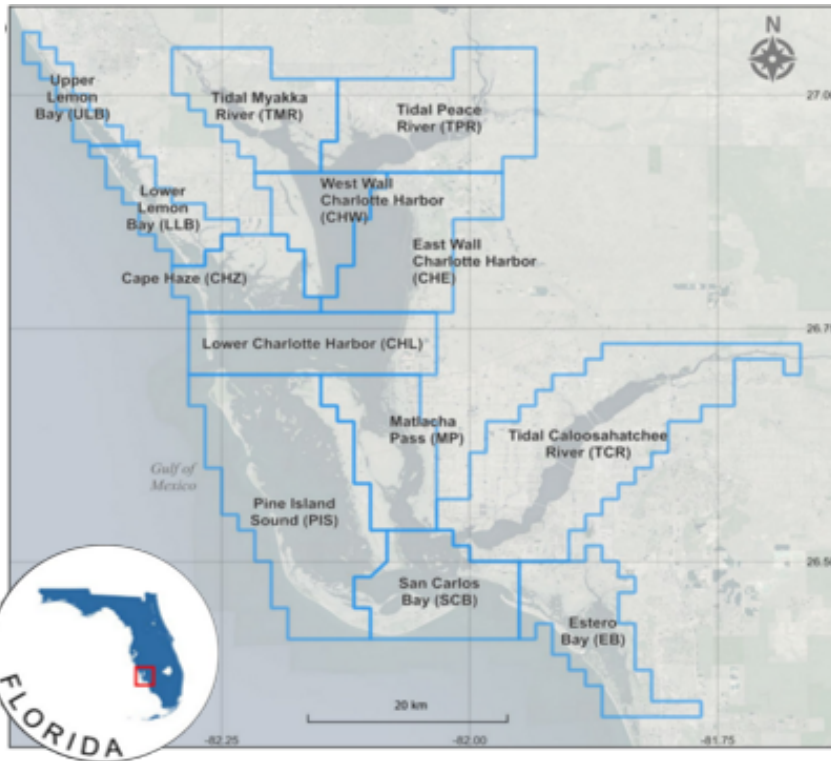
Summary

The Coastal and Heartland National Estuary Partnership (CHNEP) is funding this project to assess water quality trends for the full 25-year period and create a web-based interactive dashboard. This project adds the most current data (2021-2025) to a recent joint research project that assessed water quality trends using a 20+ year dataset collected by the Coastal Charlotte Harbor Monitoring Network (CCHMN). CCHMN is a partnership of sampling organizations, including CHNEP, who collect monthly water quality data using consistent, technically-sound sampling design. The long-term, random sampling of strategically located stations in each of the 13 CHNEP areas (aka “strata”) allows for the scientific assessment of water quality status and trends.

A Generalized Additive Model (GAM) is being used to determine long-term water quality trends for all analytes with sufficient data during the period of record. 10-year and 5-year trends of annual means will be determined. Annual mean analyte concentrations will be compared to water quality criteria thresholds (established in the Florida Administrative Code), and categorized as below threshold, near threshold, or above threshold.

Water quality analytes include biochemical oxygen demand (BOD), chlorophyll-a, true color, specific conductance, dissolved oxygen (DO), DO saturation, fecal indicator bacteria (FIB) *Enterococcus* in marine waters and *E. coli* in freshwater, ammonia (NH₃), nitrite plus nitrate (NO_x), pH, phosphate (PO₄), temperature, total Kjeldahl nitrogen (TKN), total nitrogen (TN), total phosphorus (TP), total suspended solids (TSS), and turbidity.

COASTAL & HEARTLAND NATIONAL ESTUARY PARTNERSHIP



Anticipated Results and Benefits

Public Engagement:

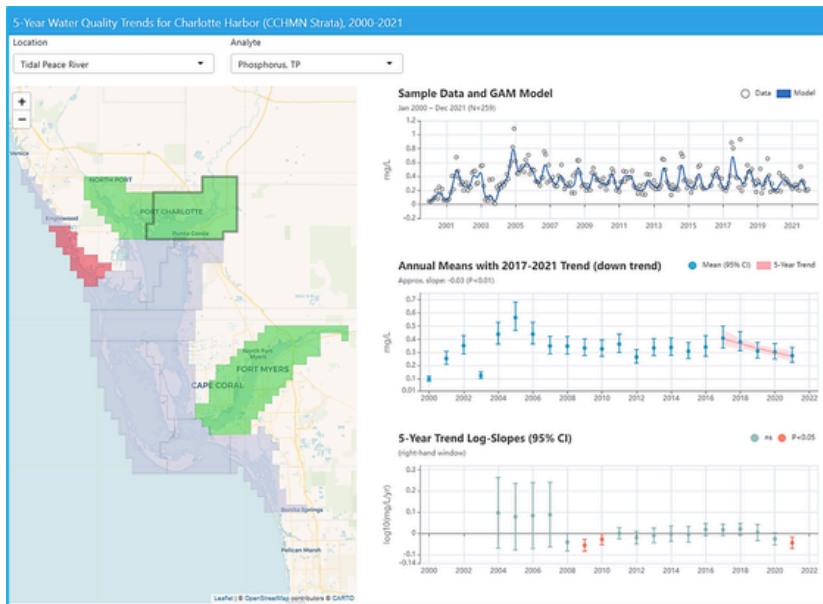
The design and implementation of a user-friendly, web-based dashboard will convey long-term water quality trends to all interested parties. The interactive map and menus will allow users to display trends for selected water quality analytes and waterbodies, with results being “clickable” for explanatory text. The dashboard is being designed for integration into the CHNEP Water Atlas web page, allowing residents and visitors to view updated water quality trends at their convenience.

Informed Decision Making:

Tracking and understanding changes in water quality, along with other indicators, provides a picture of ecosystem health and is important for managing and restoring coastal ecosystems. General Additive Models (GAMs) detect meaningful changes in the direction of trends. This allows resource managers and policy makers to make more informed water resource management decisions.

Improved Water Quality:

The continuation of consistent data collection and analysis throughout the CHNEP watershed helps to identify areas of deteriorating water quality and to develop water resource improvement plans. Improved water quality enhances habitat for fish and wildlife, as well as public recreation and fishing.



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Uniting Central and Southwest Florida to protect water and wildlife