SANDWICH WATER QUALITY REPORT 2025

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RIVERS Parameters

Turbidity
- Water clarity
- Determined by amount of suspended particles and sediment

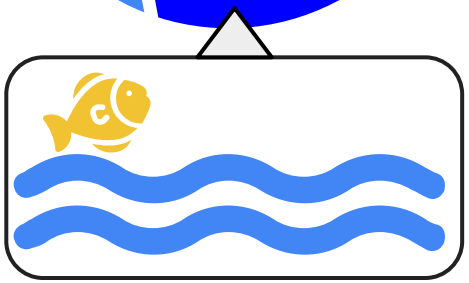
pH
- Pure water has pH 7
- Most NH streams have pH 6.5
- Ideal range for aquatic organisms is 6.5-8.2

Dissolved Oxygen (DO)
- Measure of how much oxygen is available to aquatic species
- Different species need different amounts

Stream & Site Characteristics
- Substrate (i.e. river bottom)
- Weather
- Water scent & appearance
- General observations

Temperature
Influences:
- Plant growth & animal activity
- DO levels
- Rate of chemical reactions

Conductivity
- Ability of water to pass electrical charge
- Based on amount of charged compounds or ions (Na+, Cl-, NO_3-, etc.)
- Can be used to interpret amount of salt in water



Phosphorus & Nitrogen
- Critical nutrient for plant and algae growth growth
- High levels indicate more decomposition (i.e. sewage) or human inputs (e.g. fertilizer runoff)

RIVERS Parameters

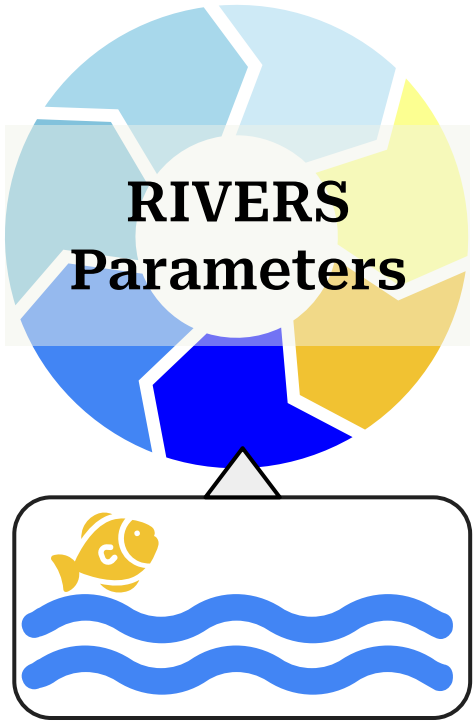
Calcium
- Occurs naturally
- Essential for plants and animals
- Used to measure hardness

Dissolved Organic Carbon
- Occurs naturally from organic decomposition
- Elevated levels from runoff and sewage

Sulfate
- Occurs naturally from weathering
- Elevated levels from mines, smelters, paper mills

Sodium
- Present in water in low concentrations, vary based on geology
- Elevated concentrations from road salt runoff

Magnesium
- Occurs naturally
- Essential nutrition for plants and animals
- Used to measure hardness



Chloride
- Present in water in low concentrations, vary based on geology
- Elevated concentrations from road salt runoff, sewage, or farming

Potassium
- Occurs naturally from weathering or plant decomposition
- Elevated levels from pollution, leaky septic tanks, fertilizer runoff

RIVERS Parameters - Water Quality Standards & Allowable Limits

Parameter	Limit/Standard
Conductivity	< 100 µg/cm
Turbidity	< 10 NTU
pH	6-8 preferably 6.5 in NH
Dissolved Oxygen (DO) & Percent DO	6-11 mg/L 75% - 120%
Temperature	No standard, monitored for major changes
Total Phosphorus (TP)	< 30 µg/L
Nitrogen	Variable

- Based on NHDES & EPA criteria
- Each site will vary in these values due to differences in surrounding plant life, land use, riverbed geology, infrastructure, etc.

Also measure temperature to visualize its relationship with DO, which should be **inverse** in a healthy stream (**as temp. increases, DO decreases**).

Dependent on what form of nitrogen is being tested.

RIVERS Parameters - Water Quality Standards & Allowable Limits

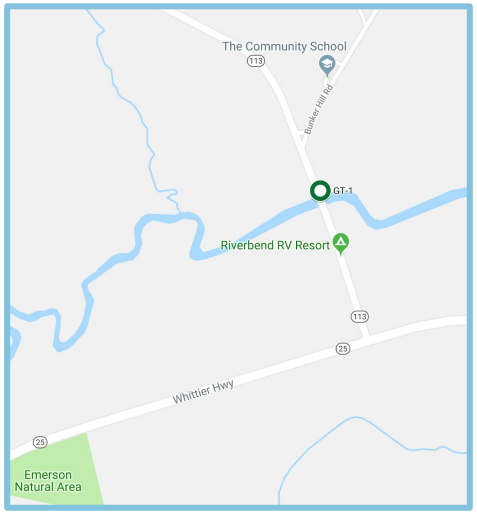
Parameter	Limit/Standard
Chloride	< 10 mg/L
Sodium	< 50 mg/L
Dissolved Organic Carbon	1-10 mg/L
Calcium	< 15 mg/L
Sulfate	< 80 mg/L
Magnesium	1-100 mg/L
Potassium	< 10 mg/L

- Based on NHDES & EPA criteria
- Each site will vary in these values due to differences in surrounding plant life, land use, riverbed geology, infrastructure, etc.

Bearcamp River (GT-1)

Data analyzed from May 2020 - Oct 2025

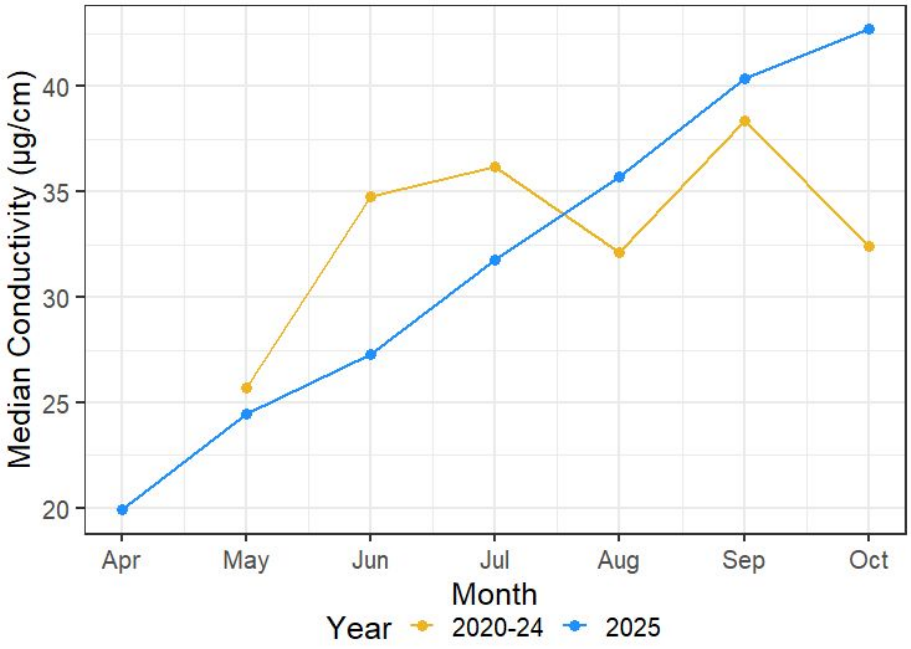
- Monitored since 2002
- Parameters measured: pH, turbidity, temperature, conductivity, DO, TP



Parameter	Status	Change
pH	Within ideal range	Small decrease from 2024
Turbidity	Within ideal range	Small decrease from 2024
Total Phosphorus*	Within ideal range	Small decrease from 2024

Conductivity

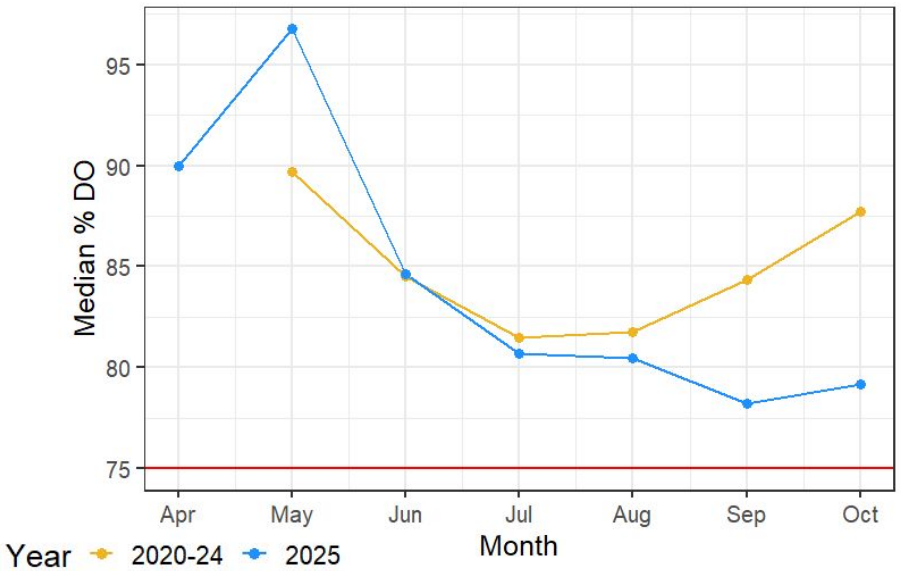
Conductivity steadily increased across the sampling period in 2025 unlike 2020-24. Values remained below 2020-24 values until Aug. All values fell within the ideal range.



*values only available up to Nov 2025

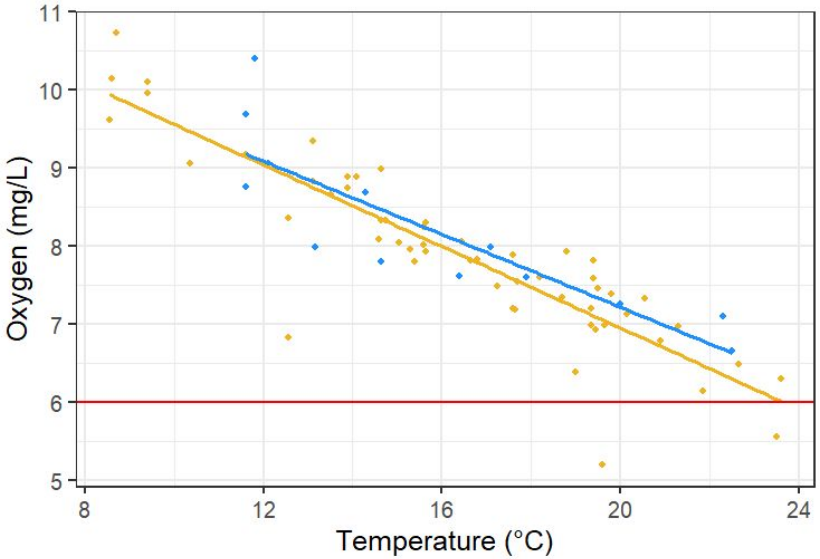
% Dissolved Oxygen

% DO values were higher in 2025 at the beginning of the sampling period compared to 2020-24 (May and Jun), and dipped below 2020-24 values at the end of the sampling period (Jul to Oct). All values fell within the ideal range.



DO & Temperature

There is a consistent inverse relationship between parameters in 2020-24 and 2025. Values stayed within the ideal range in 2025.



Cold River (GS-1)

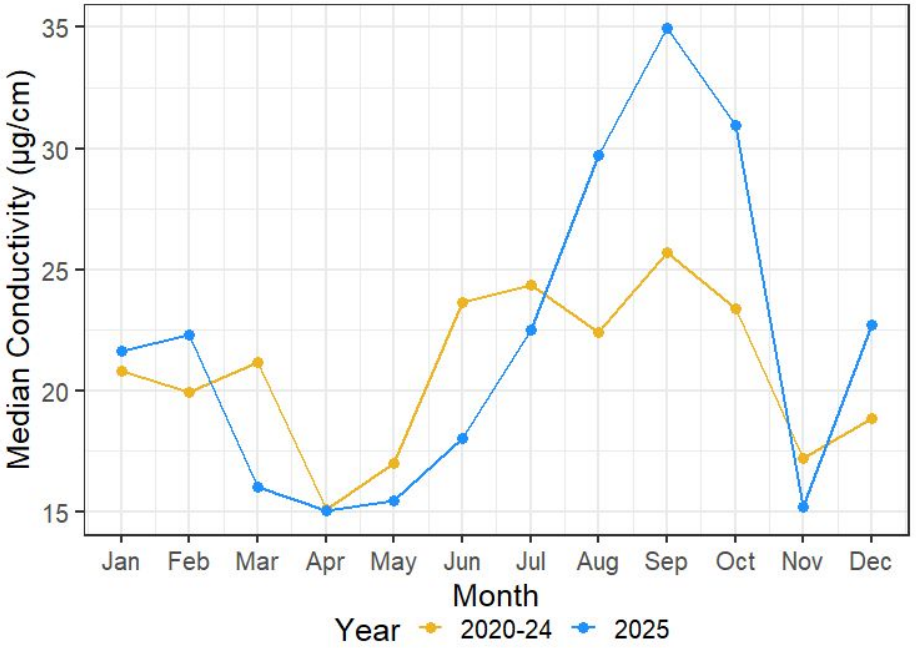
Data analyzed from Jan 2020 - Dec 2025

- Monitored since 2002
- Parameters measured: pH, turbidity, temperature, conductivity, DO, TP, ions

Parameter	Status	Change
pH	Within ideal range	Small decrease from 2024
Turbidity	Within ideal range	No change from 2024
Total Phosphorus*	Within ideal range	No change from 2024

Conductivity

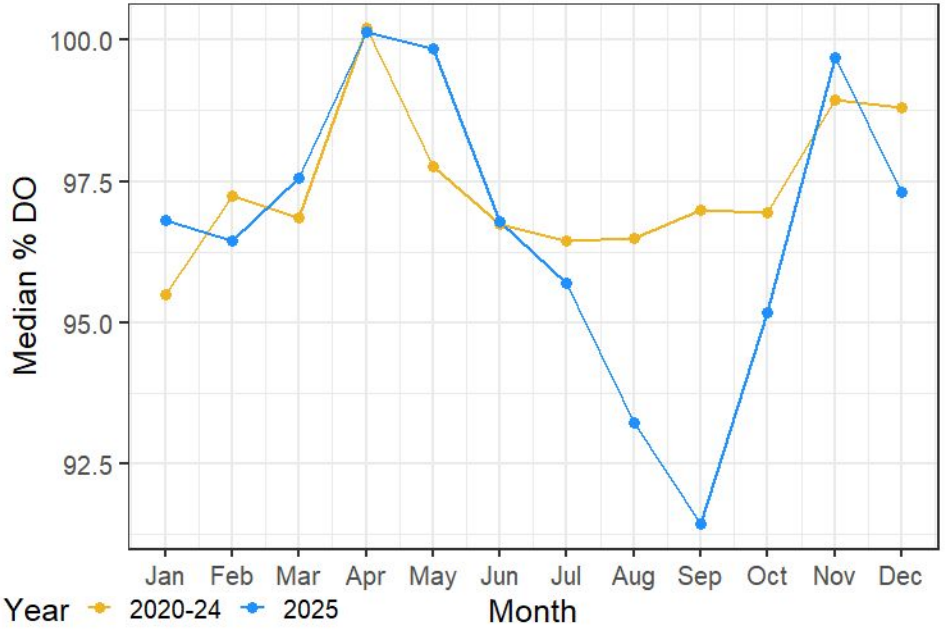
2025 conductivity values generally followed the trend seen in 2020-24, although dips were much lower and peaks were much higher. All values fell within the ideal range.



*values only available up to Nov 2025

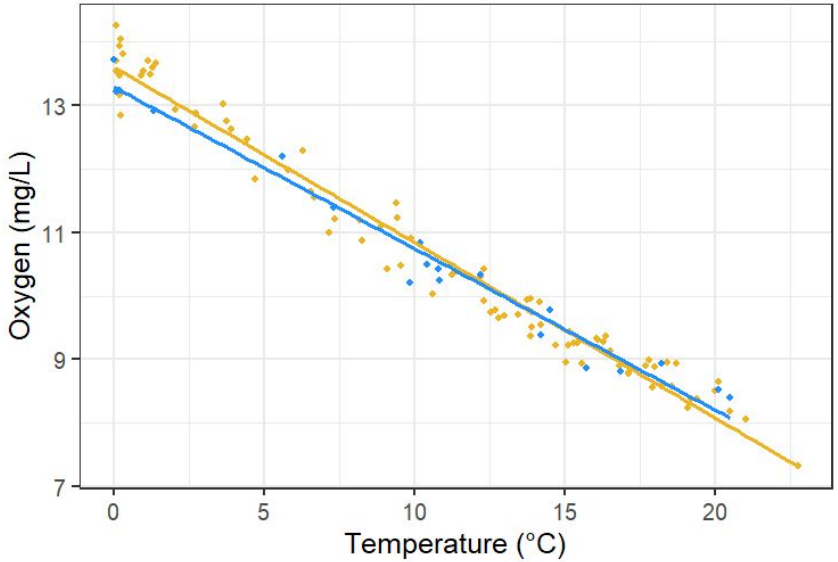
% Dissolved Oxygen

2025 % DO values generally followed the trend seen in 2020-24, although values were lower from Jul to Oct. All values fell within the ideal range.



DO & Temperature

There is a consistent inverse relationship between parameters in 2020-24 and 2025. All values stayed within the ideal range.



Cold River (GS-1)

**Data from Aug 2024 - Aug 2025

Parameter	Limit/Standard	Status
Ammonium	< 200 µg/L	In range
Orthophosphate	< 10 µg/L	Exceeded standard in Aug-Oct 2024, Feb, Mar, Jun, Jul
Dissolved Organic Carbon	1-10 mg/L	In range
Total Dissolved Nitrogen	< 0.5 mg/L	In range
Nitrate	< 0.05 mg/L	Exceeded standard in Oct, Jan, Feb
Chloride	< 10 mg/L	In range
Sulfate	< 80 mg/L	In range
Sodium	< 50 mg/L	In range
Potassium	< 10 mg/L	In range
Magnesium	1-100 mg/L	Below 1 mg/L Aug-Nov 2024, Feb-Aug 2025
Calcium	< 15 mg/L	In range

Overview of Findings

The majority of parameters tested fell within the acceptable limits for surface waters set by the New Hampshire Department of Environmental Services (NHDES) and/or the Environmental Protection Agency. Our findings do not indicate any trends or incidences of concern.

Parameter	Summary
Conductivity	Similar trend to previous years although with some unique higher values (**site GS-1**) likely due to the drought. All values fell within the ideal range.
Turbidity	Varied across site, but all fell within the ideal range.
pH	All sites exhibited a small decrease in pH, within the ideal range.
% Dissolved Oxygen	Followed similar trends to previous years although with some unique low values (**site GS-1**) and one site nearing the outside of the ideal range (**site GT-1**), although all values fell within the ideal range.
DO & Temperature	Consistent inverse relationships.
Total Phosphorus (TP)	Change varied across sites, all fell within the ideal range.

What can Sandwich do to protect its water?

In Towns

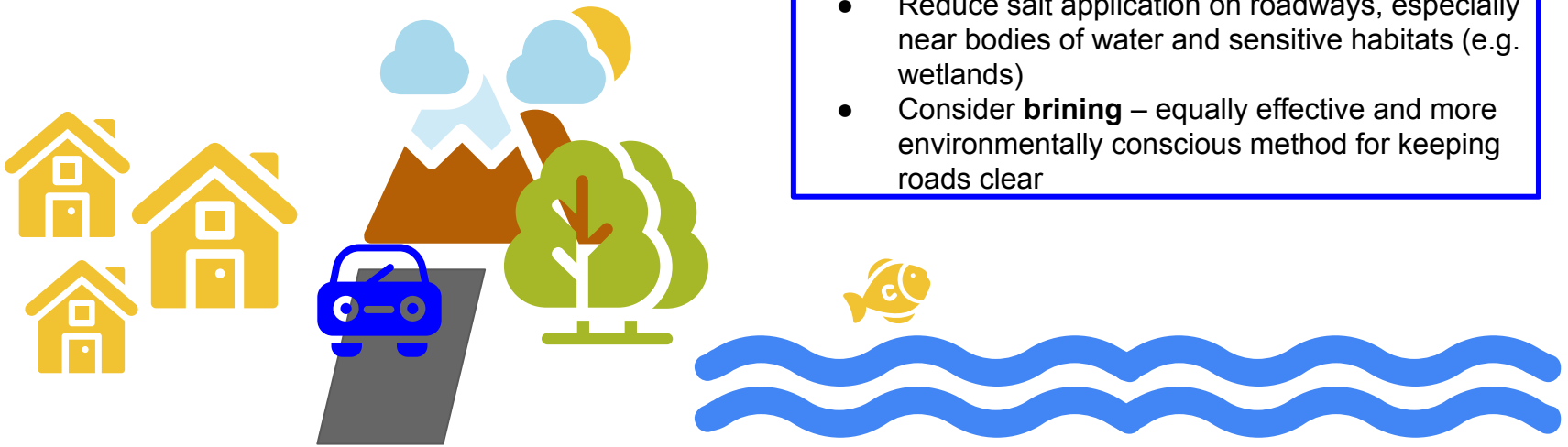
- Monitor the effectiveness of culverts
- Work to replace culverts posing as safety and environmental hazards
- Maintain riparian areas (Streamside Management Zones) and monitor habitats near bodies of water for major changes

At Home

- Encourage residents to get their septic systems regularly checked and maintained
- Use Best Management practices (BMPs) for proper disposal of chemicals and waste materials

On Roads

- Reduce salt application on roadways, especially near bodies of water and sensitive habitats (e.g. wetlands)
- Consider **brining** – equally effective and more environmentally conscious method for keeping roads clear



THANK YOU FOR YOUR TIME!

Report respectfully submitted by:

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AmeriCorps

GREEN MOUNTAIN CONSERVATION GROUP