# Nutrient contamination and Oxygen degradation in the Wakenitz River: How can Ecohydrology intervene?

UNESCO-IWRA ONLINE CONFERENCE 17-19 JANUARY 2023 3rd IN THE IWRA ONLINE CONFERENCE SERIES

## Emerging pollutants in in aquatic ecosystems

### ?Problem

Algal blooms, Massive fish kills in the City lakes connected to Wakenitz.

### Objective

Investigating the major sources of nutrient inputs into Wakenitz river.

### Study area


### Methods

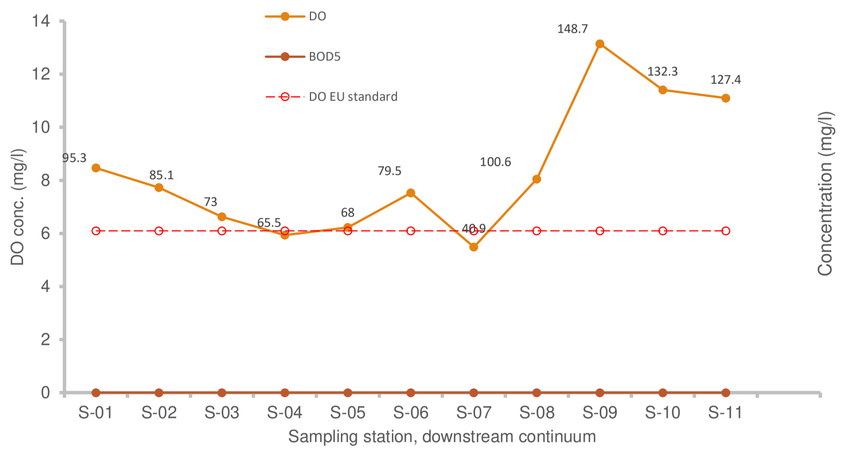
Manometric – BOD5
Colorimetric – Nutrients
Spectrophotometry - ions

### Reference table

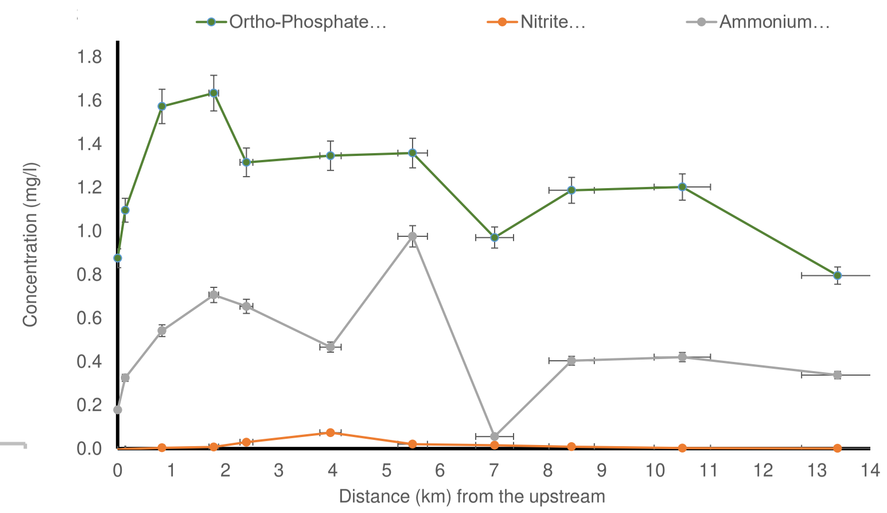
CHEMICAL QUALITY CLASSIFICATION FOR NUTRIENTS AND IONS

| Substance | Unit | Substance-based chemical water quality class | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | I | I - II | II | II - III | III | III - IV | IV |
| Total nitrogen | mg/l | ≤1 | ≤ 1.5 | ≤ 3 | ≤ 6 | ≤ 12 | ≤ 24 | > 24 |
| Nitrate nitrogen | mg/l | ≤ 1 | ≤ 1.5 | ≤ 2.5 | ≤ 5 | ≤ 10 | ≤ 20 | > 20 |
| Nitrite nitrogen | mg/l | ≤ 0.01 | ≤ 0.05 | ≤ 0.1 | ≤ 0.2 | ≤ 0.4 | ≤ 0.8 | > 0.8 |
| Ammonium nitrogen | mg/l | ≤ 0.04 | ≤ 0.1 | ≤ 0.3 | ≤ 0.6 | ≤ 1.2 | ≤ 2.4 | > 2.4 |
| Total phosphorus | mg/l | ≤ 0.05 | ≤ 0.08 | ≤ 0.15 | ≤ 0.3 | ≤ 0.6 | ≤ 1.2 | > 1.2 |
| Orthophosphate Phosphorus | mg/l | ≤ 0.02 | ≤ 0.04 | ≤ 0.1 | ≤ 0.2 | ≤ 0.4 | ≤ 0.8 | > 0.8 |
| Oxygen* | mg/l | > 8 | > 8 | > 6 | > 5 | > 4 | > 2 | ≤ 2 |
| Chloride | mg/l | ≤ 25 | ≤ 50 | ≤ 100 | ≤ 200 | ≤ 400 | ≤ 800 | > 800 |
| Sulphate | mg/l | ≤ 25 | ≤ 50 | ≤ 100 | ≤ 200 | ≤ 400 | ≤ 800 | > 800 |
| TOC | mg/l | ≤ 2 | ≤ 3 | ≤ 5 | ≤ 10 | ≤ 20 | ≤ 40 | > 40 |

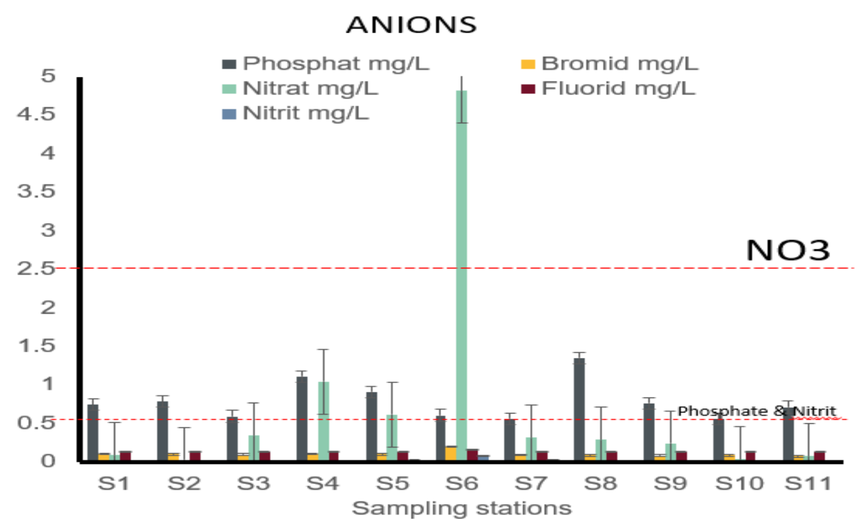
### BOD5 & DO Profile



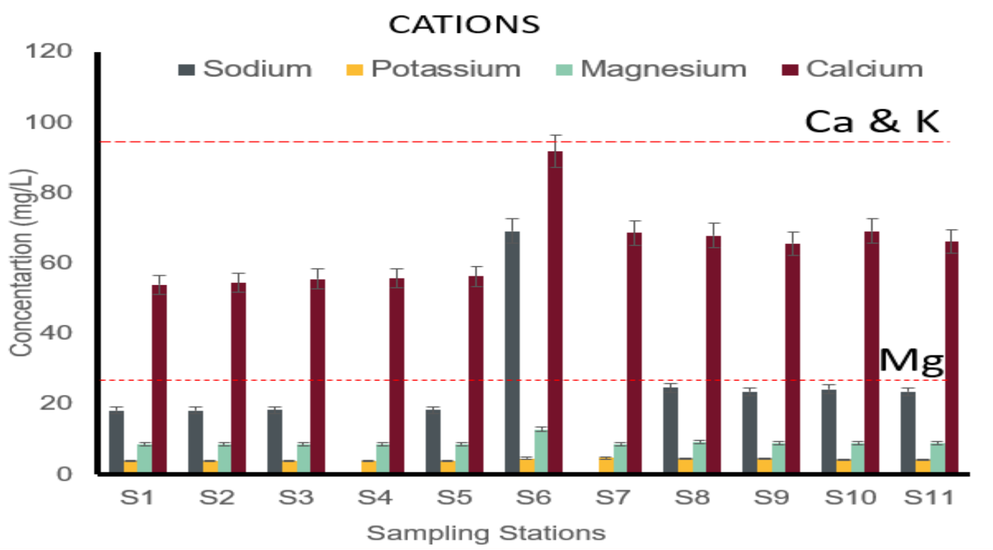

### Critical nutrients




### Anions




### Cations





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