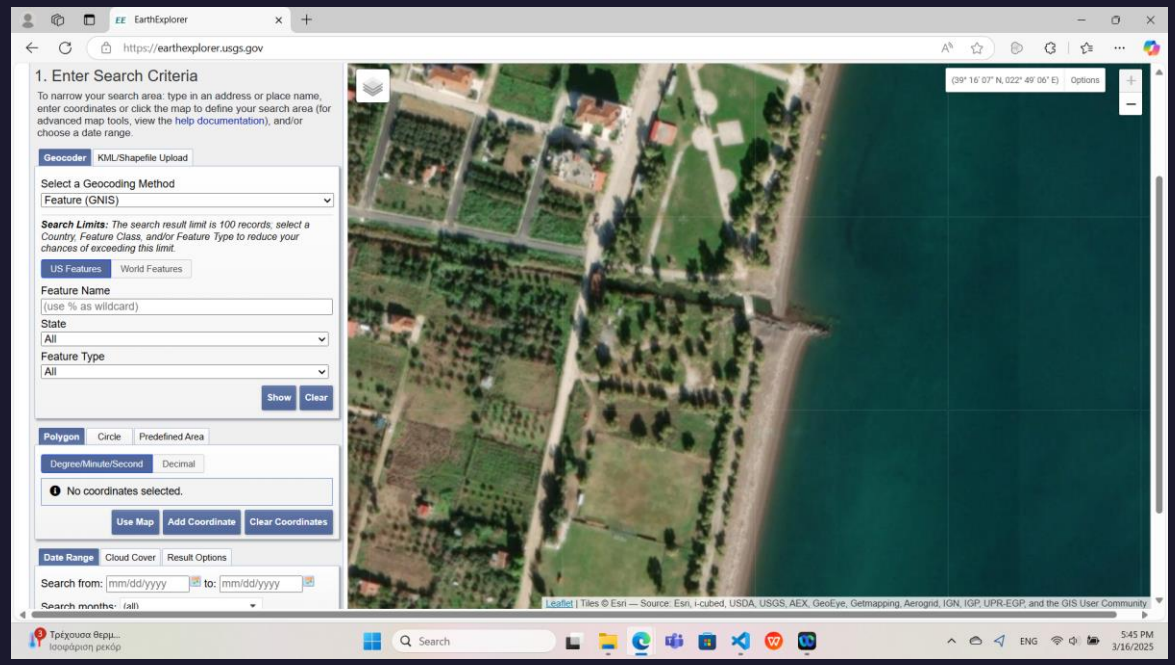
Quality of water

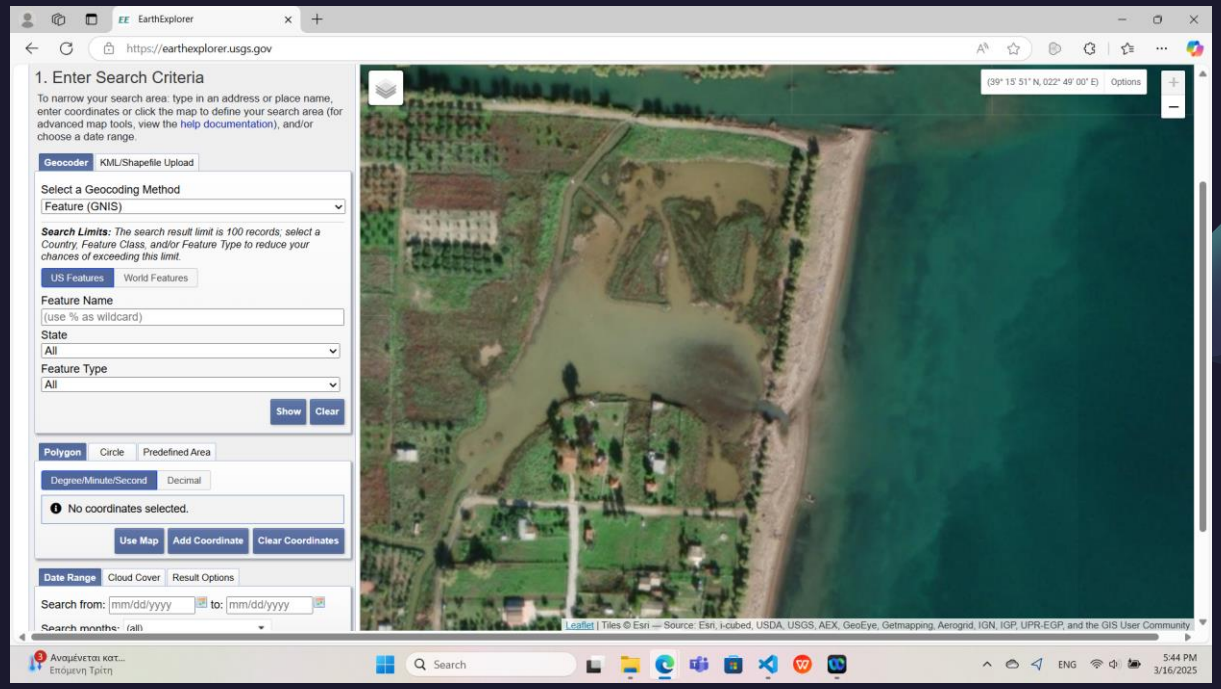
in Nea Anchialos

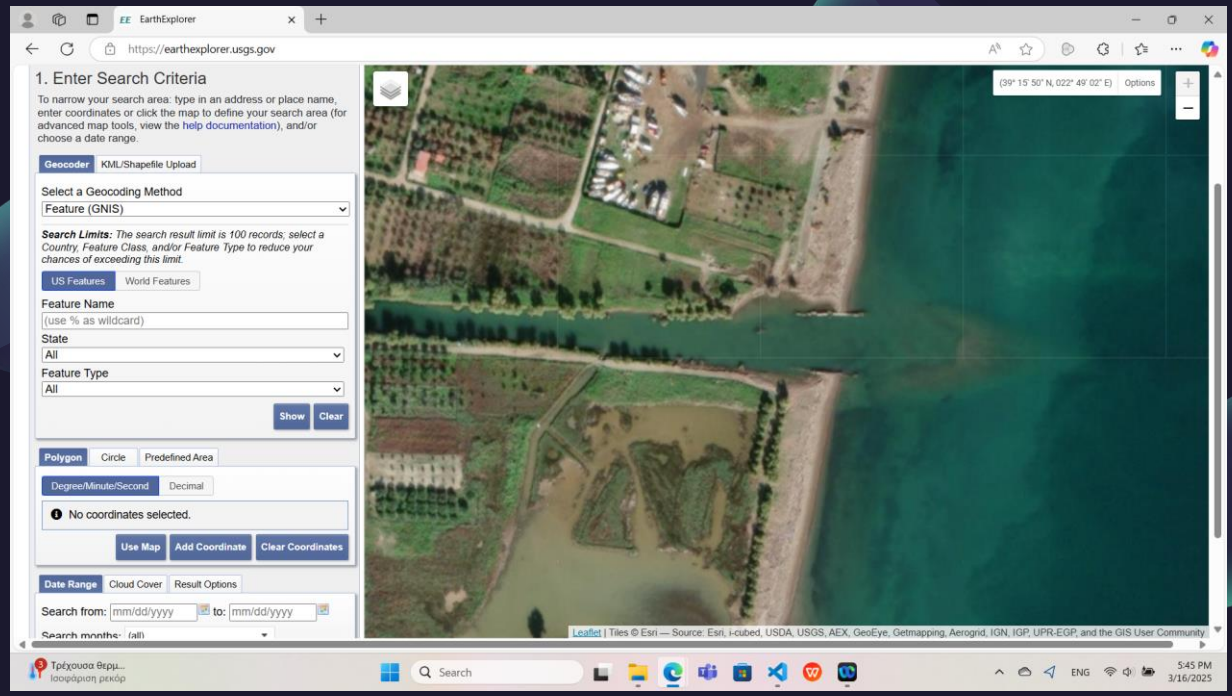
SECONDARY SCHOOL NEA ANCHIALOS

CLIMATE DETECTIVES

Nea Anchialos, Magnesia
Greece

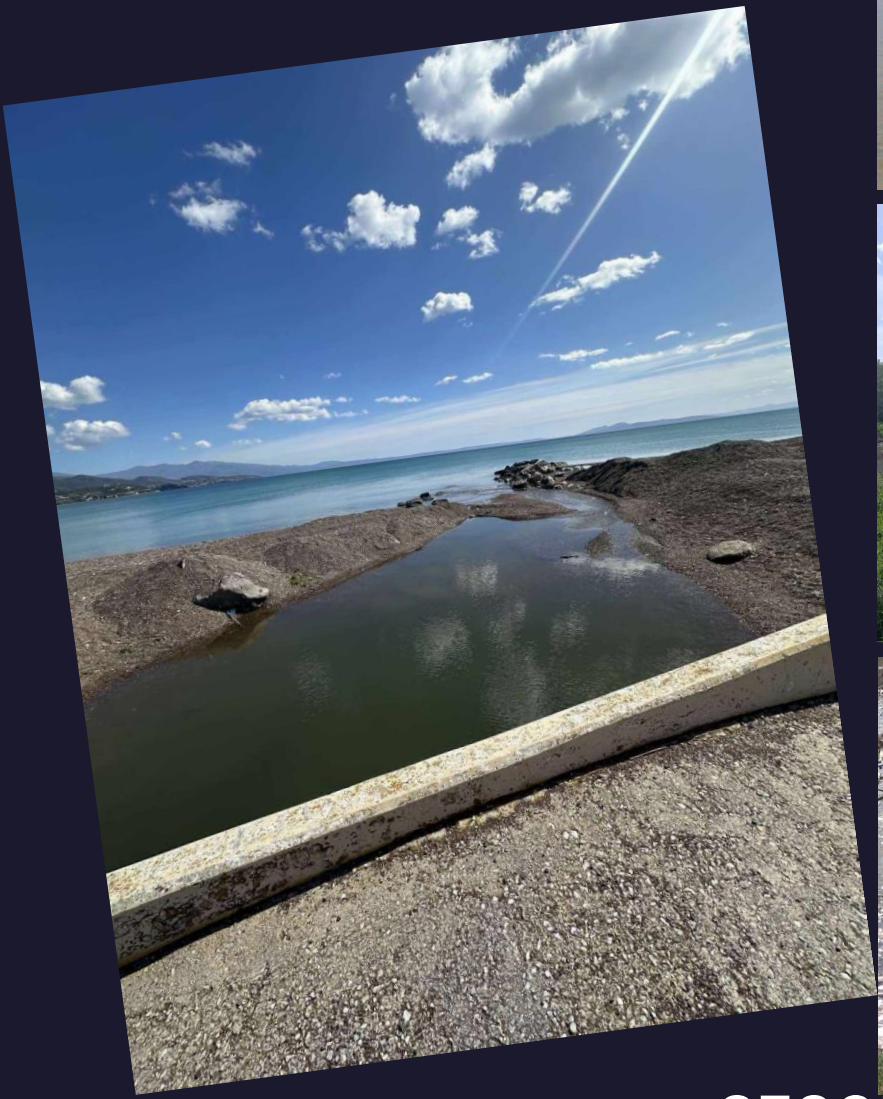






SECONDARY SCHOOL NEA ANCHIALOS

CLIMATE DETECTIVES



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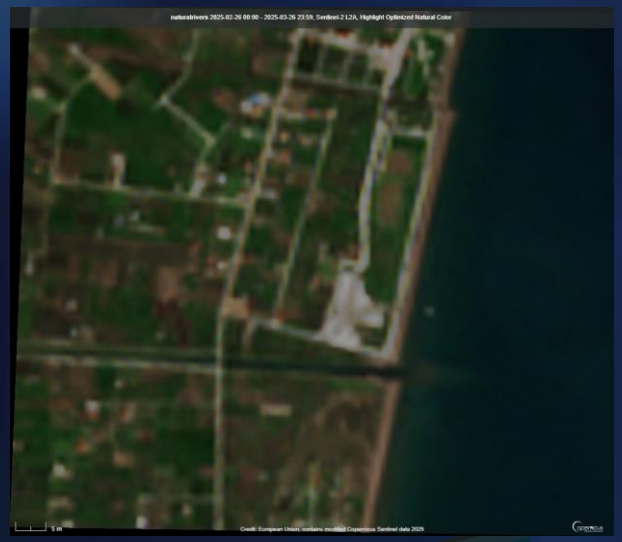
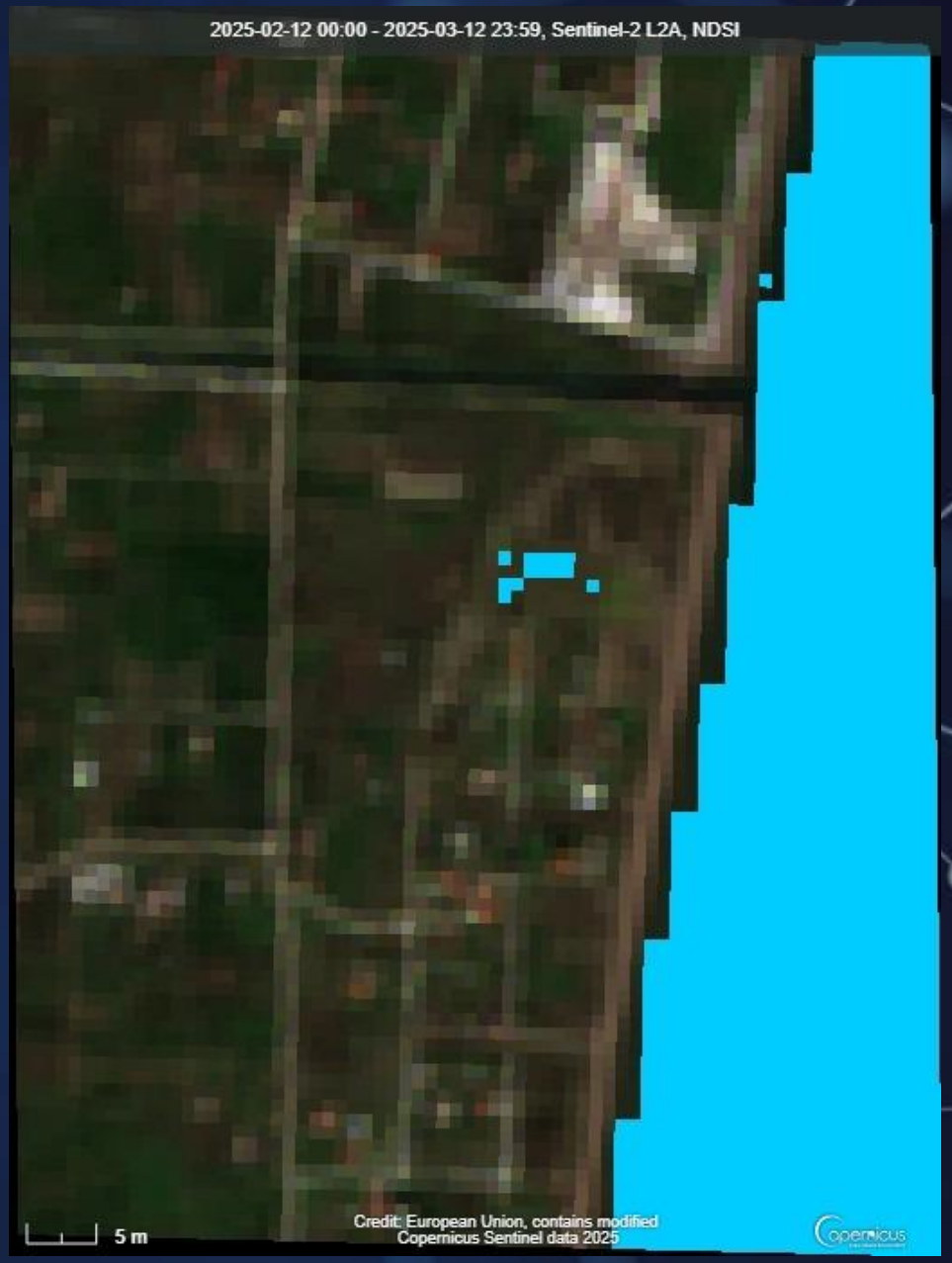
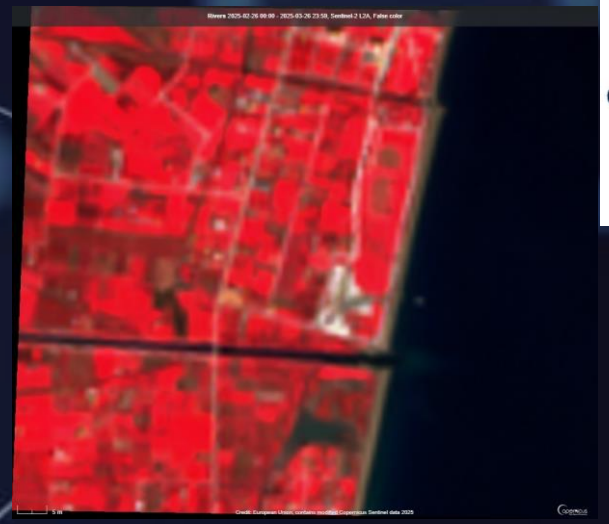
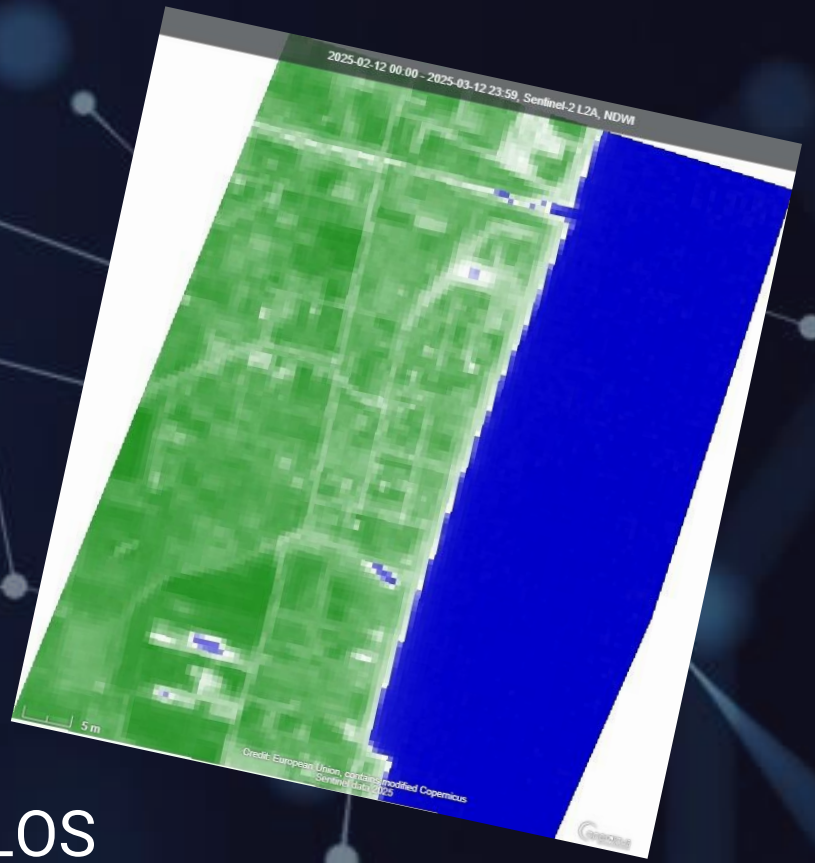
CLIMATE DETECTIVES





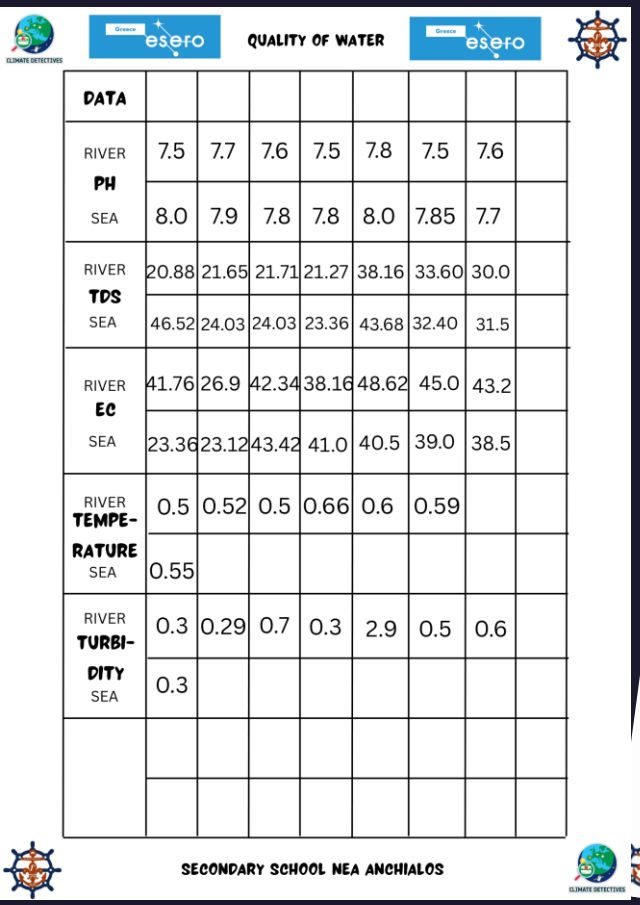




COPERNICUS BROWSER WATER BODIES

SECONDARY SCHOOL NEA ANCHIALOS

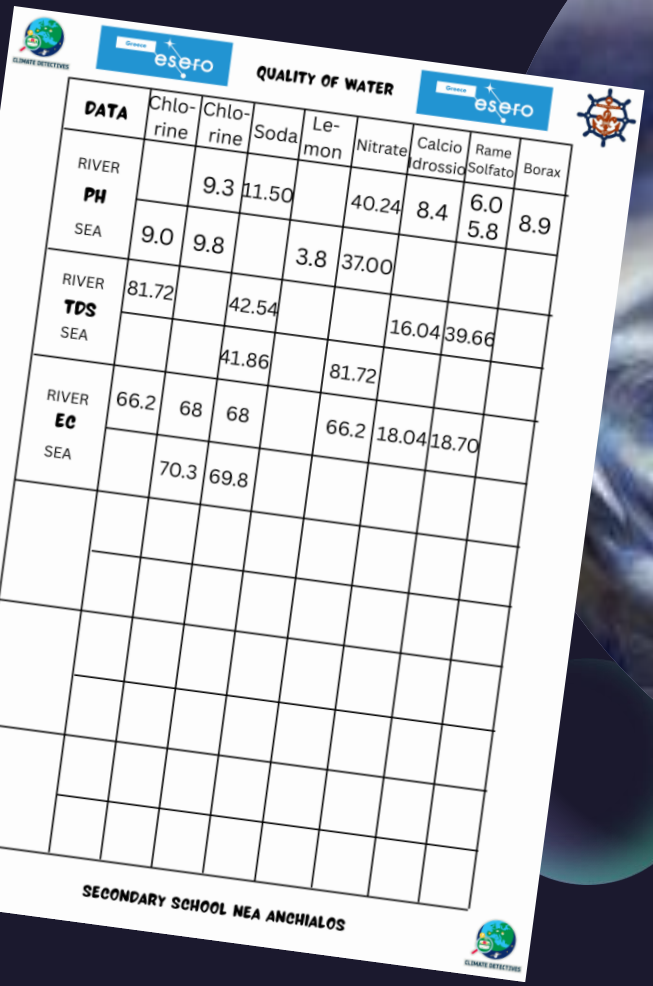
Measuring Data



QUALITY OF WATER

DATA								
RIVER PH	7.5	7.7	7.6	7.5	7.8	7.5	7.6	
SEA PH	8.0	7.9	7.8	7.8	8.0	7.85	7.7	
RIVER TDS	20.88	21.65	21.71	21.27	38.16	33.60	30.0	
SEA TDS	46.52	24.03	24.03	23.36	43.68	32.40	31.5	
RIVER EC	41.76	26.9	42.34	38.16	48.62	45.0	43.2	
SEA EC	23.36	23.12	43.42	41.0	40.5	39.0	38.5	
RIVER TEMPE-RATURE	0.5	0.52	0.5	0.66	0.6	0.59		
SEA TEMPE-RATURE	0.55							
RIVER TURBI-DITY	0.3	0.29	0.7	0.3	2.9	0.5	0.6	
SEA TURBI-DITY	0.3							

SECONDARY SCHOOL NEA ANCHIALOS



QUALITY OF WATER

DATA	Chlo-rine	Chlo-rine	Soda	Le-mon	Nitrate	Calcio drossid	Rame Solfato	Borax
RIVER PH		9.3	11.50		40.24	8.4	6.0	8.9
SEA PH	9.0	9.8		3.8	37.00		5.8	
RIVER TDS	81.72		42.54			16.04	39.66	
SEA TDS			41.86		81.72			
RIVER EC	66.2	68	68		66.2	18.04	18.70	
SEA EC		70.3	69.8					

SECONDARY SCHOOL NEA ANCHIALOS

CLIMATE DETECTIVES

SECONDARY SCHOOL NEA ANCHIALOS

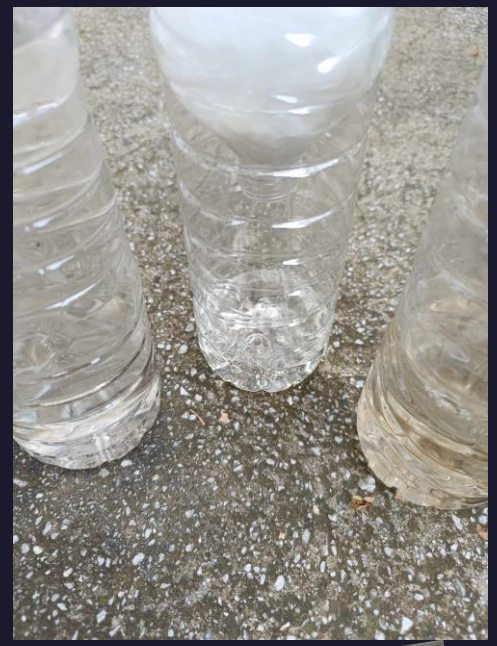
CLIMATE DETECTIVES

Water Filtration

The water from the two streams and the wetland is filtered using a **simple yet effective natural filtration system**. The process involves the following steps:

1. **Collection** – Water is collected from the streams and the wetland for purification.
2. **Filtration Setup** – A **plastic bottle** is used as a filtration container, with multiple layers acting as a natural filter.
3. **Filter Layers**:
    1. **Coarse Sand and Small Pebbles** (collected from the beach) – These help remove larger debris and sediments.
    2. **Coffee Filters** – Act as an additional fine filter, trapping smaller particles.
3. **Slow Filtration** – Water is poured through the system, where each layer removes different types of contaminants.

📌 **This method mimics natural filtration in wetlands and riverbeds, demonstrating how ecosystems naturally purify water before it reaches larger bodies.**



SECONDARY SCHOOL NEA ANCHIALOS

CLIMATE DETECTIVES

1. pH Meter

A pH meter is a tool used to measure how acidic or basic water is. The pH scale ranges from 0 to 14, where:

pH 7 is neutral (pure water)

Below 7 is acidic (e.g., lemon juice, vinegar)

Above 7 is basic (alkaline) (e.g., baking soda, soap)

📌 Why is it important?

The pH of water affects aquatic life, drinking water quality, and chemical reactions in the environment.

2. Thermometer

A thermometer measures water temperature.

Cold water holds more oxygen, which is good for fish.

Warm water can speed up chemical reactions and make water unsafe for aquatic life.

📌 Why is it important?

Changes in temperature can be a sign of pollution (e.g., factories releasing warm water into rivers).

3. EC & TDS Meter

- EC (Electrical Conductivity) measures how well water conducts electricity, which depends on the amount of dissolved salts and minerals.
- TDS (Total Dissolved Solids) measures the total amount of dissolved substances (minerals, salts, metals) in the water.

📌 Why is it important?

High TDS or EC can mean pollution from fertilizers, wastewater, or industrial chemicals.

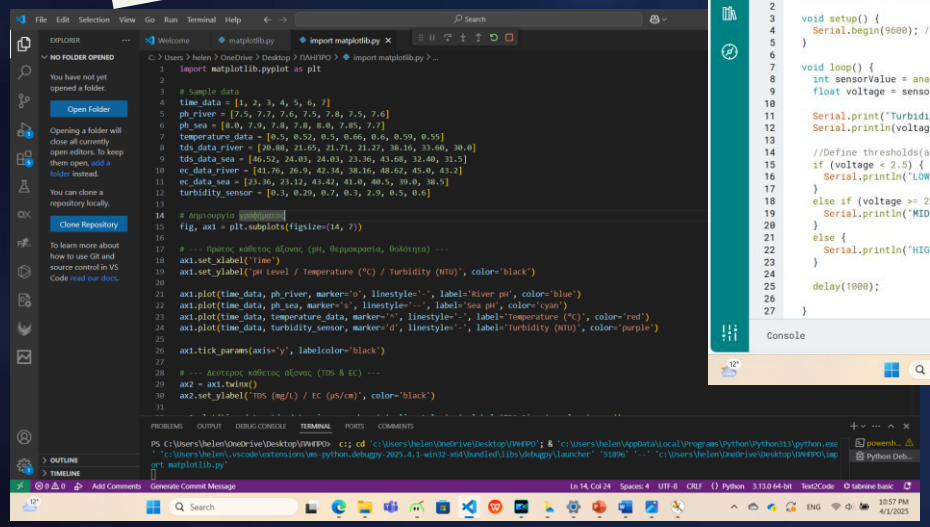
4. Turbidity Sensor

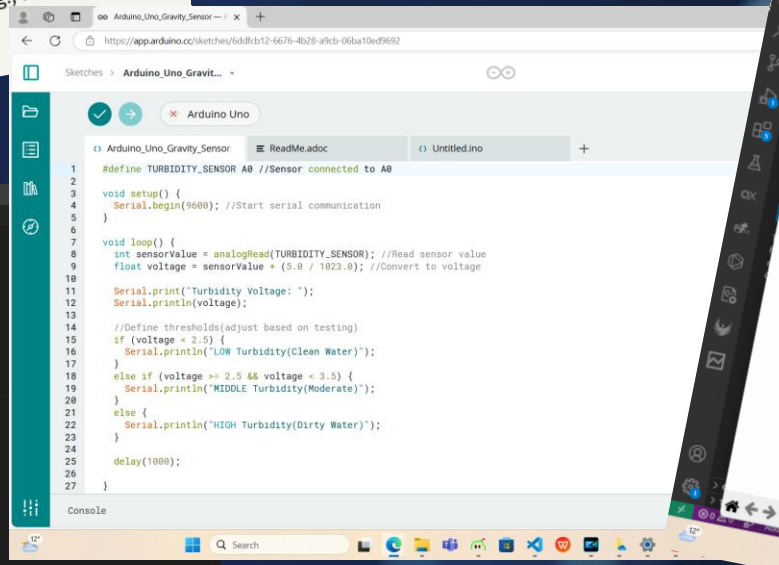
A turbidity sensor measures how clear or cloudy the water is.

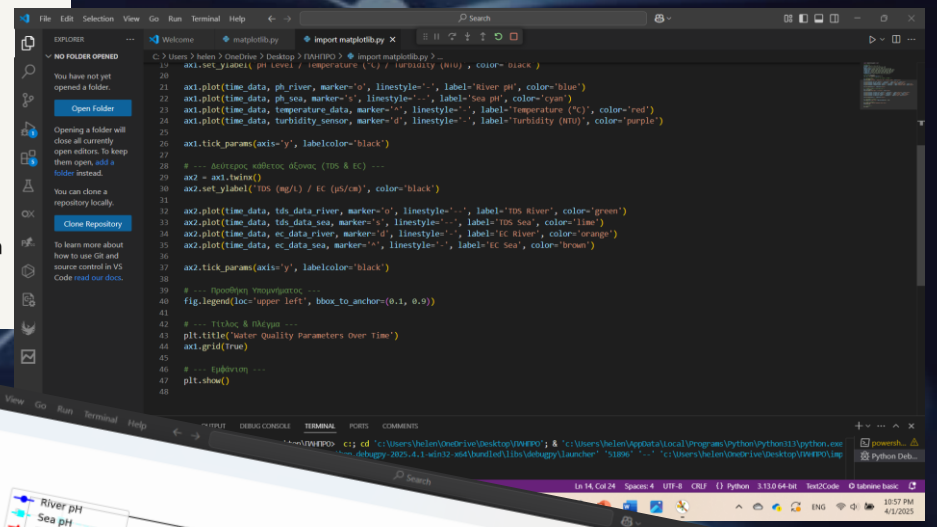
- If water is clear, it has low turbidity (few particles).
- If water is cloudy, it has high turbidity (many particles like dirt, algae, or pollution).

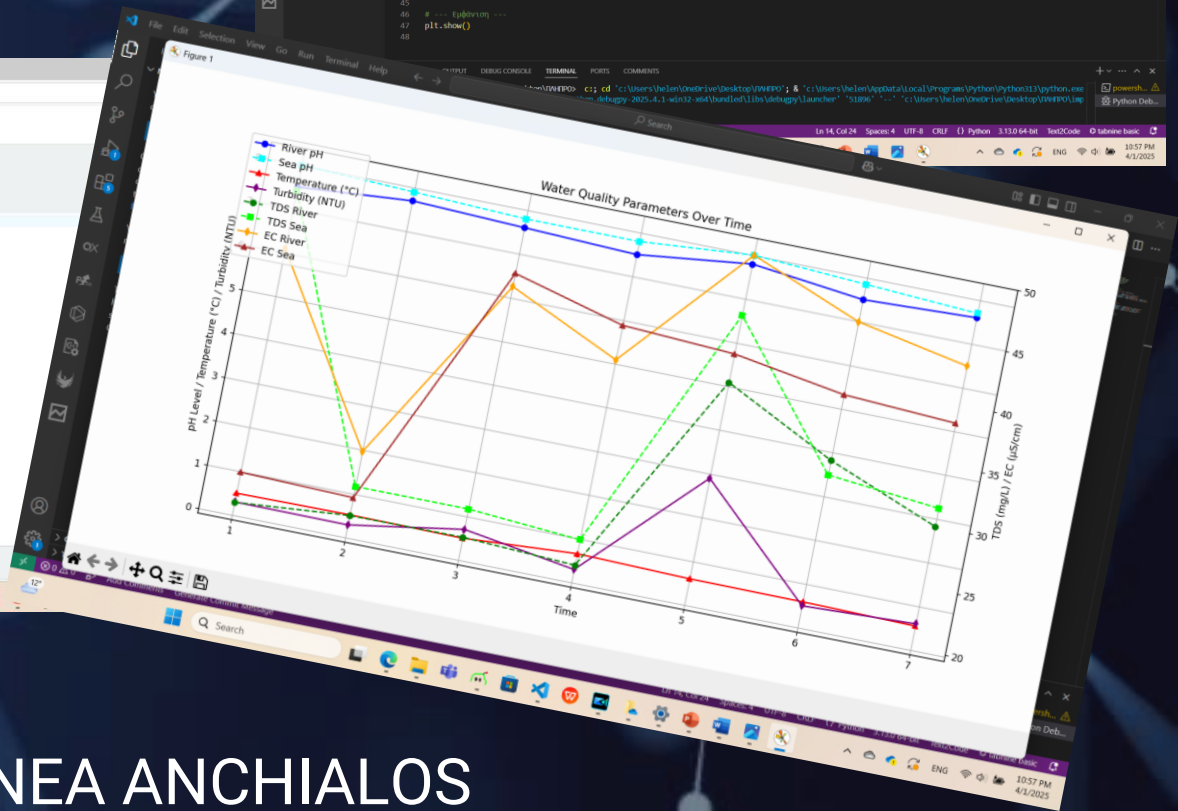
📌 Why is it important?

High turbidity can block sunlight, harm fish, and indicate pollution from soil, waste, or chemicals.









SECONDARY SCHOOL NEA ANCHIALOS

Conclusion

📌 **Clean river and seawater** maintain normal **pH, TDS, conductivity, and turbidity values**. However, measurements indicate that the addition of substances such as **chlorine, nitrates, and soda** leads to significant **chemical pollution**, causing an increase in **pH, TDS, and conductivity**.

✅ **If no additional chemicals are present, the water quality remains good.**

⚠️ **If high values are due to contamination, there is a serious risk to both the environment and human health.**

📌 **An increase in turbidity was observed in one measurement**, which may indicate **pollution** or **environmental changes** at the sampling location.

✅ **If the turbidity increase was a brief fluctuation, it may be part of natural variability.**

⚠️ **If high turbidity levels persist, further investigation is needed to identify potential sources of pollution, which could include bacterial growth or toxic substances.**

Thank you

Helen Mastropetrou & Pelagia Triantafillopoulou