



PHYSICAL AND CHEMICAL PROPERTIES OF THE RIVER PLITVICA IN JALKOVEC

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GLOBE Medicinska škola Varaždin

GUIDING INVESTIGATIVE QUESTIONS



- ▶ What is the quality of water in our environment?
 - ▶ In our research we focused on determining the water quality and identifying the various anthropogenic influences that might be detrimental to it.

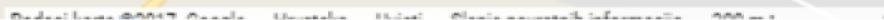
MEASUREMENT SITE



- ▶ All our measurements are taken in Jalkovec, at a spot by the old mill
- ▶ We have started measuring at this site in February 2015







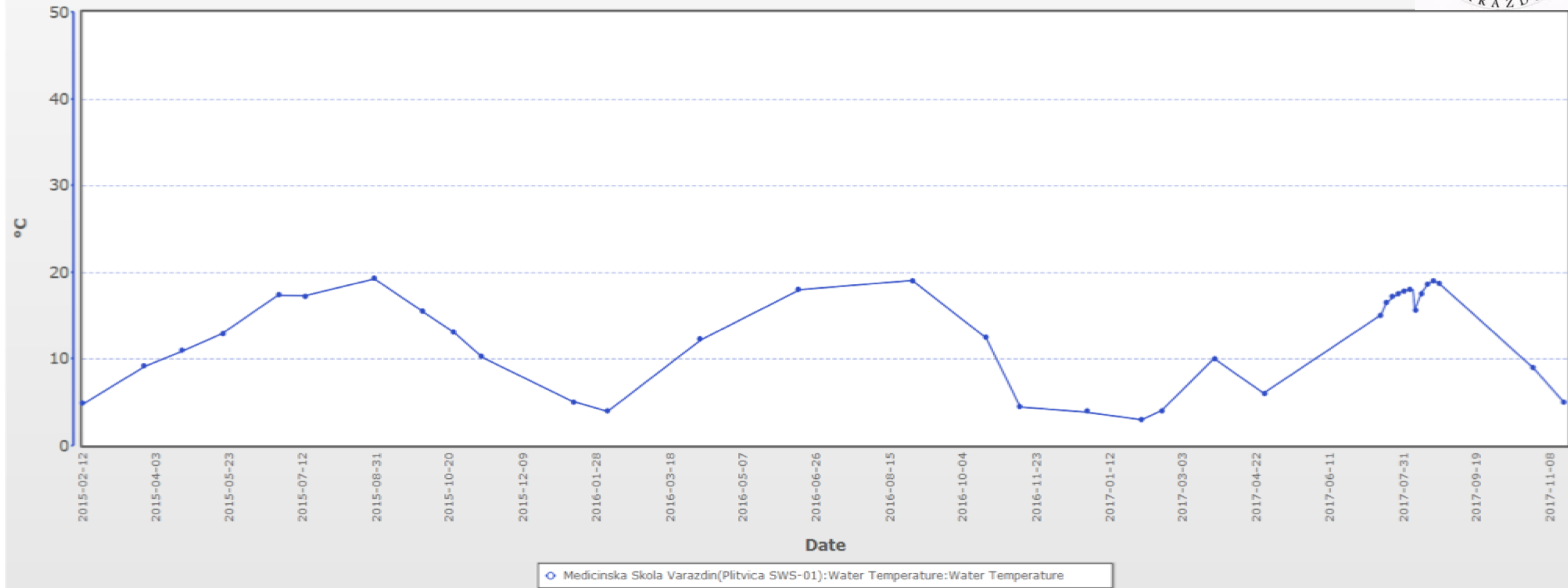
MEASUREMENTS

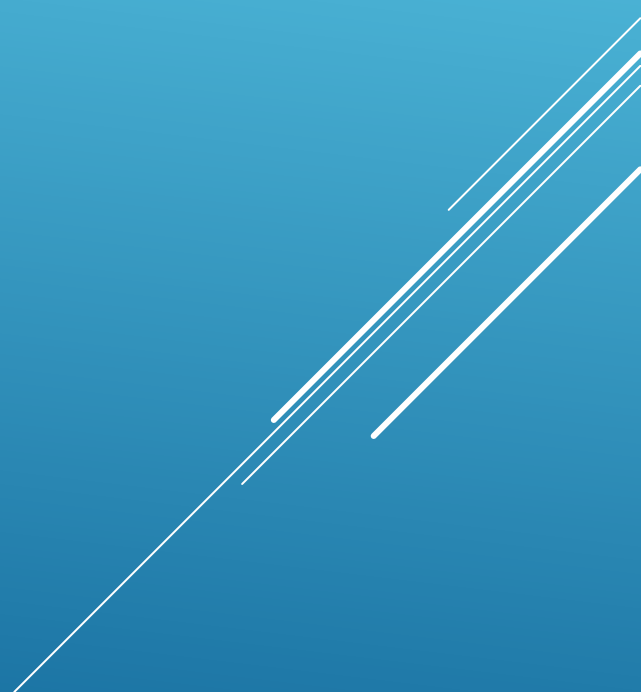


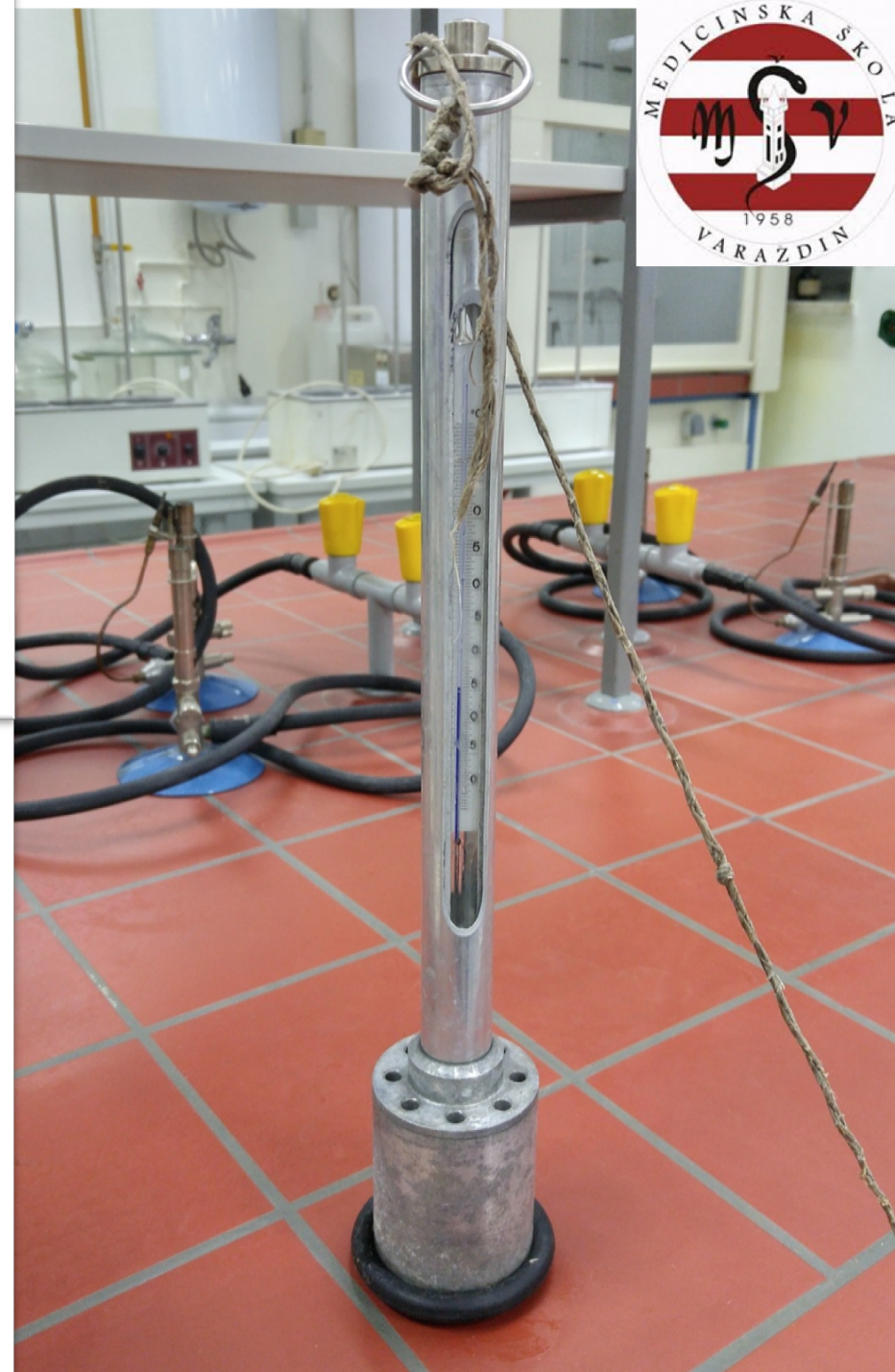
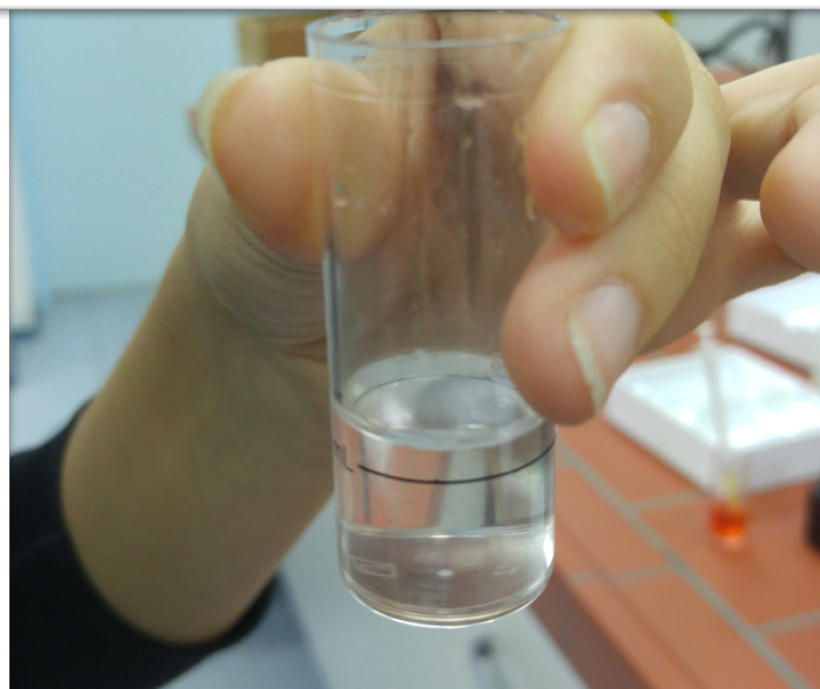
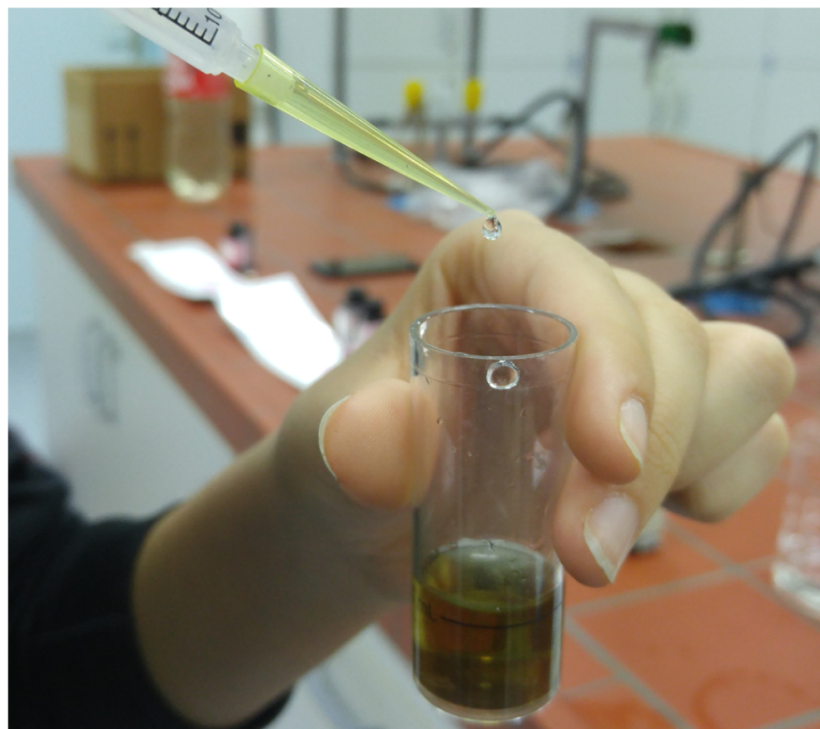
- ▶ Temperature:
 - ▶ Measured with an alcohol-filled termometer
 - ▶ Latest measurement: 5°C
- ▶ Dissolved oxygen:
 - ▶ Measured with a test kit
 - ▶ Latest measurement: 6.3 mg/l

Medicinska Skola Varazdin (Plitvica SWS-01) Water Temperature Time Series Plot

Water Temperature, versus Time



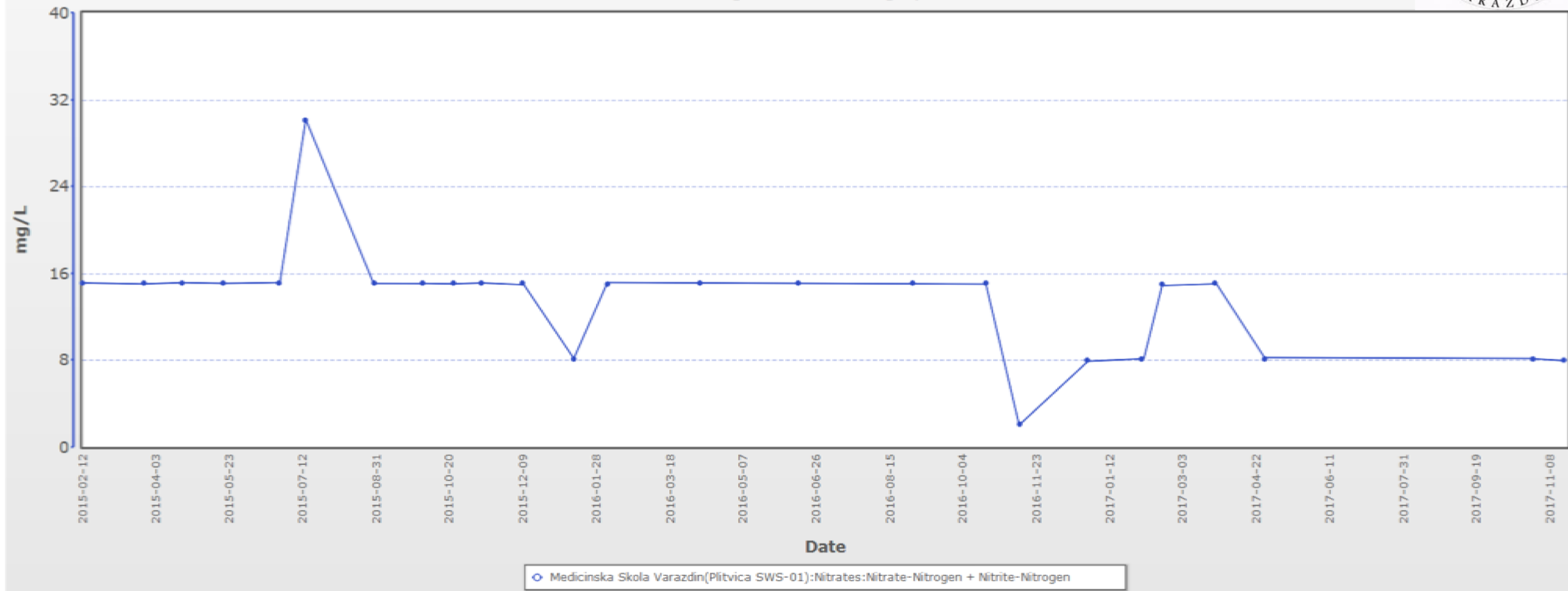




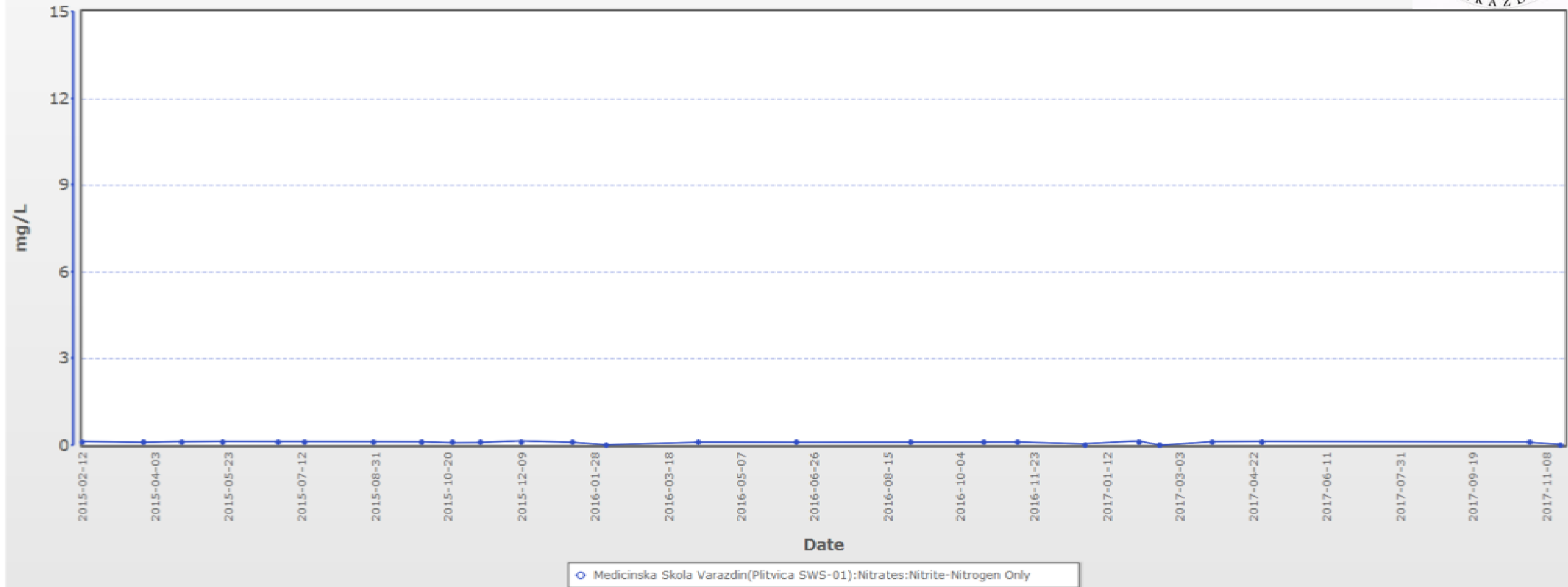
- ▶ Nitrate-nitrogen + nitrite-nitrogen:
 - ▶ Measured with a test kit
 - ▶ Latest measurement: 8 mg/l
- ▶ Nitrite-nitrogen:
 - ▶ Latest measurement: 0 mg/l

Medicinska Skola Varazdin (Plitvica SWS-01) Nitrates Time Series Plot

Nitrate-Nitrogen + Nitrite-Nitrogen, versus Time



Nitrite-Nitrogen Only, versus Time





mg/l NO_2^-

Nitrite
Nitriti
Nitrito
Nitriet

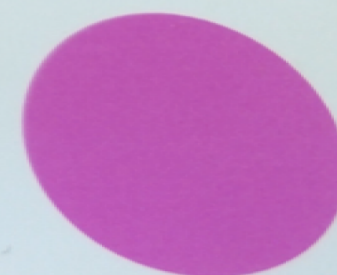
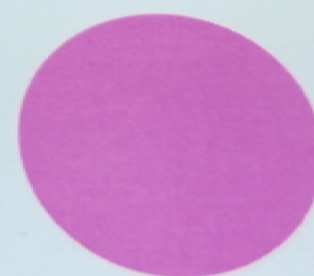
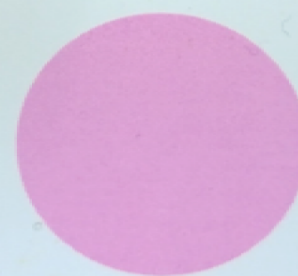
0.05

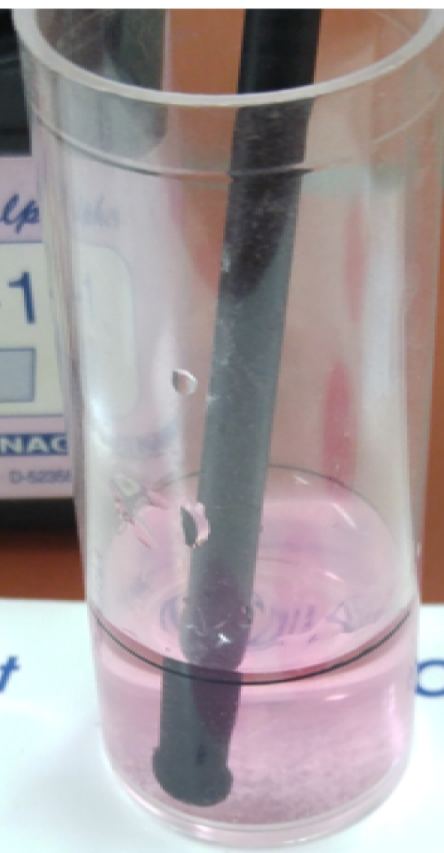
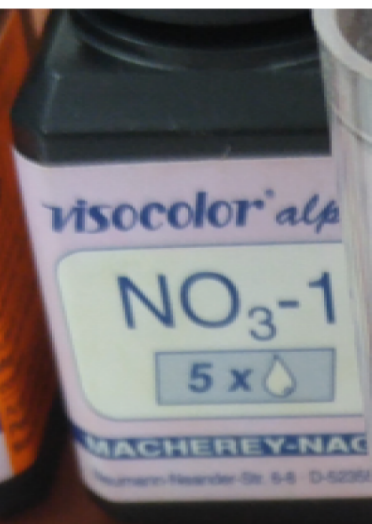
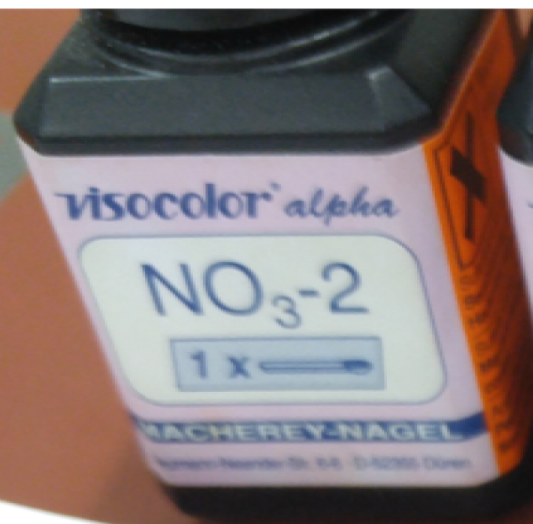
0.10

0.25

0.5

1.0





Nitrat

NO₃⁻

Nitrate
Nitrati
Nitrato
Nitraat

2

8

15

30

50



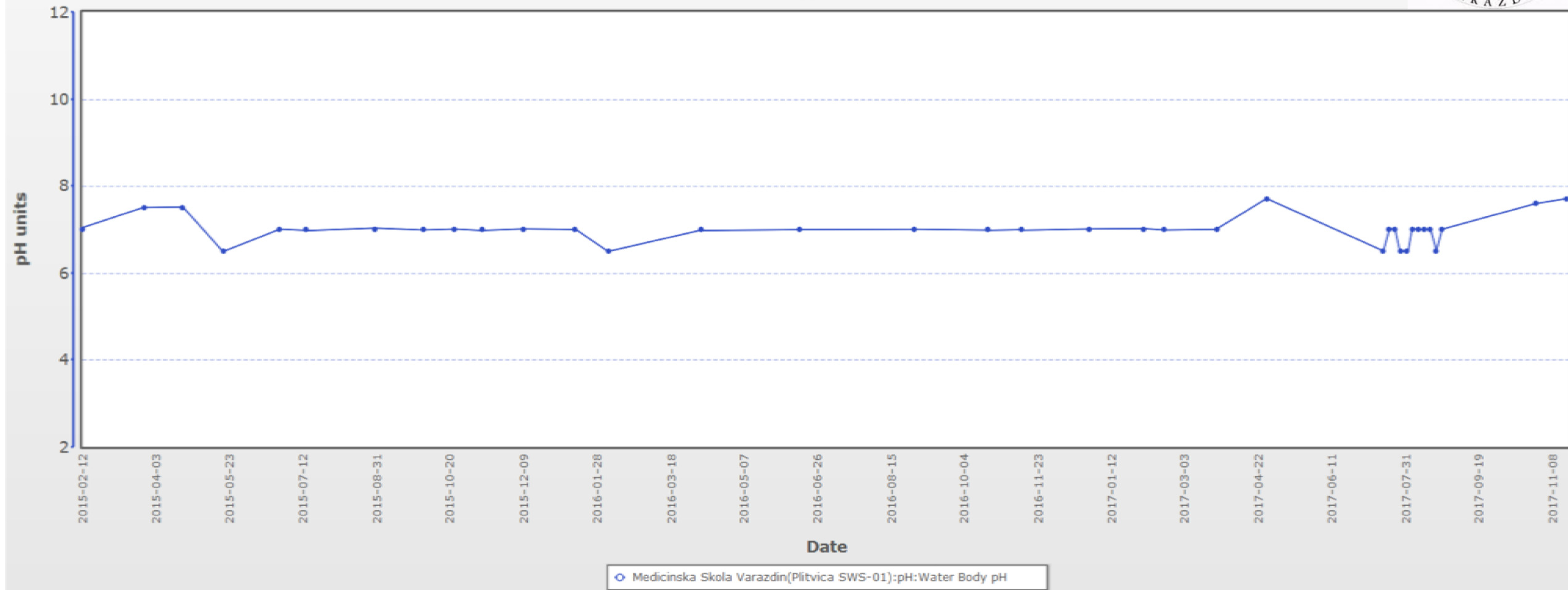
▶ pH:

- ▶ Measured with pH paper and pH meter
- ▶ Latest measurement: 7.7

▶ Conductivity:

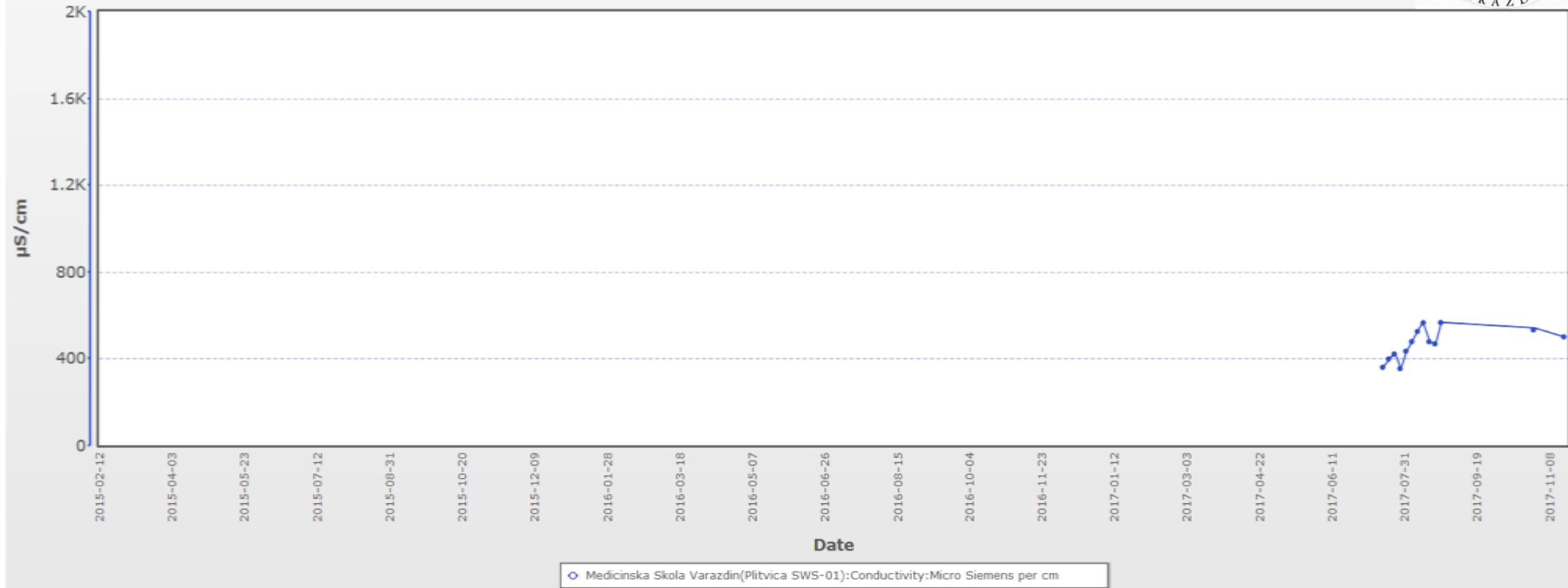
- ▶ Measured with a conductivity meter
- ▶ Latest measurement: 500 $\mu\text{S}/\text{cm}$

Water Body pH, versus Time



Medicinska Skola Varazdin (Plitvica SWS-01) Conductivity Time Series Plot

Micro Siemens per cm, versus Time





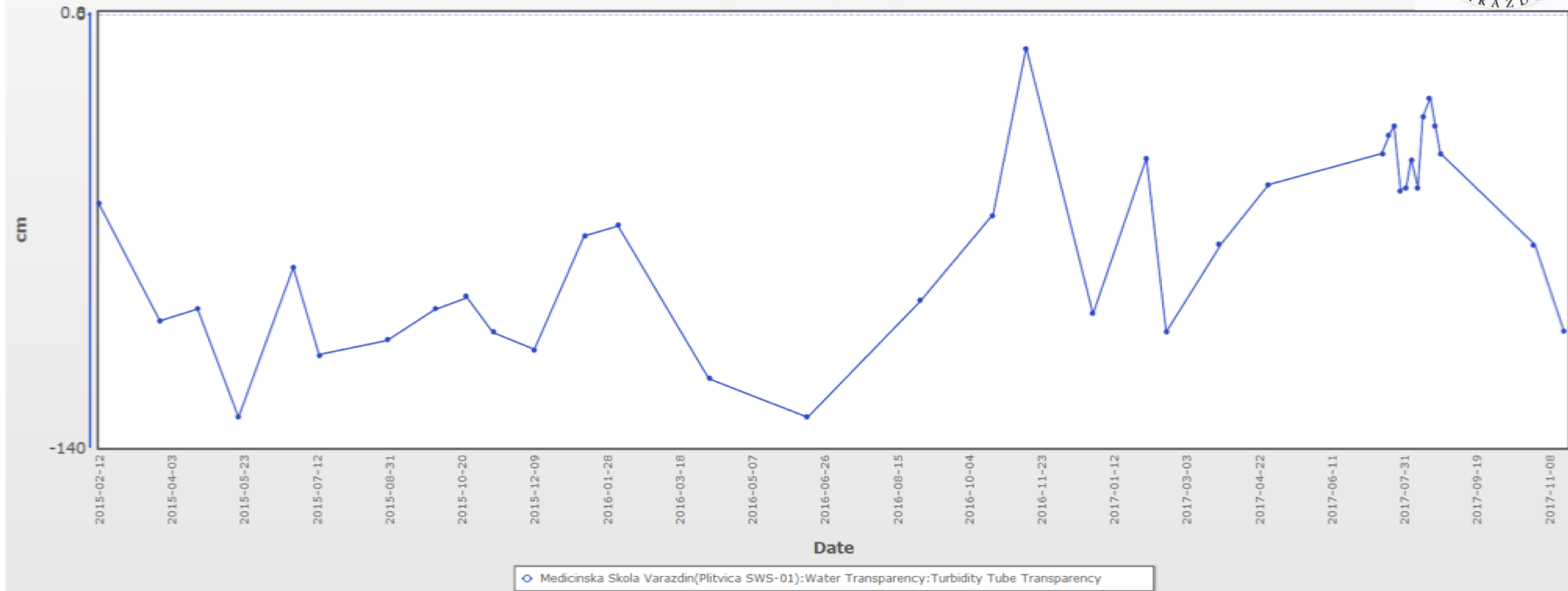
- ▶ Water transparency:

- ▶ Measured with turbidity tube
- ▶ Latest measurement: 102.3 cm

- ▶ Alkalinity:

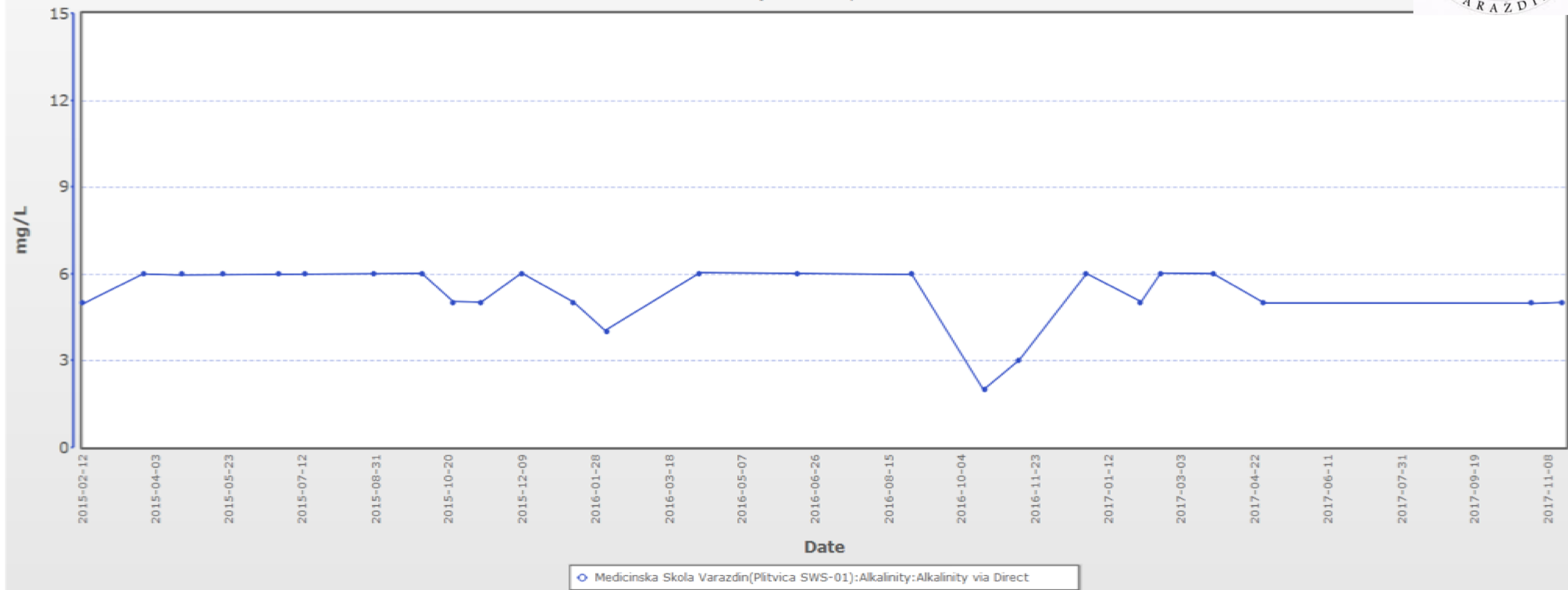
- ▶ Measured with a test kit
- ▶ Latest measurement: 5.1 mg/l as CaCO_3

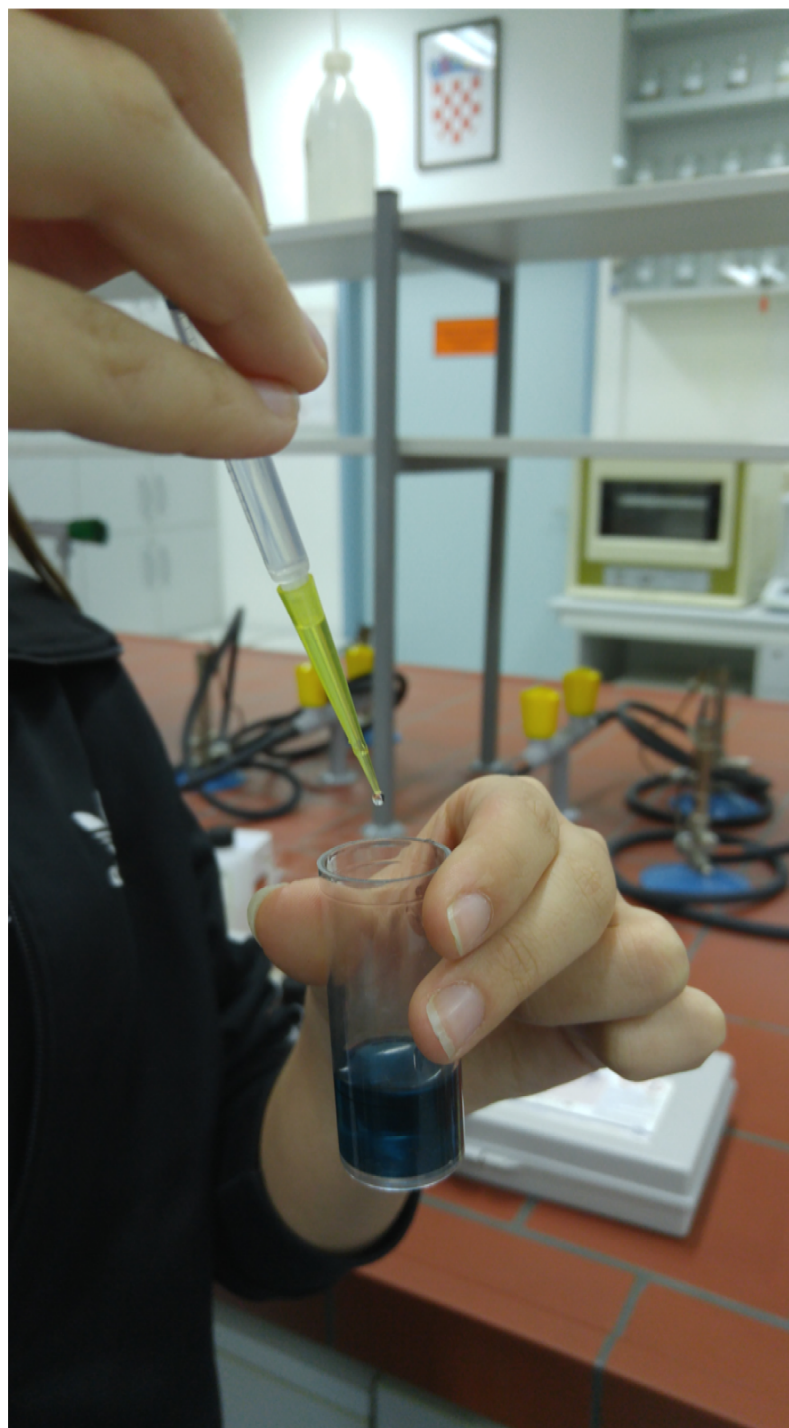
Turbidity Tube Transparency, versus Time



Medicinska Skola Varazdin (Plitvica SWS-01) Alkalinity Time Series Plot

Alkalinity via Direct, versus Time





CONCLUSIONS



- ▶ The water in the river is sometimes slightly basic, especially after heavy rainfall
- ▶ We have determined that Plitvica is in the second category of water quality according to Croatian water quality protocols
- ▶ Most parameters are within the range of the first category but the high nitrate and nitrite concentrations lower the water quality

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