



Znečištění-vod.cz

**Project**

# **Water pollution**

znecistenivod.cz

ASK



Český  
hydrometeorologický  
ústav

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## About the project Water pollution

- The project is focused on the regular monitoring of pollution in selected water flows, identifying the sources of contamination and finding ways how to prevent further pollution.
- Our main goal is not just to raise awareness about problems with pollution of the water, but also to actively join the local community in finding solutions and protecting this this valuable water flow .

**1,440**

MĚŘENÍ

**22**

ZDROJŮ ZNEČIŠTĚNÍ

**4**

VÝZKUMNÉ TÝMY

# Tools

- Sensors on tracking of the temperature, pH, conductivity and nitrate ions from Vernier and a set for water analyses.



- Mobile phone, map, GPS, camera, masks, disposable gloves

# Conductivity

The effect of water's conductivity on its impact on human body

The unit of conductivity

**$\mu\text{S}/\text{cm}$**

(microsiemens per centimeter)

056 – 089	090 – 139	140 – 199	200- 299	300 – 599	600 –1250	nad 1250
Very good effect on purification	Good effect on purification	Satisfactory effect on purification	No effect on purification	Already burdensome for the organism	Severely burdensome for the organism	Unsuitable drinking water

The background is a dark blue color with a subtle, textured pattern. It features several large, overlapping, organic shapes in a lighter shade of blue. There are also smaller decorative elements: a white four-pointed star in the top right, a white four-pointed star in the bottom left, and two vertical columns of five small white dots each, one in the top right and one in the bottom left.

# Left-sided tributary












.....







### Trubky

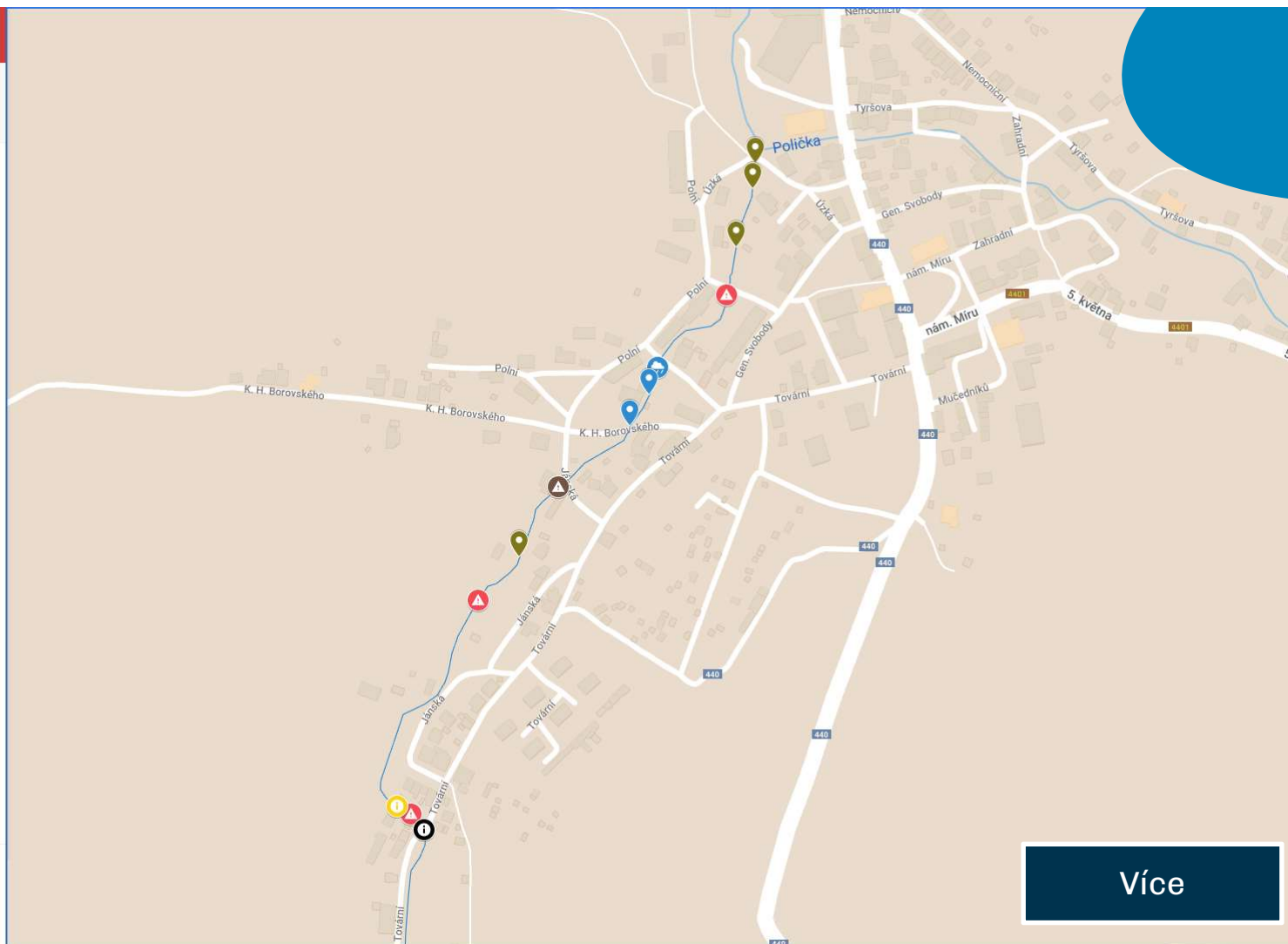


-  Trubka č. 1
-  Trubka č.2
-  Trubka č. 3
-  Trubka č. 4
-  Trubka č. 5
-  Trubka č. 6
-  Trubka č. 7
-  Trubka č. 8 (WC trubka)
-  Trubka č. 9
-  Trubka č. 10
-  Trubka č. 11



### Objevy

-  Tunel
-  Citrón



Více





# Distribution of samples in benthos research

## a) Bad guys

- Animals that tolerate pollution and lack of the oxygen well
- These include waterlouse, musquito larvae, leeches and nematodes
- In the flow, they are most represented mainly near the source

## b) Good guys

- Animals that don't tolerate well pollution and mostly lack of oxygen
- Amongst them belong mayflies, caddisflies, stoneflies



### Calculating the Citizen Science Stream Index







Recorder name:	Stream name:
Date:	GPS/location:

The Citizen Science Stream Index (CSSI) is based on the presence or absence of six key aquatic invertebrates. Three pollution-sensitive invertebrates ('good guys') are commonly found in clean streams and three pollution-tolerant invertebrates ('bad guys') are commonly found in polluted streams.


Citizens use a pond net to take three 30-second kick-samples (the three samples should be a few metres apart) from a shallow (<20cm), gravelly, fast-flowing part of the stream. The invertebrates captured in each sample are examined in a white tray on the bankside. The six key invertebrates are easily spotted amongst the many other species in the tray, by their characteristic shape, colour or movement.

The citizen will score each sample depending on which, if any, of the six key invertebrates occur in the tray. The three 'good guys' have a score of +1 each and the three 'bad guys' have a score of -1 each.

The score for each kick-sample can range from +3 (all three good guys and no bad guys) to -3 (all three bad guys and no good guys). When the scores from all three samples are added together, the CSSI ranges from +9 to -9. <https://youtu.be/HsDZ0sIO6Dc>

	Sample 1	Sample 2	Sample 3
Stonefly (+1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flattened mayfly (+1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green caddisfly (+1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snail (-1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leech (-1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waterlouse (-1) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sum of scores 1	<input type="checkbox"/>	Sum of scores 2	<input type="checkbox"/>
Sum of scores 2	<input type="checkbox"/>	Sum of scores 3	<input type="checkbox"/>
Sum of scores 3	<input type="checkbox"/>	Total score for the 3 samples = CSSI Score	

Citizens should also take a good, clear photo of one of the 3 samples, including a label in the tray, with information on the date, stream name, location and recorder.




CSSI Scores can be a 'traffic light' for water quality

CSSI score -9 to -5 **Heavily polluted**


CSSI Score -4 to +4 **Moderately polluted**

CSSI Score +5 to +9 **Clean**




Any observations (eg. excessive algae or fine sediment, cattle access nearby, surface foam, presence of trout/salmon etc):


### The 'good guys'



**Stonefly**  
2 thin filamentous tails at end of abdomen




**Flattened mayfly**  
3 thin filamentous tails, wide head with large eyes on top and flattened body




**Green caddisfly**  
Green caterpillar-like larva. Gills along abdomen give it a 'spiky' appearance


### The 'bad guys'



**Leech**  
Suckers at both ends & moves by stretching out body




**Snail**  
Hard pointed or coiled shell covering body




**Waterlouse**  
Looks like a woodlouse, crawls slowly along bottom


These invertebrates are found in most streams and are NOT scored for the CSSI




Freshwater shrimp




Swimming mayfly



Blackfly larva



Brown caddisfly

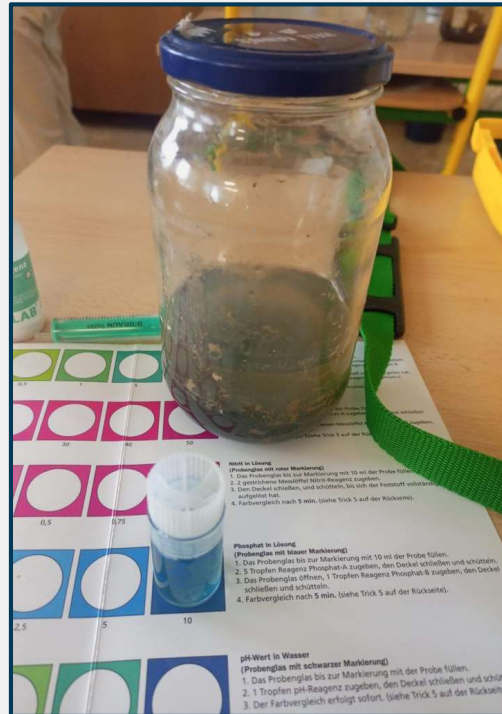


Pink caddisfly

## Results of analyses of benthos samples



## Measurement progress:



## Conclusion:

- our assumptions were **confirmed** - the left-side tributary of the Polička stream, due to the development, is **more polluted**.
- At the **last meeting** with the Mayor, it was **confirmed** that the treatment plant should be **built**, but a site is being sought, so the Rice Farm needs to know the inflow values and also get **more citizen support for the plant**.



  
**Obec Ryžoviště**  
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Vyřizuje: Eva Petrášková  
Tel: 554 286 010  
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ID datové schránky: 94nb4bc

Datum: 21.11.2023  
Vaše č.j.

**Základní škola Břidličná**  
Vážená paní  
Mgr. Markéta Barschová, MBA  
ředitelka  
Komenského 360  
793 56 Břidličná

**Věc: Žádost**

Vážená paní ředitelko,

dne 15.11.2023 žáci Základní školy Břidličná představili zastupitelstvu obce Ryžoviště projekt „Trubky v potoku Polička“, který zastupitelé velmi kladně ocenili.

Žádáme Vás touto cestou o rozšíření projektu a zmapování trubek v korytu vodního toku na pozemcích parcela č. 1558/1 a č. 2014 v k.ú. a obci Ryžoviště (vodní tok od rybníka nad obcí po vtok do Poličky).

Obec Ryžoviště projekt využije jako jeden z podpůrných argumentů k odůvodnění nutnosti vybudování nových čistíren odpadních vod na území obce.

Děkujeme Vám za spolupráci.

S pozdravem

Eva Petrášková  
starostka

Digitalizováno pomocí  
Programu  
Číslo: 003/13/21  
Titul: 001/001

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Science, Palacký University Olomouc





[znečisteni-vod.cz](http://znečisteni-vod.cz)



[@znečisteni\\_vod](https://www.instagram.com/znečisteni_vod)



[Znečištění vod](https://www.youtube.com/Znečištění_vod)



[@ZnečisteniVod](https://www.facebook.com/ZnečisteniVod)

## Resources

- <https://www.milvit.cz/konduktivita-neboli-vodivost-vody.html>
- [https://is.muni.cz/do/rect/el/estud/pedf/ps14/fyz\\_geogr/web/pages/08-hydrografie.html](https://is.muni.cz/do/rect/el/estud/pedf/ps14/fyz_geogr/web/pages/08-hydrografie.html)
- <https://www.elektrosmog-zony.cz/phvody.html>
- <http://www.geologicke-mapy.cz/>
- <https://www.ryzoviste.cz/aktuality/studie-likvidace-odpadnich-vod-v-obci-ryzoviste>

### *More about the project:*

- [www.znecisteni-vod.cz](http://www.znecisteni-vod.cz)





# Thank you for your time

