

Greener world Comenius Project

Water quality

27/11/2014

Novaky, Slovakia

Our goals

- To inform with the techniques of bioindications
- To determine water quality based on the occurrence of aquatic invertebrates and by chemical analysis
- To compare water quality in different water flows in Novaky

Principles

- Water invertebrates are indicators of clear waters
- Sensitive animal species require for their existence clean and better water sources
- Thanks to this principles we can determine biotic and saprobic index

Process





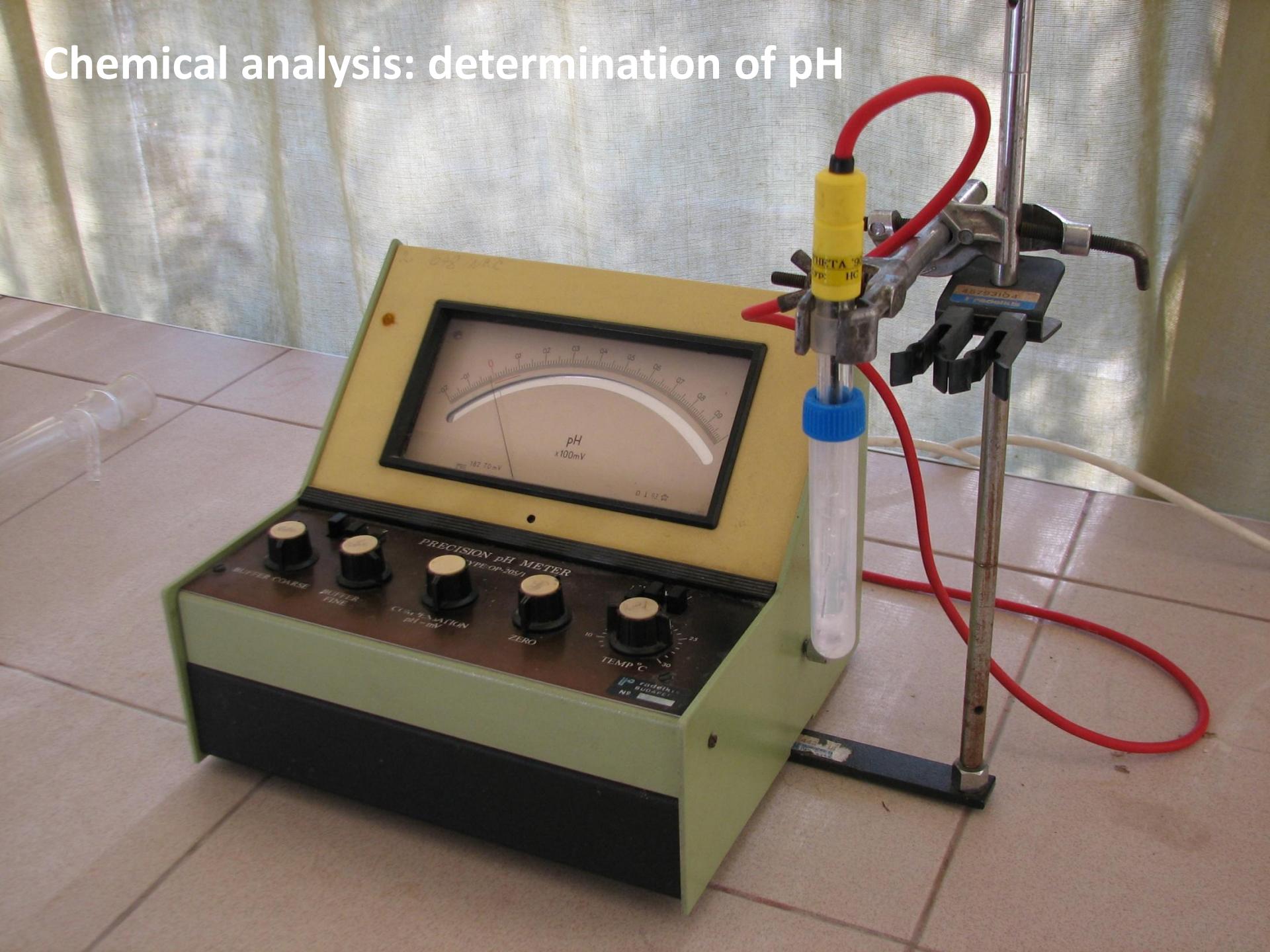
We determine the number of each species of invertebrates



Thanks to computer program we can evaluate water quality

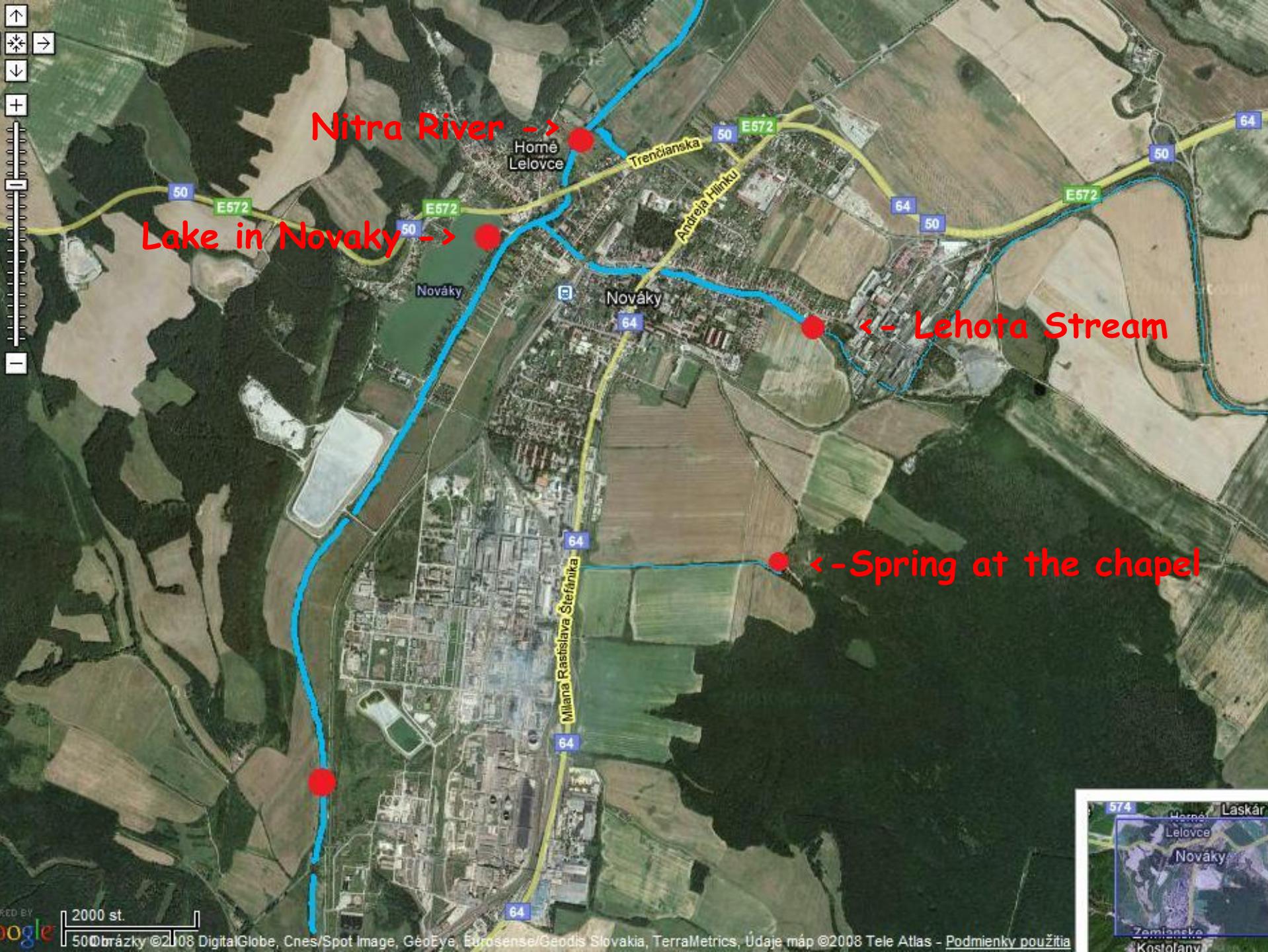


Chemical analysis: determination of pH



Determination of water hardness





Lehota Stream

21/9/2014



We have found these invertebrates

Dayfly
Ephemeroptera



Stonefly
Plecoptera



Caddis fly
Trichoptera



Sandshrimp
Gammaridae



Common water strider

Gerris



Back swimmer

Notonecta



Diving beetle

Acilius sulcatus



Azure damselfly
Zygoptera



Bithynia
Bithinia tentaculata



Cap lamprey
Ancylus fluviatilis



Midge
Chironomus plumosus



Eprobella octoculata



Clepsida lymnaeidae
Glossiphonia complanata



We found these invertebrates species

N	Aquatic makroinvertebrates	Počet ks
1.	<i>Gammaridae</i>	24
2.	<i>Gerris</i>	2
3.	<i>Zygoptera</i>	6
4.	<i>Trichoptera</i>	3
5.	<i>Eprobdella octoculata</i>	10
6.	<i>Acilius sulcatus</i>	4
7.	<i>Bithinia tentaculata</i>	3
8.	<i>Notonecta</i>	4
9.	<i>Ancylus fluviatilis</i>	2
10.	<i>Baetidae</i>	48

Biondication of water quality

■ Biotic index – 6,47

■ Saprobič index - 2,01 =>

■ II. Significantly polluted water

Trieda kvality podľa saprobičného indexu

? I	voda čistá až veľmi málo znečistená
? I-II	voda málo znečistená
? II	voda výrazne znečistená
? II-III	voda kriticky znečistená
? III	špinavá voda
? III-IV	veľmi špinavá voda
? IV	nadmieru špinavá voda

Chemical analysis

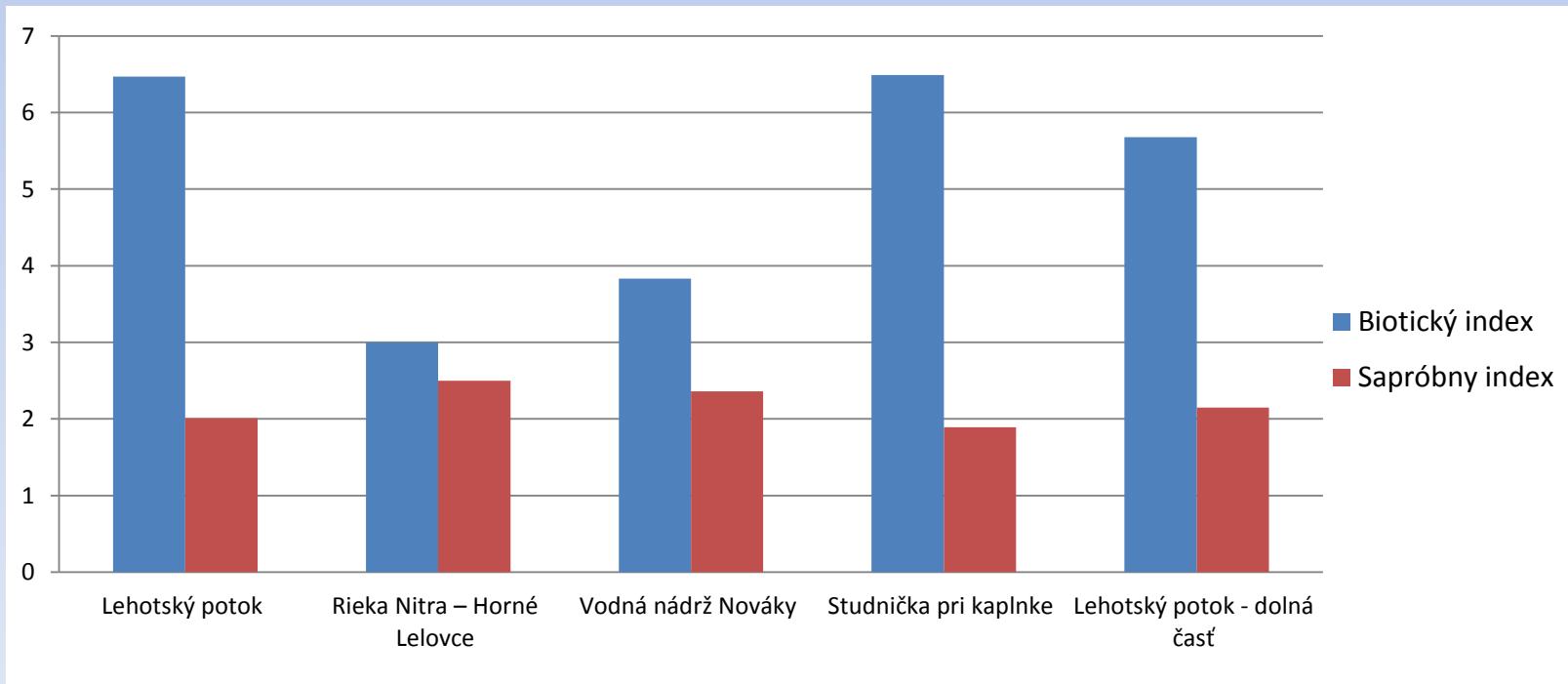
■ pH - 7,94

■ Hardness- 2,09 mmol Ca²⁺,Mg²⁺ /dm³



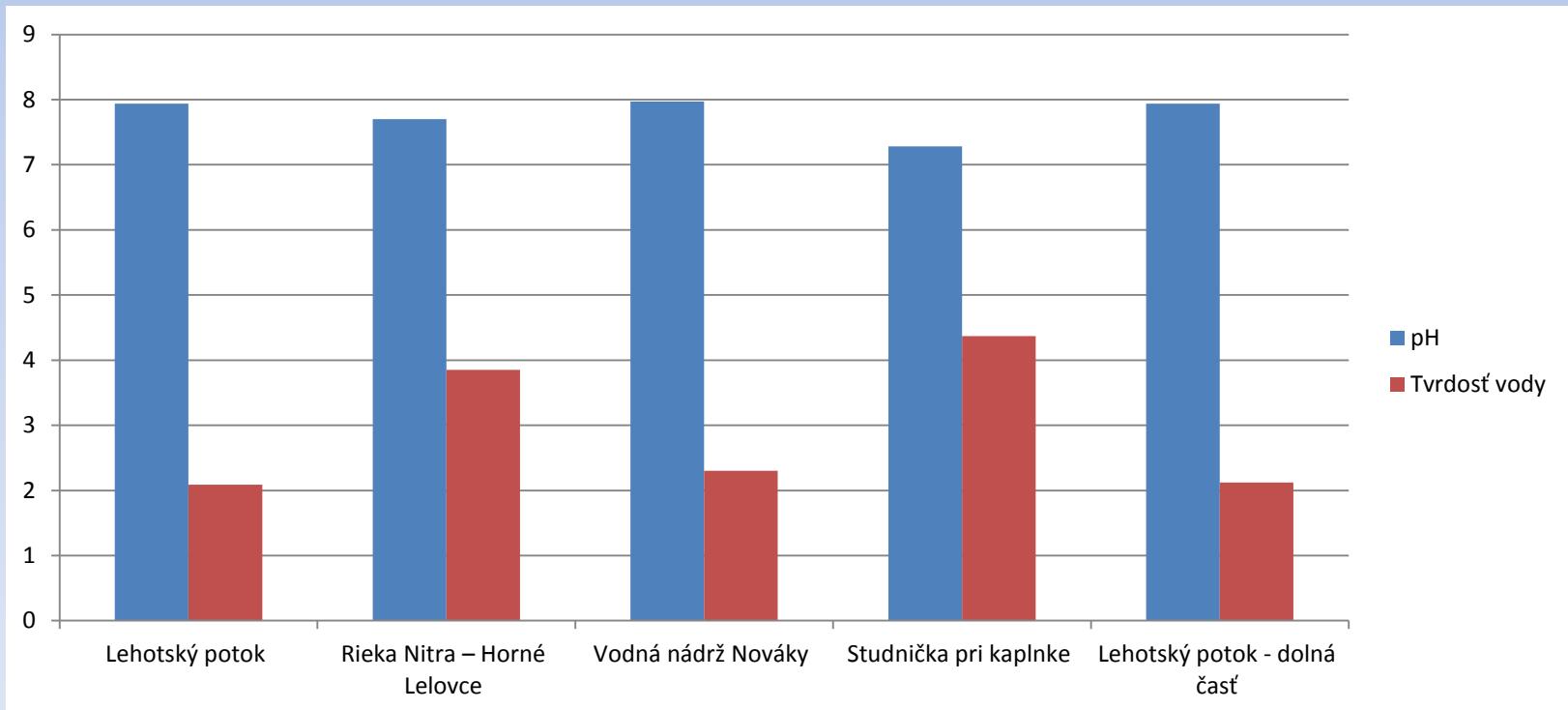
Our results

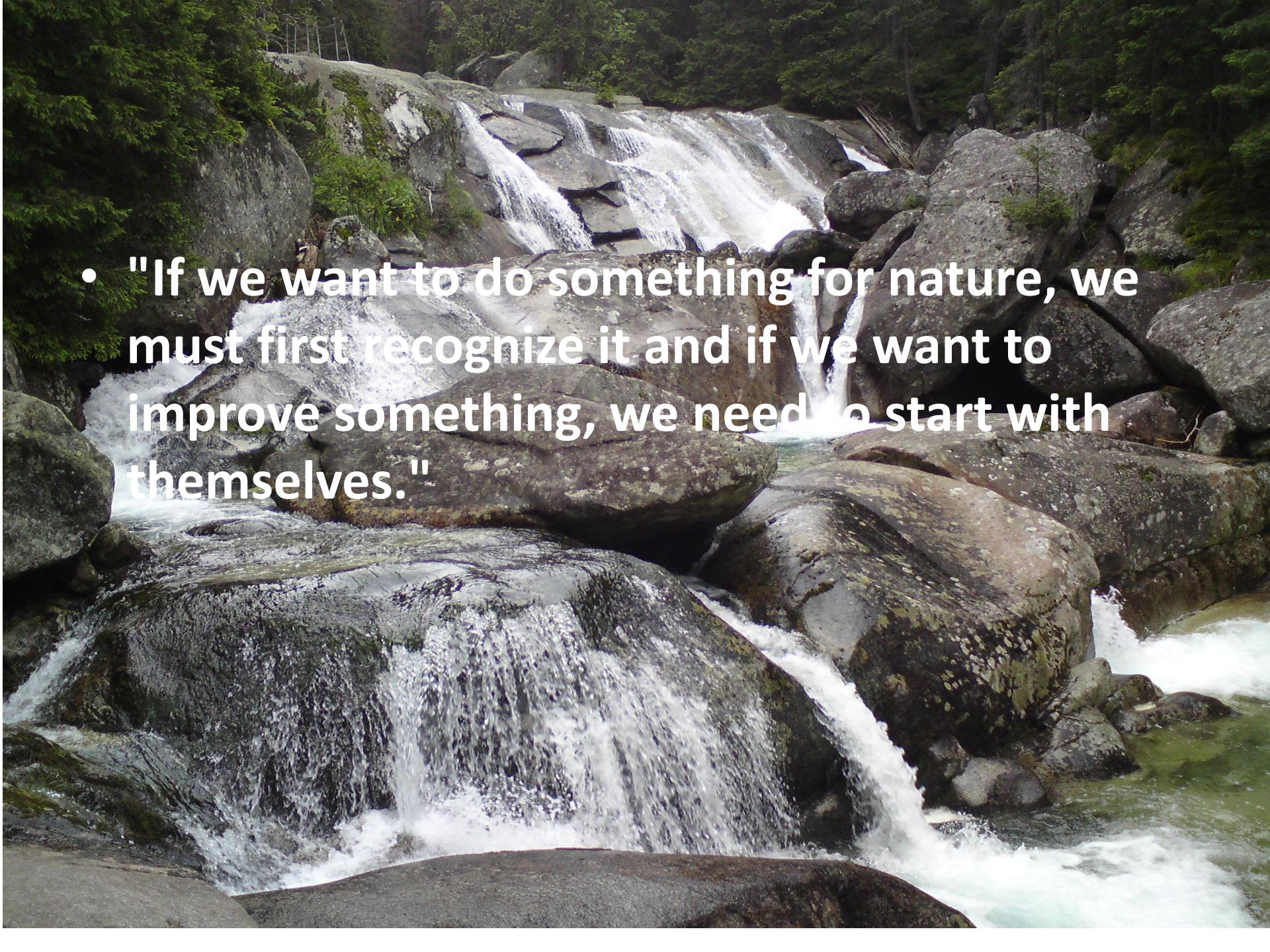
Locality	Biotic index	Saprobic index	Water quality
Lehota stream	6,47	2,01	significantly contaminated
Nitra river	3,00	2,50	critically polluted
Novaky water tank	3,83	2,36	critically polluted
Spring at the chapel	6,49	1,89	critically polluted
Lehota stream– lower part	5,68	2,15	critically polluted



Results of chemical analysis

Locality	pH	Water hardness mmol Ca ²⁺ ,Mg ²⁺ /dm ³	Water quality
Lehota stream	7,94	2,09	moderately hard
Nitra river	7,70	3,85	hard
Novaky water tank	7,97	2,30	moderately hard
Spring at the chapel	7,28	4,37	very hard
Letoha stream- lower part	7,94	2,12	moderately hard



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- A photograph of a waterfall flowing over large, dark, mossy boulders. The water is white as it falls and splashes. In the background, there are more rocks and a dense forest of green trees.
- "If we want to do something for nature, we must first recognize it and if we want to improve something, we need to start with themselves."

A photograph of a waterfall flowing over large, dark, mossy boulders. The water is white as it falls and splashes. In the background, there is a dense forest of green trees.

Thanks for your attention!

- Made by Karolina Bohusova
and Karin Michalovicova