Autochthonous algae in post-mining water

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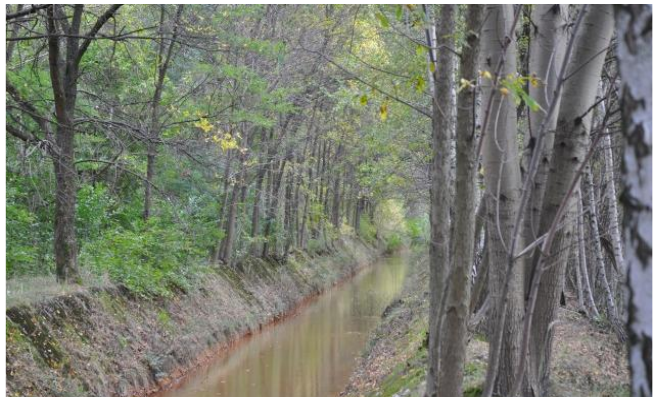
Research sites

Ditch Bolko



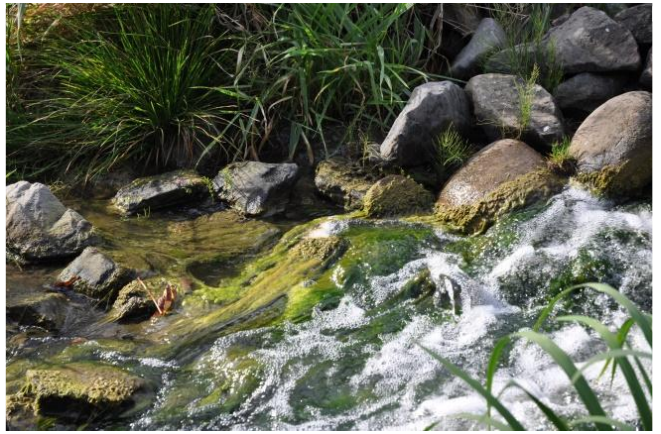

Ditch Saturn



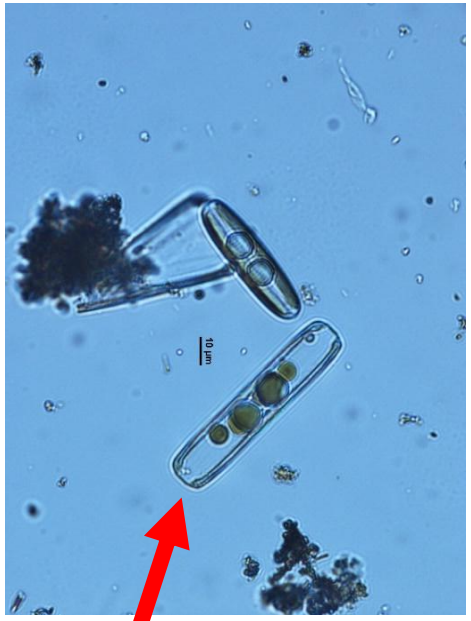



Grabek Park Czeladź






Search for autochthonous algae communities in the Bolko and Saturn ditches

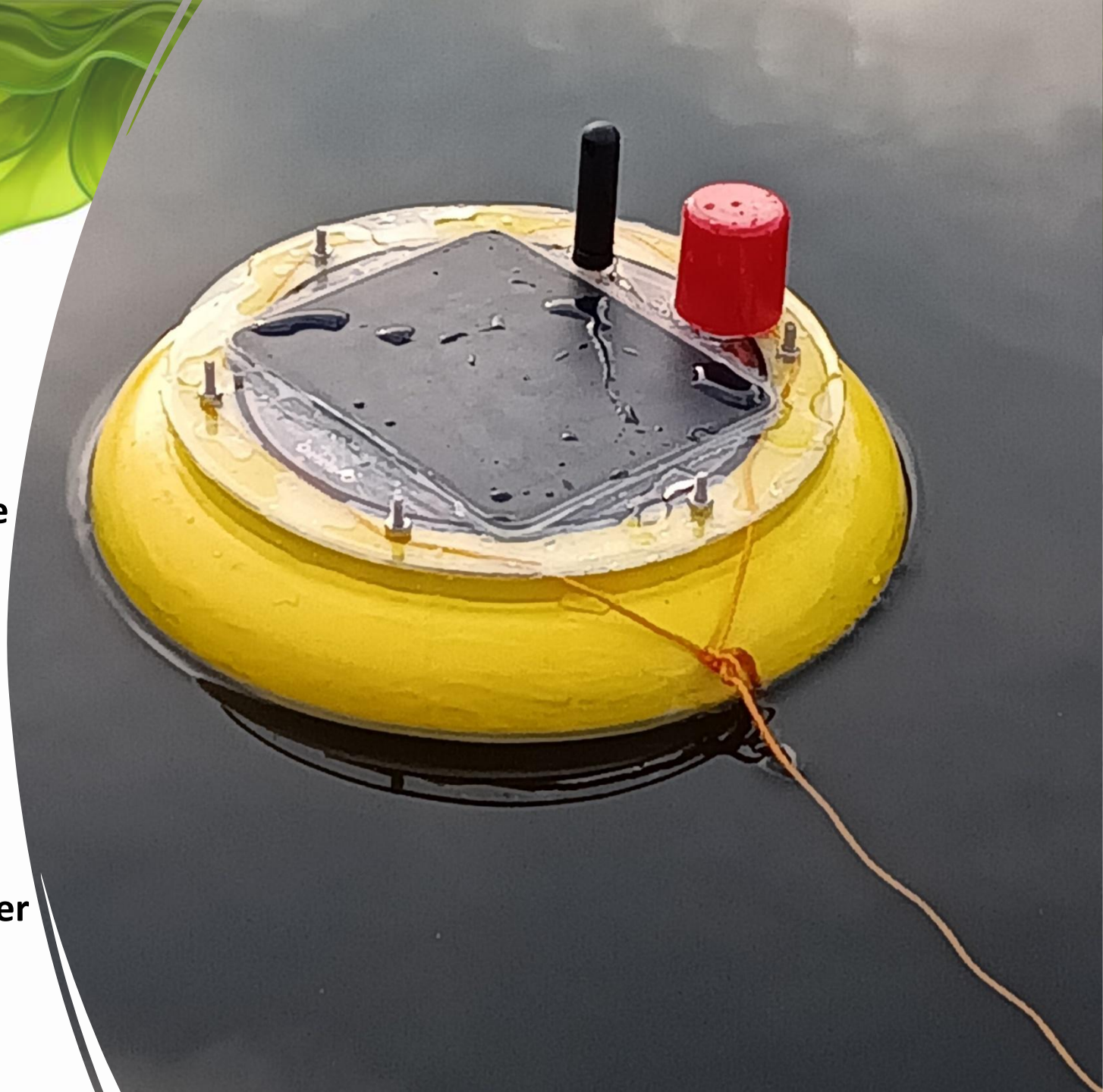


Universal measuring probe

What can we test?

Water color spectrum in the range of light wavelengths from 400-940 nm (ultraviolet-visible light-infrared)

Water turbidity
Water temperature
TDS (Total Dissolved Solids)
Surface exposure
Air temperature
Atmospheric pressure
Optionally, you can use pH, oxygenation and other sensors (the limitation is the need for more frequent servicing - replacement of reference solutions, membranes, calibration).



For whom?

- The range of applications includes:

- watercourses,
- fish ponds,
- polders in sewage treatment plants,
- recreational waters.

- The system is adapted for a wide range of recipients - each probe sends data to the server, and the user has access to their data in real time via a personalized application.
- The universal measuring probe is an autonomous device operating on the "set it and forget it" principle. Solar power supply and minimal power consumption in standby allow for maintenance-free operation throughout the season.
- Communication based on the LoRaWAN system (Long Range Wide Area Network) makes the user independent of the telecommunications infrastructure.
- The measured environmental parameters will be analyzed using deep neural network mechanisms, and on this basis, it will be possible to predict changes in the monitored biotope.

- Our research confirms the validity of using autochthonous algae to increase their numbers in the studied ditches;

- On the basis of autochthonous algae, fouling algae communities can be modelled in order to increase their share in water self-purification;

- It was possible to confirm that a large number of filamentous algae forms in the modelled sets causes self-elimination due to excessive nutritional demand;

- The basis for the development of epilithic communities, apart from bacteria, are diatoms;

- The most favourable zone for the development of communities is the spray zone, i.e. the border zone between the aquatic and terrestrial environment.

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