Nicole Nawrot
Variability of the concentration of mineral forms of nitrogen and phosphorus in watercourses in the agricultural catchment area (Bay of Puck, Baltic Sea, Poland)

Sponsors:
IWA 10th Eastern European Young Water Professionals Conference – Zagreb 2018

The sources of nutrients

Catchment of the Baltic Sea
- Poland – 98% of the total area
- 400 km$^3$ of oceanic waters
- 4% of exchange

The primary contributor
Monitoring of the local environment in the field of biogenic substances:
- is of particular importance for the purposes of improving the Baltic Sea environment
- To fulfill the goals of the European Union directives as well as the Baltic Sea Action Plan

WaterPUCK BIOSTRATEG III
https://waterpuck.pl/pl/
Puck Municipality
Analyzed watercourses:
1. Płutnica River - Catchment Area: 84 km$^2$
2. Błądzikowski Stream - Catchment Area: 23 km$^2$
3. Reda River - Catchment Area: 485.5 km$^2$

Samples
- Collection VII – XII 2017
- Comparison

Nitrogen forms
- Sampling points
- Nitrogen forms
- Concentrations of NO$_2$ at sampling points

Results
- Concentrations of NO$_2$ at sampling points

Monitoring of the local environment in the field of biogenic substances:
- Is of particular importance for the purposes of improving the Baltic Sea environment
- To fulfill the goals of the European Union directives as well as the Baltic Sea Action Plan

June 24, 2018
Results

Concentrations of NH$_4^+$ at sampling points

Concentrations of PO$_4^{3-}$ at sampling points

Concentrations of P at sampling points

Conclusions

1. The elevated concentrations of nutrients for Błądzikowski Stream were observed.
2. The autumn fertilization could be the reason for the elevated nutrient concentrations recorded in August and September.
3. In all measurement points the dominant form of nitrogen was nitrate ($\text{NO}_3^-$).
4. Further research carried out within the Water Puck project will focus on accurate determining the land use in the analysed catchment areas and on estimation of the doses of mineral fertilizers used by farmers. It is also planned to analyze the variability of concentrations of nitrogen and phosphorus compounds during dry weather and during rain episodes.

Acknowledgements

The work was carried out as part of a project financed by The National Centre for Research and Development under the Strategic Programs - BIOSTRATEG II.