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Impact of Climate Change on the Quality of Urban and Coastal Waters - Diffuse Pollution -

NEWSLETTER

Vol. 3 - August 2010

Investigations at the case studies generate important data

With ongoing great enthusiasm and confidence the DiPol Consortium is tackling the second year of the project. The focus during spring and summer is on the 4 case studies, located in Oslo, Gothenburg, Copenhagen and Hamburg. Comprehensive sampling campaigns yielded a significant amount of data both, for status quo conditions as well as extreme weather events. The results of the ongoing analytical work set the basis for a future usage and implementation of SIMACLIM, a communication and decision making tool. More information on the work performed at the individual case studies are provided in this edition of the DiPol Newsletter.

Beside the field and laboratory work the third General Assembly was held in Sweden, hosted by our partners from Gothenburg. This event was organised in connection with a couple of workshops regarding DiPol's work packages as well as recent activities within the working groups.

Besides, DiPol's public relations have seen a successful first half-year 2010: The project has been presented at the Joint Annual Conference 2010 (Stavanger, N) as well as during a two-weeks exhibition at the lobby of the Hamburg town hall, presenting DiPol to a total of more than 10,000 visitors.

Hamburg, August 2010

Marco Ritzkowski, Project Manager

Hamburg case study: Elbe island Wilhelmsburg

The German case study "Elbe island Hamburg-Wilhelmsburg" represents an urban area influenced by a large river, facing challenges like varying surface and ground water levels, high river water discharges as well as surface water run-off. In a joint approach by the German and Dutch partners water and sediment samples are frequently taken and analysed. The analytical includes parameters like trace metals, organic pollutants (e.g. PAH's), dissolved and particle bound substances, nutrients and eco-toxicological tests. Kindly supported by the Hamburg Port Authority, the Federal Institute of Hydrology as well as the Hamburg Authority on Hygiene and Environment sediment traps for the collection of suspended matter have been established and sediment samples from the harbour area have been chemically and biologically analysed.

Results from the spring 2010 surveys indicate that parts of the surface water system in Wilhelmsburg shows elevated concentrations of heavy metals and organic pollutants and at the same time a significantly lowered change in ecotoxicity compared to samples that were taken in 2009.

Based on a literature review by the University of Applied Sciences Luebeck, a shift of the main precipitation from summer to winter can be expected, accompanied by raising water temperatures. During summer water shortages might occur and heavy rain events might lead to a flushing of pollutants by surface run-off into surface waters.



Analyse and document: Investigations at the German case study comprise work packages 3 & 4.

According to international studies storm water run-off is supposed to be the primary source for surface water pollution by nonhuman sources of coliforms. Based on these indications additional sampling campaigns will focus on the impact of pathogenic bacteria on water quality under climate change conditions.

More information regarding the case studies are available at the DiPol webpage: [www.interreg-dipol.de]



Water and sediment samples from the German case study Wilhelmsburg

European Union



The Interreg IVB North Sea Region Programme



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The DiPol-Project is partly funded by the European Regional Development Fund.

Swedish case study: Göta Älv

At the Swedish case study and from along the two urban streams (Säveån and Mondals ån) leading into the Göta Älv river surface water samples have been taken and analysed. For this particular location atmospheric pollutants and their deposition might play an important role. The origin of these pollutants is assumed to be dispersion of road-related contaminants; a factor not well documented so far.



Sampling station for atmospheric pollutants

Therefore the Swedish partners started to gather and analyse air born particles and deposition in Gothenburg and identified a new measurement spot in the city centre. In addition the existing air pollution emission database for the Gothenburg area has been completed with new data for ships which will be used for local air pollution deposition calculations. The next step in the working plan of the Swedish partners is to model particle deposition for all 4 case studies, taking into account existing depositions velocities of particles as well as large and local scale meteorological data.

Norwegian case study: Inner Oslo Fjord

For the case study Inner Oslo Fjord existing data have been gathered and evaluated resulting at a description of the background pollution level for the site.

The Norwegian Geotechnical Institute (NGI) carried out a sampling event under snow melting conditions from urban areas in spring 2010. At 4 sampling stations in Akerselva, water samples were taken and analysed and passive samplers have been installed. Further more NGI started to collect suspended material from the river under snow melting conditions for further toxicological analysis. These investigations will be carried out at the laboratory of the University of Amsterdam (VU-IVM).



Sampling station for atmospheric pollutants

Danish case study: Harrestrup stream

Harrestrup Stream drains a densely populated area of approx. 70 km² and is connected to the Kalveboderne Lagoon. From all municipalities within Harrestrup river basin waste water is discharged directly into the river channel during storm events either as combined sewer overflow or as wastewater from surface runoff collection systems. Investigations are focusing on three different locations along the stream: Firstly, 'Bassin K', a shallow stormwater pond with a surface area of approx. 0.6 ha and a maximal depths of 1 meter. Secondly, 'Ejby Bog', a former swampland which was used for peat extraction and later on for waste disposal. After 1968 one common lake was established in that area. Finally, the 'Kalveboderne Lagoon' is a shallow brackish lagoon (< 2 m except for the shipping route) covering an area of 4.3 km².

The results of analysed water, suspended matter and sediment samples so far indicate that the major share of pollutants originates from separate sewer runoff from paved areas as well as from combined sewer overflow. Data of several monitoring campaigns have been processed for inclusion into the future web based knowledge platform 'MapMy Climate'.



Sediment sampler at the Danish case study Harrestrup stream

Coming up

- The fourth **Consortium Meeting in Oslo** is scheduled 20 to 22 September 2010. The meeting comprises both, workshops organized by project workgroups (Monday 20th and Tuesday 21st) as well as the general assembly which will address the current status of project activities and planning of future activities. In addition a visit to the Norwegian case site "Inner Oslo Fjord" is foreseen on Tuesday afternoon, September 21st. For a detailed agenda please visit the DiPol-Website: [www.interreg-dipol.de].
- **DiPol booklets:** Background information on specific projects issues will be released by 3 booklet editions in six (!) languages. The first edition on the German case study will be published forthcoming. Please check the website for updated information. [www.interreg-dipol.de].
- **DiPol-Newsletter (Vol. 4):** Available autumn 2010