

Poster 113: In situ electrokinetic treatment pilot test of petroleum hydrocarbon contaminated marine sediment

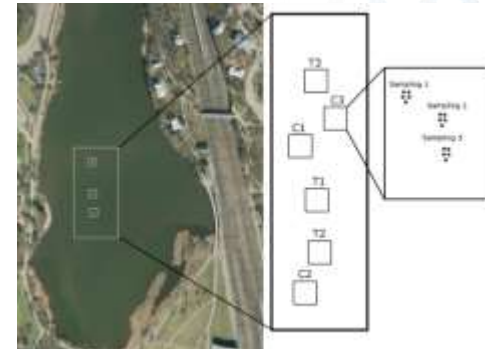
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Introduction

- *In-situ* pilot-scale test to investigate effectiveness of electrokinetic treatment in removing petroleum hydrocarbons from marine sediment
 - Part of GRACE project, in co-operation with Erased project, participants SYKE, LAMOR, City of Helsinki and Ekoharden Technologies Ltd
- Test was carried out in Töölönlahti Bay in Helsinki, Finland.

Experiment setup

- Experiment area consisted from three experiment plot
 - Each plot had anchored platform with the treatment equipment (control box, power cables and electrodes)
 - 16 electrodes were placed around the platform to create grid pattern
 - Modified electrokinetic method (EKOGrid marketed by Ekoharden) uses current that changes the direction in very short intervals
 - Method have been used succesfully before in treating petroleum hydrocarbon polluted soils



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Experiment setup continued

- Experiment conducted from August 2017 to August 2018
 - Treatment time ca. 10 months per one experiment plot
- Sediment sampling to follow the effectiveness of the remediation
 - Control and treatment samples after 0, 2-6 and 8-10 months of treatment.
 - Analysis included PAH, petroleum hydrocarbons fractions C₁₀-C₂₁ and >C₂₁-C₄₀

Results and conclusions

- Results didn't indicate clear remediation effects in the sediment, however results are difficult to interpret due to large variation in the sediment between and within the test plots.
- Also several other reasons could explain the low remediation effect, e.g too short treatment time, effect of colder winter season in the remediation process and possible problems with the treatment equipment.

