

Finnish Environment Institute SYKE

Marine Research Center

Modelling and Innovations, Marine sediments

Group presentation at the NENUN kick-off meeting
Helsingør, Nov. 23-25, 2010

Names and contact addresses

Adj. Prof. Kirsten S. Jørgensen
kirsten.jorgensen@ymparisto.fi
Phone +358 400 148599
Fax +358 9 495913

Modelling and Innovations Unit
Marine Research Center
Finnish Environment Institute SYKE
Hakuninmaantie 6
FI-00430 Helsinki
Finland

Adj. Prof. Jouni Lehtoranta
jouni.lehtoranta@ymparisto.fi
+358 400 148 532

Dr. Katarina Björklöf (SYKE Laboratories)
katarina.bjorklof@ymparisto.fi
+358 400 148 596

M.Sc. Pirjo Yli-Hemminki
pirjo.yli-hemminki@ymparisto.fi
+358 40 8473727

M.Sc. Aura Nousianen
aura.nousiainen@ymparisto.fi
+358 400 148 734

Master student Laura Häkkinen
laura.hakkinen@ymparisto.fi
+358 40 180 3424

Lab. technician Ilse Heiskanen (SYKE Laboratories)
ilse.heiskanen@ymparisto.fi

Projects

GENOTOOLS
PIMA-FUN
COMICS
BASE

COMICS

GENOTOOLS
PIMA-FUN

COMICS

GENOTOOLS

PIMA-FUN

GENOTOOLS
PIMA-FUN
BASE

Techniques used

- qPCR of functional genes
 - *atzA*, *atzB*, *trzN*, PAH-RHD_α (GN&GP), *xylE*,
- qPCR of specific taxonomic groups or species
 - *Geobacter*, 16sDNA, fungal species
- Cloning of qPCR products
- DAPI
- DGGE
- Microbial diversity by cloning of community 16sDNA and sequencing
- Mineralization using ¹⁴C labelled substrates
- Microbial respiration (CO₂ prod)
- Denitrification (C₂H₂ inhibition, N₂O prod)
- Iron reduction (Fe²⁺ prod. by ferrozine)
- Methane production
- Biotraps (for microbes in groundwater wells)
- Use of inocula (bacteria and fungi, concretions) in soil and dredged sediment

Techniques we would like to implement

- Quantification of mRNA from functional genes
- qPCR for Fe and Mn oxidizing bacteria in concretions
- FISH to visualize active bacteria in nodules
- Primer design for PCR for interesting bacterial strains in concretions
- Bioinformatics (interpretation of data from high throughput sequencing)

Ongoing projects

- GENOTOOLS - Genomic tools in bioremediation: A case study with atrazine as pollutant
- PIMA-FUN - Bioremediation of contaminated soil with fungi
- COMICS - Iron-manganese concretions in bioremediation of contaminated soils and sediments
- BASE - Baltic Sea sediments and changing environmental conditions