# THE ECOSYSTEM IN A BOTTLE:

## Microbial community analysis from the deep sea

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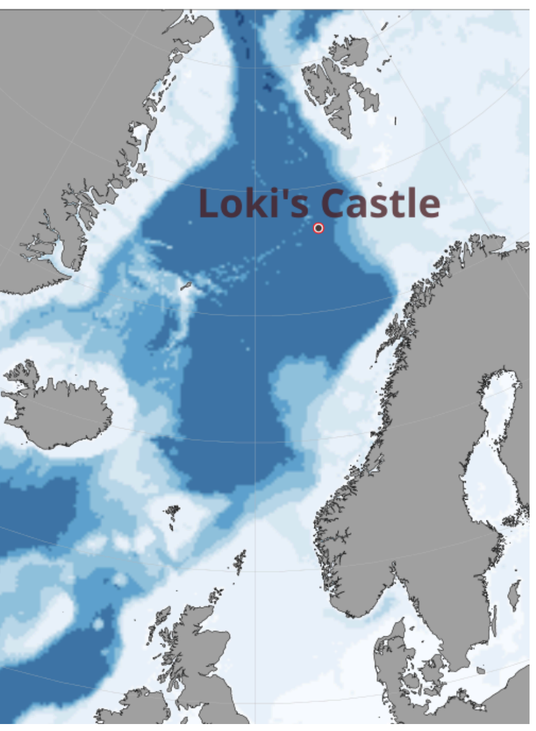


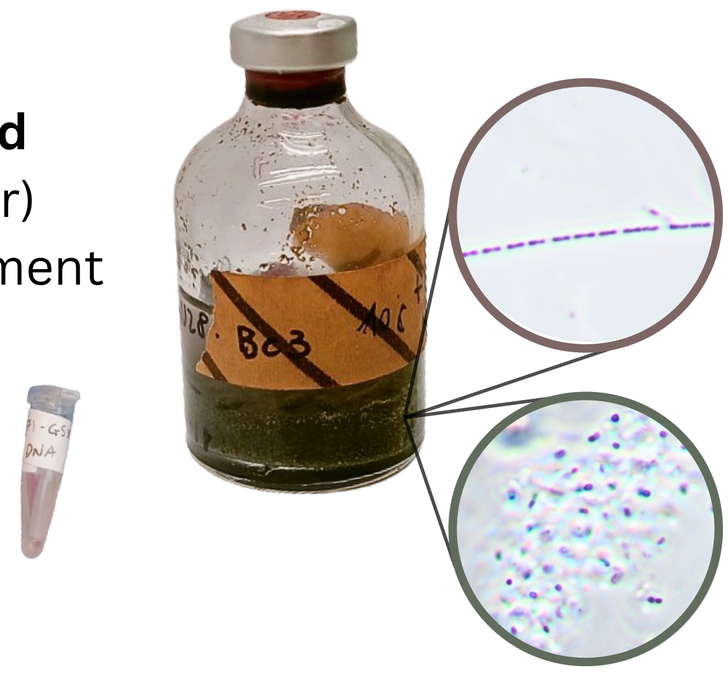

Loki's Castle vent field is a methane-rich area where **ANaerobic MEthane oxidizing archaea** perform **Anaerobic Oxidation of Methane** in partnership with **Sulfate-Reducing Bacteria**, reducing methane emissions from marine environments.

**AIM**: **Metagenomic microbial community analysis from low-temperature venting sediments at Loki´s Castle after a long-term $CH_4$ amended incubation.**


*Image: Center for Deep Sea Research*

# PRACTICE

**Sampling (2018)**
**Loki´s Castle barite field**
Core 20 cm (blade corer)
**Methane** ($CH_4$) amendment



**DNA Extaction**
Quick-DNA Miniprep

**Purification**
AMPure XP

**Nanopore sequencing**
DNA repair & end-prep
Adapter ligation & clean-up
Priming & loading the
**MinION Flow Cell**

Estimated
**28.55 Gb**
**5.78 M reads**
**N50 6.89 kb**

**Bioinformatics**
HPC cluster: **supercomputer SAGA** (Sigma2)

**Quality The Dorado**
Base calling: Super accurate model

**Assembly NanoPhase**
Taxonomy assignment: GTDB

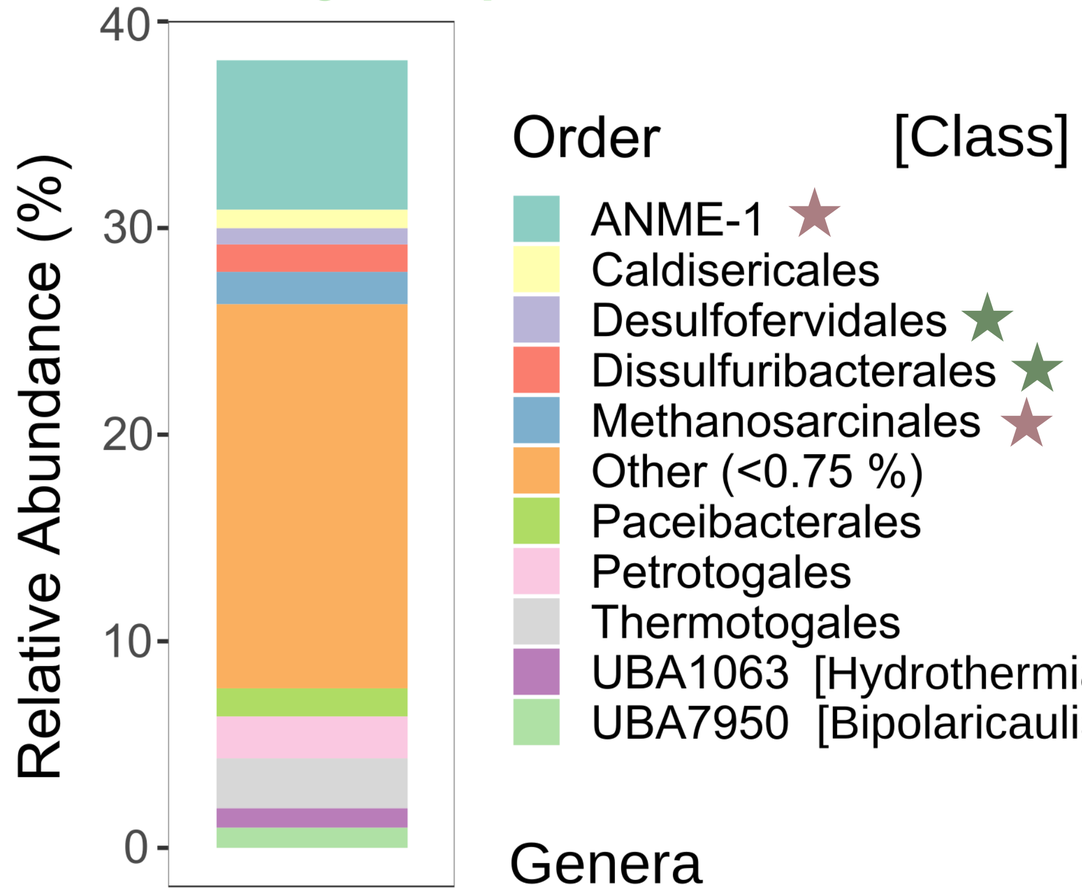
**Average Nucleotide Identity**
Galaxy: **FastANI**

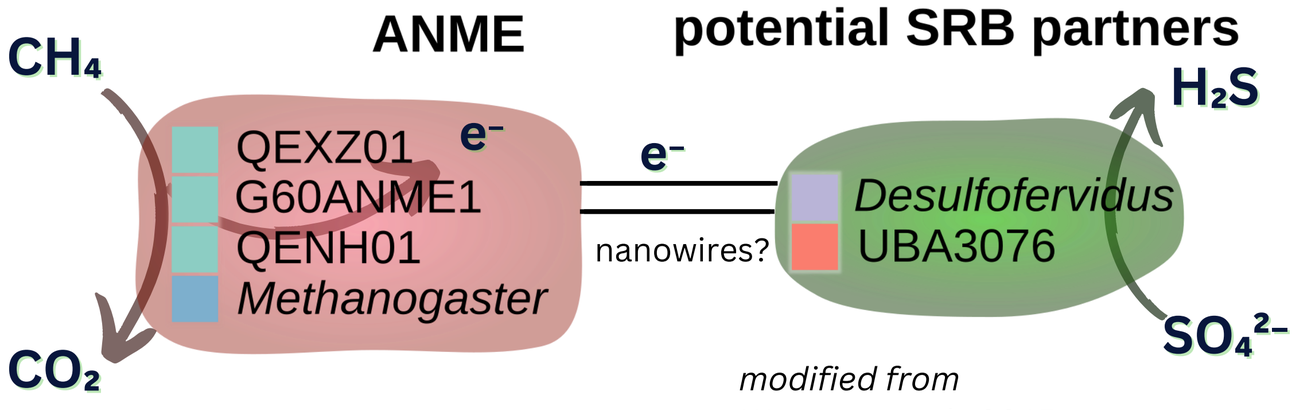
**CODE BIO299**

**REFER ENCES**

# OUTCOME

**Community composition:**




*modified from Wegener et al., 2015*

# KEY FINDINGS

- Community dominated by **ANaerobic MEthane oxidizers (ANME) + Sulfate-Reducing Bacteria (SRB) Anaerobic Oxidation of Methane (AOM)**.
- High sample diversity: 216 MAGs and 12 predicted circular genomes **New unique taxa increasing the diversity in Loki´s Castle Barite Field.**
- MAGs sharing the highest similarity in percentage of nucleotide identity with **Cold seeps** and **Marine sediments**.