Table S3: The detection of archaeal sequences in environmental samples at resolution down to the family level. The classification was conducted on quality filtered and chimera free sequence libraries for each sample. Green boxes indicate sequence classes that were detected.

Classification	ANBR	FAS	GC	OP-YNP
Crenarchaeota	✓	✓	✓	✓
Thermoprotei	✓		✓	✓
Caldisphaerales				✓
Caldisphaeraceae				✓
Desulfurococcales			✓	✓
Desulfurococcaceae				✓
Sulfolobales			✓	✓
Sulfolobaceae			✓	✓
Thermoproteales				✓
Thermoproteaceae				✓
unclassified	✓		✓	✓
env_sample		✓		
Euryarchaeota	✓		✓	✓
Archaeoglobi				✓
Archaeoglobales				✓
Archaeoglobaceae				✓
Marine_Group_II			✓	
env_sample			✓	
Marine_Group_III			✓	
env_sample			✓	
Methanobacteria	✓			
Methanobacteriales	✓			
Methanobacteriaceae	✓			
Methanomicrobia	✓			
Methanomicrobiales	✓			
Genera_incertae_sedis	✓			
Methanospirillaceae	✓			
Methanosarcinales	✓			
Methanosaetaceae	✓			
Methanosarcinaceae	✓			
Thermoplasmata				✓
Thermoplasmatales				✓
Picrophilaceae				✓
Nanoarchaeota				✓
env_sample				✓
Thaumarchaeota			✓	
marine_archaeal_group_1			✓	
Nitrosopumilales			✓	
Nitrosopumilaceae			✓	
env_sample			✓	

env_sample				
unclassified				