

Description of Additional Supplementary Files:

Supplementary Dataset 1: Methylococcales 16S rRNA gene phylogenetic tree, containing partial, metagenome assembled 16S rRNA gene sequences.

Supplementary Dataset 2: Statistics on methane oxidation and denitrification rates.

Supplementary Dataset 3: Metagenome-assembled 16S rRNA gene sequences from Lake Zug (in fasta format).

Supplementary Dataset 4: Raw phyloflash results.

Supplementary Dataset 5: List of genes related to methane oxidation, denitrification and fermentation analyzed in metatranscriptomic and metagenomic datasets.