Appendix

Appendix 1

Information of samples and samplings, given as name of the study, original processing Name, geographic data, date of sampling, depth in m(measured as below the surface), device for sampling, research vessel (RV), research campaign, BioSample accession number as well as Pangea identification number.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| samples | name origianlly  | latitude | longitude | date | depth | instrument  | RV  | Campaing  | BioSamples | Pangea id |
| 1A | MARMINE\_90\_ST38\_0\_1   | 73.464 | 7.198 | 2016-08-24Z | 2683.5 | sediment-sampler-(pushcorer)-deployed-with-ROV | Polar King | MarMine | SAMEA5361744 | eDNAB0000274 |
| 1B | MARMINE\_90\_ST38\_1\_3   | 73.464 | 7.198 | 2016-08-24Z | MarMine | SAMEA5361745 | eDNAB0000275 |
| 2A | MARMINE\_140\_ST48\_0\_1 | 73.46 | 7.218 | 2016-08-28Z | 2826 | sediment-sampler-(pushcorer)-deployed-with-ROV | Polar King | MarMine | SAMEA5361775 | eDNAB0000305 |
| 2B | MARMINE\_140\_ST48\_1\_3 | 73.46 | 7.218 | 2016-08-28Z | MarMine | SAMEA5361776 | eDNAB0000306 |
| 3A | MDW\_ST117\_CT2\_0\_1 | 37.34 | -24.755 | 2016-10-05Z | 1325 | Multicorer | RV Sarmiento de Gamboa | MedWawes | SAMEA5361930 | eDNAB0000460 |
| 3B | MDW\_ST117\_CT2\_1\_3      | 37.34 | -24.755 | 2016-10-05Z | MedWawes | SAMEA5361931 | eDNAB0000461 |
| 4A | MDW\_ST38\_CT3\_0\_1        | 36.844 | -11.303 | 2016-09-25Z | 1920 | Multicorer | RV Sarmiento de Gamboa | MedWawes | SAMEA5361821 | eDNAB0000351 |
| 4B | MDW\_ST38\_CT3\_1\_3        | 36.844 | -11.303 | 2016-09-25Z | MedWawes | SAMEA5361822 | eDNAB0000352 |
| 5A | MDW\_ST215\_CT1\_0\_1      | 36.516 | -2.794 | 2016-10-25Z | 554 | Multicorer | RV Sarmiento de Gamboa | MedWawes | SAMEA5362123 | eDNAB0000653 |
| 5B | MDW\_ST215\_CT1\_1\_3         | 36.516 | -2.794 | 2016-10-25Z | MedWawes | SAMEA5362123 | eDNAB0000654 |

Appendix 2





Indication of probes positions designed in this study (18S) and from Gasc and Peyret (2018; 16S). The V regions within the ribosomal DNA indicating the variable regions.

Appendix 3

Results of *in silico* analyses for probes of this study against Silva database (release 132).

**18S**

|  |  |  |
| --- | --- | --- |
| Probes | Targeted | Not targeted |
| 18S | **55137** | **8** |
| Sequences not targeted by probes (checked with bbduk) |
| ABRT02368317 | Eukaryota;Opisthokonta;Holozoa;Metazoa (Animalia);Eumetazoa;Bilateria;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Mammalia; |
| ALWZ043753765 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Pinophyta; |
| ASJU01048400 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;Solanales;Capsicum; |
| AXCG01153991 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;Malvales;Gossypium; |
| CBVK0100780102 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Pinophyta;Pinales;Picea; |
| MASP02000789 | Eukaryota;Opisthokonta;Nucletmycea;Fungi;Dikarya;Ascomycota;Pezizomycotina;Sordariomycetes;Glomerellales;Glomerellaceae;Colletotrichum; |
| MQVQ01000207 | Eukaryota;Opisthokonta;Nucletmycea;Fungi;Dikarya;Ascomycota;Pezizomycotina;Sordariomycetes;Glomerellales;Glomerellaceae;Colletotrichum; |
| MQVQ01000207 | Eukaryota;Opisthokonta;Nucletmycea;Fungi;Dikarya;Ascomycota;Pezizomycotina;Sordariomycetes;Glomerellales;Glomerellaceae;Colletotrichum; |

**16S**

|  |  |  |
| --- | --- | --- |
| Probes | Targeted | Not targeted |
| 16S | **369953** | **59** |
| Sequences not targeted by probes (checked with bbduk) |
| FJ586378 | Archaea;Euryarchaeota;Methanobacteria;Methanobacteriales;Methanobacteriaceae;Methanosphaera; |
| FJ586407 | Archaea;Euryarchaeota;Methanobacteria;Methanobacteriales;Methanobacteriaceae;Methanosphaera; |
| FJ586418 | Archaea;Euryarchaeota;Methanobacteria;Methanobacteriales;Methanobacteriaceae;Methanosphaera; |
| FJ586817 | Archaea;Euryarchaeota;Methanobacteria;Methanobacteriales;Methanobacteriaceae;Methanosphaera; |
| FJ586419 | Archaea;Euryarchaeota;Methanomicrobia;Methanomicrobiales;Methanomicrobiaceae;Methanomicrobium; |
| GU179496 | Archaea;Euryarchaeota;Methanomicrobia;Methanosarcinales;Methanosaetaceae;Methanosaeta; |
| JX857017 | Archaea;Euryarchaeota;Methanomicrobia;Methanosarcinales;Methanosaetaceae;Methanosaeta; |
| GU179460 | Archaea;Euryarchaeota;Methanomicrobia;Methanosarcinales;Methanosarcinaceae;Methanolobus; |
| FJ536515 | Archaea;Hadesarchaeaeota; |
| FJ536523 | Archaea;Hadesarchaeaeota; |
| GQ926388 | Archaea;Hadesarchaeaeota; |
| HM244138 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Aenigmarchaeales; |
| HM998544 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Aenigmarchaeales; |
| KP091057 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Aenigmarchaeales; |
| AB301978 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Deep Sea Euryarchaeotic Group(DSEG); |
| EU385997 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Deep Sea Euryarchaeotic Group(DSEG); |
| FN691654 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Deep Sea Euryarchaeotic Group(DSEG); |
| JQ750486 | Archaea;Nanoarchaeaeota;Nanohaloarchaeia;Deep Sea Euryarchaeotic Group(DSEG); |
| EF022047 | Archaea;Thaumarchaeota;Group 1.1c; |
| GQ926185 | Archaea;Thaumarchaeota;Nitrososphaeria;Nitrosopumilales;Nitrosopumilaceae;Candidatus Nitrosopumilus; |
| EF503699 | Archaea;Thaumarchaeota;Nitrososphaeria;Nitrososphaerales;Nitrososphaeraceae;Candidatus Nitrososphaera; |
| KF098072 | Bacteria;Actinobacteria;Actinobacteria;Actinomycetales;Actinomycetaceae;Actinomyces; |
| KT588655 | Bacteria;Actinobacteria;Actinobacteria;Streptomycetales;Streptomycetaceae;Streptomyces; |
| MKKT01019643 | Bacteria;Cyanobacteria;Oxyphotobacteria;Chloroplast; |
| MLAU01033615 | Bacteria;Cyanobacteria;Oxyphotobacteria;Chloroplast; |
| MKKS01035136 | Bacteria;Cyanobacteria;Oxyphotobacteria;Chloroplast;Ensete ventricosum |
| KY285283 | Bacteria;Firmicutes;Bacilli;Bacillales;Family XII;Exiguobacterium; |
| KF071060 | Bacteria;Firmicutes;Clostridia;Clostridiales;Family XI;Finegoldia; |
| LBYF01000023 | Bacteria;Patescibacteria;Parcubacteria;Candidatus Zambryskibacteria; |
| KF071178 | Bacteria;Proteobacteria;Alphaproteobacteria;Caulobacterales;Caulobacteraceae;Phenylobacterium; |
| AF241675 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| CBYQ010000831 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| EU100742 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| EU100743 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| KT201147 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| KT946595 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| KX061492 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| LVCI01000074 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria; |
| KF297618 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria;Beauveria pseudobassiana |
| CCXL01006992 | Bacteria;Proteobacteria;Alphaproteobacteria;Rickettsiales;Mitochondria;Solanum pennellii |
| KF101272 | Bacteria;Proteobacteria;Gammaproteobacteria;Betaproteobacteriales;Neisseriaceae;Neisseria; |
| KX936899 | Bacteria;Proteobacteria;Gammaproteobacteria;SAR86 clade; |
| KC820870 | Bacteria;Verrucomicrobia;Verrucomicrobiae;Chthoniobacterales;Chthoniobacteraceae;Chthoniobacter; |
| HG975523 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;Solanales;Solanum; |

Appendix 4

Raw sequencing output and numbers after first filtering for CBH and MTB approach. In the upper table results are given from CBH in the lower table numbers a from the MTB approach, where processed is indicating numbers after DADA2 correction and fileting, before merging.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| File | 1A | 1B | 2A | 2B | 3A | 3B | 4A | 4B | 5A | 5B |
| **Raw reads** | 10645323 | 2650241 | 2592732 | 3031657 | 2231139 | 2401900 | 2474393 | 2420067 | 12799906 | 2460439 |
| **Trimmed reads** | 9641955 | 2396256 | 2282075 | 2778771 | 1915125 | 2191224 | 2115987 | 2255397 | 12214992 | 2329455 |
| Mean length R1 | 226 | 263 | 261 | 261 | 260 | 260 | 245 | 276 | 289 | 284 |
| Mean length R2 | 200 | 237 | 232 | 233 | 231 | 244 | 216 | 248 | 272 | 258 |
|  |  |  |  |  |  |  |  |  |  |  |
| **SortMeRNA** | 9122820 | 2220813 | 2087097 | 2584480 | 1789990 | 2001056 | 1955741 | 1826126 | 11978622 | 2150059 |
| # sequences Ribosomal | 1549520 | 596515 | 627942 | 625719 | 503669 | 684191 | 439626 | 590419 | 815958 | 732491 |
| # non ribosomal | 7573300 | 1624298 | 1459155 | 1958761 | 1286321 | 1316865 | 1516115 | 1235707 | 11162664 | 1417568 |
| %ribosomal | 17,0 | 26,9 | 30,1 | 24,2 | 28,1 | 34,2 | 22,5 | 32,3 | 6,8 | 34,1 |
| **EMIRGE j1 n120** |  |  |  |  |  |  |  |  |  |  |
| # sequences | 500 | 613 | 656 | 608 | 597 | 674 | 550 | 608 | 1822 | 689 |

Sequencing output of Capture analyses. Sequences not identified as Ribosomal including mitochondrial Data as well non-target DNA fragments.

Appendix 5

Results of identifed Phyla per sample and analysed Method

Archaea

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Method | Sample | Asgard group | Candidatus Hydrothermarchaeota | DPANN group | Euryarchaeota | TACK group |
| CBH-short | 1A | 1 | 1 | 6 | 37 | 41 |
| CBH-long | 1A | 0 |   |   | 1 | 94 |
| MTB | 1A | 0 | 0 | 39 | 0 | 10 |
| CBH-short | 1B | 2 | 1 | 6 | 35 | 41 |
| CBH-long | 1B | 0 | 1 |   | 1 | 85 |
| MTB | 1B | 0 | 0 | 54 | 5 | 13 |
| CBH-short | 2A | 2 | 1 | 7 | 51 | 43 |
| CBH-long | 2A | 0 | 1 |   | 2 | 91 |
| MTB | 2A | 0 | 0 | 40 | 3 | 12 |
| CBH-short | 2B | 2 | 1 | 6 | 41 | 45 |
| CBH-long | 2B | 0 | 1 |   | 3 | 84 |
| MTB | 2B | 0 | 0 | 53 | 3 | 14 |
| CBH-short | 3A | 1 | 1 | 5 | 38 | 42 |
| CBH-long | 3A | 0 |   |   | 2 | 88 |
| MTB | 3A | 0 | 0 | 32 | 4 | 19 |
| CBH-short | 3B | 1 | 1 | 4 | 36 | 43 |
| CBH-long | 3B | 0 | 1 |   | 4 | 98 |
| MTB | 3B | 1 | 0 | 50 | 5 | 22 |
| CBH-short | 4A | 1 | 1 | 5 | 18 | 28 |
| CBH-long | 4A | 0 | 2 |   | 4 | 75 |
| MTB | 4A | 1 | 0 | 51 | 4 | 22 |
| CBH-short | 4B | 2 | 1 | 7 | 32 | 42 |
| CBH-long | 4B | 0 | 1 |   | 3 | 87 |
| MTB | 4B | 0 | 0 | 55 | 6 | 19 |
| CBH-short | 5A | 3 | 1 | 9 | 58 | 54 |
| CBH-long | 5A | 0 | 4 |   | 9 | 101 |
| MTB | 5A | 0 | 1 | 41 | 5 | 17 |
| CBH-short | 5B | 1 | 1 | 7 | 45 | 40 |
| CBH-long | 5B | 0 | 1 | 1 | 2 | 66 |
| MTB | 5B | 7 | 2 | 53 | 11 | 18 |

**Bacteria**



Eukaryota

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Method | Sample | Alveolata | Amoebozoa | Apusozoa | Breviatea | Centroheliozoa | Cryptophyta | Katablepharidophyta | Euglenozoa | Fornicata | Glaucocystophyceae | Haptophyceae | Jakobida | Opisthokonta | Oxymonadida | Parabasalia | Rhizaria | Rhodophyta | Stramenopiles | unclassified  | Viridiplantae |
| CBH-long | 1A | 2 |   |   |   |   |   |   |   |   |   |   |   | 34 |   |   | 3 |   |   |   |   |
| CBH-short | 1A | 146 | 24 |   |   | 5 | 6 |   | 16 |   |   | 3 |   | 412 |   |   | 72 | 9 | 57 | 1 | 79 |
| MTB | 1A | 212 | 19 | 15 | 1 | 1 | 3 | 3 | 1 | 0 | 1 | 2 | 2 | 216 |   |   | 436 | 0 | 104 | 22 | 14 |
| CBH-long | 1B | 1 |   |   |   |   |   |   | 1 |   |   |   |   | 7 |   |   |   |   | 1 |   |   |
| CBH-short | 1B | 51 | 2 |   |   | 1 |   |   | 5 |   |   | 3 |   | 104 |   |   | 35 | 3 | 24 |   | 33 |
| MTB | 1B | 211 | 53 | 40 | 0 | 2 | 6 | 3 | 0 | 0 | 0 | 4 | 2 | 293 |   |   | 570 | 0 | 119 | 26 | 8 |
| CBH-long | 2A | 2 |   |   |   |   |   |   | 1 |   |   |   |   | 18 |   |   |   |   |   |   |   |
| CBH-short | 2A | 55 | 4 |   |   | 1 |   |   | 7 |   |   | 3 |   | 233 |   |   | 40 | 4 | 45 |   | 17 |
| MTB | 2A | 174 | 35 | 28 | 1 | 7 | 5 | 6 | 0 | 0 | 0 | 1 | 4 | 306 |   |   | 607 | 0 | 124 | 26 | 10 |
| CBH-long | 2B | 2 |   |   |   |   |   |   | 1 |   |   |   |   | 22 |   |   |   |   |   |   |   |
| CBH-short | 2B | 42 | 7 |   |   | 4 | 2 |   | 9 |   |   |   |   | 143 |   |   | 34 | 2 | 13 |   | 20 |
| MTB | 2B | 109 | 32 | 15 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 195 |   |   | 362 | 0 | 86 | 12 | 4 |
| CBH-long | 3A | 4 |   |   |   |   |   |   | 1 |   |   |   |   | 16 |   |   |   |   |   |   |   |
| CBH-short | 3A | 132 | 7 |   |   | 3 | 3 |   | 13 |   |   |   |   | 259 |   |   | 48 |   | 33 |   | 48 |
| MTB | 3A | 568 | 49 | 18 | 0 | 5 | 5 | 2 | 0 | 0 | 0 | 1 | 4 | 241 |   |   | 1056 | 0 | 147 | 58 | 15 |
| CBH-long | 3B | 2 |   |   |   |   |   |   | 1 |   |   |   |   | 9 |   |   | 1 |   |   |   |   |
| CBH-short | 3B | 82 | 6 |   |   | 1 | 2 |   | 5 |   |   |   |   | 107 |   |   | 27 | 2 | 16 |   | 32 |
| MTB | 3B | 409 | 36 | 15 | 1 | 6 | 2 | 1 | 1 | 0 | 0 | 2 | 7 | 200 |   |   | 687 | 0 | 138 | 73 | 12 |
| CBH-long | 4A | 1 |   |   |   |   |   |   | 1 |   |   |   |   | 20 |   |   |   |   |   |   |   |
| CBH-short | 4A | 66 | 7 |   |   | 3 | 2 |   | 9 |   |   |   |   | 198 | 1 |   | 62 | 4 | 36 |   | 43 |
| MTB | 4A | 271 | 35 | 16 | 1 | 5 | 2 | 2 | 2 | 0 | 1 | 0 | 4 | 257 |   |   | 756 | 0 | 63 | 18 | 8 |
| CBH-long | 4B | 3 |   |   |   |   |   |   | 1 |   |   |   |   | 14 |   |   |   |   |   |   |   |
| CBH-short | 4B | 30 | 4 |   |   | 1 | 2 |   | 5 |   |   |   |   | 83 |   |   | 36 | 2 | 19 |   | 43 |
| MTB | 4B | 97 | 32 | 11 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 139 |   |   | 427 | 0 | 37 | 17 | 6 |
| CBH-long | 5A | 30 |   |   |   |   |   |   | 1 |   |   |   |   | 31 |   |   | 12 |   | 8 | 1 | 1 |
| CBH-short | 5A | 224 | 24 |   |   | 7 | 3 |   | 12 |   |   | 6 |   | 356 | 1 | 1 | 97 | 7 | 132 |   | 82 |
| MTB | 5A | 582 | 107 | 63 | 1 | 10 | 8 | 10 | 6 | 0 | 0 | 4 | 12 | 448 |   |   | 528 | 2 | 268 | 68 | 24 |
| CBH-long | 5B | 4 |   |   |   |   |   |   |   |   |   |   |   | 10 |   |   |   |   | 1 |   |   |
| CBH-short | 5B | 105 | 3 |   |   | 3 |   |   | 3 |   |   |   |   | 194 |   |   | 25 |   | 22 |   | 6 |
| MTB | 5B | 320 | 33 | 33 | 13 | 4 | 0 | 2 | 2 | 2 | 1 | 2 | 0 | 232 |   |   | 325 | 0 | 122 | 26 | 18 |