**Table S1** Relative abundance sorted by genus of main representatives within native microbial communities before/after acclimation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Before acclimation** | | | **After acclimation** | | |
| **Genus of all reads** | **Reads rank** | **Ratio** | **Genus of all reads** | **Reads rank** | **Ratio** |
| *Stenotrophomonas* | 2644 | 19.08 | *Pseudomonas* | 3314 | 18.85 |
| *Nitrospira* | 1403 | 10.13 | *Blastocatella* | 1520 | 8.64 |
| *Nitrosomonas* | 1335 | 9.64 | *Pseudoxanthomonas* | 981 | 5.58 |
| *Dietzia* | 1199 | 8.65 | *Rhodovulum* | 853 | 4.85 |
| *Methylophilus* | 927 | 6.69 | *Hydrogenophaga* | 799 | 4.54 |
| *Sphingomonas* | 666 | 4.81 | *Bacillus* | 592 | 3.37 |
| *Caulobacter* | 614 | 4.43 | *Woodsholea* | 456 | 2.59 |
| Unclassified | 473 | 3.41 | *Flavobacterium* | 429 | 2.44 |
| *Pseudomonas* | 378 | 2.73 | unclassified\_*Cytophagaceae* | 301 | 1.71 |
| unclassified\_*Comamonadaceae* | 356 | 2.57 | unclassified\_*Chitinophagaceae* | 289 | 1.64 |
| *Panacagrimonas* | 309 | 2.23 | unclassified\_*Saprospiraceae* | 262 | 1.49 |
| *Bosea* | 249 | 1.8 | *Rhodobacter* | 227 | 1.29 |
| *Lactococcus* | 175 | 1.26 | *Massilia* | 224 | 1.27 |
| *Ochrobactrum* | 172 | 1.24 | unclassified\_*Comamonadaceae* | 221 | 1.26 |
| *Mycobacterium* | 172 | 1.24 | unclassified\_*Caldilineaceae* | 154 | 0.88 |
| *Methyloversatilis* | 127 | 0.92 | *Nitrospira* | 153 | 0.87 |
| *Delftia* | 124 | 0.89 | unclassified\_*Caulobacteraceae* | 139 | 0.79 |
| unclassified\_*Ruminococcaceae* | 98 | 0.71 | *Pirellula* | 135 | 0.77 |
| *Rhizobium* | 95 | 0.69 | *Serratia* | 130 | 0.74 |
| *Devosia* | 74 | 0.53 | *Nannocystis* | 128 | 0.73 |
| *Limnobacter* | 68 | 0.49 | *Lactococcus* | 127 | 0.72 |
| *Lactobacillus* | 65 | 0.47 | *Thiobacillus* | 118 | 0.67 |
| *Massilia* | 59 | 0.43 | *Incertae\_Sedis* | 111 | 0.63 |
| *Bacillus* | 59 | 0.43 | SM1A02 | 102 | 0.58 |
| *Tepidicella* | 58 | 0.42 | unclassified\_*Xanthomonadaceae* | 100 | 0.57 |
| unclassified\_*Anaerolineaceae* | 52 | 0.38 | *Arthrobacter* | 100 | 0.57 |
| *Gelria* | 48 | 0.35 | unclassified\_*Nitrosomonadaceae* | 99 | 0.56 |
| *Tahibacter* | 47 | 0.34 | unclassified\_*Anaerolineaceae* | 98 | 0.56 |
| *Solibacillus* | 41 | 0.3 | *Chlorochromatium* | 98 | 0.56 |
| *Burkholderia* | 39 | 0.28 | *Azospira* | 97 | 0.55 |
| unclassified\_*Solimonadaceae* | 38 | 0.27 | *Staphylococcus* | 88 | 0.5 |
| *Pantoea* | 38 | 0.27 | unclassified\_*Planctomycetaceae* | 84 | 0.48 |
| *Proteiniphilum* | 36 | 0.26 | *Flavihumibacter* | 83 | 0.47 |
| *Escherichia-Shigella* | 35 | 0.25 | unclassified\_*Porphyromonadaceae* | 82 | 0.47 |
| *Rhodococcus* | 33 | 0.24 | *Virgibacillus* | 82 | 0.47 |
| unclassified\_*Caulobacteraceae* | 31 | 0.22 | *Denitratisoma* | 79 | 0.45 |
| *Azospira* | 30 | 0.22 | unclassified\_*Gemmatimonadaceae* | 79 | 0.45 |
| *Gillisia* | 29 | 0.21 | *Phaselicystis* | 78 | 0.44 |
| *Hyphomicrobium* | 27 | 0.19 | *Haliangium* | 78 | 0.44 |
| *Comamonas* | 25 | 0.18 | *Tetragenococcus* | 77 | 0.44 |
| *Bradyrhizobium* | 25 | 0.18 | *Bdellovibrio* | 73 | 0.42 |
| *Pseudoxanthomonas* | 25 | 0.18 | unclassified\_*Lachnospiraceae* | 65 | 0.37 |
| *Acidovorax* | 22 | 0.16 | *Solitalea* | 65 | 0.37 |
| *Diaphorobacter* | 22 | 0.16 | *Variovorax* | 65 | 0.37 |
| *Alistipes* | 22 | 0.16 | *Thauera* | 60 | 0.34 |
| *Blautia* | 21 | 0.15 | *Rheinheimera* | 60 | 0.34 |
| *Acinetobacter* | 21 | 0.15 | *Alistipes* | 60 | 0.34 |
| *Enterobacter* | 18 | 0.13 | *Brevundimonas* | 59 | 0.34 |
| *Mariprofundus* | 18 | 0.13 | unclassified\_*Sphingomonadaceae* | 59 | 0.34 |
| *Ornatilinea* | 18 | 0.13 | *Psychrobacter* | 57 | 0.32 |
| *Helicobacter* | 17 | 0.12 | *Planctomyces* | 53 | 0.3 |
| *Vibrio* | 17 | 0.12 | *Dietzia* | 51 | 0.29 |
| *Arthrobacter* | 16 | 0.12 | *Leptothrix* | 51 | 0.29 |
| *Methanobacterium* | 16 | 0.12 | *Smithella* | 51 | 0.29 |
| *Streptococcus* | 16 | 0.12 | *Blastomonas* | 50 | 0.28 |
| *Roseomonas* | 14 | 0.1 | unclassified\_*Ruminococcaceae* | 50 | 0.28 |
| *Paenibacillus* | 14 | 0.1 | unclassified\_*Hydrogenophilaceae* | 50 | 0.28 |
| *Syntrophomonas* | 14 | 0.1 | *Lactobacillus* | 49 | 0.28 |
| unclassified\_*Cytophagaceae* | 13 | 0.09 | *Azoarcus* | 46 | 0.26 |
| *Legionella* | 13 | 0.09 | *Ensifer* | 45 | 0.26 |
| unclassified\_*Lachnospiraceae* | 13 | 0.09 | *Hirschia* | 43 | 0.24 |
| *Methanosaeta* | 13 | 0.09 | *Lysobacter* | 42 | 0.24 |
| unclassified\_*Porphyromonadaceae* | 13 | 0.09 | unclassified\_*Methylobacteriaceae* | 41 | 0.23 |
| *Phenylobacterium* | 13 | 0.09 | *Piscinibacter* | 40 | 0.23 |
| unclassified\_*Chitinophagaceae* | 12 | 0.09 | AKYG587 | 40 | 0.23 |
| *Novosphingobium* | 12 | 0.09 | *Ottowia* | 40 | 0.23 |
| unclassified\_*Saprospiraceae* | 12 | 0.09 | *Devosia* | 39 | 0.22 |
| *Bacteroides* | 12 | 0.09 | *Acinetobacter* | 39 | 0.22 |
| unclassified\_*Christensenellaceae* | 12 | 0.09 | *Prevotella* | 37 | 0.21 |
| *Thermincola* | 12 | 0.09 | *Brochothrix* | 37 | 0.21 |
| unclassified\_*Gemmatimonadaceae* | 11 | 0.08 | *Ignavibacterium* | 36 | 0.2 |
| unclassified\_*Rhodospirillaceae* | 11 | 0.08 | *Nordella* | 33 | 0.19 |
| unclassified\_*Flammeovirgaceae* | 10 | 0.07 | *Blastopirellula* | 33 | 0.19 |
| unclassified\_*Synergistaceae* | 10 | 0.07 | *Burkholderia* | 32 | 0.18 |
| *Carnobacterium* | 10 | 0.07 | *Blautia* | 31 | 0.18 |
| *Paracoccus* | 10 | 0.07 | *Hyphomonas* | 31 | 0.18 |
| *Azospirillum* | 10 | 0.07 | *Algoriphagus* | 31 | 0.18 |
| *Serratia* | 10 | 0.07 | *Limnobacter* | 31 | 0.18 |
| *Lewinella* | 10 | 0.07 | unclassified\_*Christensenellaceae* | 31 | 0.18 |
| *Oceanobacillus* | 9 | 0.06 | *Filomicrobium* | 30 | 0.17 |
| *Microbacterium* | 9 | 0.06 | *Herbaspirillum* | 30 | 0.17 |
| unclassified\_*Planctomycetaceae* | 9 | 0.06 | *Mycobacterium* | 29 | 0.16 |
| *Bdellovibrio* | 9 | 0.06 | *Victivallis* | 29 | 0.16 |
| *Prevotella* | 8 | 0.06 | hgcI\_clade | 28 | 0.16 |
| *Anaerobaculum* | 8 | 0.06 | *Thiomicrospira* | 27 | 0.15 |
| *Aminobacterium* | 8 | 0.06 | unclassified\_*Alcaligenaceae* | 27 | 0.15 |
| *Rhodobacter* | 8 | 0.06 | *Rivibacter* | 27 | 0.15 |
| *Flavobacterium* | 8 | 0.06 | *Tabrizicola* | 27 | 0.15 |
| *Thermomonas* | 8 | 0.06 | *Rhizobium* | 26 | 0.15 |
| *Subdoligranulum* | 8 | 0.06 | unclassified\_*Family* | 26 | 0.15 |
| *Haliangium* | 8 | 0.06 | *Acidovorax* | 25 | 0.14 |
| *Tetrasphaera* | 7 | 0.05 | *Candidatus\_Saccharimonas* | 25 | 0.14 |
| unclassified\_*Rhodobacteraceae* | 7 | 0.05 | *Phycisphaera* | 24 | 0.14 |
| *Pedobacter* | 7 | 0.05 | Z195MB87 | 23 | 0.13 |
| *Achromobacter* | 7 | 0.05 | *Nitrosomonas* | 23 | 0.13 |
| *Chthoniobacter* | 7 | 0.05 | *Rhodococcus* | 23 | 0.13 |
| *Desulfuromonas* | 7 | 0.05 | *Leuconostoc* | 23 | 0.13 |
| *Cycloclasticus* | 7 | 0.05 | *Sandaracinus* | 23 | 0.13 |
| *Pirellula* | 6 | 0.04 | *Defluviicoccus* | 23 | 0.13 |
| *Iamia* | 6 | 0.04 | *Sphingomonas* | 22 | 0.13 |
| *Neptunomonas* | 6 | 0.04 | *Jeotgalicoccus* | 22 | 0.13 |
| *Thalassospira* | 6 | 0.04 | *Streptococcus* | 22 | 0.13 |
| *Ruminococcus* | 6 | 0.04 | *Gemmata* | 22 | 0.13 |
| *Petrimonas* | 6 | 0.04 | *Nevskia* | 22 | 0.13 |
| *Leptotrichia* | 6 | 0.04 | *Bacteroides* | 21 | 0.12 |
| unclassified\_*Rhodocyclaceae* | 6 | 0.04 | *Zymomonas* | 21 | 0.12 |
| *Blastopirellula* | 6 | 0.04 | unclassified\_*Xanthobacteraceae* | 21 | 0.12 |
| unclassified\_*Peptostreptococcaceae* | 6 | 0.04 | unclassified\_*Xanthomonadales* | 21 | 0.12 |
| *Sediminibacter* | 6 | 0.04 | *Bryobacter* | 20 | 0.11 |
| *Patulibacter* | 6 | 0.04 | *Novosphingobium* | 20 | 0.11 |
| *Neisseria* | 6 | 0.04 | *Aminobacter* | 20 | 0.11 |
| *Dechloromonas* | 6 | 0.04 | *Roseomonas* | 19 | 0.11 |
| *Cloacibacterium* | 6 | 0.04 | *Parasegetibacter* | 19 | 0.11 |
| *Marinobacter* | 6 | 0.04 | *Clostridium\_sensu\_stricto*\_3 | 19 | 0.11 |
| *Sphingopyxis* | 6 | 0.04 | *Hyalangium* | 19 | 0.11 |
| *Caldicoprobacter* | 6 | 0.04 | *Turneriella* | 18 | 0.1 |
| unclassified\_*Verrucomicrobiaceae* | 6 | 0.04 | *Oceanobacillus* | 17 | 0.1 |
| *Porticoccus* | 6 | 0.04 | *Escherichia-Shigella* | 17 | 0.1 |
| unclassified\_*Veillonellaceae* | 6 | 0.04 | *Geobacillus* | 17 | 0.1 |
| *Desulfovibrio* | 6 | 0.04 | *Defluviimonas* | 17 | 0.1 |
| unclassified\_*Nitrosomonadaceae* | 5 | 0.04 | *Ferruginibacter* | 17 | 0.1 |
| *Planctomyces* | 5 | 0.04 | *Prosthecobacter* | 17 | 0.1 |
| *Pseudospirillum* | 5 | 0.04 | *Methanosarcina* | 16 | 0.09 |
| SM1A02 | 5 | 0.04 | *Sphingopyxis* | 16 | 0.09 |
| unclassified\_*Erysipelotrichaceae* | 5 | 0.04 | unclassified\_*Moraxellaceae* | 16 | 0.09 |
| *Nitrosococcus* | 5 | 0.04 | *Helicobacter* | 16 | 0.09 |
| *Desulfobulbus* | 5 | 0.04 | *Akkermansia* | 16 | 0.09 |
| *Paludibacter* | 5 | 0.04 | *Ornatilinea* | 16 | 0.09 |
| *Pseudorhodobacter* | 5 | 0.04 | unclassified\_*Rhodospirillaceae* | 16 | 0.09 |
| *Hwangdonia* | 5 | 0.04 | *Desulfovibrio* | 16 | 0.09 |
| *Capnocytophaga* | 5 | 0.04 | *Pedomicrobium* | 15 | 0.09 |
| *Defluviicoccus* | 5 | 0.04 | *Candidatus\_Microthrix* | 15 | 0.09 |
| *Pedomicrobium* | 4 | 0.03 | *Corynebacterium* | 15 | 0.09 |
| *Haliea* | 4 | 0.03 | *Comamonas* | 15 | 0.09 |
| *Calothrix* | 4 | 0.03 | *Haematobacter* | 15 | 0.09 |
| *Lysinibacillus* | 4 | 0.03 | *Owenweeksia* | 15 | 0.09 |
| *Fluviicola* | 4 | 0.03 | *Sediminibacterium* | 15 | 0.09 |
| unclassified\_*Rickettsiaceae* | 4 | 0.03 | *Deferrisoma* | 14 | 0.08 |
| unclassified\_*Prevotellaceae* | 4 | 0.03 | *Azohydromonas* | 14 | 0.08 |
| *Blastomonas* | 4 | 0.03 | *Clostridium\_sensu\_stricto\_1* | 14 | 0.08 |
| *Acidaminococcus* | 4 | 0.03 | *Ruminococcus* | 14 | 0.08 |
| unclassified\_*Ktedonobacteraceae* | 4 | 0.03 | *Hymenobacter* | 14 | 0.08 |
| *Sphingosinicella* | 4 | 0.03 | *Pedosphaera* | 13 | 0.07 |
| *Synechococcus* | 4 | 0.03 | *Nitrosococcus* | 13 | 0.07 |
| *Desulfocapsa* | 4 | 0.03 | *Methanospirillum* | 13 | 0.07 |
| *Nocardioides* | 4 | 0.03 | *Geobacter* | 13 | 0.07 |
| *Solitalea* | 4 | 0.03 | *Anderseniella* | 13 | 0.07 |
| *Methanosphaerula* | 4 | 0.03 | *Alicycliphilus* | 13 | 0.07 |
| unclassified\_*Simkaniaceae* | 4 | 0.03 | *Simplicispira* | 13 | 0.07 |
| *Rubrobacter* | 4 | 0.03 | *Mesorhizobium* | 13 | 0.07 |
| *Gemmobacter* | 4 | 0.03 | *Armatimonas* | 13 | 0.07 |
| *Lysobacter* | 3 | 0.02 | *Solibacillus* | 12 | 0.07 |
| *Adhaeribacter* | 3 | 0.02 | *Segetibacter* | 12 | 0.07 |
| *Ignavibacterium* | 3 | 0.02 | unclassified\_*Erythrobacteraceae* | 12 | 0.07 |
| *Gaiella* | 3 | 0.02 | *Methanosaeta* | 12 | 0.07 |
| *Thiobacillus* | 3 | 0.02 | *Sulfurovum* | 12 | 0.07 |
| *Chryseobacterium* | 3 | 0.02 | *Chthoniobacter* | 12 | 0.07 |
| W4 | 3 | 0.02 | *Desulfonema* | 11 | 0.06 |
| *Thauera* | 3 | 0.02 | *Sporosarcina* | 11 | 0.06 |
| *Odoribacter* | 3 | 0.02 | unclassified\_*Prevotellaceae* | 11 | 0.06 |
| *Desulfotomaculum* | 3 | 0.02 | *Mariniradius* | 11 | 0.06 |
| *Shewanella* | 3 | 0.02 | *Enterococcus* | 10 | 0.06 |
| *Oleiphilus* | 3 | 0.02 | *Pedobacter* | 10 | 0.06 |
| *Blastococcus* | 3 | 0.02 | *Leptospirillum* | 10 | 0.06 |
| *Plantactinospora* | 3 | 0.02 | *Halanaerobium* | 10 | 0.06 |
| unclassified\_*Polyangiaceae* | 3 | 0.02 | *Iamia* | 10 | 0.06 |
| *Gemmatimonas* | 3 | 0.02 | *Neisseria* | 10 | 0.06 |
| *Campylobacter* | 3 | 0.02 | *Candidatus\_Xiphinematobacter* | 10 | 0.06 |
| *Rhodocytophaga* | 3 | 0.02 | *Ochrobactrum* | 9 | 0.05 |
| *Solirubrobacter* | 3 | 0.02 | unclassified\_*Nitrospinaceae* | 9 | 0.05 |
| unclassified\_*Xanthomonadaceae* | 3 | 0.02 | *Bifidobacterium* | 9 | 0.05 |
| *Leptospirillum* | 3 | 0.02 | *Mucilaginibacter* | 9 | 0.05 |
| *Ferruginibacter* | 3 | 0.02 | unclassified\_*Verrucomicrobiaceae* | 9 | 0.05 |
| *Chlorobaculum* | 3 | 0.02 | *Sedimentibacter* | 9 | 0.05 |
| *Erysipelothrix* | 3 | 0.02 | *Legionella* | 9 | 0.05 |
| *Streptomyces* | 3 | 0.02 | *Arenimonas* | 9 | 0.05 |
| *Akkermansia* | 3 | 0.02 | *Paenibacillus* | 9 | 0.05 |
| *Flavihumibacter* | 3 | 0.02 | *Pantoea* | 9 | 0.05 |
| *Altererythrobacter* | 3 | 0.02 | *Stenotrophomonas* | 9 | 0.05 |
| *Staphylococcus* | 3 | 0.02 | *Sulfuritalea* | 9 | 0.05 |
| *Methylotenera* | 3 | 0.02 | *Rhizomicrobium* | 8 | 0.05 |
| *Phycisphaera* | 3 | 0.02 | *Achromobacter* | 8 | 0.05 |
| *Coxiella* | 3 | 0.02 | *Melioribacter* | 8 | 0.05 |
| *Owenweeksia* | 3 | 0.02 | unclassified\_*Spirochaetaceae* | 8 | 0.05 |
| unclassified\_*Marinilabiaceae* | 3 | 0.02 | C1-B045 | 8 | 0.05 |
| *Sediminibacterium* | 3 | 0.02 | *Alloprevotella* | 8 | 0.05 |
| *Ancylobacter* | 3 | 0.02 | *Desulfobacterium* | 8 | 0.05 |
| *Roseovarius* | 2 | 0.01 | unclassified\_*Rhodocyclaceae* | 8 | 0.05 |
| *Brevundimonas* | 2 | 0.01 | CL500-29\_marine\_group | 8 | 0.05 |
| *Fastidiosipila* | 2 | 0.01 | unclassified\_*Syntrophaceae* | 8 | 0.05 |
| *Sphingobium* | 2 | 0.01 | *Hyphomicrobium* | 8 | 0.05 |
| unclassified\_*Erythrobacteraceae* | 2 | 0.01 | ZD0417\_marine\_group | 8 | 0.05 |
| *Tenacibaculum* | 2 | 0.01 | OM60(NOR5)\_clade | 8 | 0.05 |
| *Alloprevotella* | 2 | 0.01 | *Neochlamydia* | 8 | 0.05 |
| *Roseiflexus* | 2 | 0.01 | CL500-3 | 7 | 0.04 |
| *Pleomorphomonas* | 2 | 0.01 | *Candidatus\_Nitrososphaera* | 7 | 0.04 |
| *Roseburia* | 2 | 0.01 | *Sorangium* | 7 | 0.04 |
| *Anaerotruncus* | 2 | 0.01 | *Candidatus\_Paceibacter* | 7 | 0.04 |
| *Salinicoccus* | 2 | 0.01 | *Inhella* | 7 | 0.04 |
| *Cellulomonas* | 2 | 0.01 | *Opitutus* | 7 | 0.04 |
| *Zoogloea* | 2 | 0.01 | *Enhydrobacter* | 7 | 0.04 |
| *Pelagibius* | 2 | 0.01 | *Parabacteroides* | 7 | 0.04 |
| 060F05-B-SD-P93 | 2 | 0.01 | *Candidatus\_Captivus* | 7 | 0.04 |
| *Rhodoligotrophos* | 2 | 0.01 | *Odoribacter* | 7 | 0.04 |
| *Longilinea* | 2 | 0.01 | *Anaerotruncus* | 7 | 0.04 |
| *Corynebacterium* | 2 | 0.01 | *Silanimonas* | 7 | 0.04 |
| *Psychromonas* | 2 | 0.01 | *Syntrophobacter* | 7 | 0.04 |
| *Acidothermus* | 2 | 0.01 | Pir4\_lineage | 7 | 0.04 |
| unclassified\_*Beijerinckiaceae* | 2 | 0.01 | *Aquicella* | 7 | 0.04 |
| *Sporomusa* | 2 | 0.01 | *Paracoccus* | 7 | 0.04 |
| *Thioalkalispira* | 2 | 0.01 | *Allobaculum* | 7 | 0.04 |
| *Solobacterium* | 2 | 0.01 | *Thermincola* | 7 | 0.04 |
| unclassified\_*Acidaminococcaceae* | 2 | 0.01 | RC9\_gut\_group | 6 | 0.03 |
| *Pseudomaricurvus* | 2 | 0.01 | *Lysinibacillus* | 6 | 0.03 |
| *Bifidobacterium* | 2 | 0.01 | *Fusobacterium* | 6 | 0.03 |
| *Portibacter* | 2 | 0.01 | *Candidatus\_Chloracidobacterium* | 6 | 0.03 |
| *Segetibacter* | 2 | 0.01 | *Bradyrhizobium* | 6 | 0.03 |
| *Maritimimonas* | 2 | 0.01 | unclassified\_*Erysipelotrichaceae* | 6 | 0.03 |
| *Defluviimonas* | 2 | 0.01 | *unclassified* | 6 | 0.03 |
| *Ensifer* | 2 | 0.01 | *Pediococcus* | 6 | 0.03 |
| *Fontimonas* | 2 | 0.01 | *Ilumatobacter* | 5 | 0.03 |
| *Pelagibacterium* | 2 | 0.01 | *Diaphorobacter* | 5 | 0.03 |
| *Sneathiella* | 2 | 0.01 | *Thioalkalispira* | 5 | 0.03 |
| *Limnohabitans* | 2 | 0.01 | *Nocardioides* | 5 | 0.03 |
| *Jatrophihabitans* | 2 | 0.01 | *Micrococcus* | 5 | 0.03 |
| *Anderseniella* | 2 | 0.01 | *Thiothrix* | 5 | 0.03 |
| *Filomicrobium* | 2 | 0.01 | *Parachlamydia* | 5 | 0.03 |
| unclassified\_*Alcaligenaceae* | 2 | 0.01 | *Haloferula* | 5 | 0.03 |
| unclassified\_*Phyllobacteriaceae* | 2 | 0.01 | *Roseibacillus* | 5 | 0.03 |
| *Gemmata* | 2 | 0.01 | *Myroides* | 5 | 0.03 |
| *Smithella* | 2 | 0.01 | *Panacagrimonas* | 5 | 0.03 |
| *Moraxella* | 2 | 0.01 | *Desulfuromonas* | 5 | 0.03 |
| *Flavisolibacter* | 2 | 0.01 | *Acidocella* | 5 | 0.03 |
| *Aeromonas* | 2 | 0.01 | unclassified\_*Cryomorphaceae* | 5 | 0.03 |
| *Chitinophaga* | 2 | 0.01 | unclassified\_*Bacillaceae* | 5 | 0.03 |
| *Anaeroplasma* | 2 | 0.01 | *Sphingobium* | 5 | 0.03 |
| unclassified\_*Hyphomicrobiaceae* | 2 | 0.01 | *Thiohalophilus* | 5 | 0.03 |
| *Hydrogenophaga* | 2 | 0.01 | *Leptotrichia* | 5 | 0.03 |
| *Herpetosiphon* | 2 | 0.01 | *Anaerovibrio* | 5 | 0.03 |
| *Euzebya* | 2 | 0.01 | *Rahnella* | 5 | 0.03 |
| *Mesorhizobium* | 2 | 0.01 | *Parvularcula* | 5 | 0.03 |
| *Nevskia* | 2 | 0.01 | *Phenylobacterium* | 5 | 0.03 |
| *Lysinimonas* | 2 | 0.01 | *Lewinella* | 5 | 0.03 |
| *Desulfovermiculus* | 2 | 0.01 | *Thermoanaerobacter* | 5 | 0.03 |
| *Chryseolinea* | 2 | 0.01 | *Haliscomenobacter* | 5 | 0.03 |
| unclassified\_*Caldilineaceae* | 2 | 0.01 | *Methyloversatilis* | 4 | 0.02 |
| *Allobaculum* | 2 | 0.01 | *Rubrivivax* | 4 | 0.02 |
| *Aquamicrobium* | 2 | 0.01 | *Turicibacter* | 4 | 0.02 |
| *Peptostreptococcus* | 2 | 0.01 | unclassified\_*Rhodobacteraceae* | 4 | 0.02 |
| *Acidiferrobacter* | 2 | 0.01 | vadinBC27\_wastewater-sludge\_group | 4 | 0.02 |
| *Variovorax* | 2 | 0.01 | *Candidatus\_Rhabdochlamydia* | 4 | 0.02 |
| *Parabacteroides* | 2 | 0.01 | unclassified\_*Defluviitaleaceae* | 4 | 0.02 |
| *Albidiferax* | 2 | 0.01 | *Geoalkalibacter* | 4 | 0.02 |
| *Reinekea* | 1 | 0.01 | *Fusibacter* | 4 | 0.02 |
| *Dorea* | 1 | 0.01 | OM27\_clade | 4 | 0.02 |
| *Anaerolinea* | 1 | 0.01 | *Lautropia* | 4 | 0.02 |
| C1-B045 | 1 | 0.01 | *Labrys* | 4 | 0.02 |
| *Rhodobium* | 1 | 0.01 | *Adhaeribacter* | 4 | 0.02 |
| *Methanobrevibacter* | 1 | 0.01 | *Brevibacterium* | 4 | 0.02 |
| CL500-3 | 1 | 0.01 | *Phascolarctobacterium* | 4 | 0.02 |
| *Marinobacterium* | 1 | 0.01 | *Microbacterium* | 4 | 0.02 |
| *Ilumatobacter* | 1 | 0.01 | unclassified\_*Beijerinckiaceae* | 4 | 0.02 |
| *Rubrivivax* | 1 | 0.01 | unclassified\_*Synergistaceae* | 4 | 0.02 |
| *Pusillimonas* | 1 | 0.01 | *Enterobacter* | 4 | 0.02 |
| *Aggregatibacter* | 1 | 0.01 | *Proteiniphilum* | 4 | 0.02 |
| *Roseobacter* | 1 | 0.01 | *Tepidicella* | 3 | 0.02 |
| unclassified\_*Alteromonadaceae* | 1 | 0.01 | *Oscillibacter* | 3 | 0.02 |
| *Dialister* | 1 | 0.01 | *Candidatus\_Solibacter* | 3 | 0.02 |
| *Bhargavaea* | 1 | 0.01 | *Candidatus\_Metachlamydia* | 3 | 0.02 |
| *Psychroserpens* | 1 | 0.01 | *Taibaiella* | 3 | 0.02 |
| *Croceicoccus* | 1 | 0.01 | *Xylophilus* | 3 | 0.02 |
| *Oscillibacter* | 1 | 0.01 | *Leptolinea* | 3 | 0.02 |
| *Acetobacterium* | 1 | 0.01 | *Pseudorhodoferax* | 3 | 0.02 |
| *Anaerospora* | 1 | 0.01 | *Candidatus\_Bacilloplasma* | 3 | 0.02 |
| *Ramlibacter* | 1 | 0.01 | *Paucibacter* | 3 | 0.02 |
| *Victivallis* | 1 | 0.01 | *Syntrophorhabdus* | 3 | 0.02 |
| *Leisingera* | 1 | 0.01 | *Candidatus\_Caldatribacterium* | 3 | 0.02 |
| *Nautella* | 1 | 0.01 | *Methylocystis* | 3 | 0.02 |
| *Actinoplanes* | 1 | 0.01 | *Methylohalomonas* | 3 | 0.02 |
| *Herbaspirillum* | 1 | 0.01 | Urania-1B-19\_marine\_sediment\_group | 3 | 0.02 |
| *Pontibacter* | 1 | 0.01 | unclassified\_*Hyphomicrobiaceae* | 3 | 0.02 |
| *Taibaiella* | 1 | 0.01 | *Altererythrobacter* | 3 | 0.02 |
| *Phaselicystis* | 1 | 0.01 | *Crocinitomix* | 3 | 0.02 |
| *Faecalibacterium* | 1 | 0.01 | *Pelobacter* | 3 | 0.02 |
| *Desulfuromusa* | 1 | 0.01 | *Actinotalea* | 3 | 0.02 |
| *Pseudoalteromonas* | 1 | 0.01 | *Stella* | 3 | 0.02 |
| *Emticicia* | 1 | 0.01 | *Calothrix* | 3 | 0.02 |
| unclassified\_*Puniceicoccaceae* | 1 | 0.01 | unclassified\_*Solimonadaceae* | 3 | 0.02 |
| *Acanthopleuribacter* | 1 | 0.01 | *Parvibaculum* | 3 | 0.02 |
| *Wenxinia* | 1 | 0.01 | *Gaiella* | 3 | 0.02 |
| *Actinobacillus* | 1 | 0.01 | *Quinella* | 3 | 0.02 |
| *Rheinheimera* | 1 | 0.01 | W4 | 3 | 0.02 |
| *Slackia* | 1 | 0.01 | *Pleomorphomonas* | 3 | 0.02 |
| unclassified\_*Bacteriovoracaceae* | 1 | 0.01 | *Candidatus\_Competibacter* | 3 | 0.02 |
| *Hydrotalea* | 1 | 0.01 | *Solimonas* | 3 | 0.02 |
| *Pseudobutyrivibrio* | 1 | 0.01 | unclassified\_*Peptostreptococcaceae* | 3 | 0.02 |
| *Sorangium* | 1 | 0.01 | *Sphingosinicella* | 3 | 0.02 |
| *Magnetospira* | 1 | 0.01 | *Haemophilus* | 3 | 0.02 |
| unclassified\_*Nitrospinaceae* | 1 | 0.01 | *Arenicella* | 3 | 0.02 |
| *Enterococcus* | 1 | 0.01 | *Halothiobacillus* | 3 | 0.02 |
| *Mangrovimonas* | 1 | 0.01 | *Parasutterella* | 3 | 0.02 |
| *Leifsonia* | 1 | 0.01 | *Limnohabitans* | 3 | 0.02 |
| *Brevibacillus* | 1 | 0.01 | *Oscillatoria* | 3 | 0.02 |
| *Olsenella* | 1 | 0.01 | *Steroidobacter* | 3 | 0.02 |
| *Granulosicoccus* | 1 | 0.01 | *Thermomonas* | 3 | 0.02 |
| *Microcoleus* | 1 | 0.01 | *Subdoligranulum* | 3 | 0.02 |
| *Rhodovulum* | 1 | 0.01 | *Candidatus\_Portiera* | 3 | 0.02 |
| *Polaromonas* | 1 | 0.01 | *Marvinbryantia* | 3 | 0.02 |
| *Desulfitibacter* | 1 | 0.01 | *Aeromonas* | 3 | 0.02 |
| *Coprococcus* | 1 | 0.01 | *Atopobium* | 3 | 0.02 |
| *Haemophilus* | 1 | 0.01 | unclassified\_*Rhodothermaceae* | 3 | 0.02 |
| *Sandarakinorhabdus* | 1 | 0.01 | unclassified\_*Desulfobacteraceae* | 3 | 0.02 |
| unclassified\_*Thiotrichaceae* | 1 | 0.01 | *Terrimonas* | 3 | 0.02 |
| *Eubacterium* | 1 | 0.01 | *Desulfovermiculus* | 3 | 0.02 |
| *Zymomonas* | 1 | 0.01 | *Aeromicrobium* | 3 | 0.02 |
| *Desulfacinum* | 1 | 0.01 | *Chromohalobacter* | 3 | 0.02 |
| unclassified\_*Bradyrhizobiaceae* | 1 | 0.01 | *Azotobacter* | 3 | 0.02 |
| *Paucimonas* | 1 | 0.01 | *Dorea* | 2 | 0.01 |
| *endosymbionts* | 1 | 0.01 | *Candidatus\_Cloacamonas* | 2 | 0.01 |
| *Holophaga* | 1 | 0.01 | *Treponema* | 2 | 0.01 |
| unclassified\_*Thermotogaceae* | 1 | 0.01 | *Anaerostipes* | 2 | 0.01 |
| unclassified\_*Flavobacteriaceae* | 1 | 0.01 | *Methanolinea* | 2 | 0.01 |
| *Paucibacter* | 1 | 0.01 | *Ramlibacter* | 2 | 0.01 |
| *Aquicella* | 1 | 0.01 | *Chryseobacterium* | 2 | 0.01 |
| SEEP-SRB2 | 1 | 0.01 | unclassified\_*Holosporaceae* | 2 | 0.01 |
| unclassified\_*Desulfovibrionaceae* | 1 | 0.01 | *Candidatus\_Methylacidiphilum* | 2 | 0.01 |
| *Spirochaeta* | 1 | 0.01 | *Chroococcidiopsis* | 2 | 0.01 |
| *Methanosarcina* | 1 | 0.01 | *Propionicicella* | 2 | 0.01 |
| *Soonwooa* | 1 | 0.01 | unclassified\_*Nannocystaceae* | 2 | 0.01 |
| *Atopococcus* | 1 | 0.01 | *Longilinea* | 2 | 0.01 |
| *Acidicaldus* | 1 | 0.01 | *Pleurocapsa* | 2 | 0.01 |
| *Desulfobacca* | 1 | 0.01 | *Undibacterium* | 2 | 0.01 |
| *Kingella* | 1 | 0.01 | *Desulfocapsa* | 2 | 0.01 |
| *Cohaesibacter* | 1 | 0.01 | *Clostridium\_sensu\_stricto*\_12 | 2 | 0.01 |
| *Raoultella* | 1 | 0.01 | *Thioclava* | 2 | 0.01 |
| *Flavitalea* | 1 | 0.01 | *Clostridium\_sensu\_stricto*\_8 | 2 | 0.01 |
| *Reichenbachiella* | 1 | 0.01 | *Rubellimicrobium* | 2 | 0.01 |
| *Sphaerobacter* | 1 | 0.01 | *Anaerovorax* | 2 | 0.01 |
| *Enhydrobacter* | 1 | 0.01 | *Catenibacterium* | 2 | 0.01 |
| *Mesoflavibacter* | 1 | 0.01 | *Chelatococcus* | 2 | 0.01 |
| *Hyalangium* | 1 | 0.01 | *Candidatus\_Latescibacter* | 2 | 0.01 |
| *Simkania* | 1 | 0.01 | *Byssovorax* | 2 | 0.01 |
| *Xanthobacter* | 1 | 0.01 | *Porphyromonas* | 2 | 0.01 |
| *Microvirga* | 1 | 0.01 | *Isosphaera* | 2 | 0.01 |
| *Oceaniserpentilla* | 1 | 0.01 | OM43\_clade | 2 | 0.01 |
| *Sporocytophaga* | 1 | 0.01 | *Hafnia* | 2 | 0.01 |
| *Morganella* | 1 | 0.01 | unclassified\_*Leptospiraceae* | 2 | 0.01 |
| *Nitrospina* | 1 | 0.01 | *Arcobacter* | 2 | 0.01 |
| *Fusobacterium* | 1 | 0.01 | *Halomonas* | 2 | 0.01 |
| *Desulfonema* | 1 | 0.01 | *Ferrovibrio* | 2 | 0.01 |
| *Rahnella* | 1 | 0.01 | *Bosea* | 2 | 0.01 |
| *Schlesneria* | 1 | 0.01 | *Marinicella* | 2 | 0.01 |
| *Methanospirillum* | 1 | 0.01 | *Enterorhabdus* | 2 | 0.01 |
| *Tamlana* | 1 | 0.01 | *Cycloclasticus* | 2 | 0.01 |
| *Rubellimicrobium* | 1 | 0.01 | *Fastidiosipila* | 2 | 0.01 |
| *Sporosarcina* | 1 | 0.01 | *Marmoricola* | 2 | 0.01 |
| *Anaeromyxobacter* | 1 | 0.01 | *Tahibacter* | 2 | 0.01 |
| unclassified\_*Paenibacillaceae* | 1 | 0.01 | *Thalassospira* | 2 | 0.01 |
| *Alicycliphilus* | 1 | 0.01 | *Roseburia* | 2 | 0.01 |
| *Roseibacillus* | 1 | 0.01 | unclassified\_*Desulfarculaceae* | 2 | 0.01 |
| unclassified\_*Syntrophaceae* | 1 | 0.01 | *Syntrophus* | 2 | 0.01 |
| *Labrenzia* | 1 | 0.01 | *Desulfomicrobium* | 2 | 0.01 |
| unclassified\_*Anaplasmataceae* | 1 | 0.01 | *Clostridium\_sensu\_stricto*\_10 | 2 | 0.01 |
| *Catenibacterium* | 1 | 0.01 | *Polaromonas* | 2 | 0.01 |
| *Bellilinea* | 1 | 0.01 | *Pelosinus* | 2 | 0.01 |
| *Rikenella* | 1 | 0.01 | *Peredibacter* | 2 | 0.01 |
| *Chelatococcus* | 1 | 0.01 | *Synechococcus* | 2 | 0.01 |
| *Anaerofustis* | 1 | 0.01 | *Kerstersia* | 2 | 0.01 |
| *Weissella* | 1 | 0.01 | unclassified\_*Bradyrhizobiaceae* | 2 | 0.01 |
| *Roseivirga* | 1 | 0.01 | *Carnobacterium* | 2 | 0.01 |
| unclassified\_*Desulfurellaceae* | 1 | 0.01 | *Truepera* | 2 | 0.01 |
| *Sulfurovum* | 1 | 0.01 | *Pseudolabrys* | 2 | 0.01 |
| *Maritalea* | 1 | 0.01 | *Weeksella* | 2 | 0.01 |
| *Simplicispira* | 1 | 0.01 | *Mariprofundus* | 2 | 0.01 |
| *Sulfurimonas* | 1 | 0.01 | marine\_group | 2 | 0.01 |
| *Byssovorax* | 1 | 0.01 | *Azovibrio* | 2 | 0.01 |
| *Pediococcus* | 1 | 0.01 | *Azospirillum* | 2 | 0.01 |
| unclassified\_*Methanobacteriaceae* | 1 | 0.01 | *Paraliobacillus* | 2 | 0.01 |
| unclassified\_*Ectothiorhodospiraceae* | 1 | 0.01 | *Veillonella* | 2 | 0.01 |
| *Thermomicrobium* | 1 | 0.01 | *Streptomyces* | 2 | 0.01 |
| *Azoarcus* | 1 | 0.01 | *Prochlorococcus* | 2 | 0.01 |
| *Oleibacter* | 1 | 0.01 | *Nitriliruptor* | 2 | 0.01 |
| *Denitromonas* | 1 | 0.01 | *Sulfurimonas* | 2 | 0.01 |
| unclassified\_*Xanthobacteraceae* | 1 | 0.01 | *Sphingobacterium* | 2 | 0.01 |
| *Olivibacter* | 1 | 0.01 | *Pseudofulvimonas* | 2 | 0.01 |
| *Desulfomonile* | 1 | 0.01 | *Skermanella* | 2 | 0.01 |
| *Bergeyella* | 1 | 0.01 | unclassified\_*Nitrospiraceae* | 2 | 0.01 |
| *Coprothermobacter* | 1 | 0.01 | *Georgenia* | 2 | 0.01 |
| *Muricauda* | 1 | 0.01 | unclassified\_*Acidobacteriaceae* | 2 | 0.01 |
| *Geoalkalibacter* | 1 | 0.01 | *Planomicrobium* | 2 | 0.01 |
| *Pseudofulvimonas* | 1 | 0.01 | unclassified\_*Marinilabiaceae* | 2 | 0.01 |
| *Desulfurella* | 1 | 0.01 | *Luteibacter* | 2 | 0.01 |
| *Zeaxanthinibacter* | 1 | 0.01 | *Frondihabitans* | 2 | 0.01 |
| *Halomonas* | 1 | 0.01 | *Cohnella* | 2 | 0.01 |
| *Skermanella* | 1 | 0.01 | *Zavarzinella* | 1 | 0.01 |
| *Methylophaga* | 1 | 0.01 | *Rhodoplanes* | 1 | 0.01 |
| *Gaetbulibacter* | 1 | 0.01 | *Ectothiorhodospira* | 1 | 0.01 |
| *Loktanella* | 1 | 0.01 | *Nesterenkonia* | 1 | 0.01 |
| *Terrimonas* | 1 | 0.01 | *Dialister* | 1 | 0.01 |
| unclassified\_*Nitrospiraceae* | 1 | 0.01 | MWH-UniP1\_aquatic\_group | 1 | 0.01 |
| *Ferrovibrio* | 1 | 0.01 | *Fluviicola* | 1 | 0.01 |
| *Armatimonas* | 1 | 0.01 | *Thermovirga* | 1 | 0.01 |
| *Dokdonella* | 1 | 0.01 | *Actinomadura* | 1 | 0.01 |
| unclassified\_*Halothiobacillaceae* | 1 | 0.01 | *Roseiflexus* | 1 | 0.01 |
| *Stappia* | 1 | 0.01 | *Balneola* | 1 | 0.01 |
| *Alpinimonas* | 1 | 0.01 | *Wohlfahrtiimonas* | 1 | 0.01 |
| unclassified\_*Hydrogenophilaceae* | 1 | 0.01 | *Desulfuromusa* | 1 | 0.01 |
| *Salinimicrobium* | 1 | 0.01 | *Paenisporosarcina* | 1 | 0.01 |
| *Arcticibacter* | 1 | 0.01 | unclassified\_*Methylococcaceae* | 1 | 0.01 |
| *Aeromicrobium* | 1 | 0.01 | *Paucisalibacillus* | 1 | 0.01 |
| unclassified\_*Peptococcaceae* | 1 | 0.01 | unclassified\_*Sphingobacteriaceae* | 1 | 0.01 |
| *Belnapia* | 1 | 0.01 | *Alteromonas* | 1 | 0.01 |
| *Methylobacterium* | 1 | 0.01 | *Cytophaga* | 1 | 0.01 |
| *Enhygromyxa* | 1 | 0.01 | *Brevibacillus* | 1 | 0.01 |
| *Enterorhabdus* | 1 | 0.01 | *Rickettsiella* | 1 | 0.01 |
| *Pelobacter* | 1 | 0.01 | *Luteimonas* | 1 | 0.01 |
| *Ornithinibacter* | 1 | 0.01 | *Epilithonimonas* | 1 | 0.01 |
| unclassified\_*Syntrophobacteraceae* | 1 | 0.01 | *Holophaga* | 1 | 0.01 |
| *Sporolactobacillus* | 1 | 0.01 | unclassified\_*Thermotogaceae* | 1 | 0.01 |
| MSBL7 | 1 | 0.01 | *Actinomyces* | 1 | 0.01 |
| *Lutispora* | 1 | 0.01 | *Janthinobacterium* | 1 | 0.01 |
| unclassified\_*Oceanospirillaceae* | 1 | 0.01 | *Maritimimonas* | 1 | 0.01 |
| *Saccharothrix* | 1 | 0.01 | *Spirochaeta* | 1 | 0.01 |
| *Niastella* | 1 | 0.01 | *Rhodanobacter* | 1 | 0.01 |
| *Colwellia* | 1 | 0.01 | *Bauldia* | 1 | 0.01 |
|  |  |  | *Arenibacter* | 1 | 0.01 |
|  |  |  | *Caldimonas* | 1 | 0.01 |
|  |  |  | *Candidatus\_Arthromitus* | 1 | 0.01 |
|  |  |  | *Flavitalea* | 1 | 0.01 |
|  |  |  | *Solirubrobacter* | 1 | 0.01 |
|  |  |  | *Brachybacterium* | 1 | 0.01 |
|  |  |  | GKS98\_freshwater\_group | 1 | 0.01 |
|  |  |  | *Ekhidna* | 1 | 0.01 |
|  |  |  | *Galbibacter* | 1 | 0.01 |
|  |  |  | *Amycolatopsis* | 1 | 0.01 |
|  |  |  | *Erysipelothrix* | 1 | 0.01 |
|  |  |  | *Candidatus\_Methanomethylophilus* | 1 | 0.01 |
|  |  |  | *Oscillospira* | 1 | 0.01 |
|  |  |  | *Propionimicrobium* | 1 | 0.01 |
|  |  |  | *Paenalcaligenes* | 1 | 0.01 |
|  |  |  | *Methanobacterium* | 1 | 0.01 |
|  |  |  | *Vibrio* | 1 | 0.01 |
|  |  |  | *Parapusillimonas* | 1 | 0.01 |
|  |  |  | *Bergeyella* | 1 | 0.01 |
|  |  |  | *Methylotenera* | 1 | 0.01 |
|  |  |  | unclassified\_*Hyphomonadaceae* | 1 | 0.01 |
|  |  |  | *Caldithrix* | 1 | 0.01 |
|  |  |  | *Chryseolinea* | 1 | 0.01 |
|  |  |  | *Coxiella* | 1 | 0.01 |
|  |  |  | unclassified\_*Peptococcaceae* | 1 | 0.01 |
|  |  |  | *Methylibium* | 1 | 0.01 |
|  |  |  | MSBL7 | 1 | 0.01 |
|  |  |  | *Intestinimonas* | 1 | 0.01 |
|  |  |  | *Gordonia* | 1 | 0.01 |
|  |  |  | unclassified\_*Legionellaceae* | 1 | 0.01 |
|  |  |  | *Desulfurivibrio* | 1 | 0.01 |
|  |  |  | *Reyranella* | 1 | 0.01 |
|  |  |  | *Anaerolinea* | 1 | 0.01 |
|  |  |  | *Thiocystis* | 1 | 0.01 |
|  |  |  | *Ralstonia* | 1 | 0.01 |
|  |  |  | *Puniceicoccus* | 1 | 0.01 |
|  |  |  | *Pusillimonas* | 1 | 0.01 |
|  |  |  | Blvii28\_wastewater-sludge\_group | 1 | 0.01 |
|  |  |  | *Xenophilus* | 1 | 0.01 |
|  |  |  | *Exiguobacterium* | 1 | 0.01 |
|  |  |  | XZXXH163 | 1 | 0.01 |
|  |  |  | *Caulobacter* | 1 | 0.01 |
|  |  |  | unclassified\_*Gallionellaceae* | 1 | 0.01 |
|  |  |  | unclassified\_*Syntrophomonadaceae* | 1 | 0.01 |
|  |  |  | *Cronobacter* | 1 | 0.01 |
|  |  |  | *Ehrlichia* | 1 | 0.01 |
|  |  |  | *Rothia* | 1 | 0.01 |
|  |  |  | *Sunxiuqinia* | 1 | 0.01 |
|  |  |  | unclassified\_*Neisseriaceae* | 1 | 0.01 |
|  |  |  | *Shinella* | 1 | 0.01 |
|  |  |  | *Petrimonas* | 1 | 0.01 |
|  |  |  | *Pseudobutyrivibrio* | 1 | 0.01 |
|  |  |  | *Magnetospira* | 1 | 0.01 |
|  |  |  | *Afipia* | 1 | 0.01 |
|  |  |  | *Nitratireductor* | 1 | 0.01 |
|  |  |  | *Propionivibrio* | 1 | 0.01 |
|  |  |  | *Coprococcus* | 1 | 0.01 |
|  |  |  | *Uruburuella* | 1 | 0.01 |
|  |  |  | *Eubacterium* | 1 | 0.01 |
|  |  |  | *Proteus* | 1 | 0.01 |
|  |  |  | *Thermoanaerobaculum* | 1 | 0.01 |
|  |  |  | *Lentibacillus* | 1 | 0.01 |
|  |  |  | *Candidatus\_Planktophila* | 1 | 0.01 |
|  |  |  | unclassified\_*Desulfovibrionaceae* | 1 | 0.01 |
|  |  |  | *Brevinema* | 1 | 0.01 |
|  |  |  | *Sandaracinobacter* | 1 | 0.01 |
|  |  |  | *Phaeospirillum* | 1 | 0.01 |
|  |  |  | *Trichococcus* | 1 | 0.01 |
|  |  |  | *Candidatus\_Protochlamydia* | 1 | 0.01 |
|  |  |  | *Pelagibacterium* | 1 | 0.01 |
|  |  |  | *Sphaerobacter* | 1 | 0.01 |
|  |  |  | *Aneurinibacillus* | 1 | 0.01 |
|  |  |  | *Oligella* | 1 | 0.01 |
|  |  |  | *Pricia* | 1 | 0.01 |
|  |  |  | *Anabaena* | 1 | 0.01 |
|  |  |  | possible\_genus\_06 | 1 | 0.01 |
|  |  |  | *Macrococcus* | 1 | 0.01 |
|  |  |  | *Flavisolibacter* | 1 | 0.01 |
|  |  |  | unclassified\_*Desulfurellaceae* | 1 | 0.01 |
|  |  |  | *Facklamia* | 1 | 0.01 |
|  |  |  | *Chitinophaga* | 1 | 0.01 |
|  |  |  | *Desulfomonile* | 1 | 0.01 |
|  |  |  | *Providencia* | 1 | 0.01 |
|  |  |  | BD1-7\_clade | 1 | 0.01 |
|  |  |  | *Phormidium* | 1 | 0.01 |
|  |  |  | *Thermosynechococcus* | 1 | 0.01 |
|  |  |  | *Beggiatoa* | 1 | 0.01 |
|  |  |  | *Porphyrobacter* | 1 | 0.01 |
|  |  |  | *Polynucleobacter* | 1 | 0.01 |
|  |  |  | *Perlucidibaca* | 1 | 0.01 |
|  |  |  | *Levilinea* | 1 | 0.01 |
|  |  |  | *Clostridium\_sensu\_stricto*\_6 | 1 | 0.01 |
|  |  |  | unclassified\_*Acetobacteraceae* | 1 | 0.01 |
|  |  |  | *Tepidamorphus* | 1 | 0.01 |
|  |  |  | *Aquamicrobium* | 1 | 0.01 |
|  |  |  | *Acidiferrobacter* | 1 | 0.01 |
|  |  |  | *Candidatus\_Omnitrophus* | 1 | 0.01 |

**Table S2** Relative abundance sorted by genus of main representatives within activated sludge before/after acclimation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Before acclimation** | | | **After acclimation** | | |
| **Genus before** | **Reads rank** | **Ratio** | **Genus after** | **Reads rank** | **Ratio** |
| *Pseudoxanthomonas* | 6254 | 19.61 | *Blastocatella* | 2120 | 12.17 |
| *Blastocatella* | 3607 | 11.31 | *Pseudomonas* | 1900 | 10.91 |
| *Pseudomonas* | 2321 | 7.28 | *Pseudoxanthomonas* | 830 | 4.77 |
| *Rhodovulum* | 2314 | 7.26 | *Hydrogenophaga* | 788 | 4.52 |
| *Hydrogenophaga* | 1452 | 4.55 | unclassified\_*Saprospiraceae* | 676 | 3.88 |
| *Bacillus* | 844 | 2.65 | *Thauera* | 672 | 3.86 |
| *Rhodobacter* | 683 | 2.14 | *Gemmata* | 580 | 3.33 |
| *Planctomyces* | 496 | 1.56 | *Bacillus* | 535 | 3.07 |
| unclassified\_*Xanthomonadaceae* | 457 | 1.43 | unclassified\_*Cytophagaceae* | 521 | 2.99 |
| unclassified\_*Planctomycetaceae* | 442 | 1.39 | *Rhodovulum* | 430 | 2.47 |
| *Gemmata* | 408 | 1.28 | *Rhodobacter* | 333 | 1.91 |
| unclassified\_*Nitrosomonadaceae* | 348 | 1.09 | *Novosphingobium* | 260 | 1.49 |
| *Blastopirellula* | 342 | 1.07 | *Flavobacterium* | 221 | 1.27 |
| *Sphingopyxis* | 328 | 1.03 | *Acinetobacter* | 207 | 1.19 |
| *Limnobacter* | 325 | 1.02 | *Lewinella* | 201 | 1.15 |
| *Pirellula* | 267 | 0.84 | *Propionivibrio* | 181 | 1.04 |
| *Woodsholea* | 255 | 0.8 | unclassified\_*Chitinophagaceae* | 152 | 0.87 |
| unclassified\_*Saprospiraceae* | 246 | 0.77 | *Thiobacillus* | 145 | 0.83 |
| *Flavobacterium* | 236 | 0.74 | unclassified\_*Planctomycetaceae* | 140 | 0.8 |
| *Tepidicella* | 224 | 0.7 | *Incertae\_Sedis* | 135 | 0.78 |
| *Nannocystis* | 224 | 0.7 | *Arthrobacter* | 113 | 0.65 |
| *Azospira* | 212 | 0.66 | *Serratia* | 112 | 0.64 |
| *Nitrosomonas* | 211 | 0.66 | SM1A02 | 111 | 0.64 |
| *Incertae\_Sedis* | 196 | 0.61 | unclassified\_*Xanthomonadaceae* | 108 | 0.62 |
| *Lactococcus* | 193 | 0.61 | *Denitratisoma* | 104 | 0.6 |
| unclassified\_*Cytophagaceae* | 189 | 0.59 | *Woodsholea* | 102 | 0.59 |
| unclassified\_*Chitinophagaceae* | 185 | 0.58 | unclassified\_*Caldilineaceae* | 94 | 0.54 |
| *Serratia* | 181 | 0.57 | *Staphylococcus* | 93 | 0.53 |
| *Thiobacillus* | 180 | 0.56 | *Pirellula* | 91 | 0.52 |
| unclassified\_*Lachnospiraceae* | 169 | 0.53 | *Nitrospira* | 90 | 0.52 |
| *Variovorax* | 160 | 0.5 | *Virgibacillus* | 90 | 0.52 |
| *Massilia* | 159 | 0.5 | *Ferruginibacter* | 89 | 0.51 |
| *Thauera* | 155 | 0.49 | *Lactococcus* | 88 | 0.51 |
| *Candidatus\_Rhabdochlamydia* | 154 | 0.48 | unclassified\_*Anaerolineaceae* | 88 | 0.51 |
| *Staphylococcus* | 154 | 0.48 | unclassified\_*Nitrosomonadaceae* | 86 | 0.49 |
| *Novosphingobium* | 152 | 0.48 | unclassified\_*Xanthomonadales* | 85 | 0.49 |
| *Lysobacter* | 148 | 0.46 | *Blastopirellula* | 82 | 0.47 |
| unclassified\_*Comamonadaceae* | 144 | 0.45 | unclassified\_*Lachnospiraceae* | 78 | 0.45 |
| SM1A02 | 137 | 0.43 | *Planctomyces* | 76 | 0.44 |
| *Arenimonas* | 135 | 0.42 | unclassified\_*Porphyromonadaceae* | 76 | 0.44 |
| unclassified\_*Porphyromonadaceae* | 135 | 0.42 | unclassified\_*Hydrogenophilaceae* | 76 | 0.44 |
| *Denitratisoma* | 130 | 0.41 | *Variovorax* | 76 | 0.44 |
| unclassified\_*Caldilineaceae* | 130 | 0.41 | *Massilia* | 74 | 0.42 |
| *Piscinibacter* | 129 | 0.4 | *Lysobacter* | 72 | 0.41 |
| *Mesorhizobium* | 128 | 0.4 | *Tetragenococcus* | 70 | 0.4 |
| *Alistipes* | 121 | 0.38 | unclassified\_*Ruminococcaceae* | 70 | 0.4 |
| *Zymomonas* | 116 | 0.36 | *Clostridium\_sensu\_stricto*\_3 | 69 | 0.4 |
| *Tetragenococcus* | 108 | 0.34 | *Alistipes* | 68 | 0.39 |
| unclassified\_*Ruminococcaceae* | 108 | 0.34 | *Nitrosomonas* | 64 | 0.37 |
| *Algoriphagus* | 105 | 0.33 | *Azoarcus* | 63 | 0.36 |
| *Virgibacillus* | 102 | 0.32 | *Chryseolinea* | 63 | 0.36 |
| *Phaselicystis* | 97 | 0.3 | *Smithella* | 60 | 0.34 |
| unclassified\_*Anaerolineaceae* | 93 | 0.29 | *Phycisphaera* | 60 | 0.34 |
| unclassified\_*Xanthomonadales* | 90 | 0.28 | *Lactobacillus* | 58 | 0.33 |
| *Azoarcus* | 86 | 0.27 | *Azospira* | 55 | 0.32 |
| *Psychrobacter* | 83 | 0.26 | *Nannocystis* | 54 | 0.31 |
| *Mycobacterium* | 80 | 0.25 | *Brevundimonas* | 52 | 0.3 |
| *Roseomonas* | 76 | 0.24 | *Prevotella* | 51 | 0.29 |
| *Lactobacillus* | 76 | 0.24 | unclassified\_*Comamonadaceae* | 50 | 0.29 |
| *Bryobacter* | 69 | 0.22 | *Azotobacter* | 50 | 0.29 |
| AKYG587 | 64 | 0.2 | AKYG587 | 47 | 0.27 |
| unclassified\_*Hydrogenophilaceae* | 62 | 0.19 | *Blautia* | 46 | 0.26 |
| *Smithella* | 60 | 0.19 | *Ottowia* | 46 | 0.26 |
| *Nitrospira* | 59 | 0.18 | *Herbaspirillum* | 45 | 0.26 |
| *Arthrobacter* | 59 | 0.18 | *Legionella* | 44 | 0.25 |
| Pir4\_lineage | 57 | 0.18 | *Owenweeksia* | 44 | 0.25 |
| *Pedomicrobium* | 56 | 0.18 | *Sphingopyxis* | 42 | 0.24 |
| *Clostridium\_sensu\_stricto*\_1 | 54 | 0.17 | *Bdellovibrio* | 41 | 0.24 |
| *Silanimonas* | 54 | 0.17 | *Haematobacter* | 41 | 0.24 |
| *Brochothrix* | 53 | 0.17 | *Ornatilinea* | 38 | 0.22 |
| *Sandaracinus* | 53 | 0.17 | *Bryobacter* | 37 | 0.21 |
| *Herbaspirillum* | 53 | 0.17 | *Limnobacter* | 37 | 0.21 |
| *Ottowia* | 52 | 0.16 | *Parvularcula* | 37 | 0.21 |
| *Candidatus\_Metachlamydia* | 51 | 0.16 | *Peredibacter* | 35 | 0.2 |
| *Rivibacter* | 51 | 0.16 | *Methanosaeta* | 35 | 0.2 |
| *Acidovorax* | 49 | 0.15 | *Mycobacterium* | 34 | 0.2 |
| unclassified\_*Family* | 49 | 0.15 | unclassified\_*Gemmatimonadaceae* | 34 | 0.2 |
| *Blautia* | 48 | 0.15 | unclassified\_*Family* | 33 | 0.19 |
| *Leuconostoc* | 47 | 0.15 | *Acidovorax* | 32 | 0.18 |
| *Burkholderia* | 46 | 0.14 | *Clostridium\_sensu\_stricto*\_1 | 31 | 0.18 |
| unclassified\_*Sphingomonadaceae* | 46 | 0.14 | *Pedomicrobium* | 30 | 0.17 |
| *Sphingomonas* | 45 | 0.14 | *Candidatus\_Methylacidiphilum* | 30 | 0.17 |
| unclassified\_*Gemmatimonadaceae* | 45 | 0.14 | *Psychrobacter* | 29 | 0.17 |
| *Hirschia* | 41 | 0.13 | *Brochothrix* | 29 | 0.17 |
| *Prevotella* | 40 | 0.13 | *Phaselicystis* | 29 | 0.17 |
| *unclassified* | 39 | 0.12 | *Leuconostoc* | 28 | 0.16 |
| unclassified\_*Xanthobacteraceae* | 39 | 0.12 | Pir4\_lineage | 28 | 0.16 |
| *Blastomonas* | 38 | 0.12 | *Escherichia-Shigella* | 27 | 0.16 |
| *Devosia* | 38 | 0.12 | *Sphingomonas* | 27 | 0.16 |
| *Acinetobacter* | 38 | 0.12 | *Dokdonella* | 27 | 0.16 |
| *Desulfovibrio* | 38 | 0.12 | *Candidatus\_Saccharimonas* | 26 | 0.15 |
| *Escherichia-Shigella* | 36 | 0.11 | *Ignavibacterium* | 25 | 0.14 |
| *Geobacter* | 36 | 0.11 | *Nitrosococcus* | 25 | 0.14 |
| *Turneriella* | 35 | 0.11 | *Rivibacter* | 24 | 0.14 |
| *Ignavibacterium* | 34 | 0.11 | *Pedosphaera* | 23 | 0.13 |
| *Sediminibacterium* | 34 | 0.11 | *Candidatus\_Metachlamydia* | 23 | 0.13 |
| *Ensifer* | 33 | 0.1 | *Jeotgalicoccus* | 23 | 0.13 |
| *Bdellovibrio* | 33 | 0.1 | *Piscinibacter* | 23 | 0.13 |
| unclassified\_*Solimonadaceae* | 33 | 0.1 | *Alicycliphilus* | 23 | 0.13 |
| *Candidatus\_Saccharimonas* | 33 | 0.1 | *Defluviimonas* | 22 | 0.13 |
| *Tabrizicola* | 33 | 0.1 | *Bacteroides* | 22 | 0.13 |
| *Defluviicoccus* | 33 | 0.1 | *Polaromonas* | 22 | 0.13 |
| *Pelobacter* | 32 | 0.1 | *Streptococcus* | 21 | 0.12 |
| *Legionella* | 32 | 0.1 | *Enterococcus* | 20 | 0.11 |
| *Owenweeksia* | 32 | 0.1 | *Segetibacter* | 20 | 0.11 |
| hgcI\_clade | 31 | 0.1 | *Arenimonas* | 20 | 0.11 |
| *Pedosphaera* | 30 | 0.09 | *Hirschia* | 20 | 0.11 |
| *Jeotgalicoccus* | 29 | 0.09 | *Simplicispira* | 20 | 0.11 |
| *Haliangium* | 29 | 0.09 | *Hyphomicrobium* | 20 | 0.11 |
| *Enterococcus* | 28 | 0.09 | unclassified\_*Bacteriovoracaceae* | 19 | 0.11 |
| *Bacteroides* | 28 | 0.09 | *Sandaracinus* | 19 | 0.11 |
| *Geobacillus* | 27 | 0.08 | unclassified\_*Methylobacteriaceae* | 18 | 0.1 |
| *Hyphomicrobium* | 27 | 0.08 | *Akkermansia* | 18 | 0.1 |
| unclassified\_*Rhodospirillaceae* | 26 | 0.08 | *Geobacillus* | 17 | 0.1 |
| Z195MB87 | 25 | 0.08 | Z195MB87 | 17 | 0.1 |
| *Nitrosococcus* | 25 | 0.08 | *Burkholderia* | 17 | 0.1 |
| *Ruminococcus* | 25 | 0.08 | *Sphingobium* | 17 | 0.1 |
| *Candidatus\_Protochlamydia* | 25 | 0.08 | unclassified\_*Erythrobacteraceae* | 17 | 0.1 |
| *Arenicella* | 24 | 0.08 | *Haliangium* | 17 | 0.1 |
| *Myroides* | 23 | 0.07 | *Allobaculum* | 17 | 0.1 |
| *Leptothrix* | 23 | 0.07 | *Chthoniobacter* | 17 | 0.1 |
| *Flavihumibacter* | 22 | 0.07 | *Sediminibacterium* | 17 | 0.1 |
| *Solibacillus* | 21 | 0.07 | *Deferrisoma* | 16 | 0.09 |
| *Candidatus\_Microthrix* | 21 | 0.07 | *Anderseniella* | 16 | 0.09 |
| *Thermomonas* | 21 | 0.07 | unclassified\_*Christensenellaceae* | 16 | 0.09 |
| *Streptococcus* | 20 | 0.06 | *Blastomonas* | 15 | 0.09 |
| *Sorangium* | 19 | 0.06 | *Roseomonas* | 15 | 0.09 |
| *Nocardioides* | 19 | 0.06 | *Geobacter* | 15 | 0.09 |
| *Methanosarcina* | 19 | 0.06 | *Rhizobium* | 15 | 0.09 |
| *Sporosarcina* | 19 | 0.06 | *Turneriella* | 15 | 0.09 |
| *Brevundimonas* | 19 | 0.06 | *Ruminococcus* | 15 | 0.09 |
| unclassified\_*Alcaligenaceae* | 19 | 0.06 | marine\_group | 15 | 0.09 |
| *Alicycliphilus* | 19 | 0.06 | unclassified\_*Xanthobacteraceae* | 15 | 0.09 |
| unclassified\_*Verrucomicrobiaceae* | 18 | 0.06 | *Nordella* | 14 | 0.08 |
| unclassified\_*Erythrobacteraceae* | 18 | 0.06 | *Halanaerobium* | 14 | 0.08 |
| *Ferruginibacter* | 18 | 0.06 | *Desulfuromonas* | 14 | 0.08 |
| *Simplicispira* | 18 | 0.06 | *Zymomonas* | 14 | 0.08 |
| unclassified\_*Christensenellaceae* | 18 | 0.06 | *Arenicella* | 14 | 0.08 |
| *Nordella* | 17 | 0.05 | *Candidatus\_Protochlamydia* | 14 | 0.08 |
| *Pedobacter* | 17 | 0.05 | unclassified\_*Caulobacteraceae* | 13 | 0.07 |
| *Opitutus* | 17 | 0.05 | *Mucilaginibacter* | 13 | 0.07 |
| unclassified\_*Methylobacteriaceae* | 17 | 0.05 | *Myroides* | 13 | 0.07 |
| *Halanaerobium* | 17 | 0.05 | unclassified\_*Solimonadaceae* | 13 | 0.07 |
| *Desulfuromonas* | 17 | 0.05 | unclassified\_*Synergistaceae* | 13 | 0.07 |
| unclassified\_*Prevotellaceae* | 17 | 0.05 | unclassified\_*Rhodospirillaceae* | 13 | 0.07 |
| *Marvinbryantia* | 17 | 0.05 | *Oceanobacillus* | 12 | 0.07 |
| *Azohydromonas* | 16 | 0.05 | *Methanospirillum* | 12 | 0.07 |
| *Enterobacter* | 16 | 0.05 | unclassified\_*Prevotellaceae* | 12 | 0.07 |
| *Helicobacter* | 16 | 0.05 | unclassified\_*Erysipelotrichaceae* | 12 | 0.07 |
| *Phycisphaera* | 16 | 0.05 | *Pantoea* | 12 | 0.07 |
| *Turicibacter* | 15 | 0.05 | *Mesorhizobium* | 12 | 0.07 |
| *Rhizobium* | 15 | 0.05 | *Tabrizicola* | 12 | 0.07 |
| *Aquicella* | 15 | 0.05 | *Candidatus\_Nitrososphaera* | 11 | 0.06 |
| *Parvularcula* | 15 | 0.05 | *Turicibacter* | 11 | 0.06 |
| *Allobaculum* | 15 | 0.05 | *Methanosarcina* | 11 | 0.06 |
| *Achromobacter* | 14 | 0.04 | *Sporosarcina* | 11 | 0.06 |
| *Polaromonas* | 14 | 0.04 | unclassified\_*Alcaligenaceae* | 11 | 0.06 |
| CL500-29\_marine\_group | 14 | 0.04 | *Thermomonas* | 11 | 0.06 |
| *Paenibacillus* | 14 | 0.04 | *Paenibacillus* | 11 | 0.06 |
| *Akkermansia* | 14 | 0.04 | *Desulfovibrio* | 11 | 0.06 |
| *Pantoea* | 14 | 0.04 | RC9\_gut\_group | 10 | 0.06 |
| *Dokdonella* | 14 | 0.04 | *Achromobacter* | 10 | 0.06 |
| *Chthoniobacter* | 14 | 0.04 | *Parabacteroides* | 10 | 0.06 |
| *Enhydrobacter* | 13 | 0.04 | *Roseburia* | 10 | 0.06 |
| *Corynebacterium* | 13 | 0.04 | *Comamonas* | 10 | 0.06 |
| *Comamonas* | 13 | 0.04 | *Bradyrhizobium* | 10 | 0.06 |
| *Solitalea* | 13 | 0.04 | *Aquicella* | 10 | 0.06 |
| *Haematobacter* | 13 | 0.04 | *unclassified* | 10 | 0.06 |
| *Streptomyces* | 13 | 0.04 | *Defluviicoccus* | 10 | 0.06 |
| *Thermoanaerobacter* | 13 | 0.04 | *Xylophilus* | 9 | 0.05 |
| *Methyloversatilis* | 12 | 0.04 | *Solibacillus* | 9 | 0.05 |
| *Candidatus\_Nitrososphaera* | 12 | 0.04 | unclassified\_*Simkaniaceae* | 9 | 0.05 |
| *Thioalkalispira* | 12 | 0.04 | unclassified\_*Verrucomicrobiaceae* | 9 | 0.05 |
| *Paucibacter* | 12 | 0.04 | *Alloprevotella* | 9 | 0.05 |
| *Chryseolinea* | 12 | 0.04 | *Corynebacterium* | 9 | 0.05 |
| unclassified\_*Moraxellaceae* | 12 | 0.04 | *Silanimonas* | 9 | 0.05 |
| *Bradyrhizobium* | 12 | 0.04 | *Parasutterella* | 9 | 0.05 |
| unclassified\_*Bradyrhizobiaceae* | 12 | 0.04 | *Steroidobacter* | 9 | 0.05 |
| *Ornatilinea* | 12 | 0.04 | *Candidatus\_Xiphinematobacter* | 9 | 0.05 |
| *Phenylobacterium* | 12 | 0.04 | unclassified\_*Nitrospinaceae* | 8 | 0.05 |
| *Oceanobacillus* | 11 | 0.03 | *Bifidobacterium* | 8 | 0.05 |
| *Desulfonema* | 11 | 0.03 | *Rhodanobacter* | 8 | 0.05 |
| *Parasegetibacter* | 11 | 0.03 | *Fusobacterium* | 8 | 0.05 |
| *Aminobacter* | 11 | 0.03 | *Azohydromonas* | 8 | 0.05 |
| *Euzebya* | 11 | 0.03 | *Sedimentibacter* | 8 | 0.05 |
| *Pasteuria* | 10 | 0.03 | *Microbacterium* | 8 | 0.05 |
| *Defluviimonas* | 10 | 0.03 | *Enterobacter* | 8 | 0.05 |
| *Clostridium\_sensu\_stricto*\_12 | 10 | 0.03 | *Helicobacter* | 8 | 0.05 |
| *Dietzia* | 10 | 0.03 | *Streptomyces* | 8 | 0.05 |
| *Candidatus\_Captivus* | 10 | 0.03 | unclassified\_*Desulfobacteraceae* | 8 | 0.05 |
| *Iamia* | 10 | 0.03 | *Desulfovermiculus* | 8 | 0.05 |
| *Rahnella* | 10 | 0.03 | *Thioalkalispira* | 7 | 0.04 |
| *Solirubrobacter* | 9 | 0.03 | *Pedobacter* | 7 | 0.04 |
| *Melioribacter* | 9 | 0.03 | *Vibrio* | 7 | 0.04 |
| *Alloprevotella* | 9 | 0.03 | unclassified\_*Hyphomicrobiaceae* | 7 | 0.04 |
| *Anderseniella* | 9 | 0.03 | unclassified\_*Cryomorphaceae* | 7 | 0.04 |
| *Steroidobacter* | 9 | 0.03 | *Odoribacter* | 7 | 0.04 |
| unclassified\_*Syntrophaceae* | 9 | 0.03 | unclassified\_*Desulfarculaceae* | 7 | 0.04 |
| *Alpinimonas* | 9 | 0.03 | *Sulfurovum* | 7 | 0.04 |
| *Fluviicola* | 8 | 0.03 | *Pediococcus* | 7 | 0.04 |
| *Mucilaginibacter* | 8 | 0.03 | *Terrimonas* | 7 | 0.04 |
| *Filomicrobium* | 8 | 0.03 | *Sulfuritalea* | 7 | 0.04 |
| *Fusobacterium* | 8 | 0.03 | *Neochlamydia* | 7 | 0.04 |
| *Deferrisoma* | 8 | 0.03 | *Thermovirga* | 6 | 0.03 |
| *Candidatus\_Alysiosphaera* | 8 | 0.03 | *Enhydrobacter* | 6 | 0.03 |
| *Enterorhabdus* | 8 | 0.03 | *Enterorhabdus* | 6 | 0.03 |
| *Sedimentibacter* | 8 | 0.03 | C1-B045 | 6 | 0.03 |
| *Candidatus\_Odyssella* | 8 | 0.03 | *Lautropia* | 6 | 0.03 |
| *Hyphomonas* | 8 | 0.03 | *Solimonas* | 6 | 0.03 |
| *Sphingobium* | 8 | 0.03 | *Stenotrophomonas* | 6 | 0.03 |
| *Quinella* | 8 | 0.03 | unclassified\_*Nitrospiraceae* | 6 | 0.03 |
| *Pediococcus* | 8 | 0.03 | *Armatimonas* | 6 | 0.03 |
| *Neochlamydia* | 8 | 0.03 | ZD0417\_marine\_group | 6 | 0.03 |
| *Methylophilus* | 7 | 0.02 | unclassified\_*Sphingomonadaceae* | 6 | 0.03 |
| *Diaphorobacter* | 7 | 0.02 | *Proteiniphilum* | 6 | 0.03 |
| *Xylophilus* | 7 | 0.02 | *Ilumatobacter* | 5 | 0.03 |
| *Vibrio* | 7 | 0.02 | *Diaphorobacter* | 5 | 0.03 |
| *Altererythrobacter* | 7 | 0.02 | *Xanthomonas* | 5 | 0.03 |
| *Clostridium\_sensu\_stricto*\_3 | 7 | 0.02 | *Clostridium\_sensu\_stricto*\_12 | 5 | 0.03 |
| *Labrys* | 7 | 0.02 | *Parachlamydia* | 5 | 0.03 |
| *Rothia* | 7 | 0.02 | *Nakamurella* | 5 | 0.03 |
| unclassified\_*Erysipelotrichaceae* | 7 | 0.02 | *Leptothrix* | 5 | 0.03 |
| *Veillonella* | 7 | 0.02 | *Coxiella* | 5 | 0.03 |
| *Sulfurovum* | 7 | 0.02 | unclassified\_*Legionellaceae* | 5 | 0.03 |
| *Armatimonas* | 7 | 0.02 | *Candidatus\_Microthrix* | 5 | 0.03 |
| ZD0417\_marine\_group | 7 | 0.02 | *Calothrix* | 5 | 0.03 |
| *Frondihabitans* | 7 | 0.02 | *Rothia* | 5 | 0.03 |
| *Ornithinicoccus* | 7 | 0.02 | *Desulfobacterium* | 5 | 0.03 |
| RC9\_gut\_group | 6 | 0.02 | unclassified\_*Rhodocyclaceae* | 5 | 0.03 |
| *Ilumatobacter* | 6 | 0.02 | *Coprococcus* | 5 | 0.03 |
| *Anaerostipes* | 6 | 0.02 | *Rahnella* | 5 | 0.03 |
| *Lysinibacillus* | 6 | 0.02 | *Rhodopirellula* | 5 | 0.03 |
| unclassified\_*Rhodobacteraceae* | 6 | 0.02 | *Flavisolibacter* | 5 | 0.03 |
| unclassified\_*Nitrospinaceae* | 6 | 0.02 | *Euzebya* | 5 | 0.03 |
| *Desulfonatronum* | 6 | 0.02 | unclassified\_*FamilyI* | 5 | 0.03 |
| *Desulfocapsa* | 6 | 0.02 | *Phormidium* | 5 | 0.03 |
| *Rhodanobacter* | 6 | 0.02 | *Planomicrobium* | 5 | 0.03 |
| *Methanospirillum* | 6 | 0.02 | *Methyloversatilis* | 4 | 0.02 |
| *Geoalkalibacter* | 6 | 0.02 | *Candidatus\_Lariskella* | 4 | 0.02 |
| *Marinicella* | 6 | 0.02 | *Anaerostipes* | 4 | 0.02 |
| *Parabacteroides* | 6 | 0.02 | *Taibaiella* | 4 | 0.02 |
| OM27\_clade | 6 | 0.02 | *Longilinea* | 4 | 0.02 |
| XZXXH163 | 6 | 0.02 | *Desulfonatronum* | 4 | 0.02 |
| *Anaerotruncus* | 6 | 0.02 | *Undibacterium* | 4 | 0.02 |
| unclassified\_*Rhodocyclaceae* | 6 | 0.02 | *Nocardioides* | 4 | 0.02 |
| unclassified\_*Peptostreptococcaceae* | 6 | 0.02 | *Paludibacter* | 4 | 0.02 |
| *Propionivibrio* | 6 | 0.02 | *Cystobacter* | 4 | 0.02 |
| *Methanosaeta* | 6 | 0.02 | *Fusibacter* | 4 | 0.02 |
| *Carnobacterium* | 6 | 0.02 | unclassified\_*Desulfobulbaceae* | 4 | 0.02 |
| *Paracoccus* | 6 | 0.02 | *Hyphomonas* | 4 | 0.02 |
| *Rhodopirellula* | 6 | 0.02 | *Cycloclasticus* | 4 | 0.02 |
| *Stenotrophomonas* | 6 | 0.02 | *Devosia* | 4 | 0.02 |
| *Sulfuritalea* | 6 | 0.02 | *Candidatus\_Captivus* | 4 | 0.02 |
| unclassified\_*Acidobacteriaceae* | 6 | 0.02 | *Thiohalophilus* | 4 | 0.02 |
| *Acidiferrobacter* | 6 | 0.02 | *Anaerotruncus* | 4 | 0.02 |
| unclassified\_*Rickettsiaceae* | 5 | 0.02 | *Macellibacteroides* | 4 | 0.02 |
| *Methylobacillus* | 5 | 0.02 | *Paracoccus* | 4 | 0.02 |
| *Candidatus\_Solibacter* | 5 | 0.02 | *Fontimonas* | 4 | 0.02 |
| *Candidatus\_Methylacidiphilum* | 5 | 0.02 | *Sphaerobacter* | 4 | 0.02 |
| unclassified\_*Caulobacteraceae* | 5 | 0.02 | *Veillonella* | 4 | 0.02 |
| *Bifidobacterium* | 5 | 0.02 | *Candidatus\_Portiera* | 4 | 0.02 |
| *Bauldia* | 5 | 0.02 | unclassified\_*Syntrophaceae* | 4 | 0.02 |
| *Rubellimicrobium* | 5 | 0.02 | *Nitriliruptor* | 4 | 0.02 |
| unclassified\_*Simkaniaceae* | 5 | 0.02 | hgcI\_clade | 4 | 0.02 |
| *Hafnia* | 5 | 0.02 | *Hymenobacter* | 4 | 0.02 |
| *Fusibacter* | 5 | 0.02 | *Aquamicrobium* | 4 | 0.02 |
| *Halomonas* | 5 | 0.02 | *Methanolobus* | 4 | 0.02 |
| *Ferrovibrio* | 5 | 0.02 | unclassified\_*Rickettsiaceae* | 3 | 0.02 |
| *Panacagrimonas* | 5 | 0.02 | *Candidatus\_Solibacter* | 3 | 0.02 |
| *Acidocella* | 5 | 0.02 | unclassified\_*Rhodobacteraceae* | 3 | 0.02 |
| *Reyranella* | 5 | 0.02 | *Candidatus\_Paceibacter* | 3 | 0.02 |
| C1-B045 | 5 | 0.02 | *Candidatus\_Bacilloplasma* | 3 | 0.02 |
| *Calothrix* | 5 | 0.02 | *Ensifer* | 3 | 0.02 |
| *Lautropia* | 5 | 0.02 | *Desulfobulbus* | 3 | 0.02 |
| *Exiguobacterium* | 5 | 0.02 | *Leptospirillum* | 3 | 0.02 |
| *Desulfobacterium* | 5 | 0.02 | *Desulfonema* | 3 | 0.02 |
| unclassified\_*Desulfarculaceae* | 5 | 0.02 | unclassified\_*Bacillaceae* | 3 | 0.02 |
| unclassified\_*Beijerinckiaceae* | 5 | 0.02 | unclassified\_*Veillonellaceae* | 3 | 0.02 |
| *Coprococcus* | 5 | 0.02 | *Melioribacter* | 3 | 0.02 |
| *Anaerococcus* | 5 | 0.02 | unclassified\_*Spirochaetaceae* | 3 | 0.02 |
| *Sphaerobacter* | 5 | 0.02 | *Methanobrevibacter* | 3 | 0.02 |
| *Anaerovibrio* | 5 | 0.02 | *Marmoricola* | 3 | 0.02 |
| *Candidatus\_Portiera* | 5 | 0.02 | *Iamia* | 3 | 0.02 |
| unclassified\_*Desulfobacteraceae* | 5 | 0.02 | *Xenophilus* | 3 | 0.02 |
| *Desulfovermiculus* | 5 | 0.02 | *Exiguobacterium* | 3 | 0.02 |
| *Oscillibacter* | 4 | 0.01 | *Leptotrichia* | 3 | 0.02 |
| *Leifsonia* | 4 | 0.01 | unclassified\_*Beijerinckiaceae* | 3 | 0.02 |
| *Undibacterium* | 4 | 0.01 | *Proteus* | 3 | 0.02 |
| *Syntrophorhabdus* | 4 | 0.01 | *Sandaracinobacter* | 3 | 0.02 |
| unclassified\_*Defluviitaleaceae* | 4 | 0.01 | *Solitalea* | 3 | 0.02 |
| *Microvirga* | 4 | 0.01 | *Anaerovibrio* | 3 | 0.02 |
| Urania-1B-19\_marine\_sediment\_group | 4 | 0.01 | *Desulforhabdus* | 3 | 0.02 |
| *Bosea* | 4 | 0.01 | *Weissella* | 3 | 0.02 |
| *Chlorochromatium* | 4 | 0.01 | *Phenylobacterium* | 3 | 0.02 |
| *Anaerolinea* | 4 | 0.01 | *Thermoanaerobacter* | 3 | 0.02 |
| *Marmoricola* | 4 | 0.01 | *Candidatus\_Accumulibacter* | 3 | 0.02 |
| *Gaiella* | 4 | 0.01 | *Chromohalobacter* | 3 | 0.02 |
| unclassified\_*Gallionellaceae* | 4 | 0.01 | *Rhodoplanes* | 2 | 0.01 |
| *Lentibacillus* | 4 | 0.01 | *Tepidicella* | 2 | 0.01 |
| *Parasutterella* | 4 | 0.01 | *Treponema* | 2 | 0.01 |
| marine\_group | 4 | 0.01 | *Sarcina* | 2 | 0.01 |
| *Rikenella* | 4 | 0.01 | *Lysinibacillus* | 2 | 0.01 |
| *Chitinophaga* | 4 | 0.01 | *Pasteuria* | 2 | 0.01 |
| *Aeromicrobium* | 4 | 0.01 | *Sorangium* | 2 | 0.01 |
| unclassified\_*Acetobacteraceae* | 4 | 0.01 | *Leptolinea* | 2 | 0.01 |
| *Proteiniphilum* | 4 | 0.01 | vadinBC27\_wastewater-sludge\_group | 2 | 0.01 |
| *Ochrobactrum* | 3 | 0.01 | *Rickettsiella* | 2 | 0.01 |
| *Treponema* | 3 | 0.01 | *Granulosicoccus* | 2 | 0.01 |
| *Taibaiella* | 3 | 0.01 | *Denitrovibrio* | 2 | 0.01 |
| *Faecalibacterium* | 3 | 0.01 | *Kocuria* | 2 | 0.01 |
| *Longilinea* | 3 | 0.01 | *Brevifollis* | 2 | 0.01 |
| *Granulosicoccus* | 3 | 0.01 | *Bauldia* | 2 | 0.01 |
| *Maritimimonas* | 3 | 0.01 | *Syntrophorhabdus* | 2 | 0.01 |
| *Ekhidna* | 3 | 0.01 | *Candidatus\_Arthromitus* | 2 | 0.01 |
| *Tepidimicrobium* | 3 | 0.01 | *Thiothrix* | 2 | 0.01 |
| *Singulisphaera* | 3 | 0.01 | *Thioclava* | 2 | 0.01 |
| *Paludibacter* | 3 | 0.01 | *Candidatus\_Rhabdochlamydia* | 2 | 0.01 |
| *Isosphaera* | 3 | 0.01 | *Solirubrobacter* | 2 | 0.01 |
| *Coxiella* | 3 | 0.01 | *Opitutus* | 2 | 0.01 |
| unclassified\_*Peptococcaceae* | 3 | 0.01 | *Brachybacterium* | 2 | 0.01 |
| *Sedimenticola* | 3 | 0.01 | *Filomicrobium* | 2 | 0.01 |
| unclassified\_*Bacillaceae* | 3 | 0.01 | *Singulisphaera* | 2 | 0.01 |
| *Brevibacterium* | 3 | 0.01 | *Methylocystis* | 2 | 0.01 |
| *Parvibaculum* | 3 | 0.01 | *Rubellimicrobium* | 2 | 0.01 |
| *Thalassospira* | 3 | 0.01 | *Parasegetibacter* | 2 | 0.01 |
| *Solimonas* | 3 | 0.01 | *Candidatus\_Latescibacter* | 2 | 0.01 |
| *Nitratireductor* | 3 | 0.01 | *Flavihumibacter* | 2 | 0.01 |
| *Haemophilus* | 3 | 0.01 | *Altererythrobacter* | 2 | 0.01 |
| *Kerstersia* | 3 | 0.01 | *Hafnia* | 2 | 0.01 |
| *Thermoanaerobaculum* | 3 | 0.01 | *Geoalkalibacter* | 2 | 0.01 |
| *Neisseria* | 3 | 0.01 | *Arcobacter* | 2 | 0.01 |
| *Pricia* | 3 | 0.01 | *Marinicella* | 2 | 0.01 |
| *Nitriliruptor* | 3 | 0.01 | *Capnocytophaga* | 2 | 0.01 |
| *Lewinella* | 3 | 0.01 | *Pelobacter* | 2 | 0.01 |
| *Sphingobacterium* | 3 | 0.01 | *Acidocella* | 2 | 0.01 |
| unclassified\_*FamilyI* | 3 | 0.01 | *Dehalococcoides* | 2 | 0.01 |
| unclassified\_*Nitrospiraceae* | 3 | 0.01 | *Pusillimonas* | 2 | 0.01 |
| *Hymenobacter* | 3 | 0.01 | Blvii28\_wastewater-sludge\_group | 2 | 0.01 |
| unclassified\_*Marinilabiaceae* | 3 | 0.01 | *Labrys* | 2 | 0.01 |
| *Dorea* | 2 | 0.01 | *Parvibaculum* | 2 | 0.01 |
| *Rhodoplanes* | 2 | 0.01 | *Caulobacter* | 2 | 0.01 |
| *Sarcina* | 2 | 0.01 | *Gaiella* | 2 | 0.01 |
| *Xanthomonas* | 2 | 0.01 | *Quinella* | 2 | 0.01 |
| *Leptolinea* | 2 | 0.01 | *Victivallis* | 2 | 0.01 |
| *Cytophaga* | 2 | 0.01 | *Phascolarctobacterium* | 2 | 0.01 |
| *Pseudorhodoferax* | 2 | 0.01 | *Pleomorphomonas* | 2 | 0.01 |
| *Pleurocapsa* | 2 | 0.01 | unclassified\_*Peptostreptococcaceae* | 2 | 0.01 |
| *Chloronema* | 2 | 0.01 | *Desulfomicrobium* | 2 | 0.01 |
| *Rickettsia* | 2 | 0.01 | *Syntrophobacter* | 2 | 0.01 |
| *Segetibacter* | 2 | 0.01 | *Kerstersia* | 2 | 0.01 |
| unclassified\_*Clostridiaceae* | 2 | 0.01 | *Eubacterium* | 2 | 0.01 |
| *Candidatus\_Bacilloplasma* | 2 | 0.01 | unclassified\_*Bradyrhizobiaceae* | 2 | 0.01 |
| *Aquimonas* | 2 | 0.01 | *Bilophila* | 2 | 0.01 |
| *Spirochaeta* | 2 | 0.01 | *Mariprofundus* | 2 | 0.01 |
| *Desulfobulbus* | 2 | 0.01 | *Methanoculleus* | 2 | 0.01 |
| *Thiothrix* | 2 | 0.01 | *Pricia* | 2 | 0.01 |
| *Brachybacterium* | 2 | 0.01 | *Subdoligranulum* | 2 | 0.01 |
| *Leptospirillum* | 2 | 0.01 | *Spirulina* | 2 | 0.01 |
| *Erysipelothrix* | 2 | 0.01 | *Anaeromyxobacter* | 2 | 0.01 |
| *Haloferula* | 2 | 0.01 | *Marvinbryantia* | 2 | 0.01 |
| *Methylocystis* | 2 | 0.01 | *Mariniradius* | 2 | 0.01 |
| *Candidatus\_Liberibacter* | 2 | 0.01 | *Aeromonas* | 2 | 0.01 |
| *Catenibacterium* | 2 | 0.01 | *Atopobium* | 2 | 0.01 |
| *Paenalcaligenes* | 2 | 0.01 | *Desulfomonile* | 2 | 0.01 |
| *Tropicimonas* | 2 | 0.01 | *Providencia* | 2 | 0.01 |
| OM43\_clade | 2 | 0.01 | *Lampropedia* | 2 | 0.01 |
| 12up | 2 | 0.01 | *Aeromicrobium* | 2 | 0.01 |
| *Tissierella* | 2 | 0.01 | *Frondihabitans* | 2 | 0.01 |
| *Rubrobacter* | 2 | 0.01 | *Procabacter* | 1 | 0.01 |
| *Lysinimonas* | 2 | 0.01 | *Ochrobactrum* | 1 | 0.01 |
| *Agromyces* | 2 | 0.01 | *Chloroflexus* | 1 | 0.01 |
| unclassified\_*Desulfobulbaceae* | 2 | 0.01 | *Dorea* | 1 | 0.01 |
| *Cellvibrio* | 2 | 0.01 | *Candidatus\_Cloacamonas* | 1 | 0.01 |
| *Erythrobacter* | 2 | 0.01 | *Epulopiscium* | 1 | 0.01 |
| *Candidatus\_Brocadia* | 2 | 0.01 | *Clostridium\_sensu\_stricto*\_2 | 1 | 0.01 |
| *Rhodococcus* | 2 | 0.01 | AUTHM297 | 1 | 0.01 |
| MSBL7 | 2 | 0.01 | *Methylomicrobium* | 1 | 0.01 |
| *Asticcacaulis* | 2 | 0.01 | *Actinomadura* | 1 | 0.01 |
| *Haliea* | 2 | 0.01 | *Roseiflexus* | 1 | 0.01 |
| *Xenophilus* | 2 | 0.01 | *Oscillibacter* | 1 | 0.01 |
| *Pleomorphomonas* | 2 | 0.01 | *Methylobacillus* | 1 | 0.01 |
| *Sunxiuqinia* | 2 | 0.01 | *Roseimicrobium* | 1 | 0.01 |
| *Odoribacter* | 2 | 0.01 | *Ramlibacter* | 1 | 0.01 |
| *Clostridium\_sensu\_stricto*\_13 | 2 | 0.01 | *Methylophilus* | 1 | 0.01 |
| *Rheinheimera* | 2 | 0.01 | *Chryseobacterium* | 1 | 0.01 |
| *Patulibacter* | 2 | 0.01 | *Myxococcus* | 1 | 0.01 |
| *Syntrophus* | 2 | 0.01 | *Wohlfahrtiimonas* | 1 | 0.01 |
| *Uruburuella* | 2 | 0.01 | *Candidatus\_Hamiltonella* | 1 | 0.01 |
| *Bavariicoccus* | 2 | 0.01 | *Aequorivita* | 1 | 0.01 |
| *Truepera* | 2 | 0.01 | *Thiomicrospira* | 1 | 0.01 |
| *Tepidimonas* | 2 | 0.01 | *Leadbetterella* | 1 | 0.01 |
| *Gemmatimonas* | 2 | 0.01 | *Aliihoeflea* | 1 | 0.01 |
| *Sandaracinobacter* | 2 | 0.01 | *Cellulomonas* | 1 | 0.01 |
| *Fontimonas* | 2 | 0.01 | *Robiginitomaculum* | 1 | 0.01 |
| *Mariprofundus* | 2 | 0.01 | unclassified\_*Sphingobacteriaceae* | 1 | 0.01 |
| *Oscillatoria* | 2 | 0.01 | *Hydrotalea* | 1 | 0.01 |
| *Amaricoccus* | 2 | 0.01 | *Leifsonia* | 1 | 0.01 |
| *Flavonifractor* | 2 | 0.01 | *Brevibacillus* | 1 | 0.01 |
| *Chlorobaculum* | 2 | 0.01 | *Pleurocapsa* | 1 | 0.01 |
| unclassified\_*Leptotrichiaceae* | 2 | 0.01 | *Olsenella* | 1 | 0.01 |
| *Spirulina* | 2 | 0.01 | *Chloronema* | 1 | 0.01 |
| *Weissella* | 2 | 0.01 | unclassified\_*Acidaminococcaceae* | 1 | 0.01 |
| *Aeromonas* | 2 | 0.01 | *Sandarakinorhabdus* | 1 | 0.01 |
| *Sulfurimonas* | 2 | 0.01 | *Sporichthya* | 1 | 0.01 |
| Sva0081\_sediment\_group | 2 | 0.01 | *Rickettsia* | 1 | 0.01 |
| *Providencia* | 2 | 0.01 | *Methylothermus* | 1 | 0.01 |
| BD1-7\_clade | 2 | 0.01 | *Candidatus\_Entotheonella* | 1 | 0.01 |
| *Phormidium* | 2 | 0.01 | *Desulfocapsa* | 1 | 0.01 |
| *Terrimonas* | 2 | 0.01 | unclassified\_*Clostridiaceae* | 1 | 0.01 |
| *Actinobaculum* | 2 | 0.01 | unclassified\_*Thermotogaceae* | 1 | 0.01 |
| *Luteibacter* | 2 | 0.01 | *Janthinobacterium* | 1 | 0.01 |
| *Leptonema* | 2 | 0.01 | *Maritimimonas* | 1 | 0.01 |
| *Sideroxydans* | 1 | 0 | *Aquimonas* | 1 | 0.01 |
| CL500-3 | 1 | 0 | *Candidatus\_Iainarchaeum* | 1 | 0.01 |
| *Epulopiscium* | 1 | 0 | *Telmatobacter* | 1 | 0.01 |
| *Rubrivivax* | 1 | 0 | *Xylella* | 1 | 0.01 |
| *Natronobacillus* | 1 | 0 | *Lachnospira* | 1 | 0.01 |
| *Methylomicrobium* | 1 | 0 | *Metallibacterium* | 1 | 0.01 |
| MWH-UniP1\_aquatic\_group | 1 | 0 | *Barnesiella* | 1 | 0.01 |
| *Roseiflexus* | 1 | 0 | *Gelria* | 1 | 0.01 |
| *Roseimicrobium* | 1 | 0 | *Parapedobacter* | 1 | 0.01 |
| *Ramlibacter* | 1 | 0 | unclassified\_*Defluviitaleaceae* | 1 | 0.01 |
| unclassified\_*Holosporaceae* | 1 | 0 | *Christensenella* | 1 | 0.01 |
| *Sulfuricurvum* | 1 | 0 | *Proteocatella* | 1 | 0.01 |
| *Aequorivita* | 1 | 0 | *Constrictibacter* | 1 | 0.01 |
| *Chroococcidiopsis* | 1 | 0 | *Microvirga* | 1 | 0.01 |
| *Robiginitalea* | 1 | 0 | *Schlesneria* | 1 | 0.01 |
| *Paucisalibacillus* | 1 | 0 | *Roseibacillus* | 1 | 0.01 |
| unclassified\_*Bacteriovoracaceae* | 1 | 0 | *Methylohalomonas* | 1 | 0.01 |
| unclassified\_*Sphingobacteriaceae* | 1 | 0 | *Bellilinea* | 1 | 0.01 |
| vadinBC27\_wastewater-sludge\_group | 1 | 0 | *Kitasatospora* | 1 | 0.01 |
| *Klugiella* | 1 | 0 | *Lacibacter* | 1 | 0.01 |
| *Arhodomonas* | 1 | 0 | *Byssovorax* | 1 | 0.01 |
| *Rickettsiella* | 1 | 0 | *Porphyromonas* | 1 | 0.01 |
| *Aminobacterium* | 1 | 0 | *Clostridium\_sensu\_stricto*\_17 | 1 | 0.01 |
| *Olsenella* | 1 | 0 | Urania-1B-19\_marine\_sediment\_group | 1 | 0.01 |
| *Candidatus\_Paceibacter* | 1 | 0 | *Desulforegula* | 1 | 0.01 |
| *Kaistia* | 1 | 0 | OM43\_clade | 1 | 0.01 |
| *Clostridium\_sensu\_stricto*\_18 | 1 | 0 | *Methylotenera* | 1 | 0.01 |
| *Sporichthya* | 1 | 0 | *Filimonas* | 1 | 0.01 |
| *Luteimonas* | 1 | 0 | *Tissierella* | 1 | 0.01 |
| *Caldisericum* | 1 | 0 | *Caldithrix* | 1 | 0.01 |
| *Gemella* | 1 | 0 | *Halomonas* | 1 | 0.01 |
| *Janthinobacterium* | 1 | 0 | *Agromyces* | 1 | 0.01 |
| *Inhella* | 1 | 0 | unclassified\_*Peptococcaceae* | 1 | 0.01 |
| *Kocuria* | 1 | 0 | *Cellvibrio* | 1 | 0.01 |
| *Methylocella* | 1 | 0 | *Lachnoanaerobaculum* | 1 | 0.01 |
| *Klebsiella* | 1 | 0 | *Methylobacter* | 1 | 0.01 |
| *Oribacterium* | 1 | 0 | *Panacagrimonas* | 1 | 0.01 |
| *Coleofasciculus* | 1 | 0 | MSBL7 | 1 | 0.01 |
| *Candidatus\_Arthromitus* | 1 | 0 | *Intestinimonas* | 1 | 0.01 |
| *Barnesiella* | 1 | 0 | *Dysgonomonas* | 1 | 0.01 |
| unclassified\_*Holophagaceae* | 1 | 0 | *Gordonia* | 1 | 0.01 |
| *Parapedobacter* | 1 | 0 | *Asticcacaulis* | 1 | 0.01 |
| GKS98\_freshwater\_group | 1 | 0 | *Desulfurivibrio* | 1 | 0.01 |
| *Noviherbaspirillum* | 1 | 0 | *Ureibacillus* | 1 | 0.01 |
| *Christensenella* | 1 | 0 | *Stella* | 1 | 0.01 |
| *Constrictibacter* | 1 | 0 | *Candidatus\_Allobeggiatoa* | 1 | 0.01 |
| *Sporocytophaga* | 1 | 0 | *Reyranella* | 1 | 0.01 |
| *Schlesneria* | 1 | 0 | *Anaerolinea* | 1 | 0.01 |
| *Candidatus\_Methanomethylophilus* | 1 | 0 | *Pseudochrobactrum* | 1 | 0.01 |
| *Clostridium\_sensu\_stricto*\_8 | 1 | 0 | *Haliea* | 1 | 0.01 |
| unclassified\_*Paenibacillaceae* | 1 | 0 | *Rhodobium* | 1 | 0.01 |
| *Oscillospira* | 1 | 0 | *Fastidiosipila* | 1 | 0.01 |
| *Acetitomaculum* | 1 | 0 | *Ralstonia* | 1 | 0.01 |
| *Candidatus\_Anammoximicrobium* | 1 | 0 | *Aerococcus* | 1 | 0.01 |
| *Methylohalomonas* | 1 | 0 | *Anaerospora* | 1 | 0.01 |
| *Anaerovorax* | 1 | 0 | *Tahibacter* | 1 | 0.01 |
| *Cystobacter* | 1 | 0 | *Cronobacter* | 1 | 0.01 |
| *Thermodesulfobium* | 1 | 0 | W4 | 1 | 0.01 |
| *Byssovorax* | 1 | 0 | *Thalassospira* | 1 | 0.01 |
| *Anoxybacillus* | 1 | 0 | *Glycomyces* | 1 | 0.01 |
| *Candidatus\_Kuenenia* | 1 | 0 | unclassified\_*Neisseriaceae* | 1 | 0.01 |
| unclassified\_*Hyphomicrobiaceae* | 1 | 0 | *Candidatus\_Competibacter* | 1 | 0.01 |
| *Elstera* | 1 | 0 | *Desulfotomaculum* | 1 | 0.01 |
| unclassified\_*Leptospiraceae* | 1 | 0 | *Shewanella* | 1 | 0.01 |
| *Nakamurella* | 1 | 0 | *Yonghaparkia* | 1 | 0.01 |
| *Nitrolancea* | 1 | 0 | *Leptolyngbya* | 1 | 0.01 |
| *Caldithrix* | 1 | 0 | *Petrimonas* | 1 | 0.01 |
| *Persicitalea* | 1 | 0 | *Brasilonema* | 1 | 0.01 |
| unclassified\_*Oxalobacteraceae* | 1 | 0 | *Kineosporia* | 1 | 0.01 |
| *Lawsonia* | 1 | 0 | *Rheinheimera* | 1 | 0.01 |
| *Candidatus\_Chloracidobacterium* | 1 | 0 | *SC103* | 1 | 0.01 |
| unclassified\_*Syntrophobacteraceae* | 1 | 0 | *Nitratireductor* | 1 | 0.01 |
| *Soehngenia* | 1 | 0 | *Acidothermus* | 1 | 0.01 |
| *Cycloclasticus* | 1 | 0 | *Syntrophus* | 1 | 0.01 |
| *Gordonia* | 1 | 0 | *Desulforhopalus* | 1 | 0.01 |
| unclassified\_*Cryomorphaceae* | 1 | 0 | *Pseudoramibacter* | 1 | 0.01 |
| *Meganema* | 1 | 0 | *Pelosinus* | 1 | 0.01 |
| *Stella* | 1 | 0 | CL500-29\_marine\_group | 1 | 0.01 |
| *Geopsychrobacter* | 1 | 0 | *Haemophilus* | 1 | 0.01 |
| *Desulfosarcina* | 1 | 0 | *Lentibacillus* | 1 | 0.01 |
| unclassified\_*Spirochaetaceae* | 1 | 0 | *Carnobacterium* | 1 | 0.01 |
| *Methanobrevibacter* | 1 | 0 | *Pseudolabrys* | 1 | 0.01 |
| *Caulobacter* | 1 | 0 | *Portibacter* | 1 | 0.01 |
| *Pseudonocardia* | 1 | 0 | *Tepidimonas* | 1 | 0.01 |
| *Thiohalophilus* | 1 | 0 | unclassified\_*Flavobacteriaceae* | 1 | 0.01 |
| *Sufflavibacter* | 1 | 0 | *Neisseria* | 1 | 0.01 |
| *Cronobacter* | 1 | 0 | *Gemmatimonas* | 1 | 0.01 |
| W4 | 1 | 0 | *Elioraea* | 1 | 0.01 |
| *Shivajiella* | 1 | 0 | *Aneurinibacillus* | 1 | 0.01 |
| *Roseburia* | 1 | 0 | *Oligella* | 1 | 0.01 |
| *Candidatus\_Competibacter* | 1 | 0 | *Hyalangium* | 1 | 0.01 |
| *Desulfotomaculum* | 1 | 0 | *Morganella* | 1 | 0.01 |
| *Petrimonas* | 1 | 0 | *Azovibrio* | 1 | 0.01 |
| *Butyricimonas* | 1 | 0 | *Lapillicoccus* | 1 | 0.01 |
| *Leptotrichia* | 1 | 0 | *Azospirillum* | 1 | 0.01 |
| *Brasilonema* | 1 | 0 | *Tsukamurella* | 1 | 0.01 |
| *Acidothermus* | 1 | 0 | *Desulfofustis* | 1 | 0.01 |
| *Clostridium\_sensu\_stricto*\_11 | 1 | 0 | *Brooklawnia* | 1 | 0.01 |
| *Pseudoramibacter* | 1 | 0 | *Labrenzia* | 1 | 0.01 |
| *Peredibacter* | 1 | 0 | *Rikenella* | 1 | 0.01 |
| *Eubacterium* | 1 | 0 | *Clostridium\_sensu\_stricto*\_7 | 1 | 0.01 |
| *Candidatus\_Nitrotoga* | 1 | 0 | *Anaerosalibacter* | 1 | 0.01 |
| *Proteus* | 1 | 0 | *Thiomonas* | 1 | 0.01 |
| *Weeksella* | 1 | 0 | unclassified\_*Rhodothermaceae* | 1 | 0.01 |
| *Bilophila* | 1 | 0 | *Micropruina* | 1 | 0.01 |
| *Proteiniclasticum* | 1 | 0 | *Micromonospora* | 1 | 0.01 |
| *SEEP-SRB2* | 1 | 0 | *Sphingobacterium* | 1 | 0.01 |
| *Paraprevotella* | 1 | 0 | *Pseudofulvimonas* | 1 | 0.01 |
| *Cloacibacterium* | 1 | 0 | *Beggiatoa* | 1 | 0.01 |
| *Aeribacillus* | 1 | 0 | *Skermanella* | 1 | 0.01 |
| *Papillibacter* | 1 | 0 | *Porphyrobacter* | 1 | 0.01 |
| *Azovibrio* | 1 | 0 | unclassified\_*Planococcaceae* | 1 | 0.01 |
| *Cupriavidus* | 1 | 0 | *Levilinea* | 1 | 0.01 |
| *Lapillicoccus* | 1 | 0 | *Candidatus\_Thiobios* | 1 | 0.01 |
| *Azospirillum* | 1 | 0 | unclassified\_*Chlamydiaceae* | 1 | 0.01 |
| *Leucobacter* | 1 | 0 | *Chryseomicrobium* | 1 | 0.01 |
| *Thiohalocapsa* | 1 | 0 | *Fictibacillus* | 1 | 0.01 |
| *Anaeromyxobacter* | 1 | 0 | *Phycicoccus* | 1 | 0.01 |
| *Candidatus\_Xiphinematobacter* | 1 | 0 | unclassified\_*Marinilabiaceae* | 1 | 0.01 |
| *Brooklawnia* | 1 | 0 | OM60(NOR5)\_clade | 1 | 0.01 |
| unclassified\_*Coxiellaceae* | 1 | 0 | *Haliscomenobacter* | 1 | 0.01 |
| unclassified\_*Helicobacteraceae* | 1 | 0 | *Luteibacter* | 1 | 0.01 |
| *Mariniradius* | 1 | 0 | *Acidiferrobacter* | 1 | 0.01 |
| *Moraxella* | 1 | 0 | *Bythopirellula* | 1 | 0.01 |
| *Mogibacterium* | 1 | 0 | *Granulicella* | 1 | 0.01 |
| unclassified\_*Desulfurellaceae* | 1 | 0 | *Idiomarina* | 1 | 0.01 |
| *Clostridium\_sensu\_stricto*\_7 | 1 | 0 | *Gemmobacter* | 1 | 0.01 |
| *Mucispirillum* | 1 | 0 |  |  |  |
| *Marinobacter* | 1 | 0 |  |  |  |
| *Facklamia* | 1 | 0 |  |  |  |
| *Micropruina* | 1 | 0 |  |  |  |
| *Candidatus\_Methylomirabilis* | 1 | 0 |  |  |  |
| *Anaerobacillus* | 1 | 0 |  |  |  |
| *Micromonospora* | 1 | 0 |  |  |  |
| *Desulfomonile* | 1 | 0 |  |  |  |
| *Plasticicumulans* | 1 | 0 |  |  |  |
| *Pseudofulvimonas* | 1 | 0 |  |  |  |
| *Thermosynechococcus* | 1 | 0 |  |  |  |
| *Bartonella* | 1 | 0 |  |  |  |
| *Desulfobacula* | 1 | 0 |  |  |  |
| *Skermanella* | 1 | 0 |  |  |  |
| *Butyrivibrio* | 1 | 0 |  |  |  |
| *Porphyrobacter* | 1 | 0 |  |  |  |
| *Tepidiphilus* | 1 | 0 |  |  |  |
| *Conexibacter* | 1 | 0 |  |  |  |
| *Georgenia* | 1 | 0 |  |  |  |
| *Methylobacterium* | 1 | 0 |  |  |  |
| *Planomicrobium* | 1 | 0 |  |  |  |
| *Acholeplasma* | 1 | 0 |  |  |  |
| OM60(NOR5)\_clade | 1 | 0 |  |  |  |
| *Tepidamorphus* | 1 | 0 |  |  |  |
| *Aquamicrobium* | 1 | 0 |  |  |  |
| *Methanolobus* | 1 | 0 |  |  |  |
| *Clostridium\_sensu\_stricto*\_16 | 1 | 0 |  |  |  |
| *Chromohalobacter* | 1 | 0 |  |  |  |
| *Thermincola* | 1 | 0 |  |  |  |