Table S4. Test set based on genus-level taxonomic bioindicators of *categorized* instances (i.e. operational parameters) obtained from a DWDS simulator and full-scale DWDS studies. Values represent abundance of each taxon as a ratio of all sequences obtained for each individual sample. Legend: ND = not detected; missing value = ?. [†]Sequence data was reanalyzed using RDP v16 database.

Sample (reference)	Operational scheme	Taxonomy groups (bioindicators)							
		Taxa A1	Taxa A2	Taxa A3	Taxa A4	Taxa A5	Taxa B1	Taxa B2	Taxa B3
Western Australia (**Shaw et al., 2015**)									
SA PT 1.5	Stable	ND	?	ND	?	ND	?	?	ND
SA-1 CT	Failure	0.0121	?	ND	?	0.0001	?	?	0.0020
SA-2	Stable	0.0003	?	ND	?	ND	?	?	ND
SA-2 CT	Failure	0.0284	?	ND	?	ND	?	?	ND
SA-3	Stable	0.0002	?	ND	?	ND	?	?	ND
SA-4	Stable	ND	?	ND	?	ND	?	?	ND
SA-5 CT	Stable	ND	?	ND	?	ND	?	?	0.0001
WA-1A	Stable	ND	?	ND	?	ND	?	?	ND
WA-1B	Stable	0.0008	?	ND	?	ND	?	?	ND
WA-2	Stable	0.0002	?	ND	?	ND	?	?	ND
WA-3A	Stable	0.0001	?	0.0001	?	ND	?	?	ND
WA-3B	Stable	ND	?	ND	?	ND	?	?	0.0003
WA-4 CT	Failure	0.0063	?	ND	?	ND	?	?	0.0064
DWDS simulator (this study)									
A12_09_19_1	Stable	0.0023	0.0005	ND	0.0013	0.0013	0.0120	0.1005	0.2293
A12_10_01_1	Stable	0.0010	0.0013	ND	0.0008	0.0028	0.0133	0.1293	0.3830
A12_10_15_1	Stable	ND	0.0013	ND	0.0008	0.0045	0.0158	0.1410	0.4383
A12_10_23_1	Stable	0.0003	0.0005	ND	0.0005	0.0063	0.0230	0.1005	0.6170
A12_11_15_1	Stable	ND	ND	0.0008	0.0038	0.0075	0.0283	0.1433	0.3705
B12_09_19_1	Stable	0.0003	0.0013	ND	0.0025	0.0065	0.0120	0.1048	0.2750
B12_10_01_1	Stable	0.0013	0.0013	ND	0.0005	0.0108	0.0140	0.1013	0.4135
B12_10_15_1	Stable	ND	0.0023	ND	0.0010	0.0043	0.0125	0.1210	0.3900
B12_10_23_1	Stable	0.0003	ND	ND	0.0010	0.0038	0.0045	0.0503	0.7813
B12_11_08_1	Stable	ND	ND	0.0273	0.0133	ND	0.0018	ND	0.1620
B12_11_15_1	Stable	0.0003	ND	0.0033	0.0078	0.0125	0.0298	0.0813	0.2498

Pinellas County, FL[†] (**Wang et al., 2014**)

S1_PBR_001	Failure	0.0278	0.0037	ND	0.0065	ND	ND	ND	0.0004
S1_PBR_002	Failure	0.0005	0.0015	ND	0.0006	ND	0.0003	ND	0.0005
S1_PBR_003	Failure	0.0846	0.0025	ND	0.0034	0.0033	0.0132	0.0013	0.0036
S1_PBR_004	Failure	0.0038	0.0828	ND	0.0009	0.0010	0.0006	0.0008	0.1962
S1_PBR_005	Failure	0.0004	0.0098	ND	0.0148	ND	0.0006	0.0225	0.0214
S1_PBR_006	Failure	0.0235	0.2109	ND	0.0254	0.0207	0.0030	0.0002	0.1409
S1_PBR_007	Failure	0.0123	0.0295	ND	0.0104	0.0025	0.0062	0.0018	0.0405
S1_PBR_008	Failure	0.0005	0.0967	ND	0.0001	0.0015	ND	ND	0.2239
S1_PBR_009	Failure	ND	0.0227	ND	0.0029	0.0215	ND	ND	0.0036
S1_PBR_010	Failure	0.0003	0.1814	ND	0.0039	0.0101	0.0002	0.0001	0.0595
S1_PBR_011	Failure	0.0001	0.0807	ND	0.0005	0.0003	0.0006	ND	0.0061
S1_PBR_012	Failure	0.0312	0.0038	ND	0.0094	0.0019	0.0035	0.0003	0.0015
S1_PBR_013	Failure	0.0022	0.2114	ND	0.0017	0.0061	0.0010	0.0003	0.0808
S1_PBR_014	Failure	0.0035	0.1072	ND	0.0597	0.0334	0.0013	0.0003	0.0613
S1_PBR_015	Failure	0.3359	0.0079	ND	0.0500	0.0024	0.0040	0.0505	0.0031
S1_PBR_016	Failure	0.0067	0.0321	ND	0.0009	0.0020	0.0007	0.0010	0.0024
S1_PBR_017	Failure	0.0042	0.0342	ND	0.1165	0.0076	0.0060	0.0012	0.0018
S1_PBR_018	Failure	0.0005	0.0364	ND	ND	ND	ND	0.0001	0.0089
S1_PBR_019	Failure	0.0042	0.2137	ND	0.0013	0.0105	0.0003	ND	0.0738
S1_PBR_020	Failure	0.0001	0.1213	ND	0.0002	0.0060	0.0001	0.0002	0.0438
S1_PBR_021	Failure	0.0004	0.0633	ND	0.0012	0.0072	0.0005	0.0007	0.0039
S1_PBR_022	Failure	0.0025	0.0490	ND	0.0083	0.0018	0.0004	0.0025	0.0214
S1_PBR_023	Failure	0.0014	0.0071	ND	0.0170	0.0003	0.0036	0.0062	0.0525
S1_PBR_024	Failure	0.0052	0.0575	ND	0.0020	0.0028	0.0020	0.0005	0.0094
S1_PBR_025	Failure	0.0007	0.0315	ND	0.0061	0.0004	0.0015	0.0045	0.0053
S1_PBR_026	Failure	0.0006	ND	ND	0.0021	0.0001	0.0003	0.0058	ND
S1_PBR_027	Failure	0.0012	0.0239	ND	0.0016	0.0049	0.0006	0.0001	0.0063
S1_PBR_028	Failure	0.0004	0.0207	ND	0.0075	0.0045	0.0002	0.0009	0.0096
S1_PBR_029	Failure	0.0004	0.0398	ND	0.0011	0.0038	0.0027	0.0015	0.0087
S1_PBR_030	Failure	0.0014	0.1136	ND	0.0047	0.0164	0.0007	0.0003	0.0056
S1_PBR_031	Failure	0.0111	0.0103	ND	0.0342	0.0113	0.1092	ND	0.0003
S1_PBR_032	Failure	0.0005	0.0933	ND	0.0006	0.0093	0.0005	0.0002	0.0077

S1_PBR_033	Failure	0.0049	0.0004	ND	0.0135	0.0005	0.0028	0.0122	ND
S1_PBR_034	Failure	0.0008	0.0595	ND	0.0005	0.0023	0.0003	0.0007	0.0020
S1_PBR_035	Failure	0.0002	0.0265	ND	0.0001	0.0009	0.0014	0.0013	0.0033
S1_PBR_036	Failure	0.0117	0.0984	ND	0.0034	0.0034	0.0005	0.0004	0.0033
S1_PBR_037	Failure	0.0016	0.0925	ND	0.0007	0.0024	0.0007	0.0004	0.0035
S1_PBR_038	Failure	0.0004	0.7538	ND	0.0076	0.0010	0.0002	0.0003	0.0008
S1_PBR_039	Failure	0.0018	0.0025	ND	0.0040	0.0007	0.0003	0.0013	0.0003
S1_PBR_040	Failure	0.0006	0.0957	ND	0.0012	0.0061	0.0002	0.0005	0.0025
S1_PBR_041	Failure	0.0002	0.2640	ND	0.0035	0.0163	0.0007	0.0062	0.0014
S1_PBR_042	Failure	0.0001	0.0084	ND	0.0053	0.0009	0.0088	0.0155	0.0003
S1_PBR_044	Failure	0.0004	0.1019	ND	0.0003	0.0036	0.0002	0.0001	0.0045
S1_PBR_045	Failure	0.0005	0.0746	ND	0.0004	0.0050	0.0007	0.0012	0.0045
S1_PBR_046	Failure	0.0002	0.0715	ND	0.0003	0.0046	ND	0.0001	0.0030
S3_IBR_093	Stable	ND	0.0001	ND	0.0094	ND	ND	0.0021	0.0005
S3_IBR_094	Stable	0.0001	ND	ND	0.0003	ND	ND	ND	ND
S3_IBR_095	Stable	0.0002	0.0003	ND	0.0003	0.0018	0.0040	0.0005	0.1892
S3_IBR_096	Stable	0.0001	0.0003	ND	0.0006	ND	0.0004	0.0005	0.0006
S3_IBR_097	Stable	0.0008	0.0006	ND	0.0024	0.0001	0.0005	0.0023	0.0061
S3_IBR_098	Stable	0.0005	0.0007	ND	0.0025	0.0015	0.0026	0.0014	0.0482
S3_IBR_099	Stable	0.0008	0.0008	ND	0.0038	0.0014	0.0066	0.0027	0.0010
S3_IBR_100	Stable	0.0005	0.0003	ND	0.0014	ND	0.0009	0.0008	0.0005
S3_IBR_101	Stable	0.0001	0.0002	ND	0.0004	0.0006	0.0072	0.0028	0.0021
S3_IBR_102	Stable	ND	0.0001	ND	0.0009	0.0001	0.0040	0.0073	0.0021
S3_IBR_103	Stable	0.0008	0.0004	ND	0.0123	ND	0.0073	0.0120	0.0143
S3_IBR_104	Stable	0.0182	0.1045	ND	0.0247	0.0013	0.0061	ND	0.0004
S3_IBR_105	Stable	0.0019	0.0023	ND	0.0011	0.0057	0.0042	ND	0.0105
S3_IBR_106	Stable	0.0002	0.0006	ND	0.0009	0.0033	0.0043	0.0015	0.0040
S3_IBR_107	Stable	0.0008	0.0011	ND	0.0048	ND	0.0039	0.0445	0.1045
S3_IBR_108	Stable	0.0025	0.0045	ND	0.0097	0.0006	0.0010	0.0048	0.0531
S3_IBR_109	Stable	0.0053	0.0023	ND	0.0075	0.0016	0.0346	0.0002	0.0026
S3_IBR_110	Stable	ND	ND	ND	0.0001	0.0006	ND	ND	0.0124
S3_IBR_111	Stable	0.0006	ND	ND	ND	0.0001	0.0004	ND	0.0775
S3_IBR_112	Stable	0.0001	ND	ND	0.0018	ND	0.0025	ND	0.0046
S3_IBR_113	Stable	0.0531	0.0200	ND	0.0263	0.0071	0.0011	ND	0.0228

S3_IBR_114	Stable	0.0008	0.0014	ND	0.0314	0.0023	0.0041	0.0055	0.0633
S3_IBR_115	Stable	0.0002	0.0009	ND	0.0306	0.0026	0.0045	0.0075	0.0746
S3_IBR_116	Stable	0.0015	0.0006	ND	0.0065	ND	0.0016	0.0030	0.0036
S3_IBR_117	Stable	0.0001	0.0004	ND	0.0160	0.0045	0.0010	0.0049	0.0095
S3_IBR_118	Stable	ND	0.0007	ND	ND	ND	ND	ND	ND
S3_IBR_119	Stable	0.0001	0.0002	ND	ND	ND	ND	ND	0.0114
S3_IBR_120	Stable	0.0001	0.0012	ND	0.0040	0.0003	ND	ND	0.0047
S3_IBR_121	Stable	0.0005	0.0037	ND	0.0006	0.0001	ND	ND	0.0027
S3_IBR_122	Stable	ND	0.0003	ND	ND	0.0001	0.0002	0.0001	0.0025
S3_IBR_123	Stable	ND	0.0185	ND	0.0030	0.0004	0.0007	0.0004	0.0034
S3_IBR_124	Stable	ND	0.0001	ND	ND	ND	ND	ND	0.0010
S3_IBR_125	Stable	ND	0.0001	ND	0.0008	0.0006	0.0008	0.0015	0.0011
S3_IBR_126	Stable	0.0001	0.0004	ND	ND	ND	0.0002	0.0001	0.0005
S3_IBR_127	Stable	0.0004	0.0069	ND	ND	ND	0.0022	0.0020	0.0045
S3_IBR_128	Stable	0.0008	0.0025	ND	0.0002	0.0001	0.0007	ND	0.0019
S3_IBR_129	Stable	ND	0.0001	ND	0.0007	ND	0.0001	ND	0.0015
S3_IBR_130	Stable	0.0001	0.0006	ND	0.0023	0.0001	0.0170	0.0024	0.0026
S3_IBR_131	Stable	0.0005	0.0005	ND	0.0014	0.0001	0.0001	0.0006	0.0227
S3_IBR_132	Stable	ND	0.0010	ND	ND	0.0002	ND	ND	0.0017
S3_IBR_133	Stable	0.0001	0.0008	ND	0.0049	ND	0.0017	0.0004	0.0013
S3_IBR_134	Stable	ND	0.0005	ND	0.0010	0.0001	0.0015	0.0025	0.0004
S3_IBR_135	Stable	0.0013	0.0004	ND	0.0164	0.0005	0.0011	0.0132	0.0032
S3_IBR_136	Stable	ND	0.0005	ND	0.0001	0.0001	0.0821	0.0038	0.0004
S3_IBR_137	Stable	0.0001	0.0064	ND	0.0004	ND	0.0012	0.0001	0.0085
S3_IBR_138	Stable	0.0004	0.0013	ND	0.0006	ND	0.0009	0.0005	0.0012
S4_4BR_139	Stable	0.0127	0.0121	ND	0.0086	ND	0.0173	0.0108	0.0017
S4_4BR_140	Stable	0.0007	0.0005	ND	0.0002	0.0002	ND	ND	0.0002
S4_4BR_141	Stable	0.1181	0.0829	ND	0.0085	0.0324	0.0046	0.0438	0.0019
S4_4BR_142	Stable	0.0001	0.0006	ND	0.0001	ND	0.0001	0.0001	0.0046
S4_4BR_143	Stable	0.0002	0.0001	ND	0.0005	ND	0.0002	0.0006	0.0085
S4_4BR_144	Stable	0.0013	0.0059	ND	0.0010	0.0005	0.0054	0.0005	0.0151
S4_4BR_145	Stable	ND	0.0009	ND	ND	0.0034	0.0008	0.0005	0.0019
S4_4BR_146	Stable	0.0004	0.0007	ND	0.0006	0.0005	0.0046	0.0042	0.0169
S4_4BR_147	Stable	0.0001	0.0056	ND	0.0012	ND	0.0026	0.0339	0.0002

S4_4BR_148	Stable	0.0013	0.0060	ND	0.0071	0.0015	0.0022	0.0031	0.0051
S4_4BR_149	Stable	0.0004	0.0005	ND	0.0069	0.0004	0.0006	0.0006	0.0007
S4_4BR_150	Stable	0.0001	0.0406	ND	0.0009	0.0005	0.0005	ND	0.0026
S4_4BR_151	Stable	0.0001	0.0793	ND	0.0064	0.0078	0.0108	ND	0.0017
S4_4BR_152	Stable	0.0020	0.0054	ND	0.0052	0.0032	0.0072	0.0254	0.0070
S4_4BR_153	Stable	ND	0.0003	ND	ND	0.0001	ND	0.0002	0.0015
S4_4BR_154	Stable	0.0004	0.0045	ND	0.0010	0.0002	0.0015	0.0010	0.0200
S4_4BR_155	Stable	0.0037	0.1113	ND	0.0050	0.0017	0.0032	0.0001	0.0042
S4_4BR_156	Stable	0.0002	0.0008	ND	0.0003	0.0001	ND	0.0001	0.0035
S4_4BR_157	Stable	0.0001	0.0235	ND	0.0007	0.0011	0.0007	0.0010	0.0040
S4_4BR_158	Stable	0.0002	0.0110	ND	0.0038	0.0001	0.0016	0.0002	0.0042
S4_4BR_159	Stable	0.0024	0.0095	ND	0.0013	0.0013	ND	ND	0.0384
S4_4BR_160	Stable	0.0004	0.0017	ND	0.0027	0.0001	0.0005	0.0006	0.0082
S4_4BR_161	Stable	0.0001	0.1001	ND	0.0069	0.0015	0.0003	0.0006	0.0056
S4_4BR_162	Stable	0.0005	0.0038	ND	0.0062	ND	0.0015	0.0113	0.0119
S4_4BR_163	Stable	ND	0.0028	ND	0.0035	0.0005	0.0008	0.0004	0.0037
S4_4BR_164	Stable	ND	0.0040	ND	0.0017	ND	0.0009	0.0043	ND
S4_4BR_165	Stable	0.0002	0.0035	ND	0.0004	0.0021	0.0001	0.0003	0.0017
S4_4BR_166	Stable	ND	0.0006	ND	0.0003	0.0001	ND	0.0002	0.0005
S4_4BR_167	Stable	0.0002	0.0061	ND	0.0005	0.0004	0.0001	0.0003	0.0010
S4_4BR_168	Stable	0.0001	0.0010	ND	ND	0.0005	0.0009	0.0002	0.0008
S4_4BR_169	Stable	0.1456	0.0127	ND	0.0237	0.0042	0.0128	0.0001	0.0004
S4_4BR_170	Stable	0.0001	0.0005	ND	0.0006	0.0001	0.0002	0.0001	0.0005
S4_4BR_171	Stable	0.0149	0.0040	ND	0.0042	0.0070	0.0055	0.0114	0.0002
S4_4BR_172	Stable	0.0001	0.0004	ND	0.0001	0.0001	0.0001	0.0005	0.0001
S4_4BR_173	Stable	0.0001	0.0065	ND	0.0003	0.0003	0.0001	0.0004	0.0017
S4_4BR_174	Stable	0.0001	0.0020	ND	0.0004	0.0001	0.0002	0.0003	0.0004
S4_4BR_175	Stable	ND	0.0345	ND	0.0028	ND	0.0037	0.0135	0.0006
S4_4BR_176	Stable	0.0001	0.0015	ND	0.0015	0.0005	0.0005	0.0014	0.0008
S4_4BR_177	Stable	0.0007	0.0048	ND	0.0025	0.0005	0.0005	0.0022	0.0008
S4_4BR_178	Stable	0.0002	0.0025	ND	0.0006	0.0013	0.0001	0.0045	0.0008
S4_4BR_179	Stable	0.0052	0.0047	ND	0.0026	0.0006	0.0017	0.0060	0.0025
S4_4BR_180	Stable	0.0037	0.0163	ND	0.0045	0.0010	0.0035	0.0043	0.0023
S4_4BR_181	Stable	0.0007	0.0167	ND	0.0012	0.0006	0.0004	0.0020	0.0015

S4_4BR_182	Stable	ND	0.0082	ND	0.0049	0.0055	0.0261	0.0102	0.0006
S4_4BR_183	Stable	ND	0.0015	ND	0.0006	ND	ND	0.0002	0.0005
S4_4BR_184	Stable	0.0058	0.0115	ND	0.0008	0.0032	0.0007	ND	0.0001