Supplementary Materials

Table S1. Dominant OTUs (%) in water and soil samples of unplanted CW (CW-A) and cattail-planted CW (CW-B) treating NMD

Influent	Effluent CW-A	Effluent CW-B	Soil CW-A	Soil CWB	#OTU ID	phylum/class/order/family/genus/species
0.00	0.00	0.00	2.62	0.00	OTU_068	Thermi/ Deinococci/ Deinococcales/ Trueperaceae/ Truepera
0.00	7.23	0.77	0.00	0.00	OTU_013	OD1/ ZB2
2.12	1.08	0.49	0.00	0.00	OTU_029	OD1
0.10	0.03	2.85	0.00	0.00	OTU_045	TM7/ TM7-3
0.00	0.00	7.84	0.00	0.05	OTU_015	Bacteroidetes/ Cytophagia/ Cytophagales/ Cytophagaceae/ *Flectobacillus*
2.10	1.40	0.50	0.00	0.00	OTU_025	Bacteroidetes/ Flavobacteriia/ Flavobacteriales/ Flavobacteriaceae/*Flavobacterium succinicans*
0.00	0.00	0.00	2.09	0.00	OTU_088	Bacteroidetes/ Flavobacteriia/ Flavobacteriales/ [Weeksellaceae]/ Chryseobacterium
0.00	0.00	0.00	5.76	0.00	OTU_026	Bacteroidetes/ Sphingobacteriia/ Sphingobacteriales
0.00	0.00	0.00	3.97	0.00	OTU_044	Bacteroidetes
0.00	0.00	0.00	0.00	2.04	OTU_064	Chloroflexi
0.00	0.00	0.00	2.68	0.00	OTU_066	
0.00	0.00	0.00	2.09	0.00	OTU_089	
0.00	0.00	0.00	2.33	0.00	OTU_077	Actinobacteria/ Actinobacteria/ Actinomycetales/ Micrococcaceae/ *Micrococcus*
7.57	0.00	0.00	0.00	0.47	OTU_010	Cyanobacteria/ Chloroplast/Stramenopiles
0.11	0.06	0.02	0.00	2.23	OTU_055	Cyanobacteria/ Synechococcophycideae/ Pseudanabaenales/ Pseudanabaenaceae/ *Leptolyngbya*
0.00	2.07	0.15	0.00	0.00	OTU_063	Cyanobacteria/ 4C0d-2/ SM1D11
0.00	0.00	0.00	3.39	0.00	OTU_051	Proteobacteria/ Betaproteobacteria/ Rhodocyclales/ Rhodocyclaceae/ *Hydrogenophilus*
0.00	0.00	0.00	2.32	0.00	OTU_078	Proteobacteria/ Betaproteobacteria/ Rhodocyclales/ Rhodocyclaceae/ *Hydrogenophilus*
0.00	3.94	4.13	0.00	0.00	OTU_014	Proteobacteria/ Alphaproteobacteria/ Rickettsiales
0.01	0.18	9.15	0.00	0.13	OTU_011	Proteobacteria/ Alphaproteobacteria/ Rickettsiales
0.00	0.00	0.00	2.03	0.00	OTU_093	Proteobacteria/ Alphaproteobacteria/ Sphingomonadales/ Sphingomonadaceae
0.00	0.00	0.00	4.54	0.00	OTU_036	Proteobacteria/ Alphaproteobacteria/ Sphingomonadales/ Sphingomonadaceae
0.00	0.00	0.00	3.22	0.00	OTU_057	Proteobacteria/ Alphaproteobacteria/ Sphingomonadales/ Sphingomonadaceae/ *Kaistobacter*
0.00	0.00	0.00	3.32	0.00	OTU_052	Proteobacteria/ Alphaproteobacteria/ Sphingomonadales/ Sphingomonadaceae
0.00	0.00	0.00	7.54	0.00	OTU_020	Proteobacteria/ Alphaproteobacteria/ Caulobacterales/ Caulobacteraceae
0.00	0.00	0.00	5.42	1.61	OTU_018	Proteobacteria/ Alphaproteobacteria/ Rhizobiales/ Bradyrhizobiaceae/ *Bradyrhizobium*
0.00	0.00	0.00	0.00	2.76	OTU_046	Proteobacteria/ Alphaproteobacteria/ Rhizobiales/ Bradyrhizobiaceae/ *Bradyrhizobium*



Pumice stone 0-13.5cm



Limestone 13.5-21.4cm



Middle loamy soil 21.4-38.3cm



Fine loamy stone 38.3-55.1cm



Limestone 55.1-57.0cm and a weather monitoring station in CW-A



Cattail planted in CW-B



CW-A (unplanted)



CW-B (planted)

Figure S1. Soil layers, cattail, and a weather station in the unplanted CW (CW-A) and the planted CW (CW-B).

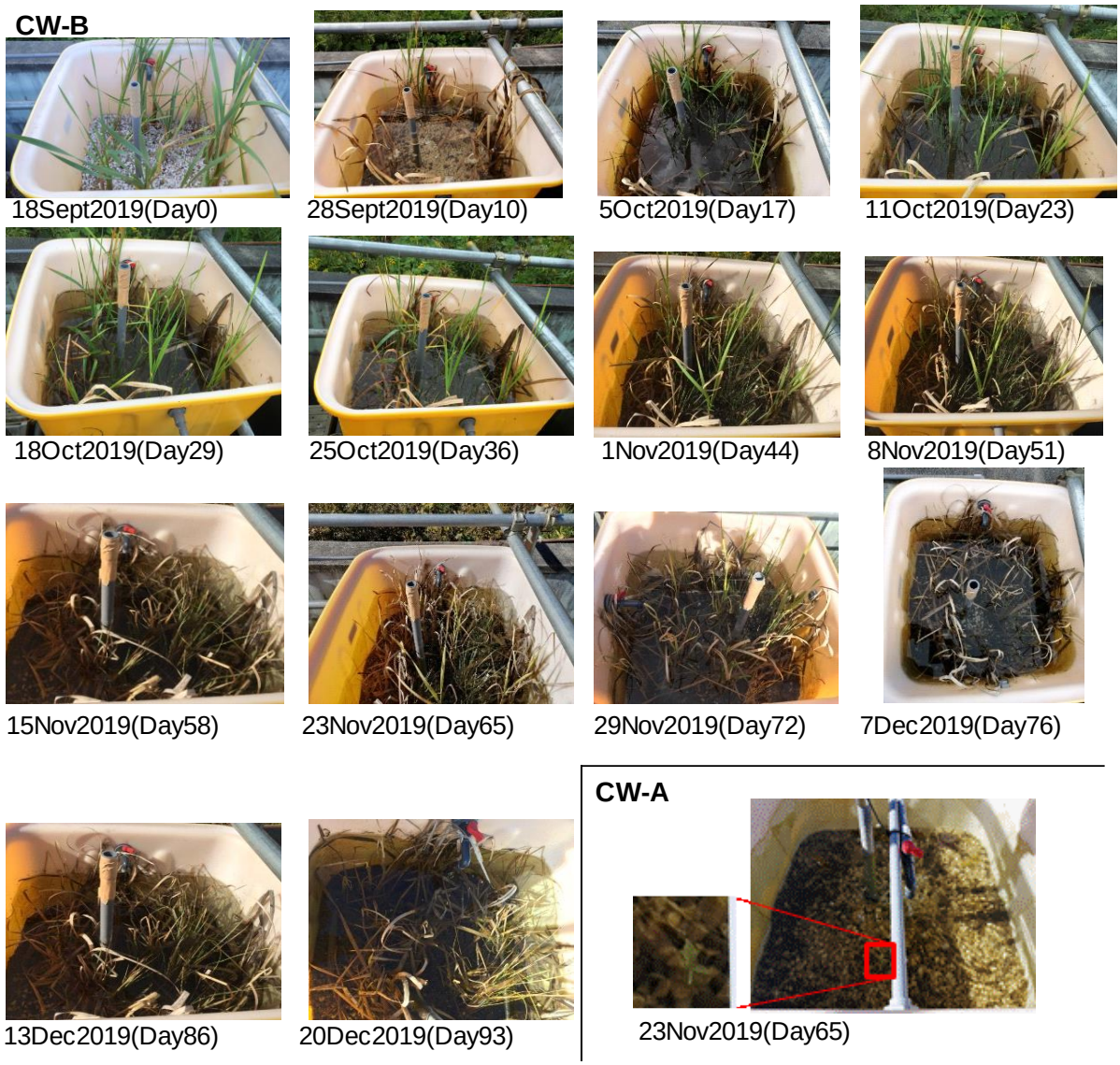


Figure S2 Growth and decay of cattails in the planted CW (CW-B) treating NMD for 3.5 month operation. An unknown bud appeared in the unplanted CW (CW-A) after 2 months.

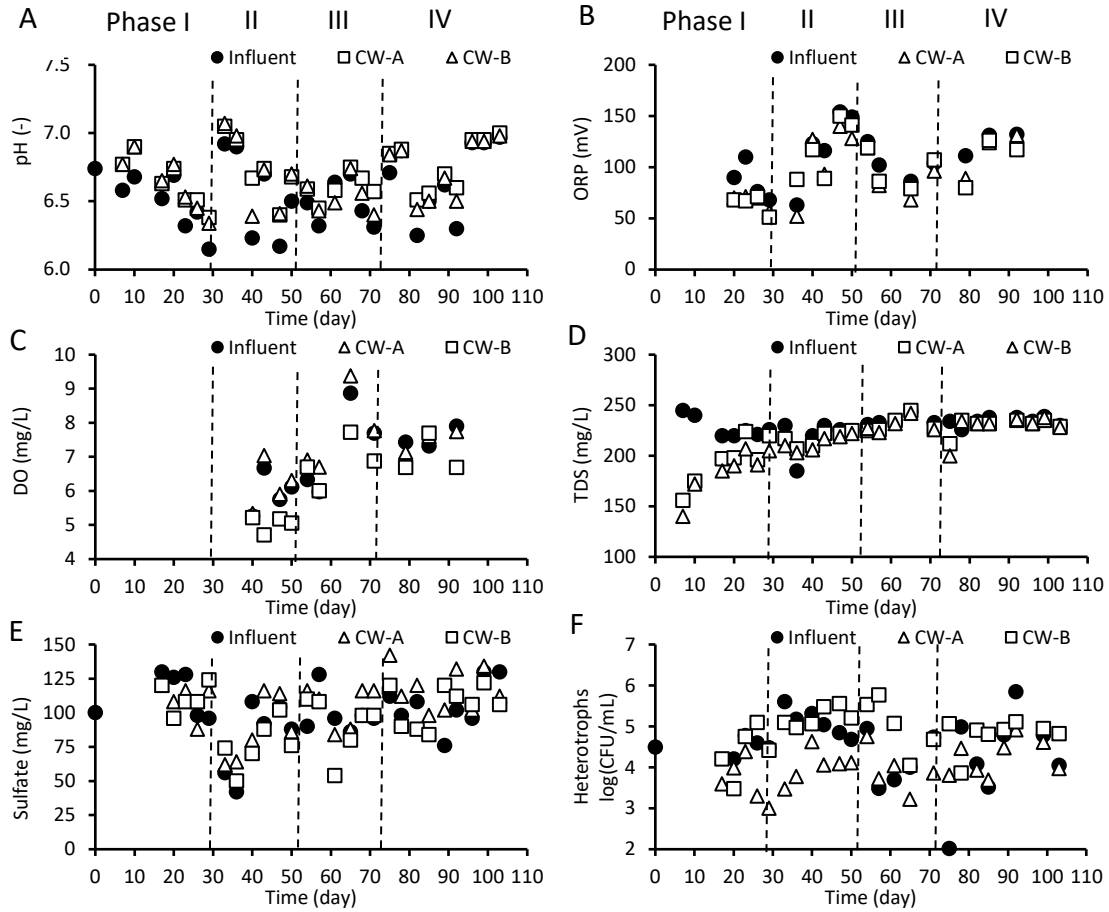


Figure S3. Time courses of water parameters in influent and effluent in the unplanted CW (CW-A) and the cattail-planted CW (CW-B) treating NMD: pH (A), ORP (B), DO (C), TDS (D), sulfate (E), and heterotrophs (F).