Bacterial communities in *Zostera marina* seagrass beds of Northern China

Yong Zhang[1], Qiuzhen Wang[2], Yuan Yao[1], Faqi Tan[1], Lin Jiang[1], Weijie Shi[1], Wen Yang[1], Jiayi Liu[2]

[1] Qinhuangdao Ocean Center, Ministry of Natural Resources, Qinhuangdao 066002, China;

[2] Ocean College, Hebei Agricultural University, Qinhuangdao 066000, China

* Corresponding Author: qqzz1990@163.com

Supplementary Material

Supplementary Table S1 Sample information

No.	Sample	Station	Longitude(°N)	Latitude (°E)	Sample type
1	L1	St1	118.6901	39.09954	Leave
2	R1	St1	118.6901	39.09954	Root
3	S1	St1	118.6901	39.09954	Sediment
4	W1	St1	118.6901	39.09954	Seawater
5	S2	St2	118.7353	39.1053	Sediment
6	W2	St2	118.7353	39.1053	Seawater
7	L3	St3	118.7171	39.03596	Leave
8	L3F	St3	118.7171	39.03596	Leaf surface
9	R3	St3	118.7171	39.03596	Root
10	S3	St3	118.7171	39.03596	Sediment
11	W3	St3	118.7171	39.03596	Seawater
12	L4	St4	118.6998	39.03566	Leave
13	R4	St4	118.6998	39.03566	Root
14	S4	St4	118.6998	39.03566	Sediment
15	W4	St4	118.6998	39.03566	Seawater
16	W5	St5	118.6998	39.03566	Seawater

Supplementary Table S2 Alpha diversity

Sample	observed_OTUs	Shannon	Simpson	Chao1	Goods_coverage	Pielou_e
L1	1957	8.43	0.98	1959.87	1.00	0.77
L3	1387	8.31	0.99	1387.00	1.00	0.80
L3F	713	7.14	0.98	713.00	1.00	0.75
L4	1102	7.69	0.99	1103.84	1.00	0.76
R1	1345	7.70	0.97	1345.94	1.00	0.74
R3	1296	7.84	0.98	1299.62	1.00	0.76
R4	1338	8.28	0.99	1341.49	1.00	0.80
S1	198	4.30	0.87	198.00	1.00	0.56
S2	190	4.19	0.87	191.00	1.00	0.55
S3	280	4.58	0.87	280.27	1.00	0.56
S4	201	4.44	0.87	201.00	1.00	0.58
W1	881	6.94	0.98	886.29	1.00	0.71
W2	853	7.06	0.98	857.39	1.00	0.72
W3	964	7.05	0.98	965.26	1.00	0.71
W4	881	6.98	0.97	884.83	1.00	0.71
W5	1042	7.54	0.98	1044.06	1.00	0.75

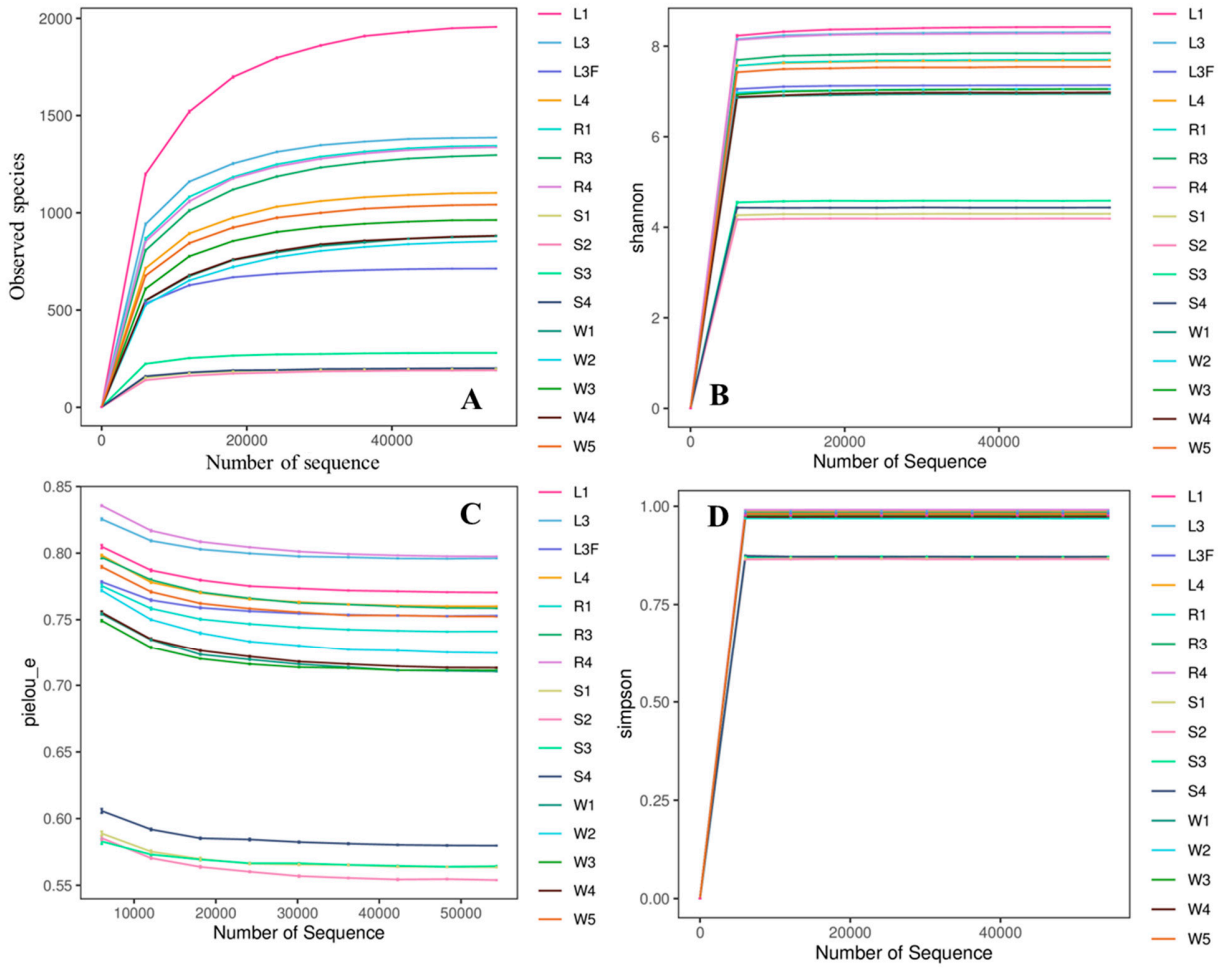
Supplementary Table S3 Physical and chemical parameters of seawater samples

Sample	**W1**	**W2**	**W3**	**W4**
Depth (m)	1.2	0.8	2.0	0.6
Temperature (℃)	22.6	22.6	22.6	22.6
Transparency (m)	0.5	0.4	0.5	0.5
Suspended substance (mg/L)	2.3	16.1	7.8	5.6
Salinity	29.762	29.281	29.930	30.128
DO (mg/L)	6.72	7.80	9.00	7.55
Active phosphate (mg/L)	3.820	4.950	4.670	3.990
Nitrite (mg/L)	31.500	31.400	39.600	30.600
Nitrate (mg/L)	72.800	80.100	53.800	76.000
Ammonium (mg/L)	86.700	108.000	40.700	80.200
Petroleum (mg/L)	25.700	21.500	19.500	24.300

Supplementary Table S4 Significant correlations ($P < 0.05$) between the top 30 bacterial class in abundance and environ-mental factors.

Bacteria	Salinity	DO	Nitrite	Nitrate
Parcubacteria	0.225	0.990*	0.812	-0.710
Anaerolineae	0.277	0.855	0.998*	-0.972*
Desulfovibrionia	0.285	0.872	0.995*	-0.967*
Moduliflexia	-0.964*	-0.363	-0.454	0.627

Note: * indicates a significant correlation ($p < 0.05$).



Supplementary Figure S1 Rarefaction curves. The variation of observed species (A), Shannon index (B), Pielou's evenness index (C), and Simpson index (D) with increased number of sequences.