

Table S1. Sampling point descriptions

Sampling sites	Locations	Major land used and activities around sampling sites	Population (by 2014)
Muan (MA)	35° 6'17.45"N, 126°19'55.16"E	Agriculture, tidal tourism	81,192
Mokpo (MP)	34°51'45.91"N, 126°19'10.84"E	Agriculture, fishery	239,026
Haenam (HN)	34°24'49.79"N, 126°30'57.79"E	Agriculture, saltern	77,249
Jangheung (JH)	34°26'5.54"N, 126°53'6.41"E	Harbor	43,190
Boseong (BS)	34°48'53.45"N, 127°24'39.58"E	Harbor, agriculture, tidal wetland protected area	46,061

Table S2. Total number of *Vibrio* isolates collected from tidal water and mud samples

Sampling season	<i>Vibrio</i>	Number of <i>Vibrio</i> spp. isolates (%) at					Total number of <i>Vibrio</i> spp.
		Muan (MA)	Mokpo (MP)	Haenam (HN)	Jangheung (JH)	Boseong (BS)	
<i>Tidal water</i>							
Jun. 2013	Total isolates	252	252	252	252	250	1258
	<i>Vibrio</i> spp.	242 (96.0)	230 (91.3)	220 (87.3)	244 (96.8)	234 (93.6)	1170 (93.0)
Sept. 2013	Total isolates	236	252	252	252	252	1244
	<i>Vibrio</i> spp.	230 (97.5)	231 (91.7)	188 (74.6)	224 (88.9)	232 (92.1)	1105 (88.8)
Dec. 2013	Total isolates	239	89	252	252	243	1075
	<i>Vibrio</i> spp.	222 (92.9)	87 (97.8)	229 (90.9)	225 (89.3)	231 (95.1)	994 (92.5)
Feb. 2014	Total isolates	99	228	172	213	134	846
	<i>Vibrio</i> spp.	94 (94.9)	221 (96.9)	166 (96.5)	208 (97.7)	132 (98.5)	821 (97.0)
Apr. 2014	Total isolates	197	249	227	241	242	1156
	<i>Vibrio</i> spp.	193 (98.0)	249 (100)	213 (93.8)	240 (99.6)	242 (100)	1137 (98.4)
<i>Mud</i>							
Jun. 2013	Total isolates	252	252	252	252	252	1260
	<i>Vibrio</i> spp.	252 (100)	252 (100)	252 (100)	250 (99.2)	249 (98.8)	1255 (99.6)
Sept. 2013	Total isolates	252	252	251	252	252	1259
	<i>Vibrio</i> spp.	226 (89.7)	214 (84.9)	207 (82.5)	205 (81.3)	222 (88.1)	1075 (85.3)
Dec. 2013	Total isolates	252	252	252	252	252	1260
	<i>Vibrio</i> spp.	230 (91.3)	206 (81.7)	226 (89.7)	214 (84.9)	197 (78.2)	1073 (85.2)
Feb. 2014	Total isolates	232	193	246	252	248	1171
	<i>Vibrio</i> spp.	228 (98.3)	189 (97.9)	242 (98.4)	251 (99.6)	246 (99.2)	1156 (98.7)
Apr. 2014	Total isolates	252	236	252	252	251	1243
	<i>Vibrio</i> spp.	238 (94.4)	229 (97.0)	243 (96.4)	245 (97.2)	243 (96.8)	1198 (96.4)

Table S3. BLAST results of 16S rRNA sequencing of control strains and randomly selected environmental isolated *Vibrio* strains (NCBI database, <https://blast.ncbi.nlm.nih.gov/Blast.cgi>)

Isolates	Strains	Identified species	Identical (%)	Length (bp)	G+C content (%)
Control	<i>Escherichia coli</i> NCCP 13716	<i>Escherichia coli</i>	99	1449	55.0
Control	<i>V. alginolyticus</i> KCTC 12696 ^T	<i>V. alginolyticus</i>	99	1456	54.7
Control	<i>V. cholerae</i> NCCP 11179	<i>V. cholerae</i>	99	1446	54.0
Control	<i>V. parahaemolyticus</i> KCTC 2471	<i>V. parahaemolyticus</i>	99	1459	54.2
Control	<i>V. vulnificus</i> KCTC 2959 ^T	<i>V. vulnificus</i>	99	1445	54.5
Environmental	A1	<i>V. alginolyticus</i>	99	1457	54.1
Environmental	A2	<i>V. alginolyticus</i>	99	1458	54.2
Environmental	A3	<i>V. alginolyticus</i>	99	1455	54.2
Environmental	A4	<i>V. alginolyticus</i>	99	1462	54.6
Environmental	A5	<i>V. alginolyticus</i>	99	1458	54.4
Environmental	A6	<i>V. alginolyticus</i>	99	1459	54.1
Environmental	A7	<i>V. alginolyticus</i>	99	1461	54.0
Environmental	A8	<i>V. alginolyticus</i>	99	1458	54.3
Environmental	A9	<i>V. alginolyticus</i>	99	1455	54.3
Environmental	A10	<i>V. alginolyticus</i>	99	1463	54.4
Environmental	C1	<i>V. cholerae</i>	97	1448	53.6
Environmental	C2	<i>V. cholerae</i>	97	1449	53.6
Environmental	C3	<i>V. cholerae</i>	99	1448	54.0
Environmental	C4	<i>V. cholerae</i>	99	1448	54.1
Environmental	C5	<i>V. cholerae</i>	99	1449	53.7
Environmental	C6	<i>V. cholerae</i>	99	1450	53.9
Environmental	C7	<i>V. cholerae</i>	98	1455	53.5
Environmental	C8	<i>V. cholerae</i>	99	1447	54.1
Environmental	C9	<i>V. cholerae</i>	99	1446	54.1
Environmental	C10	<i>V. cholerae</i>	99	1449	54.0
Environmental	P1	<i>V. parahaemolyticus</i>	99	1455	54.2

Environmental	P2	<i>V. parahaemolyticus</i>	99	1455	54.3
Environmental	P3	<i>V. parahaemolyticus</i>	99	1457	54.2
Environmental	P4	<i>V. parahaemolyticus</i>	99	1455	54.1
Environmental	P5	<i>V. parahaemolyticus</i>	99	1456	54.1
Environmental	P6	<i>V. parahaemolyticus</i>	100	1459	54.4
Environmental	P7	<i>V. parahaemolyticus</i>	99	1458	54.0
Environmental	P8	<i>V. parahaemolyticus</i>	99	1458	54.1
Environmental	P9	<i>V. parahaemolyticus</i>	95	1462	53.9
Environmental	P10	<i>V. parahaemolyticus</i>	99	1462	54.0
Environmental	V1	<i>V. vulnificus</i>	99	1450	54.8
Environmental	V2	<i>V. vulnificus</i>	99	1453	54.7
Environmental	V3	<i>V. vulnificus</i>	99	1450	54.6
Environmental	V4	<i>V. vulnificus</i>	99	1451	54.9
Environmental	V5	<i>V. vulnificus</i>	99	1452	55.0
Environmental	V6	<i>V. vulnificus</i>	100	1452	54.8
Environmental	V7	<i>V. vulnificus</i>	99	1452	54.8
Environmental	V8	<i>V. vulnificus</i>	99	1449	54.8
Environmental	V9	uncultured Vibrio (Accession number: KP016605.1)	97	1539	53.7
Environmental	V10	<i>V. vulnificus</i>	99	1450	54.6

Table S4. Analysis of Variance (ANOVA) of each environmental parameter to observe the significant differences and variance homogeneity by months and sampling sites

Environmental parameters	ANOVA (<i>p</i> -value)			
	Months		Sites	
	Homogeneity	Significance	Homogeneity	Significance
<i>Tidal water</i>				
Log ₁₀ MPN	0.037	0.000	0.969	0.967
Temperature (°C)	0.043	0.000	0.941	0.977
pH	0.389	0.009	0.032	0.379
Electric conductivity (S m ⁻¹)	0.012	0.001	0.372	0.433
Salinity	0.001	0.005	0.475	0.370
Turbidity (NTU)	0.019	0.207	0.099	0.130
BOD (mg L ⁻¹)	0.000	0.016	0.490	0.928
<i>Mud</i>				
Log ₁₀ MPN	0.001	0.001	0.923	0.567
Temperature (°C)	0.063	0.000	0.976	0.927
pH	0.452	0.000	0.702	0.691
Electric conductivity (S m ⁻¹)	0.121	0.546	0.126	0.000

*ANOVA = Analysis of Variance; *p*-value = Significance value; Significant level = 0.05. Significance value are shown in bold (*p*<0.05).

Homogeneity value less than 0.05 showed that the variance are heterogeneous, homogeneity value more than 0.05 showed that the variance are homogeneous.

Figure S1. Environmental parameters measured in tidal water in all season (June, September, and December, 2013, February and April, 2014) from five sampling sites (MA: Muan, MP: Mokpo, HN: Haenam, JH: Jangheung, BS: Boseong). (a) temperature, (b) salinity, (c) pH, (d) biological oxygen demand, BOD, (e) electric conductivity, EC, and (f) turbidity.

Figure S2. Environmental parameters measured in mud in all season (June, September, and December, 2013, February and April, 2014) from five sampling sites (MA: Muan, MP: Mokpo, HN: Haenam, JH: Jangheung, BS: Boseong). (a) temperature, (b) pH and (c) electric conductivity, EC.

Figure S1.

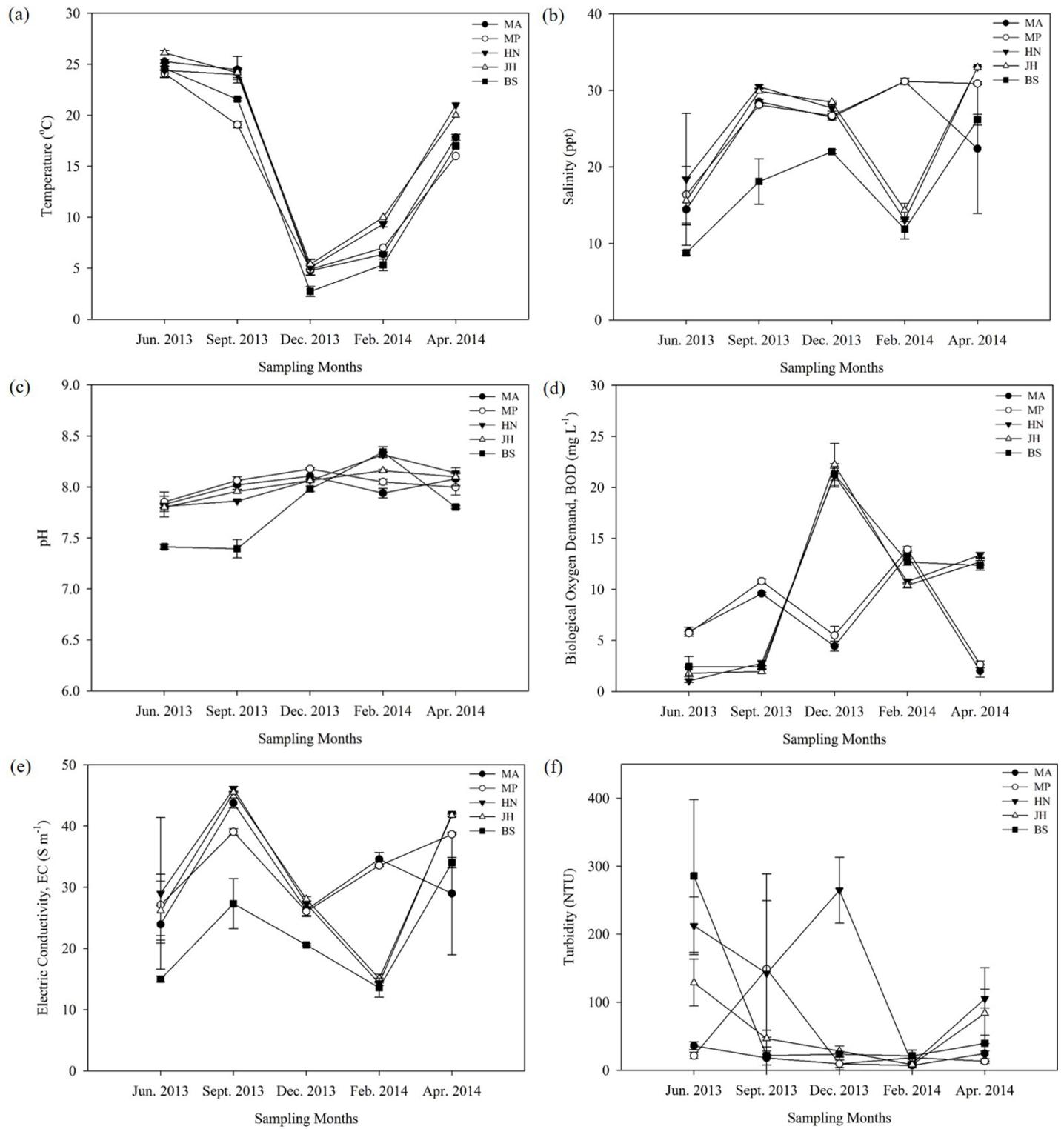


Figure S2.

