Table S1. The corresponding table of degenerate bases and common bases in the prime.

Degenerate bases	Corresponding base
R	A/G
Y	C/T
M	A/C
K	G/T
S	G/C
W	A/T
H	A/T/C
B	G/T/C
V	G/A/C
D	G/A/T
N	A/T/C/G

Table S2. The water temperature, salinity, pH and the dissolved oxygen (DO) concentration in the sampling ponds of WD and CY.

	T(℃)	pH	Do(mg/L)	S(g/L)
WD1	29.3±0.1	8.13±0.05	6.03±0.05	
WD3	30.1±0.7	7.58±0.23	6.30±0.13	
WD5	29.2±0.0	7.54±0.19	5.74±0.26	30±0.4
WD7	27.0±0.2	7.63±0.21	5.94±0.16	
WD9	24.9±0.6	7.47±0.19	4.79±0.64	
CY1	28.2±0.6	8.26±0.01	5.99±0.11	
CY3	29.5±0.7	8.02±0.13	5.67±0.16	
CY5	28.6±0.6	7.96±0.02	5.53±0.05	25±0.5
CY7	27.8±0.2	7.83±0.11	5.84±0.12	
CY9	28.5±0.3	7.86±0.09	5.67±0.19	

Table S3. The results of the statistical analysis of the abundance of nitrogen cycling genes in the WD group.

Gene	Homogeneity of variance	One-way ANOVA		Nonparametric tests
		F	*P*	*P*
amoA	0.115	19.266	0.000	
nirS	0.079	8.513	0.001	
nirK	0.187	16.195	0.000	
nxrB				0.048
ureC				0.002
narG				0.003
napA				0.012

Table S4. The results of the statistical analysis of the abundance of nitrogen cycling genes in the CY group.

Gene	Homogeneity of variance	One-way ANOVA		Nonparametric tests
		F	*P*	*P*
amoA				0.008
nirS				0.010
nirK				0.057
nxrB				0.014
ureC				0.001
narG				0.009
napA				0.029

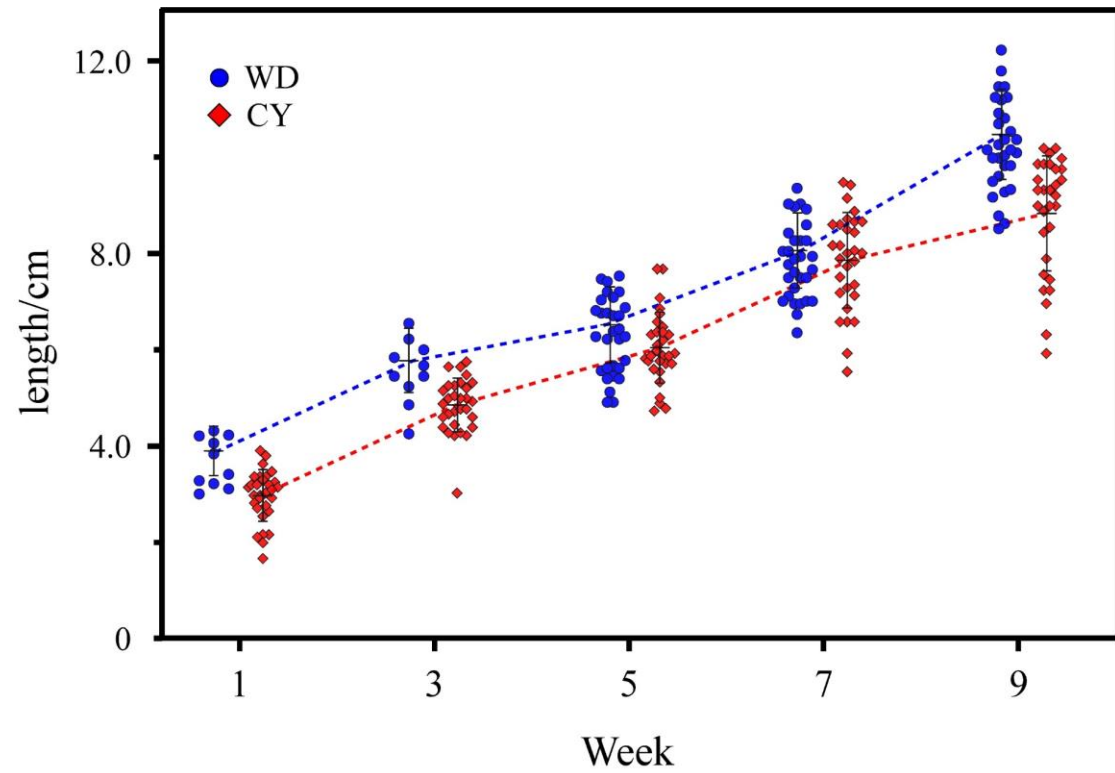**Figure S1**. Changes in the body lengths of the shrimps in WD and CY during sampling.

Figure S2. Difference analysis of microbial communities of WD and CY at the same sampling time (family level). a: Week 1, b: Week 3, c: Week 5, d: Week 7, e: Week 9.
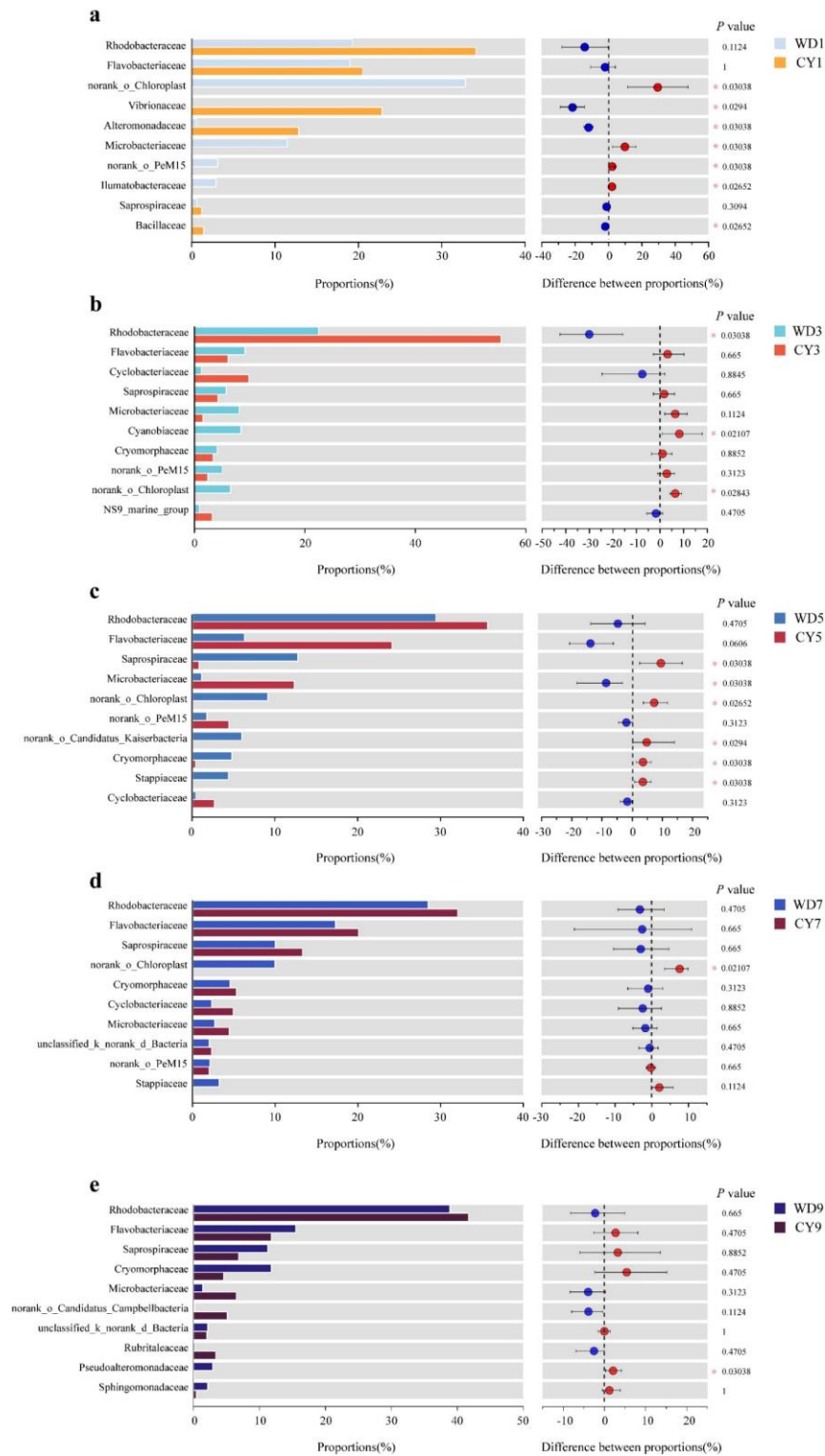
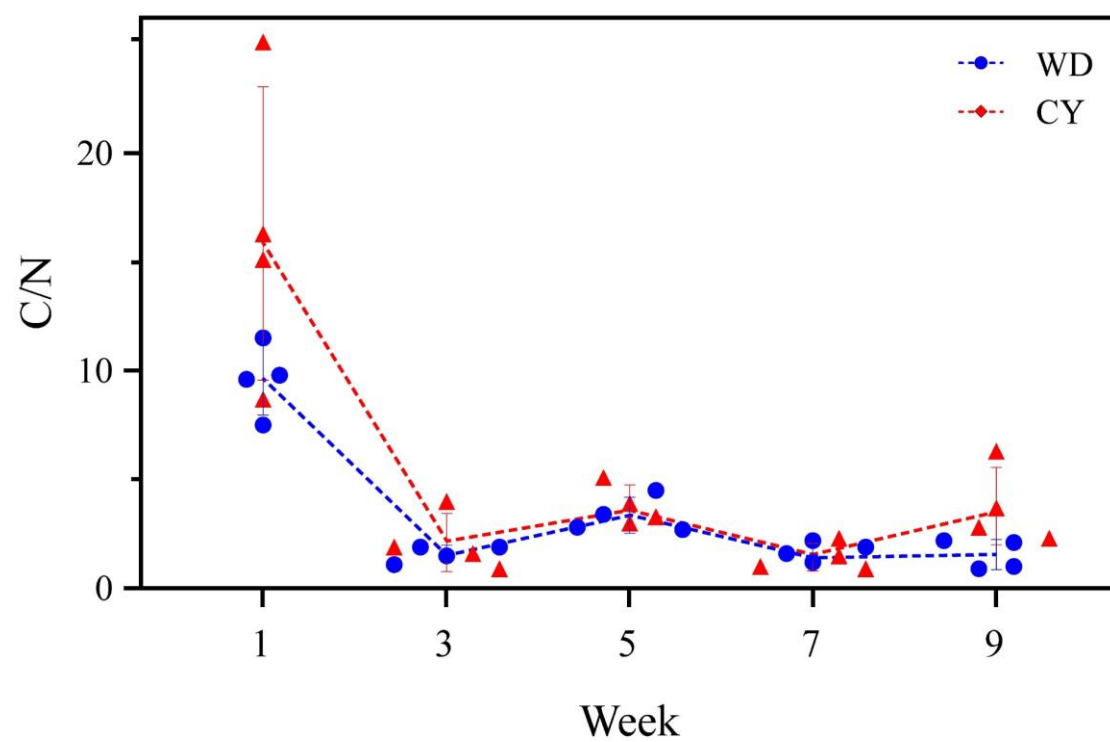**Figure S3**. C/N ratio of water in the WD group and CY group during culture.

Figure S4. The concentrations of nitrogen compounds in the WD group and CY group. The left Y-axis represents the concentrations of TAN, NO_2^--N and NO_3^--N; the right is the concentration of TN.