

Table S1. CH₄ contents at subsequent time points (nmol) in the headspace in BB and ECS incubations.

BB Incubation at 4 °C			BB Incubation at 15 °C			BB Incubation at 28 °C		
Days	Treatment- #1	Treatment- #2	Days	Treatment- #1	Treatment- #2	Days	Treatment- #1	Treatment- #2
0	1581	1437	0	1636	1685	0	1805	1835
10	1454	1406	5	1529	1630	3	1685	1791
20	1462	1381	15	1506	1640	6	1552	1695
30	1407	1380	30	1446	1584	7	1543	1676
40	1423	1354	37	1429	1551	10	1378	1556
55	1391	1377	45	1389	1492	12	1255	1451
70	1418	1336	50	1268	1414	14	1025	1178
85	1413	1340	56	1133	1246	17	538	760
100	1394	1351	59	1043	1197	18	472	577
120	1375	1325	61	968	1082	19	256	494
140	1381	1317	65	767	895	20	143	282
160	1389	1309	68	613	720	21	7	204
180	1336	1281	70	517	630	24	0	0
200	1216	1198	71	379	509			
210	1175	1123	72	114	253			
220	1106	1081	75	0	0			
230	1058	1065						
240	1024	992						
250	980	943						
0	1735	1856	0	1520	1389	0	1979	1861
10	1624	1787	7	1395	1382	7	1874	1756
20	1593	1749	14	1355	1371	14	1663	1597

30	1563	1692	21	1320	1342	19	1347	1360
40	1553	1678	28	1260	1243	24	918	620
55	1527	1661	35	1275	1181	29	463	198
70	1511	1595	42	1198	1118	34	0	0
85	1478	1544	49	927	923			
100	1376	1543	56	764	763			
120	1343	1507	63	575	567			
140	1337	1493	70	397	473			
160	1316	1470						

Note: #1 and #2 refer to the experimental treatments.

Table S2. CH₄ oxidation rate (μmol/gdw/day) of each treatment in BB and ECS incubations.

Area	Temperature	Treatment- #1	R ²	Treatment- #2	R ²
BB	4 °C	0.058	0.99	0.066	0.97
	15 °C	0.627	0.89	0.648	0.91
	28 °C	1.585	0.95	1.689	0.98
ECS	4 °C	0.647	0.92	0.471	0.92
	15 °C	2.975	0.99	2.253	0.97
	28 °C	1.413	0.96	1.365	0.99

Note: #1 and #2 refer to the experimental treatments.

Table S3. Abundance of pmoA genes (copies/g) in each sediment sample after BB and ECS incubations.

Area	Temperature	Treatment- #1	Treatment- #2
BB	4 °C	5.733×10^5	6.967×10^5
	15 °C	3.528×10^7	2.348×10^7
	28 °C	1.561×10^9	1.390×10^9
ECS	4 °C	3.572×10^5	6.155×10^5
	15 °C	1.550×10^9	9.480×10^8
	28 °C	2.056×10^8	7.626×10^8

Note: #1 and #2 refer to the experimental treatments.

Table S4. Number of sequences for each sample in BB and ECS incubations

Area	Temperature	Sample	Sequences
BB	-	Initial	14020
	4 °C	#1	15758
		#2	18291
	15 °C	#1	19100
		#2	20713
	28 °C	#1	10065
		#2	12033
	-	Initial	10967
ECS	4 °C	#1	13342
		#2	12551
	15 °C	#1	22117
		#2	21390
	28 °C	#1	29599
		#2	13646
	-	Initial	10967
	-	Initial	10967

Note: #1 and #2 refer to the experimental treatments.