

1 Supplemental Tables

Supplemental Table 1. Sample Locations.

Station ID	Sample Depth (m)	Latitude	Longitude
1	50	39.745591	50.4806
	198	39.745591	50.4806
	401	39.745591	50.4806
	575	39.745591	50.4806
2	30	39.990257	51.500808
	101	39.990257	51.500808
	190	39.990257	51.500808
3	30	40.040589	51.347301
	73	40.040589	51.347301
	130	40.040589	51.347301
4	30	40.07526	51.287336
	60	40.07526	51.287336
	100	40.07526	51.287336
5	33	40.019905	51.264487
	140	40.019905	51.264487
	260	40.019905	51.264487
	390	40.019905	51.264487
6	30	40.284338	50.932697
	58	40.284338	50.932697

Supplemental Table 2. Redfield ratios.

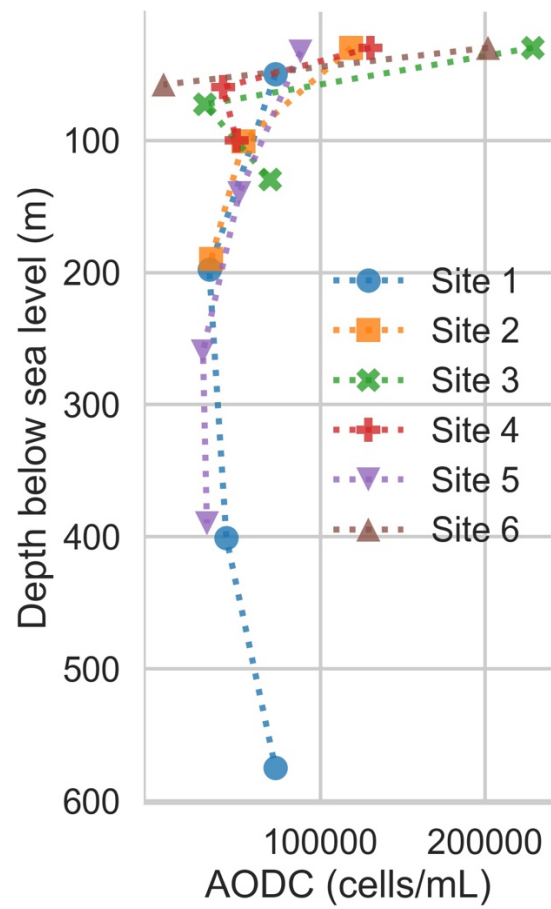
Site	Depth	N:P (ratio)
1	50	8.78
	198	14.89
	401	8.17
	575	2.32
2	30	7.30
	101	19.74
	190	14.68
3	30	7.68
	73	25.46
	130	16.46
4	30	4.33
	60	65.17
	100	21.85
5	33	7.62
	140	20.76
	260	14.61
	390	9.00
6	30	8.41
	58	16.43

Supplemental Table 3. Alpha-diversity and richness of natural communities from environmental samples. The number of reads (n Reads) and number of OTUs (n OTUs) were counted directly. Alpha-diversity for each sample was calculated with the Shannon and Simpson metrics. Shannon diversity index is more sensitive to rare OTUs, while the Simpson diversity index is more sensitive to dominant OTUs. The chao1 metric was used to estimate the actual richness for each sample.

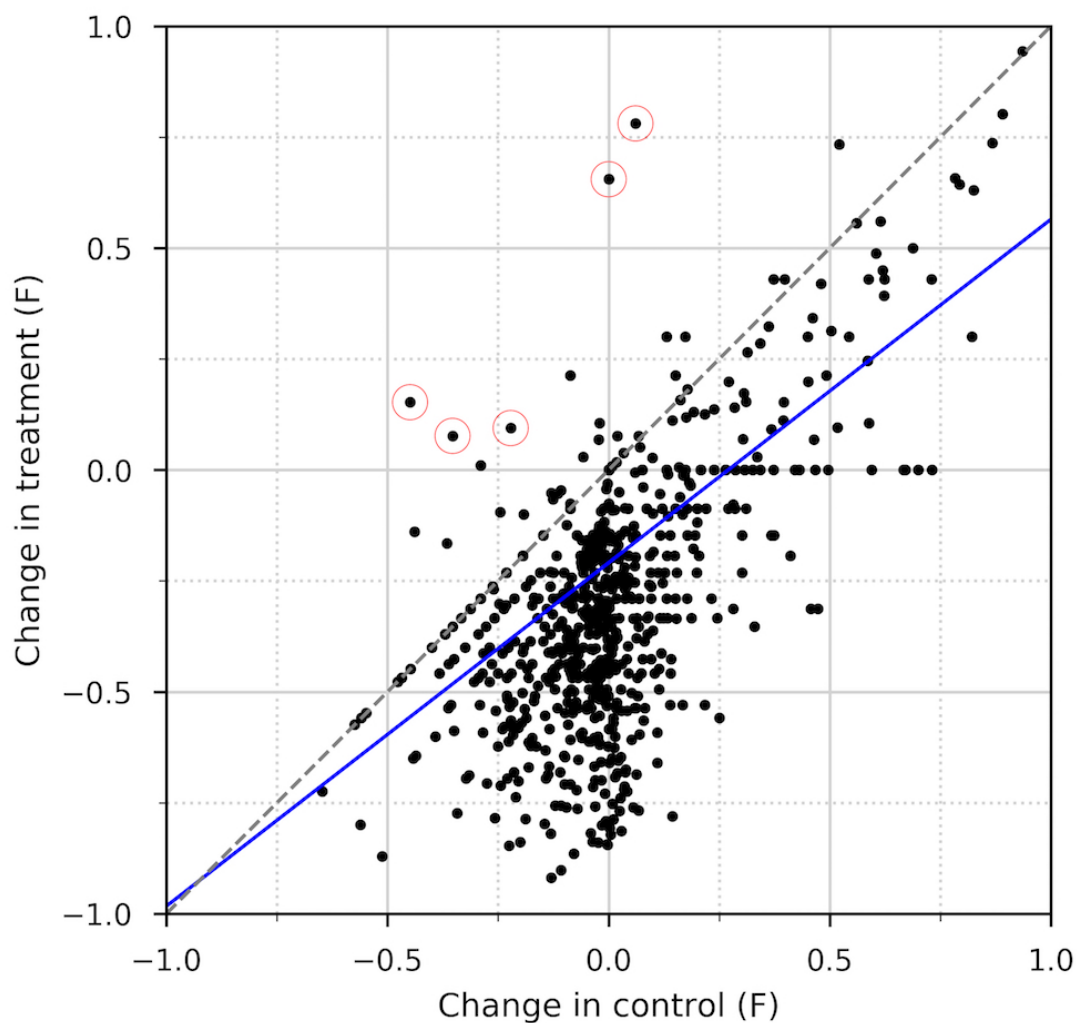
Sample ID	n Reads	n OTUs	Shannon	Simpson	chao1
30m-s2	113056	273	5.32	0.956	328.12
30m-s3	67118	211	5.08	0.946	250.00
30m-s4	47754	201	5.20	0.953	261.00
30m-s6	126582	345	5.09	0.945	452.50
33m-s5	65308	212	5.01	0.943	253.40
50m-s1	66159	228	4.91	0.930	250.96
60m-s4	58698	249	4.75	0.901	315.30
68m-s6	155979	479	4.88	0.895	528.22
73m-s3	36320	244	4.74	0.893	284.28
100m-s4	53599	334	5.56	0.956	380.24
101m-s2	139458	367	5.47	0.949	420.32
130m-s3	63159	413	5.59	0.951	463.62
140m-s5	71018	370	5.49	0.951	423.63
190m-s2	84278	508	5.90	0.959	565.50
198m-s1	88564	311	5.00	0.916	346.65
260m-s5	55545	455	5.51	0.944	519.48
390m-s5	206461	598	5.74	0.951	642.68
401m-s1	31103	292	5.35	0.940	327.25
575m-s1	184878	464	4.94	0.913	524.02

Supplemental Table 4. Alpha-diversity and richness of microcosm communities. The number of reads (n Reads) and number of OTUs (n OTUs) were counted directly. Alpha-diversity for each sample was calculated with the Shannon and Simpson metrics. Shannon diversity index is more sensitive to rare OTUs, while the Simpson diversity index is more sensitive to dominant OTUs. The chao1 metric was used to estimate the actual richness for each sample.

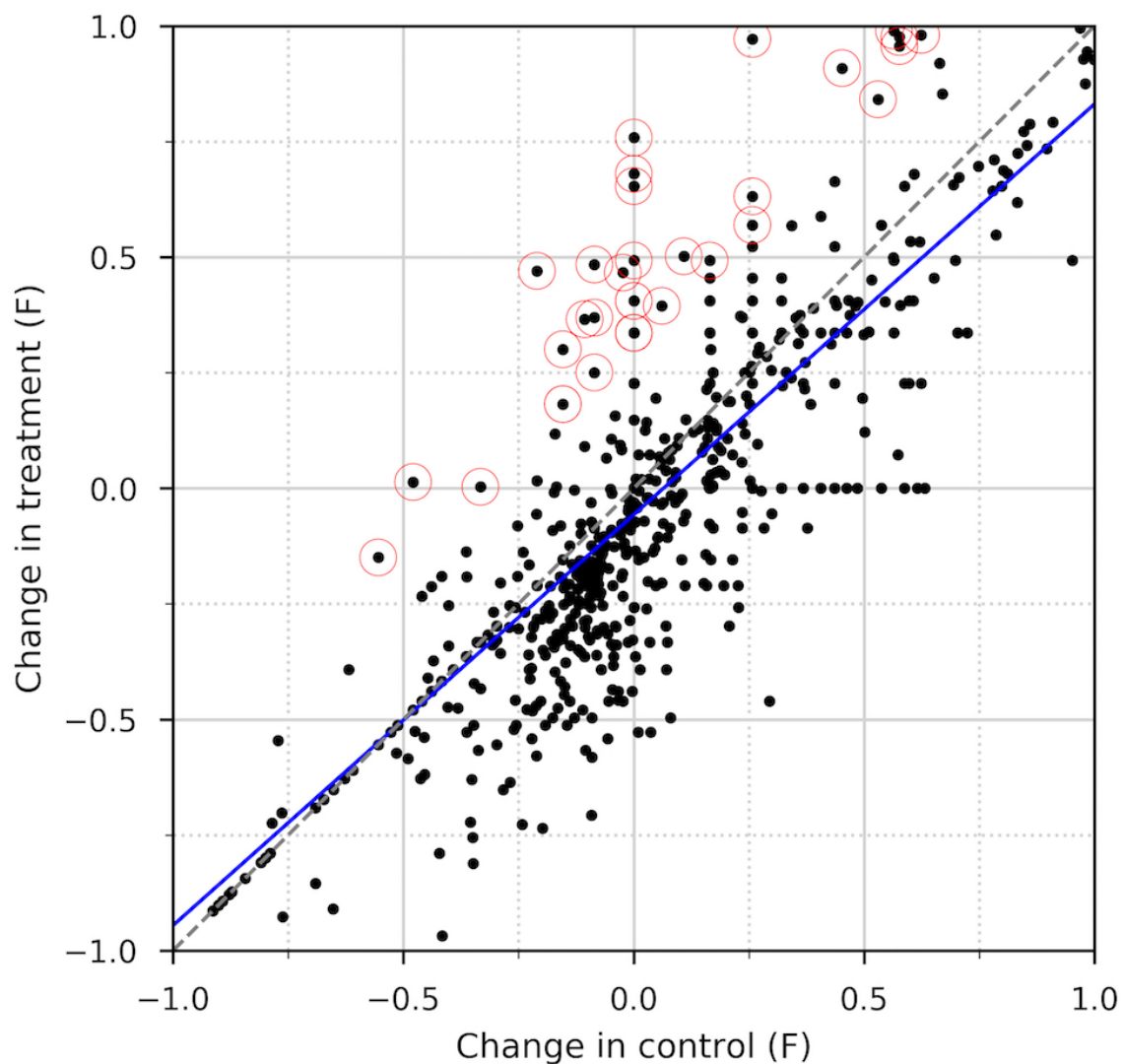
Microcosm ID	n Reads	n OTUs	Shannon	Simpson	chao1
anox-Ctl-d00	53532	581	5.87	0.901	608.51
anox-Ctl-d03	38853	569	5.67	0.874	601.28
anox-Ctl-d17	1112199	593	2.07	0.496	630.01
anox-O+C-d03	1390713	816	5.07	0.919	822.90
anox-O+C-d17	5843	104	2.82	0.766	136.50
anox-Oil-d03	125942	651	6.03	0.934	667.02
anox-Oil-d17	957277	458	2.16	0.601	501.67
oxic-Ctl-d00	401172	753	5.54	0.937	784.92
oxic-Ctl-d03	113905	662	5.90	0.940	679.35
oxic-Ctl-d17	862007	764	3.97	0.828	796.22
oxic-O+C-d03	162166	763	6.63	0.962	789.05
oxic-O+C-d17	218	50	4.43	0.917	83.33
oxic-Oil-d03	40135	556	5.29	0.828	574.71
oxic-Oil-d17	188931	281	2.02	0.652	326.11



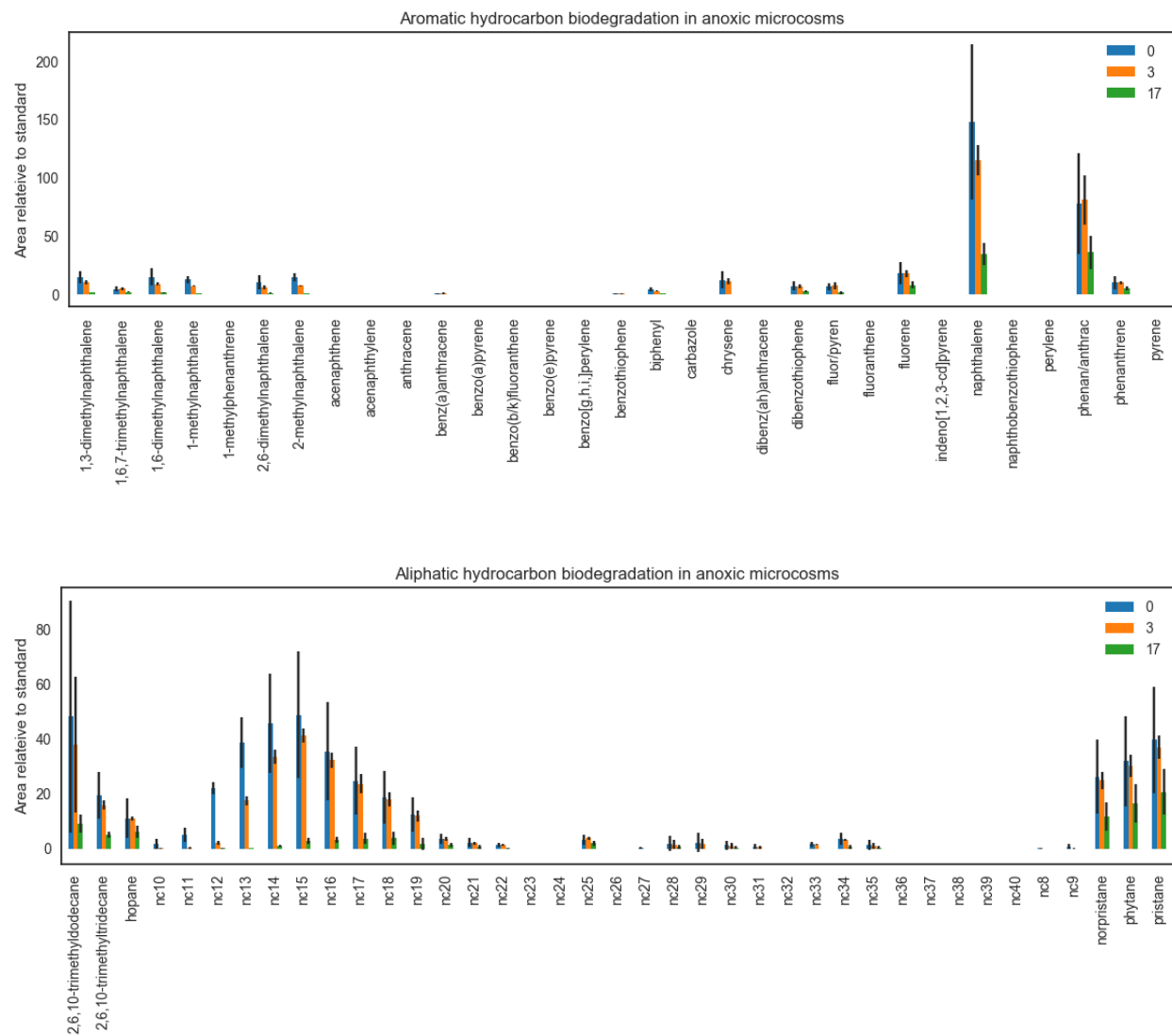
Supplemental Figure 1. Acridine orange direct counts (AODC).



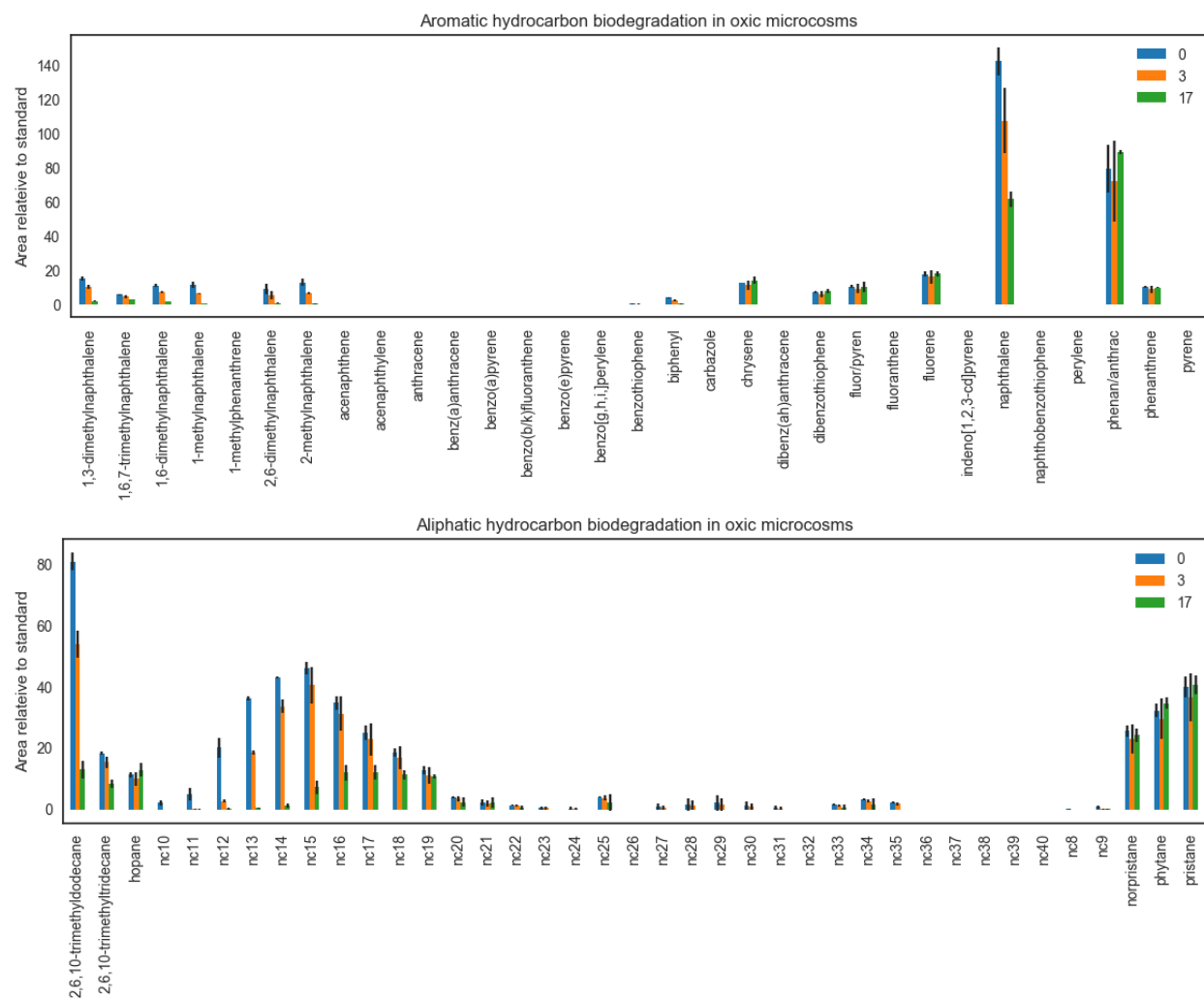
Supplemental Figure 2. Effect of oil amendment on anoxic microcosm communities. TEXMEX illustrates the taxa that responded strongly to oil amendment (vertical axis) in red circles compared to control (horizontal axis). The blue line is the linear best fit for the correlation between oil amended and control microcosms. The gray line represents no difference in the two conditions. Taxa that responded are listed in Table 3.



Supplemental Figure 3. Effect of oil amendment on oxic microcosm communities. TEXMEX illustrates the taxa that responded strongly to oil amendment (vertical axis) in red circles compared to control (horizontal axis). The blue line is the linear best fit for the correlation between oil amended and control microcosms. The gray line represents no difference in the two conditions. Taxa that responded are listed in Table 4.



Supplemental Figure 4. Quantification of individual hydrocarbons in anoxic microcosm experiments.



Supplemental Figure 5. Quantification of individual hydrocarbons in oxic microcosm experiments.

kingdom-phylum-class-order-family-genus-species-otu_number

Supplemental Figure 6. Enriched taxa in shallow and deep-water communities. (A) Most abundant taxa that were enriched in the shallow water (≤ 50 m) communities. (B) Most abundant taxa that were enriched in the deep-water (>50 m) communities. (C) Most abundant that were common throughout the water column (not enriched in shallow or deep-water communities).

