

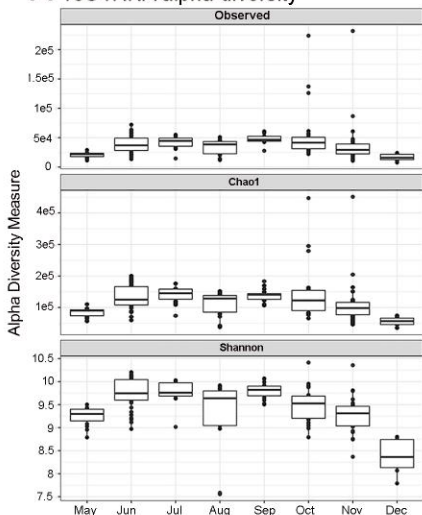
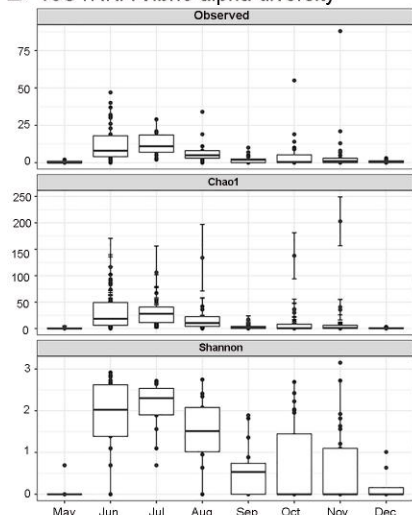
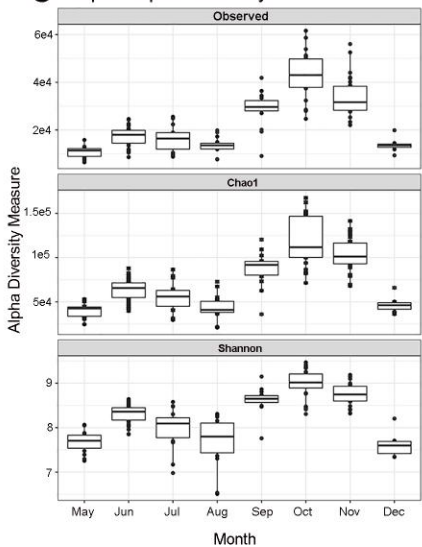
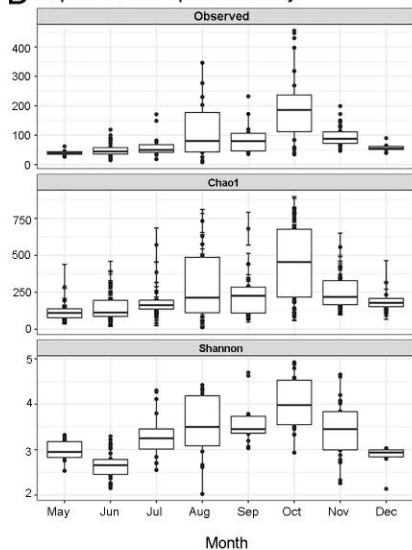
A 16S rRNA alpha diversity**B** 16S rRNA *Vibrio* alpha diversity**C** hsp60 alpha diversity**D** hsp60 *Vibrio* alpha diversity

Figure S1. Observed, Chao1, and Shannon alpha diversity metrics by month for all 16S sequences (A), 16S *Vibrio* sequences (B), all *hsp60* sequences (C), and *hsp60* *Vibrio* sequences (D).

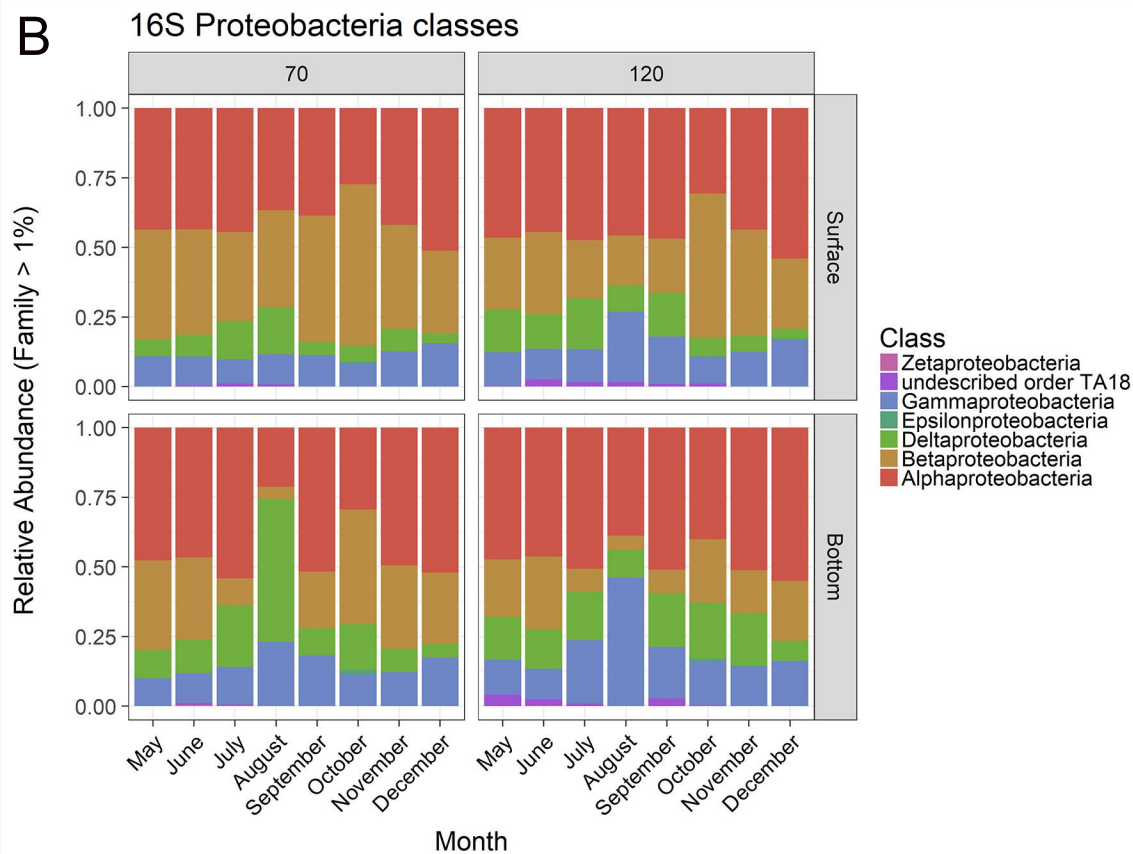
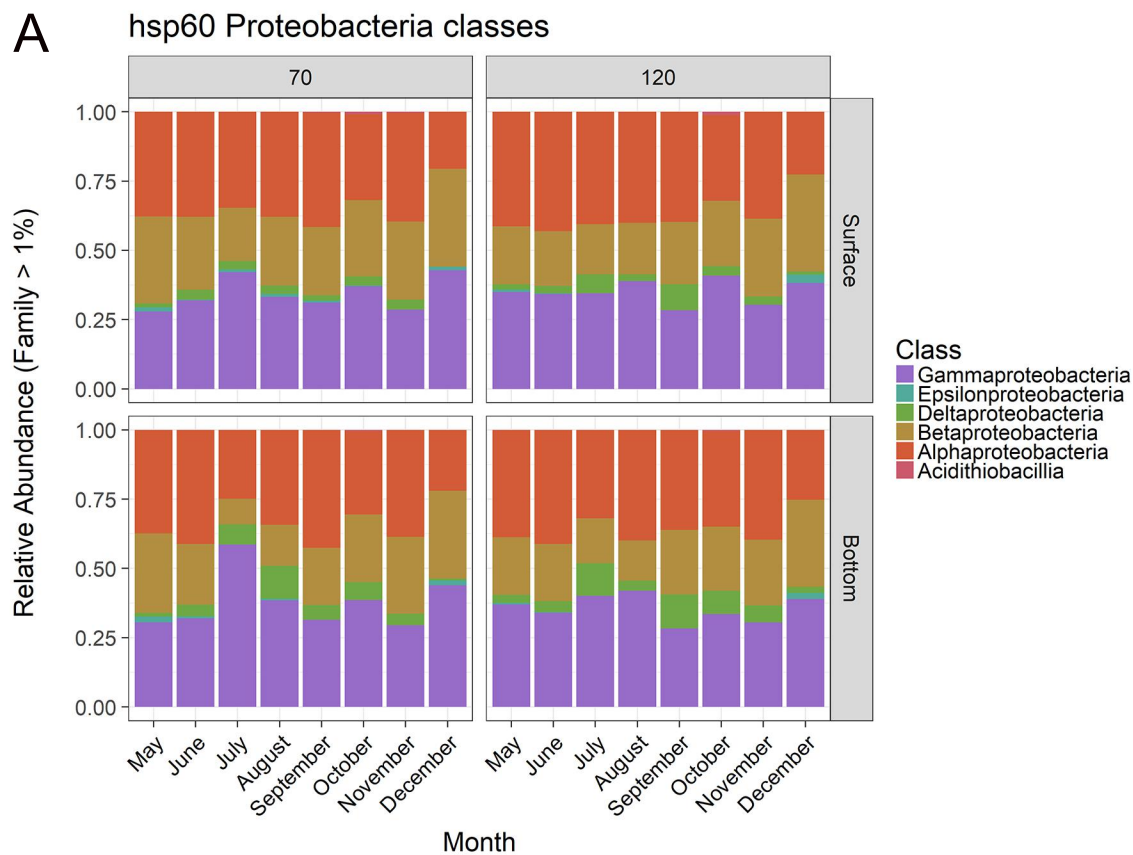


Figure S2. Relative abundances of *Proteobacteria* in the NRE by class from May through December 2016 using the *hsp60* gene (A) and 16S rRNA gene (B).

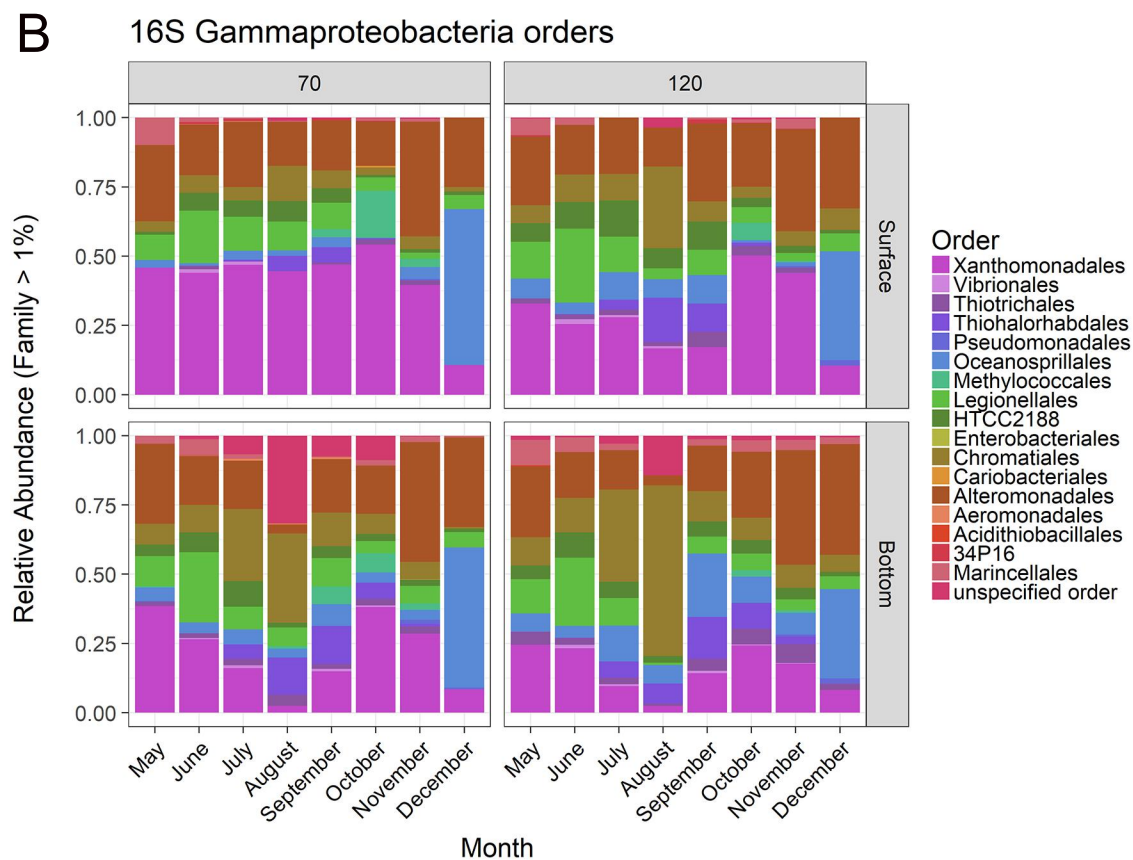
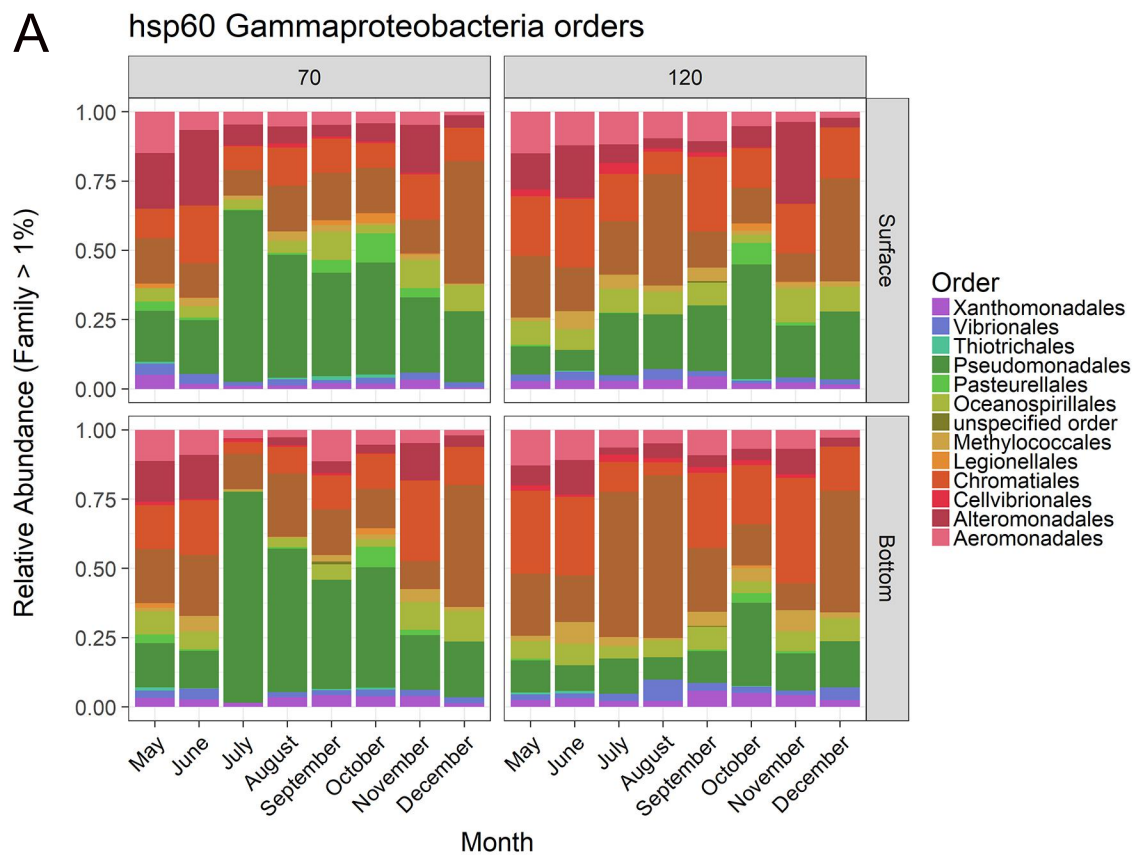


Figure S3. Relative abundances of *Gammaproteobacteria* in the NRE by order from May through December 2016 using the *hsp60* gene (A) and 16S rRNA gene (B).

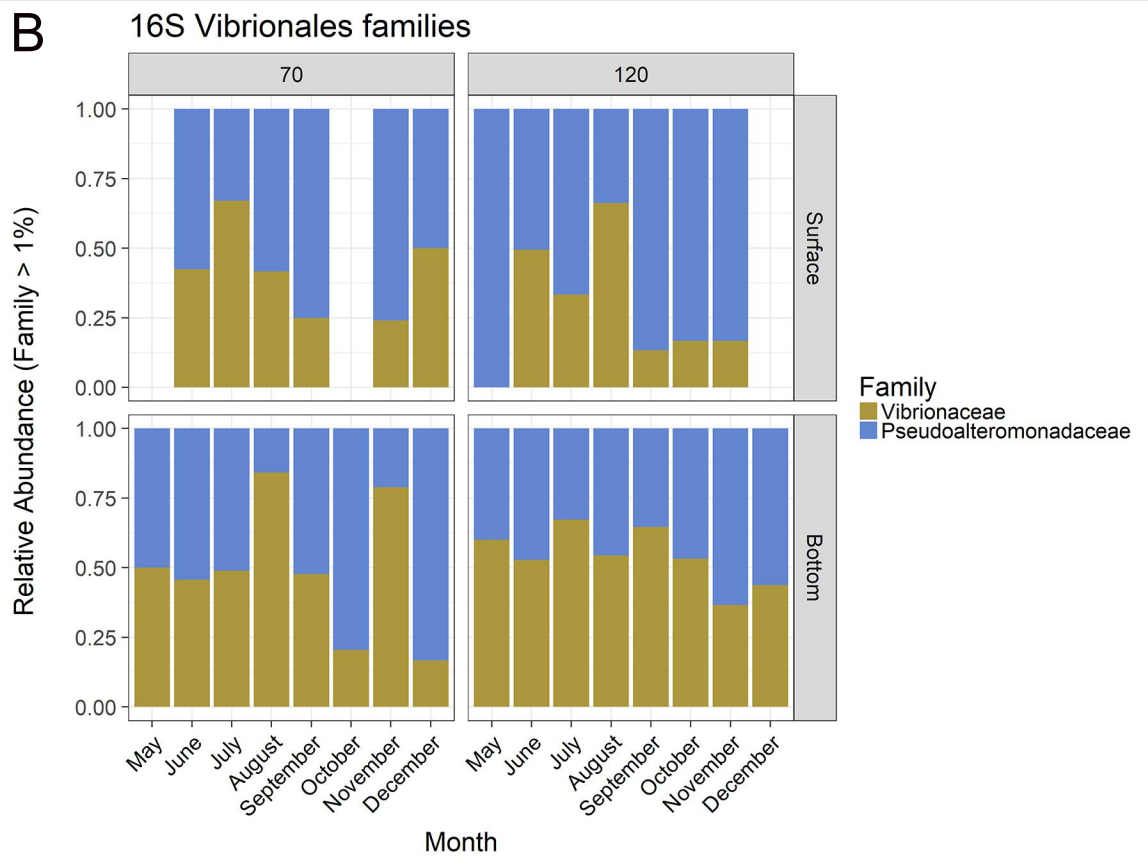
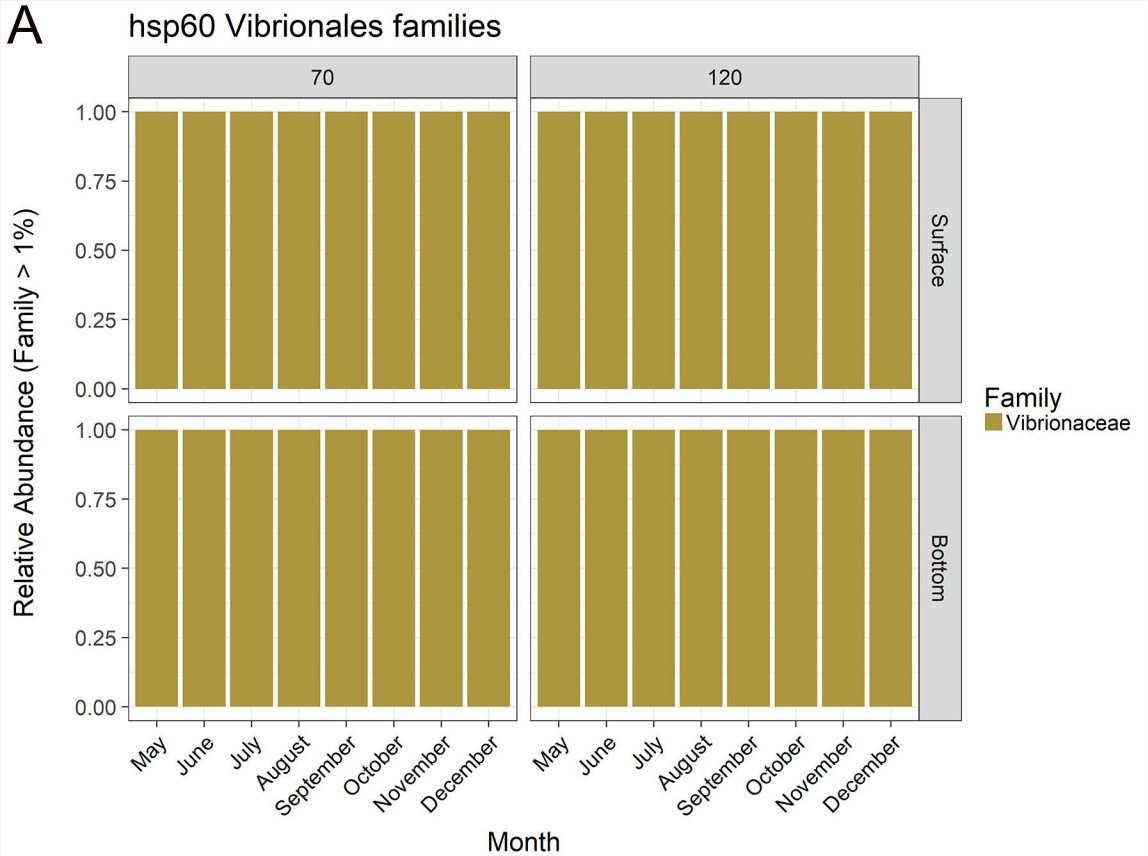


Figure S4. Relative abundances of *Vibrionales* in the NRE by family from May through December 2016 using the *hsp60* gene (A) and 16S rRNA gene (B).

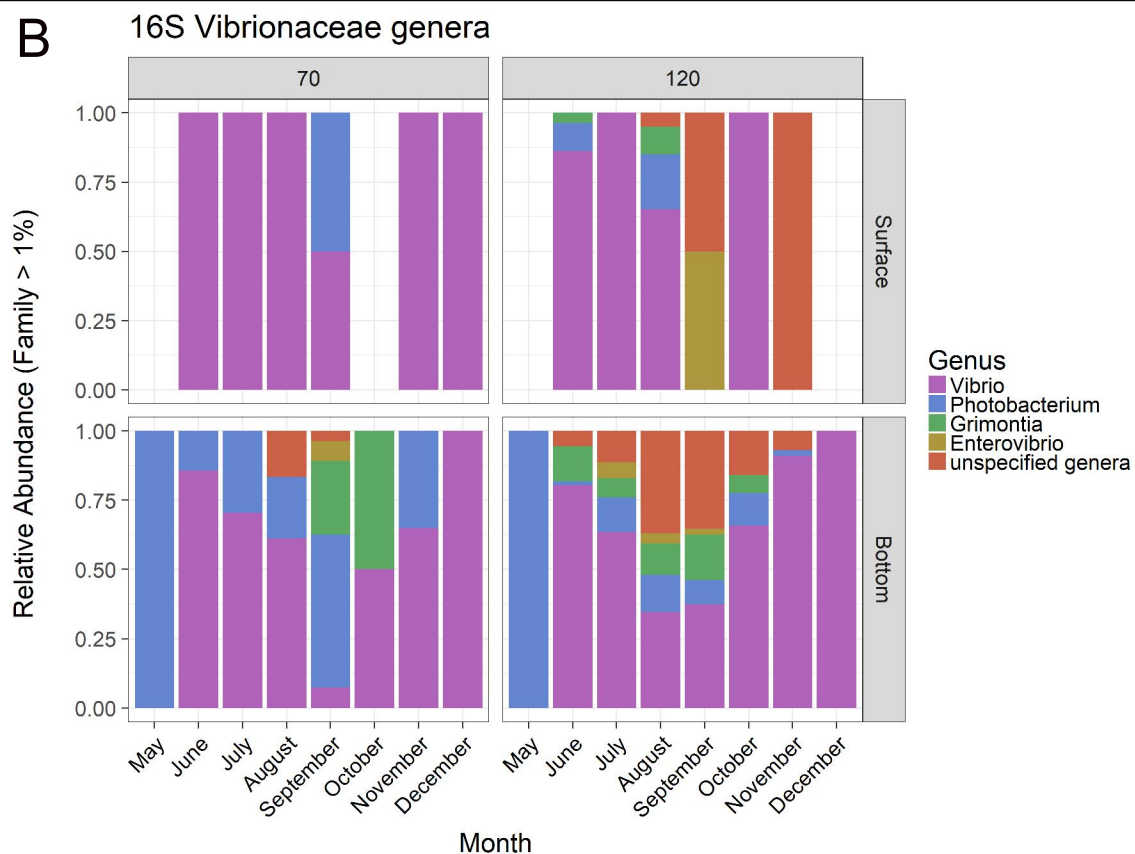
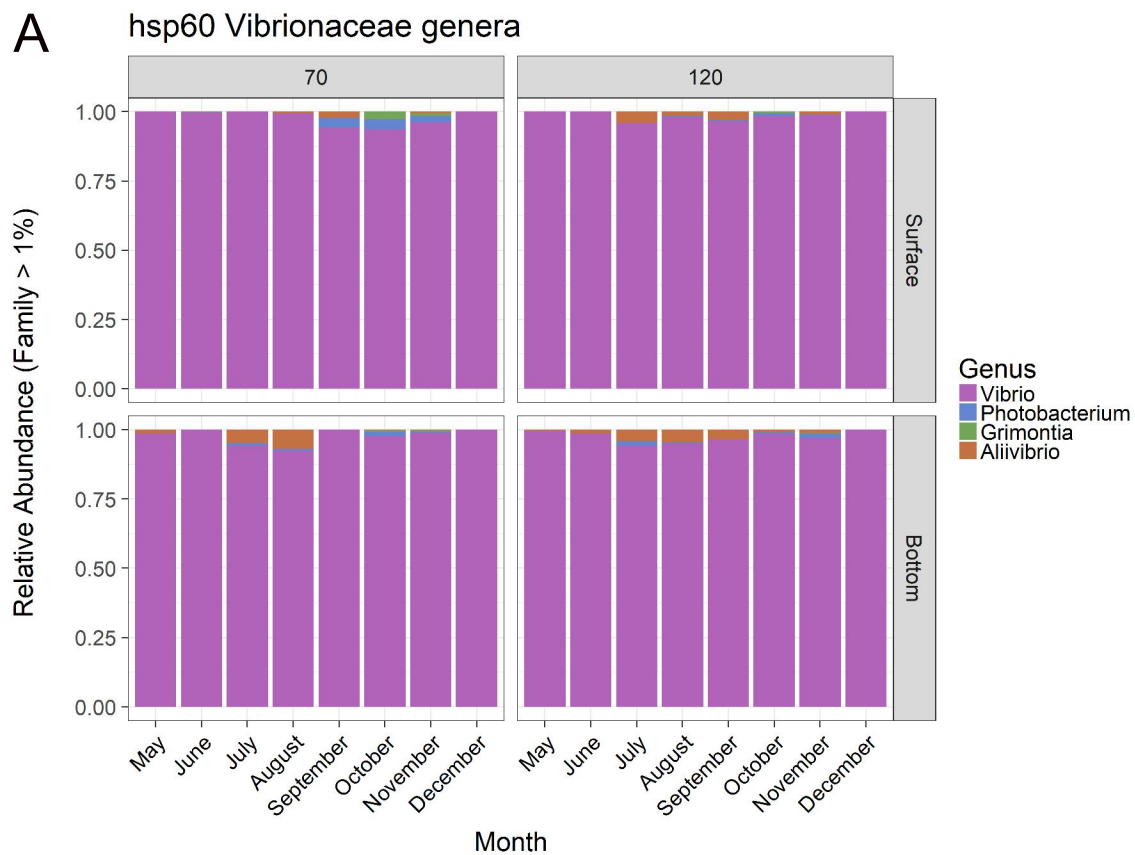


Figure S5. Relative abundances of *Vibrionaceae* in the NRE by genus from May through December 2016 using the *hsp60* gene (A) and 16S rRNA gene (B).

PCO

Unconstrained ordination

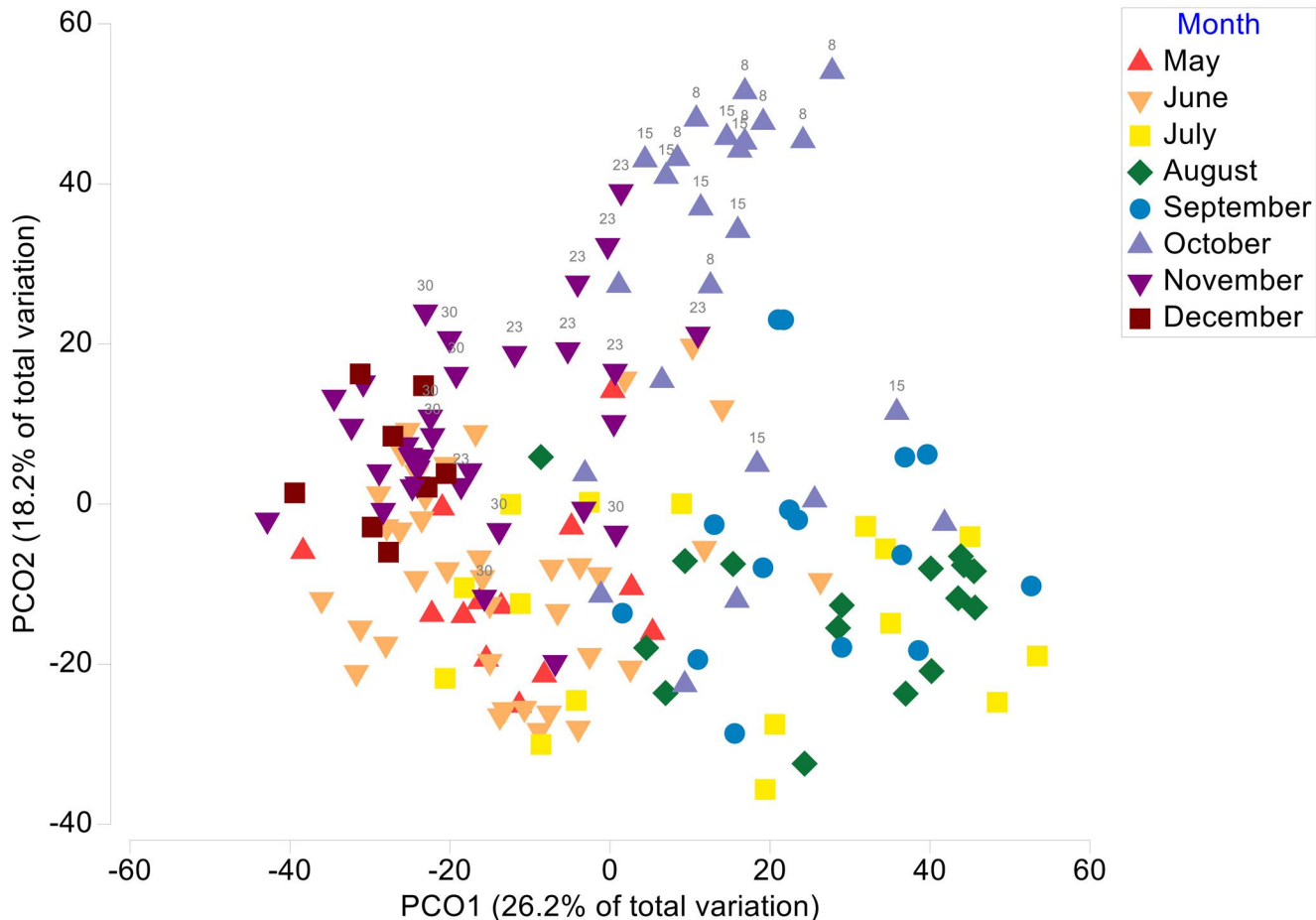


Figure S6. Unconstrained principle components (PCO) plot for *Vibrio* communities in the NRE. Each point represents the *Vibrio* community in a given water sample. The distance between points is the Bray-Curtis distance (dissimilarity) between *Vibrio* communities. Points associated with increased river discharge after Hurricane Matthew are labeled according to the number of days post-Matthew the sample was taken.

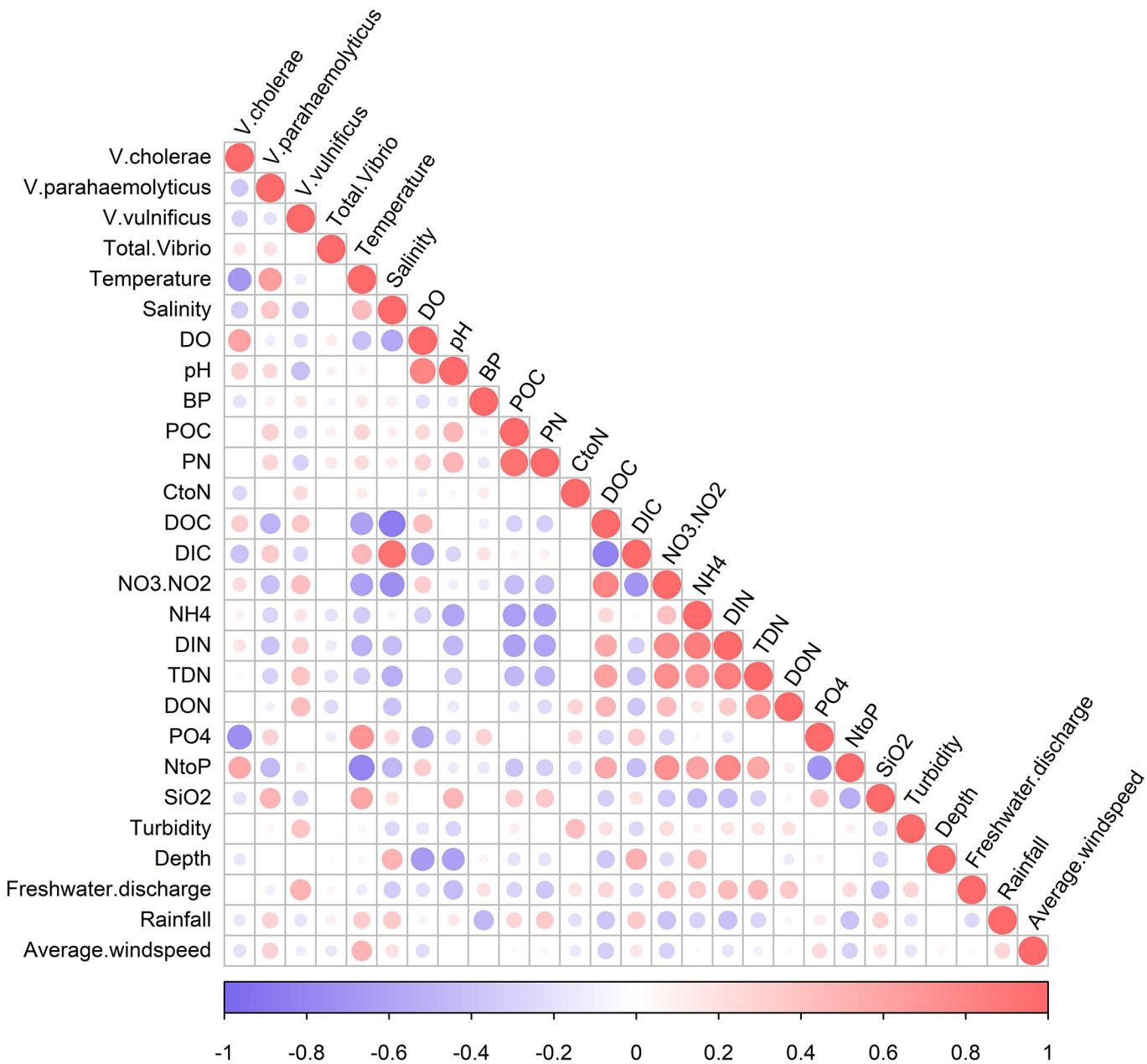


Figure S7. Spearman rank correlation plot showing correlations between potentially pathogenic *Vibrio* species *V. vulnificus*, *V. parahaemolyticus*, *V. cholerae*, as well as Total *Vibrio*, and environmental parameters. Only significant correlations ($p < 0.05$) are plotted.

Table S1: Summary of samples and barcodes*

| SampleID | Sample date | Station | Sample depth | Sample replicate | Barcode |
|----------|-------------|---------|--------------|------------------|-----------|
| MAR_003 | 9-May-16 | 70 | surface | 1 | TCCATGCG |
| MAR_004 | 9-May-16 | 70 | bottom | 1 | AGGTTTCGC |
| MAR_005 | 9-May-16 | 120 | surface | 1 | GTCGAAGC |
| MAR_006 | 9-May-16 | 120 | bottom | 1 | ACGGCTGA |
| MAR_011 | 9-May-16 | 70 | surface | 2 | CGTTCTAA |
| MAR_012 | 9-May-16 | 70 | bottom | 2 | TGTGAACC |
| MAR_013 | 9-May-16 | 120 | surface | 2 | GGCCTATC |
| MAR_014 | 9-May-16 | 120 | bottom | 2 | GGATATAG |
| MAR_007 | 24-May-16 | 70 | surface | 1 | CTATCTGG |
| MAR_008 | 24-May-16 | 70 | bottom | 1 | TGGACTCT |
| MAR_015 | 24-May-16 | 70 | surface | 2 | GCTGAAGA |
| MAR_016 | 24-May-16 | 70 | bottom | 2 | CGGTGTCT |
| MAR_017 | 24-May-16 | 120 | surface | 1 | GTCAGCTG |
| MAR_018 | 24-May-16 | 120 | bottom | 1 | GCCGACTT |
| MAR_025 | 24-May-16 | 120 | surface | 2 | TCGCACAA |
| MAR_026 | 24-May-16 | 120 | bottom | 2 | ACCATCGT |
| MAR_019 | 6-Jun-16 | 70 | surface | 1 | CTAAGGAG |
| MAR_020 | 6-Jun-16 | 70 | bottom | 1 | TCAGGCCA |
| MAR_021 | 6-Jun-16 | 120 | surface | 1 | TACTTGCA |
| MAR_022 | 6-Jun-16 | 120 | bottom | 1 | CTTACTAG |
| MAR_027 | 6-Jun-16 | 70 | surface | 2 | AAGGCACG |
| MAR_028 | 6-Jun-16 | 70 | bottom | 2 | GCTAGTTC |
| MAR_029 | 6-Jun-16 | 120 | surface | 2 | CGCTGAAT |
| MAR_030 | 6-Jun-16 | 120 | bottom | 2 | CACCGATT |
| MAR_023 | 7-Jun-16 | 70 | surface | 1 | TGATCCTA |
| MAR_024 | 7-Jun-16 | 70 | bottom | 1 | ACGTTTCAT |
| MAR_031 | 7-Jun-16 | 70 | surface | 2 | CATGGACG |
| MAR_032 | 7-Jun-16 | 70 | bottom | 2 | CATCTTAC |
| MAR_033 | 7-Jun-16 | 120 | surface | 1 | CTGTAACA |
| MAR_034 | 7-Jun-16 | 120 | bottom | 1 | GATGATCG |
| MAR_041 | 7-Jun-16 | 120 | surface | 2 | CACTTCTG |
| MAR_042 | 7-Jun-16 | 120 | bottom | 2 | CGCTAGTA |
| MAR_035 | 8-Jun-16 | 70 | surface | 1 | AGCCGTTA |
| MAR_036 | 8-Jun-16 | 70 | bottom | 1 | TAAGCATG |
| MAR_037 | 8-Jun-16 | 120 | surface | 1 | TGTGCGTA |
| MAR_038 | 8-Jun-16 | 120 | bottom | 1 | TGGCTCTA |
| MAR_043 | 8-Jun-16 | 70 | surface | 2 | GGAACGCT |
| MAR_044 | 8-Jun-16 | 70 | bottom | 2 | ATGACTCA |
| MAR_045 | 8-Jun-16 | 120 | surface | 2 | GTAGGACC |
| MAR_046 | 8-Jun-16 | 120 | bottom | 2 | GTACGCGT |
| MAR_039 | 13-Jun-16 | 70 | surface | 1 | CGACCTTA |

Table S1 continued: Summary of samples and barcodes*

| SampleID | Sample date | Station | Sample depth | Sample replicate | Barcode |
|----------|-------------|---------|--------------|------------------|-----------|
| MAR_040 | 13-Jun-16 | 70 | bottom | 1 | AGTGCCAC |
| MAR_047 | 13-Jun-16 | 70 | surface | 2 | AGATGGCT |
| MAR_048 | 13-Jun-16 | 70 | bottom | 2 | ATACGGAC |
| MAR_049 | 13-Jun-16 | 120 | surface | 1 | GAACGTAT |
| MAR_050 | 13-Jun-16 | 120 | bottom | 1 | AACCAGCT |
| MAR_057 | 13-Jun-16 | 120 | surface | 2 | CGAATCCT |
| MAR_058 | 13-Jun-16 | 120 | bottom | 2 | TAGCAGTG |
| MAR_051 | 20-Jun-16 | 70 | surface | 1 | GGCGCTTA |
| MAR_052 | 20-Jun-16 | 70 | bottom | 1 | CTTCGCAG |
| MAR_053 | 20-Jun-16 | 120 | surface | 1 | CGGCTACA |
| MAR_054 | 20-Jun-16 | 120 | bottom | 1 | CTCTACAG |
| MAR_059 | 20-Jun-16 | 70 | surface | 2 | GTGACATG |
| MAR_060 | 20-Jun-16 | 70 | bottom | 2 | CGGCAGAA |
| MAR_061 | 20-Jun-16 | 120 | surface | 2 | CAGCGTGT |
| MAR_062 | 20-Jun-16 | 120 | bottom | 2 | GTGTATGC |
| MAR_055 | 6-Jul-16 | 70 | surface | 1 | GCTTAATA |
| MAR_056 | 6-Jul-16 | 70 | bottom | 1 | ACCTCAGA |
| MAR_063 | 6-Jul-16 | 70 | surface | 2 | ACATTGCG |
| MAR_064 | 6-Jul-16 | 70 | bottom | 2 | TCTTCGAG |
| MAR_065 | 6-Jul-16 | 120 | surface | 1 | GCAACGTC |
| MAR_066 | 6-Jul-16 | 120 | bottom | 1 | GCAGCTCT |
| MAR_073 | 6-Jul-16 | 120 | surface | 2 | AACAGGTG |
| MAR_074 | 6-Jul-16 | 120 | bottom | 2 | TACCATGA |
| MAR_067 | 18-Jul-16 | 70 | surface | 1 | GAGGTTAC |
| MAR_068 | 18-Jul-16 | 70 | bottom | 1 | CATGAAGT |
| MAR_069 | 18-Jul-16 | 120 | surface | 1 | AGTATGCA |
| MAR_070 | 18-Jul-16 | 120 | bottom | 1 | GATGCCTT |
| MAR_075 | 18-Jul-16 | 70 | surface | 2 | CCAAC TAG |
| MAR_076 | 18-Jul-16 | 70 | bottom | 2 | ATAGTCCG |
| MAR_077 | 18-Jul-16 | 120 | surface | 2 | TTAAGCGA |
| MAR_078 | 18-Jul-16 | 120 | bottom | 2 | ACGTCCTG |
| MAR_071 | 3-Aug-16 | 70 | surface | 1 | GCGAATAC |
| MAR_072 | 3-Aug-16 | 70 | bottom | 1 | ATCTGCGA |
| MAR_079 | 3-Aug-16 | 70 | surface | 2 | CAGTAATG |
| MAR_080 | 3-Aug-16 | 70 | bottom | 2 | TTCCATAG |
| MAR_081 | 3-Aug-16 | 120 | surface | 1 | TGCACAAT |
| MAR_082 | 3-Aug-16 | 120 | bottom | 1 | CATGAGGC |
| MAR_089 | 3-Aug-16 | 120 | surface | 2 | TTATAGGC |
| MAR_090 | 3-Aug-16 | 120 | bottom | 2 | GAGTGCTA |
| MAR_086 | 17-Aug-16 | 120 | bottom | 1 | CGAGTATC |
| MAR_094 | 19-Aug-16 | 120 | bottom | 2 | GTCTCGCA |

Table S1 continued: Summary of samples and barcodes*

| SampleID | Sample date | Station | Sample depth | Sample replicate | Barcode |
|----------|-------------|---------|--------------|------------------|-----------|
| MAR_085 | 21-Aug-16 | 120 | surface | 1 | TGACTAGT |
| MAR_093 | 23-Aug-16 | 120 | surface | 2 | GGCGTTAC |
| MAR_084 | 25-Aug-16 | 70 | bottom | 1 | AGCCTTCT |
| MAR_092 | 27-Aug-16 | 70 | bottom | 2 | TTGTGCAC |
| MAR_083 | 29-Aug-16 | 70 | surface | 1 | ACAGGAGT |
| MAR_091 | 31-Aug-16 | 70 | surface | 2 | ACGTCTTA |
| MAR_131 | 8-Sep-16 | 120 | bottom | 1 | AGGTTGCT |
| MAR_132 | 10-Sep-16 | 120 | bottom | 2 | TGTGAACCG |
| MAR_121 | 12-Sep-16 | 120 | surface | 1 | TCCATGCGA |
| MAR_122 | 14-Sep-16 | 120 | surface | 2 | CGTTCTAAG |
| MAR_088 | 16-Sep-16 | 70 | bottom | 1 | GCGTCACG |
| MAR_096 | 18-Sep-16 | 70 | bottom | 2 | GTGCTACT |
| MAR_141 | 19-Sep-16 | 70 | surface | 1 | GTCGAAGCT |
| MAR_142 | 19-Sep-16 | 70 | surface | 2 | GGCCTATCG |
| MAR_151 | 19-Sep-16 | 70 | bottom | 1 | ACGGCTGAC |
| MAR_152 | 19-Sep-16 | 70 | bottom | 2 | GGATATAGC |
| MAR_161 | 19-Sep-16 | 120 | surface | 1 | CTATCTGGA |
| MAR_162 | 19-Sep-16 | 120 | surface | 2 | GCTGAAGAC |
| MAR_171 | 19-Sep-16 | 120 | bottom | 1 | TGGACTCTC |
| MAR_172 | 19-Sep-16 | 120 | bottom | 2 | CGGTGTCTA |
| MAR_087 | 20-Sep-16 | 70 | surface | 1 | CAATGTGC |
| MAR_095 | 22-Sep-16 | 70 | surface | 2 | TCTTGACG |
| MAR_103 | 3-Oct-16 | 70 | surface | 1 | GTCAGCTGA |
| MAR_104 | 3-Oct-16 | 70 | surface | 2 | TCGCACAAG |
| MAR_113 | 3-Oct-16 | 70 | bottom | 1 | GCCGACTTA |
| MAR_114 | 3-Oct-16 | 70 | bottom | 2 | ACCATCGTG |
| MAR_123 | 3-Oct-16 | 120 | surface | 1 | CTAAGGAGC |
| MAR_124 | 3-Oct-16 | 120 | surface | 2 | AAGGCACGT |
| MAR_133 | 3-Oct-16 | 120 | bottom | 1 | TCAGGCCAT |
| MAR_134 | 3-Oct-16 | 120 | bottom | 2 | GCTAGTTCA |
| MAR_143 | 17-Oct-16 | 70 | surface | 1 | TACTTGCAA |
| MAR_144 | 17-Oct-16 | 70 | surface | 2 | CGCTGAATA |
| MAR_153 | 17-Oct-16 | 70 | bottom | 1 | CTTACTAGG |
| MAR_154 | 17-Oct-16 | 70 | bottom | 2 | CACCGATTA |
| MAR_163 | 17-Oct-16 | 120 | surface | 1 | TGATCCTAG |
| MAR_164 | 17-Oct-16 | 120 | surface | 2 | CATGGACGC |
| MAR_173 | 17-Oct-16 | 120 | bottom | 1 | ACGTTCATA |
| MAR_174 | 17-Oct-16 | 120 | bottom | 2 | CATCTTACG |
| MAR_105 | 24-Oct-16 | 70 | surface | 1 | CTGTAACAG |
| MAR_106 | 24-Oct-16 | 70 | surface | 2 | CACTTCTGG |
| MAR_115 | 24-Oct-16 | 70 | bottom | 1 | GATGATCGT |

Table S1 continued: Summary of samples and barcodes*

| SampleID | Sample date | Station | Sample depth | Sample replicate | Barcode |
|----------|-------------|---------|--------------|------------------|-----------|
| MAR_116 | 24-Oct-16 | 70 | bottom | 2 | CGCTAGTAG |
| MAR_125 | 24-Oct-16 | 120 | surface | 1 | AGCCGTTAC |
| MAR_126 | 24-Oct-16 | 120 | surface | 2 | GGAACGCTA |
| MAR_135 | 24-Oct-16 | 120 | bottom | 1 | TAAGCATGG |
| MAR_136 | 24-Oct-16 | 120 | bottom | 2 | ATGACTCAC |
| MAR_145 | 1-Nov-16 | 70 | surface | 1 | TGTGCGTAC |
| MAR_146 | 1-Nov-16 | 70 | surface | 2 | GTAGGACCA |
| MAR_155 | 1-Nov-16 | 70 | bottom | 1 | TGGCTCTAA |
| MAR_156 | 1-Nov-16 | 70 | bottom | 2 | GTACGCGTA |
| MAR_165 | 1-Nov-16 | 120 | surface | 1 | CGACCTTAT |
| MAR_166 | 1-Nov-16 | 120 | surface | 2 | AGATGGCTC |
| MAR_175 | 1-Nov-16 | 120 | bottom | 1 | AGTGCCACT |
| MAR_176 | 1-Nov-16 | 120 | bottom | 2 | ATACGGACG |
| MAR_107 | 8-Nov-16 | 70 | surface | 1 | GAACGTATC |
| MAR_108 | 8-Nov-16 | 70 | surface | 2 | CGAATCCTG |
| MAR_117 | 8-Nov-16 | 70 | bottom | 1 | AACCAGCTG |
| MAR_118 | 8-Nov-16 | 70 | bottom | 2 | TAGCAGTGA |
| MAR_127 | 8-Nov-16 | 120 | surface | 1 | GGCGCTTAA |
| MAR_128 | 8-Nov-16 | 120 | surface | 2 | GTGACATGT |
| MAR_137 | 8-Nov-16 | 120 | bottom | 1 | CTTCGCAGG |
| MAR_138 | 8-Nov-16 | 120 | bottom | 2 | CGGCAGAAT |
| MAR_147 | 15-Nov-16 | 70 | surface | 1 | CGGCTACAA |
| MAR_148 | 15-Nov-16 | 70 | surface | 2 | CAGCGTGTA |
| MAR_157 | 15-Nov-16 | 70 | bottom | 1 | CTCTACAGA |
| MAR_158 | 15-Nov-16 | 70 | bottom | 2 | GTGTATGCA |
| MAR_167 | 15-Nov-16 | 120 | surface | 1 | GCTTAATAG |
| MAR_168 | 15-Nov-16 | 120 | surface | 2 | ACATTGCGT |
| MAR_177 | 15-Nov-16 | 120 | bottom | 1 | ACCTCAGAG |
| MAR_178 | 15-Nov-16 | 120 | bottom | 2 | TCTTCGAGC |
| MAR_109 | 28-Nov-16 | 70 | surface | 1 | GCAACGTCT |
| MAR_110 | 28-Nov-16 | 70 | surface | 2 | AACAGGTGC |
| MAR_119 | 28-Nov-16 | 70 | bottom | 1 | GCAGCTCTA |
| MAR_120 | 28-Nov-16 | 70 | bottom | 2 | TACCATGAG |
| MAR_129 | 28-Nov-16 | 120 | surface | 1 | GAGGTTACC |
| MAR_130 | 28-Nov-16 | 120 | surface | 2 | CCAAGTAGT |
| MAR_139 | 28-Nov-16 | 120 | bottom | 1 | CATGAAGTC |
| MAR_140 | 28-Nov-16 | 120 | bottom | 2 | ATAGTCCGC |
| MAR_149 | 13-Dec-16 | 70 | surface | 1 | AGTATGCAG |
| MAR_150 | 13-Dec-16 | 70 | surface | 2 | TTAAGCGAT |
| MAR_159 | 13-Dec-16 | 70 | bottom | 1 | GATGCCTTA |
| MAR_160 | 13-Dec-16 | 70 | bottom | 2 | ACGTCCTGA |

Table S1 continued: Summary of samples and barcodes*

| SampleID | Sample date | Station | Sample depth | Sample replicate | Barcode |
|----------|-------------|-------------|--------------|------------------|-----------|
| MAR_169 | 13-Dec-16 | 120 | surface | 1 | GCGAATACT |
| MAR_170 | 13-Dec-16 | 120 | surface | 2 | CAGTAATGC |
| MAR_179 | 13-Dec-16 | 120 | bottom | 1 | ATCTGCGAA |
| MAR_180 | 13-Dec-16 | 120 | bottom | 2 | TTCCATAGC |
| MAR_102 | DI_H2O | DI_H2O | DI_H2O | DI_H2O | GTGTCCAA |
| MAR_111 | mock_comm_1 | mock_comm_1 | mock_comm_1 | mock_comm_1 | GTGTCCAAT |
| MAR_112 | mock_comm_2 | mock_comm_2 | mock_comm_2 | mock_comm_2 | TGTCGTCAA |
| MAR_002 | mock_comm_1 | mock_comm_1 | mock_comm_1 | mock_comm_1 | GTGTCCAA |
| MAR_010 | mock_comm_2 | mock_comm_2 | mock_comm_2 | mock_comm_2 | TGTCGTCA |
| MAR_001 | NEC | NEC | NEC | NEC | CGTCGGTA |
| MAR_101 | NEC | NEC | NEC | NEC | CGTCGGTAA |
| MAR_009 | DI_H2O | DI_H2O | DI_H2O | DI_H2O | ATTGTGAG |

*The same barcodes were used for both *hsp60* and 16S rRNA libraries; libraries for each amplicon were sequenced in separate MiSeq runs.

Table S2. All variables tested in the DistLM

| Variable | Variable type | Variable description | Fitted in the sequential distLM |
|----------------------------------|---------------|-------------------------------------------------------------------------------------------------|---------------------------------|
| Month | Temporal | Month during which sample was collected | yes |
| Salinity | Environmental | See Table 1 | yes |
| Days post Hurricane Matthew | Temporal | Days after Hurricane Matthew passed; for Hurricane Matthew-associated samples only | yes |
| PO ₄ | Environmental | See Table 1 | yes |
| NO ₃ /NO ₂ | Environmental | See Table 1 | yes |
| Rainfall | Environmental | See Table 1 | yes |
| C:N | Environmental | See Table 1 | yes |
| DON | Environmental | See Table 1 | yes |
| River discharge | Environmental | See Table 1 | yes |
| DO | Environmental | See Table 1 | yes |
| Station | Categorical | ModMon station at which sample was collected (see Figure 1) | yes |
| NH ₄ | Environmental | See Table 1 | yes |
| Temperature | Environmental | See Table 1 | yes |
| Chlorophyll-a | Environmental | See Table 1 | yes |
| SiO ₂ | Environmental | See Table 1 | yes |
| Turbidity | Environmental | See Table 1 | yes |
| DIC | Environmental | See Table 1 | yes |
| TSS | Environmental | See Table 1 | yes |
| BP | Environmental | See Table 1 | yes |
| Tropical Storm Colin | Categorical | Association with increased river discharge following Tropical Storm Collin | yes |
| Average wind speed | Environmental | See Table 1 | yes |
| Hurricane Matthew | Categorical | Sample collected | yes |
| Depth | Environmental | Water depth (m) sample was collected at | yes |
| Storm sampling | Categorical | Association with increased river discharge following Tropical Storm Collin or Hurricane Matthew | yes |
| DOC | Environmental | See Table 1 | yes |
| Days post Tropical Storm Collin | Temporal | Days after Tropical Storm Collin passed; for Tropical Storm Collin-associated samples only | no |
| Season | Temporal | Season (summer, spring, fall, or winter) during which sample was collected | no |
| pH | Environmental | See Table 1 | no |
| POC | Environmental | See Table 1 | no |
| PN | Environmental | See Table 1 | no |
| TDN | Environmental | See Table 1 | no |
| N:P | Environmental | See Table 1 | no |
| PPR | Environmental | See Table 1 | no |

Table S3. Wilcoxon rank paired sample statistics for alpha diversity estimates

| Paired variables | p-value |
|--------------------------------------|---------|
| 16S Vibrio and hsp60 Vibrio observed | <0.0001 |
| 16S Vibrio and hsp60 Vibrio chao1 | <0.0001 |
| 16S Vibrio and hsp60 Vibrio Shannon | <0.0001 |
| 16S and hsp60 observed | <0.0001 |
| 16S and hsp60 chao1 | <0.0001 |
| 16S and hsp60 Shannon | <0.0001 |

Table S4. Pearson correlation statistics for alpha diversity estimates

| Paired variables | Correlation coefficient | p-value |
|--------------------------------------|-------------------------|---------|
| 16S Vibrio and hsp60 Vibrio observed | -0.078 | 0.321 |
| 16S Vibrio and hsp60 Vibrio chao1 | -0.013 | 0.866 |
| 16S Vibrio and hsp60 Vibrio Shannon | -0.050 | 0.528 |
| 16S and hsp60 observed | 0.353 | <0.0001 |
| 16S and hsp60 chao1 | 0.297 | <0.0001 |
| 16S and hsp60 Shannon | 0.303 | <0.0001 |