**Table S4.** Multivariate linear regression model of relationships between water quality, weather and environmental parameters with log10 daily mean densities of fecal indicator organisms in sand at Fairhope Beach, AL during the 2007 trials of the NEEAR Water Study.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | F+ coliphage | | *Enterococcus* | | *Enterococcus* | | *Bacteroidales* | | | Fecal  *Bacteroides* spp. | | | *C. perfringens* |
|  | (MPN/g) | | (CFU/g) | | (CCE/g) | | (CCE/g) | | | (CCE/g) | | | (CCE/g) |
| N | 17a | | 24a | | 21a | | 21a | | | 21a | | | 24a |
| R2 | -- | | 0.80 | | 0.87 | | 0.85 | | | 0.83 | | | 0.68 |
|  | β (SE)b | | β (SE)b | | β (SE)b | | β (SE)b | | | β (SE)b | | | β (SE)b |
|  | p-value | | p-value | | p-value | | p-value | | | p-value | | | p-value |
| Corresponding log10 daily mean densities of FIO in water at 8am (MPN/CFU/CCE per 100ml) | -- | | -0.15 (0.24) | | 0.58 (0.32) | | 0.25 (0.23) | | | 0.70 (0.26) | | | 0.32 (0.22) |
|  | -- | | 0.56 | | 0.11 | | 0.30 | | | 0.03 | | | 0.17 |
| Rainfall in previous 24 hr (per one tenth | -- | | -0.09 (0.05) | | -0.001 (0.04) | | 0.03 (0.06) | | | 0.06 (0.08) | | | -0.05 (0.03) |
| of a cm) | -- | | 0.09 | | 0.99 | | 0.63 | | | 0.52 | | | 0.10 |
| Rainfall in previous 24-48 hr (per one tenth | -- | | 0.04 (0.02) | | 0.07 (0.02) | | 0.03 (0.04) | | | 0.10 (0.05) | | | 0.01 (0.01) |
| of a cm) | -- | | 0.11 | | 0.03 | | 0.52 | | | 0.10 | | | 0.41 |
| Rainfall in previous 48-72 hr (per one tenth | -- | | -0.02 (0.03) | | 0.06 (0.04) | | 0.05 (0.06) | | | 0.14 (0.08) | | | 0.02 (0.02) |
| of a cm) | -- | | 0.48 | | 0.14 | | 0.37 | | | 0.12 | | | 0.46 |
| Water temperature at shin depth (°C) | -- | | 0.03 (0.06) | | 0.07 (0.06) | | 0.07 (0.09) | | | -0.08 (0.13) | | | -0.02 (0.03) |
|  | -- | | 0.60 | | 0.32 | | 0.46 | | | 0.58 | | | 0.47 |
| Onshore wind direction (0=not onshore, | -- | | -0.26 (0.20) | | 0.23 (0.27) | | -0.16 (0.41) | | | 0.60 (0.56) | | | 0.001 (0.15) |
| 1=onshore) | -- | | 0.23 | | 0.41 | | 0.71 | | | 0.32 | | | 1.00 |
| Wave height (per one tenth of a meter) | -- | | 0.15 (0.06) | | 0.03 (0.06) | | 0.02 (0.09) | | | 0.05 (0.12) | | | 0.01 (0.03) |
|  | -- | | 0.03 | | 0.67 | | 0.84 | | | 0.66 | | | 0.70 |
| Binary tide phase (0=flooding; 1=ebbing) | -- | | 0.15 (0.24) | | 0.43 (0.26) | | 0.36 (0.34) | | | 0.72 (0.53) | | | 0.19 (0.16) |
|  | -- | | 0.55 | | 0.14 | | 0.32 | | | 0.21 | | | 0.27 |
| Cloud cover (0=sunny, 1=mostly sunny, 2= | -- | | -0.08 (0.10) | | -0.04 (0.12) | | -0.005 (0.23) | | | -0.28 (0.27) | | | -0.05 (0.06) |
| partly cloudy, 3=mostly cloudy, 4= overcast) | -- | | 0.44 | | 0.73 | | 0.98 | | | 0.32 | | | 0.44 |
| Number of birds on beach | -- | | 0.01 (0.004) | | -0.01 (0.003) | | -0.001 (0.004) | | | -0.004 (0.006) | | | 0.001 (0.003) |
|  | -- | | 0.12 | | 0.01 | | 0.72 | | | 0.55 | | | 0.71 |
| Number of dogs on beach | -- | | 0.36 (0.20) | | 0.18 (0.18) | | 0.10 (0.25) | | | 0.29 (0.39) | | | 0.11 (0.13) |
|  | -- | | 0.11 | | 0.35 | | 0.69 | | | 0.49 | | | 0.40 |
| Bather density on beach (0, 1 to <20, 20 to <100, 100 to <200, ≥200) | -- | | -0.001 (0.01) | | -0.008 (0.007) | | 0.006 (0.01) | | | -0.004 (0.01) | | | 0.01 (0.01) |
|  | -- | | 0.89 | | 0.26 | | 0.59 | | | 0.77 | | | 0.04 |
| Presence of algae on beach (0=absent, | -- | | -0.04 (0.19) | | -0.34 (0.24) | | -0.43 (0.36) | | | -0.79 (0.51) | | | 0.04 (0.12) |
| 1=present) | -- | | 0.82 | | 0.20 | | 0.27 | | | 0.17 | | | 0.76 |
| a Number of study days, each representing a daily average of three sand samples | | | | |  | | | |  | |  | |  |
| b Estimates are from multivariate linear regression model adjusted for variables listed in table | | | | | | | |  | | | |  |  |
| SE = standard error | |  | |  | |  | |  | | | |  |  |