Supplementary Table S1. Data for stations used in this study. A) All stations sampled from 2009 - 2013 used to explore macrobenthic communities at natural hydrocarbon seeps in this study. B) All background stations sampled during DGoMB cruises from 2000 – 2002 and DWH response cruises in 2010. Rep = replicate, PC = pushcore, MC = multicore, BC = boxcore, and # of Reps = the number of cores collected for macrofaunal analysis at each DGoMB and DWH station.

A)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Station | Year | Rep | Latitude | Longitude | Depth | Seep | Habitat | Method |
| DC583 | 2009 | 1 | 28.3856 | 87.3886 | 2461 | Background | Background | PC |
| DC583 | 2009 | 2 | 28.3855 | 87.3885 | 2449 | Near | Tubeworms | PC |
| DC583 | 2009 | 3 | 28.3849 | 87.3883 | 2447 | Near | Tubeworms | PC |
| DC583 | 2009 | 4 | 28.3855 | 87.3884 | 2452 | Background | Background | PC |
| DC583 | 2009 | 5 | 28.3855 | 87.3885 | 2449 | Near | Tubeworms | PC |
| DC673 | 2010 | 1 | 28.31 | 87.311 | 2601 | Near | Tubeworms | PC |
| DC673 | 2010 | 2 | 28.31 | 87.311 | 2601 | Near | Tubeworms | PC |
| DC673 | 2010 | 3 | 28.31 | 87.311 | 2601 | Near | Tubeworms | PC |
| GC246 | 2010 | 1 | 27.7016 | 90.6486 | 834 | Near | Microbial mat | PC |
| GC246 | 2010 | 2 | 27.702 | 90.649 | 834 | Near | Microbial mat | PC |
| GC354 | 2010 | 1 | 27.598 | 91.823 | 567 | Near | Tubeworms | PC |
| GC354 | 2010 | 2 | 27.5977 | 91.827 | 527 | Background | Background | PC |
| GC354 | 2010 | 3 | 27.598 | 91.823 | 567 | Near | Tubeworms | PC |
| GC354 | 2010 | 4 | 27.5981 | 91.8231 | 567 | Near | Tubeworms | PC |
| GC354 | 2010 | 5 | 27.5977 | 91.827 | 527 | Background | Background | PC |
| GC354 | 2010 | 6 | 27.598 | 91.827 | 527 | Background | Background | PC |
| GC600-1 | 2012 | 1 | 27.3644 | 90.5643 | 1263 | Near | Seep | PC |
| GC600-1 | 2012 | 2 | 27.3644 | 90.5643 | 1263 | Near | Seep | PC |
| GC600-2 | 2012 | 1 | 27.3698 | 90.5712 | 1221 | Near | Microbial mat | PC |
| GC600-2 | 2012 | 2 | 27.3698 | 90.5712 | 1221 | Near | Microbial mat | PC |
| GC600-2 | 2012 | 3 | 27.37 | 90.571 | 1220 | Near | Microbial mat | PC |
| GC600-3 | 2012 | 1 | 27.3728 | 90.5749 | 1181 | Near | Seep | MC |
| GC600-3 | 2012 | 2 | 27.3728 | 90.5746 | 1178 | Near | Seep | MC |
| MC252 | 2012 | 1 | 28.7235 | 88.3773 | 1639 | Background | Background | PC |
| MC252 | 2012 | 2 | 28.7235 | 88.3773 | 1639 | Background | Background | PC |
| MC252 | 2012 | 1 | 28.7417 | 88.352 | 1477 | Background | Background | MC |
| OC26 | 2012 | 1 | 28.7035 | 88.3598 | 1669 | Near | Seep | PC |
| OC26 | 2012 | 2 | 28.7035 | 88.3598 | 1669 | Near | Seep | PC |
| OC26 | 2012 | 3 | 28.7035 | 88.3598 | 1669 | Near | Seep | PC |
| GC185 | 2013 | 1 | 27.7848 | 91.503 | 562 | Background | Background | MC |
| GC232 | 2013 | 1 | 27.7418 | 91.3188 | 575 | Near | Seep | MC |
| GC415 | 2013 | 1 | 27.53 | 90.9918 | 1046 | Near | Seep | MC |
| GC415 | 2013 | 2 | 27.541 | 90.9952 | 1050 | Near | Seep | MC |
| NN001 | 2013 | 1 | 28.3255 | 88.3862 | 1786 | Background | Background | MC |
| TE001 | 2013 | 1 | 28.9331 | 88.9591 | 137 | Near | Seep | MC |

B)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Station | Year | # of Reps | Latitude | Longitude | Depth | Seep | Habitat | Method |
| DWH |  |  |  |  |  |  |  |  |
| 2.24 | 2010 | 3 | 28.9236 | -88.7173 | 408 | Background | Background | MC |
| 2.27 | 2010 | 3 | 29.0160 | -88.8934 | 76 | Background | Background | MC |
| ALTFF012 | 2010 | 3 | 28.2973 | -88.6363 | 1738 | Background | Background | MC |
| D002S | 2010 | 3 | 28.5571 | -87.7607 | 2389 | Background | Background | MC |
| D003S | 2010 | 3 | 28.1251 | -88.0718 | 2286 | Background | Background | MC |
| D015S | 2010 | 3 | 28.2938 | -88.4600 | 1576 | Background | Background | MC |
| D046S | 2010 | 3 | 28.0754 | -87.7148 | 1458 | Background | Background | MC |
| D064S | 2010 | 3 | 27.3614 | -90.5688 | 1200 | Background | Background | MC |
| FFC1 | 2010 | 3 | 28.0596 | -90.2491 | 325 | Background | Background | MC |
| FFC4 | 2010 | 3 | 27.4604 | -89.7795 | 211 | Background | Background | MC |
| FFC7 | 2010 | 3 | 27.7330 | -89.9770 | 1456 | Background | Background | MC |
| FFMT1 | 2010 | 1 | 28.5396 | -89.8288 | 1015 | Background | Background | MC |
| M011S | 2010 | 3 | 28.0004 | -88.8800 | 1700 | Background | Background | BC |
| S01S | 2010 | 2 | 29.2533 | -88.6907 | 65 | Background | Background | BC |
| DGoMB |  |  |  |  |  |  |  |  |
| C4 | 2000 | 2 | 27.4563 | -89.7744 | 1455 | Background | Background | BC |
| C7 | 2000 | 2 | 27.7306 | -89.9784 | 1080 | Background | Background | BC |
| MT1 | 2000 | 3 | 28.5408 | -89.8269 | 487 | Background | Background | BC |
| NB2 | 2000 | 1 | 27.1337 | -91.9993 | 1530 | Background | Background | BC |
| S37 | 2000 | 1 | 28.5567 | -87.7622 | 2388 | Background | Background | BC |
| S38 | 2000 | 1 | 28.2719 | -87.3252 | 2635 | Background | Background | BC |
| WC12 | 2000 | 1 | 27.3232 | -91.5558 | 1168 | Background | Background | BC |
| WC5 | 2000 | 1 | 27.7713 | -91.7621 | 400 | Background | Background | BC |
| BH | 2001 | 1 | 27.798 | -91.4703 | 546 | Background | Background | BC |
| C7 | 2001 | 1 | 27.7299 | -89.9817 | 1072 | Background | Background | BC |
| MT1 | 2001 | 1 | 28.5381 | -89.8277 | 490 | Background | Background | BC |
| MT1 | 2002 | 2 | 28.558 | -89.822 | 465 | Background | Background | BC |

Supplementary Table S2. Benthic community characteristics. The average abundance (n m-2), richness (R), diversity (Hill’s N1), and evenness (J´) of macrobenthos at individual seep sites. Standard errors are given in parentheses. The number of cores for each calculation is given. These parameters were also averaged for all seep samples across depths (< 1000, 1000 – 2000, and > 2000 m), seep habitats (Microbial Mat, Soft-bottom Seep, and Tubeworm), and collection method (Multicore and pushcore). Similarity and multivariate dispersion (MVDISP) were also included.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Seep Station | N | Abundance | R | N1 | J´ | % similarity | MVDISP |
| DC583-09 | 3 | 2421 (278) | 4.7 (0.33) | 4.18 (0.38) | 0.93 (0.02) | 31.7 | 1.667 |
| GC246-10 | 2 | 40892 (16577) | 7.0 (4.00) | 3.41 (1.00) | 0.71 (0.09) | 26.0 | 1.8 |
| GC354-10 | 3 | 25156 (3738) | 13.0 (1.73) | 9.29 (1.14) | 0.87 (0.01) | 48.4 | 1 |
| DC673-10 | 3 | 4526 (862) | 8.7 (0.67) | 7.65 (0.64) | 0.94 (0.02) | 55.1 | 0.833 |
| GC600-12-1 | 2 | 17525 (1105) | 9.0 (0) | 4.03 (0.53) | 0.63 (0.06) | 64.3 | 0.3 |
| GC600-12-2 | 3 | 17262 (12055) | 7.3 (1.76) | 4.51 (1.21) | 0.77 (0.12) | 60.4 | 0.567 |
| GC600-12-3 | 2 | 9475 (63) | 16.5 (0.5) | 9.93 (1.12) | 0.82 (0.05) | 50.0 | 1.4 |
| OC26-12 | 3 | 5052 (365) | 9.7 (0.67) | 8.33 (0.95) | 0.93 (0.03) | 54.3 | 0.8 |
| GC232-13 | 1 | 5146 | 15.0 | 10.46 | 0.87 | NA | NA |
| GC415-13 | 2 | 4142 (126) | 10.5 (1.5) | 7.27 (0.63)) | 0.85 (0.01) | 52.2 | 0.9 |
| TE001-13 | 1 | 3640 | 10.0 | 6.37 | 0.80 | NA | NA |
| Depth |  |  |  |  |  |  |  |
| > 2000 m | 6 | 3473 (623) | 6.7 (0.95) | 5.92 (0.84) | 0.93 (0.01) | 43.4 | 0.733 |
| 1000 - 2000 m | 12 | 10769 (3117) | 10.3 (1.00) | 6.75 (0.76) | 0.81 (0.04) | 56.7 | 0.956 |
| < 1000 m | 7 | 23720 (6862) | 11.1 (1.62) | 7.36 (1.22) | 0.81 (0.03) | 42.8 | 1.075 |
| Habitat |  |  |  |  |  |  |  |
| Tubeworm | 9 | 10701 (3793) | 8.8 (1.32) | 7.04 (0.85) | 0.91 (0.02) | 45.0 | 1.145 |
| Soft-bottom | 11 | 7839 (1572) | 11.5 (0.94) | 7.66 (0.72) | 0.82 (0.03) | 54.9 | 0.937 |
| Microbial Mat | 5 | 26714 (10227) | 7.2 (1.59) | 4.07 (0.78) | 0.74 (0.7) | 51.8 | 0.824 |
| Method |  |  |  |  |  |  |  |
| Multicorer | 6 | 6003 (1117) | 13.2 (1.35) | 8.54 (0.79) | 0.83 (0.02) | 51.1 | 0.525 |
| Pushcore | 19 | 14741 (3542) | 8.5 (0.75) | 6.15 (0.60) | 0.84 (0.03) | 49.4 | 1.042 |
|  |  |  |  |  |  |  |  |
| All Stations | 25 | 12644 (2792) | 9.6 (.076) | 6.72 (0.53) | 0.84 (0.02) | 25.0 |  |