SUPPLEMENTARY MATERIAL

Data S1. Input network assembled with census data gathered from R/V Pillsbury sampling stations.

```
*Vertices 116
1 "P1140"
2 "P1141"
3 "P1142"
4 "P1143"
5 "P861"
6 "P876"
7 "P881"
8 "P890"
9 "P891"
10 "P905"
11 "P919"
12 "P929"
13 "P954"
14 "P984"
15 "P854"
16 "P857"
17 "P874"
18 "P875"
19 "P887"
20 "P907"
21 "P912"
22 "P969"
23 "P991"
24 "P1187"
25 "P1303"
26 "P1386"
27 "P1387"
28 "P689"
29 "P650"
30 "P657"
31 "P658"
32 "P684"
33 "P691"
34 "P692"
35 "P741"
36 "P479"
37 "P705"
38 "P706"
39 "P707"
40 "P708"
41 "P718"
42 "P722"
43 "P728"
44 "P734"
45 "P736"
46 "P737"
47 "P745"
48 "P766"
49 "P768"
50 "P769"
51 "P773"
52 "P775"
53 "P838"
54 "P841"
55 "P848"
56 "P324"
57 "P330"
58 "P392"
59 "P402"
60 "P403"
61 "P415"
62 "P424"
63 "P425"
64 "P587"
65 "P592"
66 "P594"
67 "P595"
68 "P596"
69 "P607"
70 "Scleranthelia"
71 "Nicella"
72 "Nidalia"
73 "Siphonogorgia"
74 "Bebryce"
75 "Placogorgia"
76 "Villogorgia"
77 "Deltocyathus"
78 "Madracis"
79 "Acanthogorgia"
80 "Thesea"
81 "Tichosina"
82 "Bellonella"
83 "Terebratulina"
84 "Thelogorgia"
85 "Antipathes"
86 "Stylopathes"
87 "Coenosmilia"
88 "Acanella"
89 "Enallopsammia"
90 "Fungiacyathus"
91 "Platidia"
92 "Aphanipathes"
93 "Rhizosmilia"
94 "Trochocyathus"
95 "Chrysogorgia"
96 "Stephanocyathus"
97 "Javania"
98 "Riisea"
99 "Balanophyllia"
100 "Ellisella"
101 "Neospongodes"
102 "Tanacetipathes"
103 "Schizopathes"
104 "Argyrotheca "
105 "Diodogorgia"
106 "Iciligorgia"
107 "Acanthopathes"
108 "Cirrhipathes"
109 "Scleracis"
110 "Madrepora"
111 "Telesto"
112 "Swiftia"
113 "Chrysopathes"
114 "Leptogorgia"
115 "Carijoa"
116 "Cladocora"
*Edges 534
1 70 1
1 71 1
1 72 1
1 73 1
1 74 1
1 75 1
1 76 1
1 77 1
1 78 1
2 71 1
2 75 1
2 79 1
2 80 1
2 81 1
3 73 1
3 74 1
3 76 1
3 82 1
3 83 1
4 70 1
4 71 1
4 73 1
4 74 1
4 75 1
4 76 1
4 84 1
4 85 1
4 86 1
4 87 1
5 81 1
5 83 1
5 88 1
5 89 1
5 90 1
5 91 1
6 77 1
6 79 1
6 80 1
6 81 1
6 83 1
6 85 1
6 92 1
```

Data S1 continued.

6 93 1
6 94 1
7 77 1
7 79 1
7 88 1
7 89 1
7 90 1
7 95 1
7 96 1
8 71 1
8 73 1
8 77 1
8 79 1
8 81 1
8 86 1
8 94 1
8 97 1
9 71 1
9 77 1
9 84 1
9 86 1
9 88 1
9 90 1
10 77 1
10 81 1
10 83 1
10 91 1
11 76 1
11 90 1
11 95 1
11 98 1
11 99 1
12 81 1
12 83 1
12 91 1
12 94 1
13 79 1
13 83 1
13 88 1
13 96 1
14 72 1
14 81 1
14 86 1
14 88 1
14 90 1
14 95 1
14 97 1
15 71 1
15 78 1
15 80 1
15 84 1
15 85 1
15 92 1
15 100 1
15 101 1
15 102 1
15 103 1
15 104 1
16 71 1
16 76 1
16 78 1
16 80 1
16 85 1
16 92 1
16 93 1
16 101 1
16 102 1
16 104 1
16 105 1
16 106 1
17 77 1
17 81 1
17 87 1
17 92 1
17 106 1
17 107 1
18 74 1
18 76 1
18 78 1
18 86 1
18 98 1
18 100 1
18 103 1
18 108 1
19 71 1
19 100 1
19 101 1
19 102 1
19 109 1
20 72 1
20 74 1
20 75 1
20 76 1
20 78 1
20 80 1
20 81 1
20 84 1
20 98 1
20 100 1
20 109 1
21 85 1
21 100 1
21 101 1
21 102 1
21 105 1
22 71 1
22 77 1
22 87 1
22 92 1
22 93 1
22 97 1
22 100 1
22 107 1
23 73 1
23 75 1
23 78 1
23 81 1
23 84 1
23 86 1
23 87 1
23 94 1
23 103 1
24 88 1
24 89 1
24 97 1
24 102 1
24 110 1
25 70 1
25 71 1
25 72 1
25 73 1
25 74 1
25 75 1
25 76 1
25 77 1
25 78 1
25 79 1
25 80 1
25 84 1
25 87 1
25 98 1
25 108 1
25 111 1
25 112 1
26 71 1
26 73 1
26 75 1
26 78 1
26 85 1
26 86 1
26 92 1
26 102 1
27 71 1
27 78 1
27 85 1
27 98 1
28 88 1
28 95 1
28 108 1
28 110 1
28 113 1
29 81 1
29 85 1
29 100 1
29 105 1
29 112 1
30 79 1
30 80 1

Data S1 continued.

30 81 1
30 85 1
30 100 1
31 72 1
31 80 1
31 81 1
31 83 1
31 99 1
32 85 1
32 100 1
32 105 1
32 112 1
32 114 1
33 70 1
33 71 1
33 100 1
33 102 1
34 71 1
34 76 1
34 79 1
34 85 1
34 109 1
34 112 1
35 71 1
35 74 1
35 81 1
35 85 1
35 88 1
35 96 1
35 110 1
35 113 1
36 71 1
36 81 1
36 94 1
36 98 1
36 109 1
37 70 1
37 71 1
37 74 1
37 75 1
37 76 1
37 78 1
37 79 1
37 80 1
37 82 1
37 84 1
37 89 1
37 92 1
37 97 1
37 99 1
37 100 1
37 102 1
37 105 1
37 111 1
37 112 1
37 114 1
37 115 1
38 84 1
38 85 1
38 92 1
38 102 1
38 107 1
38 115 1
39 74 1
39 78 1
39 80 1
39 81 1
39 83 1
39 100 1
39 116 1
40 73 1
40 74 1
40 80 1
40 81 1
40 83 1
40 85 1
40 92 1
40 99 1
40 100 1
40 103 1
40 116 1
41 99 1
41 105 1
41 114 1
41 116 1
42 72 1
42 82 1
42 84 1
42 99 1
42 100 1
42 105 1
42 114 1
43 79 1
43 82 1
43 85 1
43 99 1
43 100 1
43 105 1
43 115 1
43 116 1
44 72 1
44 80 1
44 81 1
44 82 1
44 83 1
44 85 1
44 89 1
44 99 1
44 100 1
44 101 1
44 114 1
45 71 1
45 75 1
45 78 1
45 79 1
45 80 1
45 81 1
45 84 1
45 86 1
45 91 1
45 92 1
45 93 1
45 100 1
45 102 1
45 109 1
45 111 1
45 112 1
46 71 1
46 72 1
46 73 1
46 75 1
46 80 1
46 81 1
46 82 1
46 83 1
46 89 1
46 92 1
46 99 1
46 100 1
46 102 1
46 105 1
46 116 1
47 71 1
47 72 1
47 73 1
47 76 1
47 79 1
47 80 1
47 82 1
47 84 1
47 85 1
47 102 1
47 103 1
47 105 1
47 108 1
47 109 1
47 112 1
48 79 1
48 80 1
48 82 1
48 85 1
48 92 1
48 108 1
48 111 1
48 114 1
49 72 1
49 85 1
49 99 1

Data S1 continued.

49 114 1
49 116 1
50 79 1
50 80 1
50 83 1
50 84 1
50 92 1
50 97 1
50 99 1
50 105 1
51 72 1
51 80 1
51 82 1
51 85 1
51 100 1
51 105 1
51 108 1
51 111 1
51 112 1
51 114 1
52 72 1
52 73 1
52 75 1
52 80 1
52 85 1
52 99 1
52 102 1
52 103 1
52 108 1
52 111 1
52 112 1
52 114 1
52 116 1
53 72 1
53 79 1
53 81 1
53 82 1
53 83 1
53 85 1
53 97 1
53 100 1
53 103 1
53 109 1
54 85 1
54 93 1
54 106 1
54 111 1
55 74 1
55 79 1
55 80 1
55 83 1
55 92 1
55 94 1
55 98 1
55 99 1
55 100 1
55 108 1
56 71 1
56 80 1
56 99 1
56 100 1
56 105 1
56 111 1
56 115 1
57 71 1
57 74 1
57 85 1
57 93 1
57 100 1
57 104 1
57 105 1
57 112 1
58 71 1
58 72 1
58 73 1
58 78 1
58 85 1
58 100 1
58 105 1
58 109 1
58 112 1
58 114 1
59 85 1
59 100 1
59 105 1
59 109 1
59 111 1
60 71 1
60 73 1
60 74 1
60 79 1
60 82 1
60 84 1
60 85 1
60 92 1
60 99 1
60 105 1
60 112 1
61 74 1
61 76 1
61 104 1
61 105 1
61 109 1
62 71 1
62 74 1
62 80 1
62 98 1
62 102 1
62 109 1
62 113 1
63 71 1
63 85 1
63 99 1
63 105 1
64 81 1
64 90 1
64 91 1
64 97 1
64 103 1
64 113 1
65 71 1
65 72 1
65 74 1
65 75 1
65 76 1
65 78 1
65 79 1
65 80 1
65 85 1
65 86 1
65 92 1
65 98 1
65 100 1
65 101 1
65 102 1
65 109 1
65 111 1
66 75 1
66 81 1
66 83 1
66 91 1
66 95 1
67 74 1
67 75 1
67 93 1
67 99 1
67 106 1
68 80 1
68 89 1
68 99 1
68 107 1
69 77 1
69 88 1
69 90 1
69 96 1
69 110 1

Data S2. Clustered network. This standard file contains the reference solution. Each row begins with the module assignments of a node in a colon-separated format. Nodes within each module are sorted by the total amount of flow they contain. The decimal number is the amount of flow in each node. The clustering procedure was implemented using the Infomap algorithm (Rosvall and Bergstrom, 2008).

```
# Codelength = 6.51405 bits.
# path flow name physicalId
1:1 0.00842697 "P1140" 1
1:2 0.00468165 "P1141" 2
1:3 0.00468165 "P1142" 3
1:4 0.0093633 "P1143" 4
1:5 0.0102996 "P854" 15
1:6 0.011236 "P857" 16
1:7 0.00749064 "P875" 18
1:8 0.00468165 "P887" 19
1:9 0.0102996 "P907" 20
1:10 0.00468165 "P912" 21
1:11 0.00842697 "P991" 23
1:12 0.0159176 "P1303" 25
1:13 0.00749064 "P1386" 26
1:14 0.00374532 "P1387" 27
1:15 0.00468165 "P650" 29
1:16 0.00468165 "P657" 30
1:17 0.00468165 "P684" 32
1:18 0.00374532 "P691" 33
1:19 0.00561798 "P692" 34
1:20 0.0196629 "P705" 37
1:21 0.00561798 "P706" 38
1:22 0.00655431 "P707" 39
1:23 0.0102996 "P708" 40
1:24 0.00374532 "P718" 41
1:25 0.00655431 "P722" 42
1:26 0.00749064 "P728" 43
1:27 0.0102996 "P734" 44
1:28 0.0149813 "P736" 45
1:29 0.0140449 "P737" 46
1:30 0.0140449 "P745" 47
1:31 0.00749064 "P766" 48
1:32 0.00468165 "P768" 49
1:33 0.00749064 "P769" 50
1:34 0.0093633 "P773" 51
1:35 0.0121723 "P775" 52
1:36 0.0093633 "P838" 53
1:37 0.0093633 "P848" 55
1:38 0.00655431 "P324" 56
1:39 0.00749064 "P330" 57
1:40 0.0093633 "P392" 58
1:41 0.00468165 "P402" 59
1:42 0.0102996 "P403" 60
1:43 0.00468165 "P415" 61
1:44 0.00655431 "P424" 62
1:45 0.00374532 "P425" 63
1:46 0.0159176 "P592" 65
1:47 0.00468165 "Scleranthelia" 70
1:48 0.0252809 "Nicella" 71
1:49 0.0140449 "Nidalia" 72
1:50 0.0121723 "Siphonogorgia" 73
1:51 0.0159176 "Bebryce" 74
1:52 0.0131086 "Placogorgia" 75
1:53 0.0121723 "Villogorgia" 76
1:54 0.0131086 "Madracis" 78
1:55 0.0168539 "Acanthogorgia" 79
1:56 0.0224719 "Thesea" 80
1:57 0.0102996 "Bellonella" 82
1:58 0.0121723 "Thelogorgia" 84
1:59 0.0271536 "Antipathes" 85
1:60 0.00842697 "Stylopathes" 86
1:61 0.0149813 "Aphanipathes" 92
1:62 0.00842697 "Riisea" 98
1:63 0.0168539 "Balanophyllia" 99
1:64 0.0243446 "Ellisella" 100
1:65 0.00561798 "Neospongodes" 101
1:66 0.0140449 "Tanacetipathes" 102
1:67 0.00749064 "Schizopathes" 103
1:68 0.00374532 "Argyrotheca " 104
1:69 0.0177903 "Diodogorgia" 105
1:70 0.00749064 "Cirrhipathes" 108
1:71 0.011236 "Scleracis" 109
1:72 0.0093633 "Telesto" 111
1:73 0.011236 "Swiftia" 112
1:74 0.0093633 "Leptogorgia" 114
1:75 0.00374532 "Carijoa" 115
1:76 0.00655431 "Cladocora" 116
```

Data S2 continued.

2:1 0.00561798 "P861" 5
2:2 0.00842697 "P876" 6
2:3 0.00749064 "P890" 8
2:4 0.00374532 "P905" 10
2:5 0.00374532 "P929" 12
2:6 0.00468165 "P658" 31
2:7 0.00468165 "P479" 36
2:8 0.00468165 "P594" 66
2:9 0.0215356 "Tichosina" 81
2:10 0.0140449 "Terebratulina" 83
2:11 0.00561798 "Platidia" 91
2:12 0.00561798 "Trochocyathus" 94
3:1 0.00655431 "P881" 7
3:2 0.00561798 "P891" 9
3:3 0.00468165 "P919" 11
3:4 0.00374532 "P954" 13
3:5 0.00655431 "P984" 14
3:6 0.00468165 "P1187" 24
3:7 0.00468165 "P689" 28
3:8 0.00749064 "P741" 35
3:9 0.00561798 "P587" 64
3:10 0.00468165 "P607" 69
3:11 0.00842697 "Acanella" 88
3:12 0.00655431 "Enallopsammia" 89
3:13 0.00655431 "Fungiacyathus" 90
3:14 0.00468165 "Chrysogorgia" 95
3:15 0.00374532 "Stephanocyathus" 96
3:16 0.00749064 "Javania" 97
3:17 0.00374532 "Madrepora" 110
3:18 0.00374532 "Chrysopathes" 113
4:1 0.00561798 "P874" 17
4:2 0.00749064 "P969" 22
4:3 0.00374532 "P596" 68
4:4 0.0093633 "Deltocyathus" 77
4:5 0.00468165 "Coenosmilia" 87
4:6 0.00374532 "Acanthopathes" 107
5:1 0.00374532 "P841" 54
5:2 0.00468165 "P595" 67
5:3 0.00655431 "Rhizosmilia" 93
5:4 0.00374532 "Iciligorgia" 106