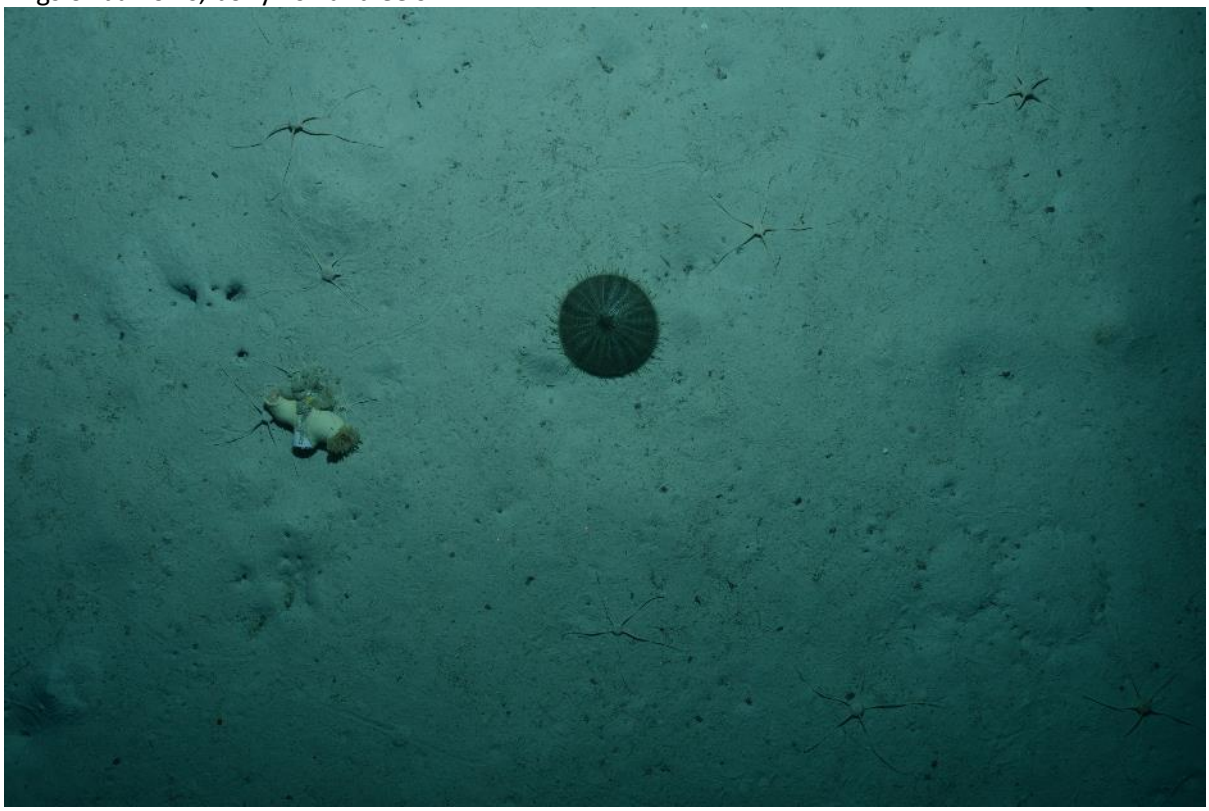
Station 111, Site R-24 (11/03/2019, Start: 1723 h, End: 1825 h NZST)

1286 to 1309 m

Mostly flat substrate composed of muddy sediment with burrows and tracks. Fauna dominated by high densities of ophiuroids, with many sponges, Tam-O-Shanter echinoids, as well as other echinoid taxa, rings of burrows, bony fish and eels.



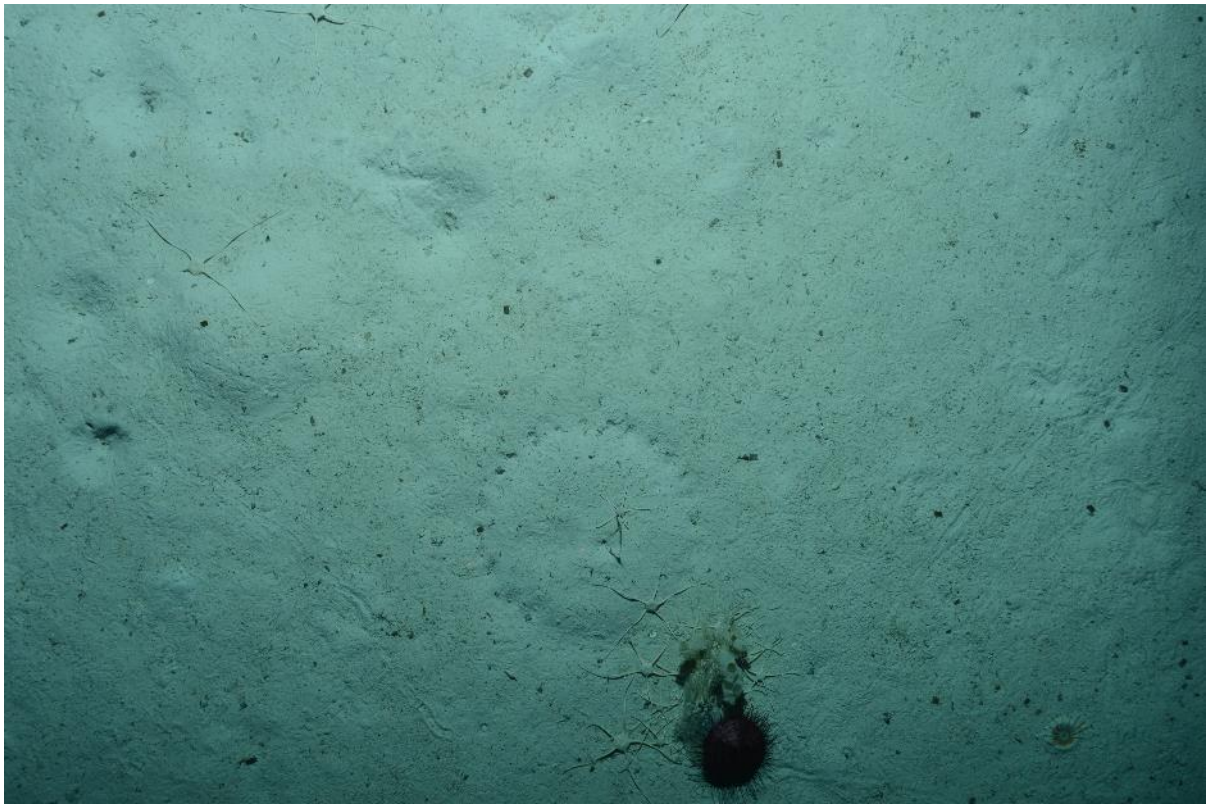
TAN1902_STN111_027 (beer can with anemones, Tam-O-Shanter echinoid – *Sperosoma* sp.)

TAN1902_STN111_023 (Tam-O-Shanter echinoid, *Hygrosoma hoplacantha*)

Station 112, Site R-23 (11/03/2019, Start: 2031 h, End: 2135 h NZST)

1299 to 1309 m

Mostly flat substrate comprising muddy sediment with numerous burrows. Fauna dominated by high densities of ophiuroids, with also numerous sponges and echinoids, as well as several fish (mainly rattails and eels), rings of burrows and asteroids.

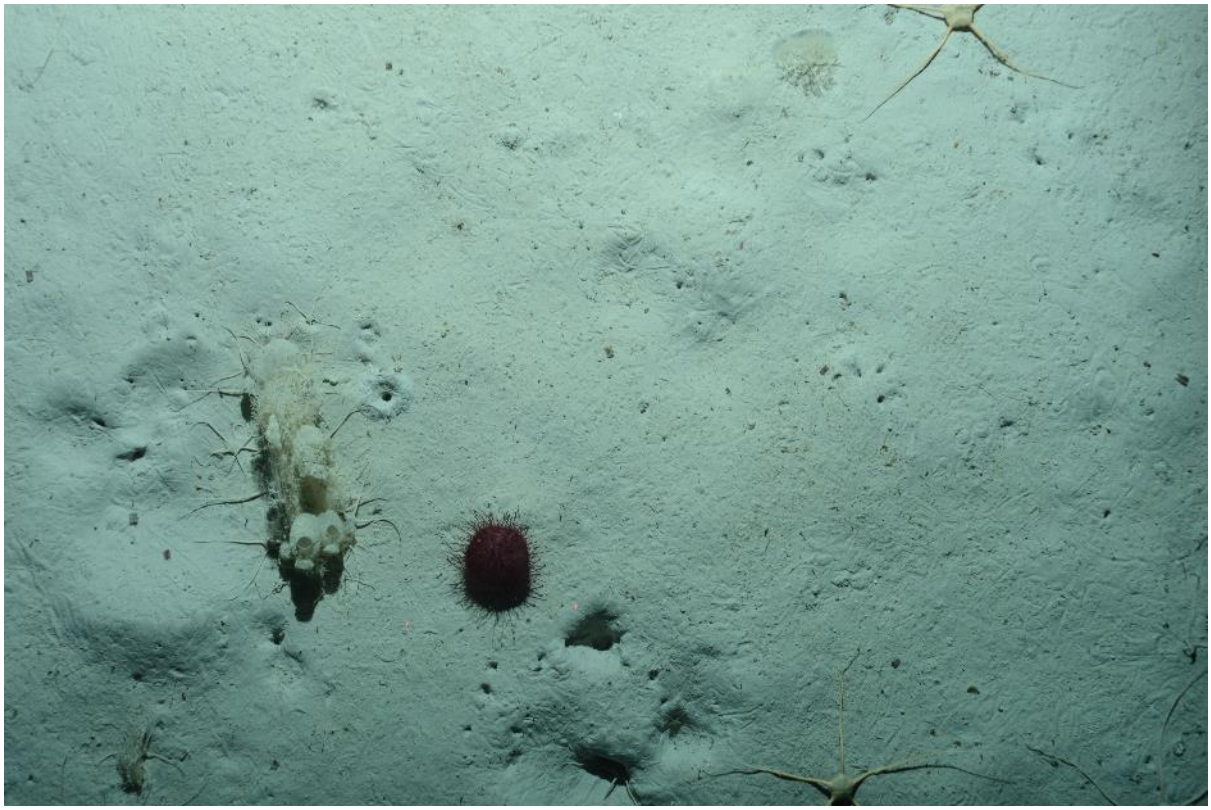


TAN1902_STN112_112 (Muddy sediment community)

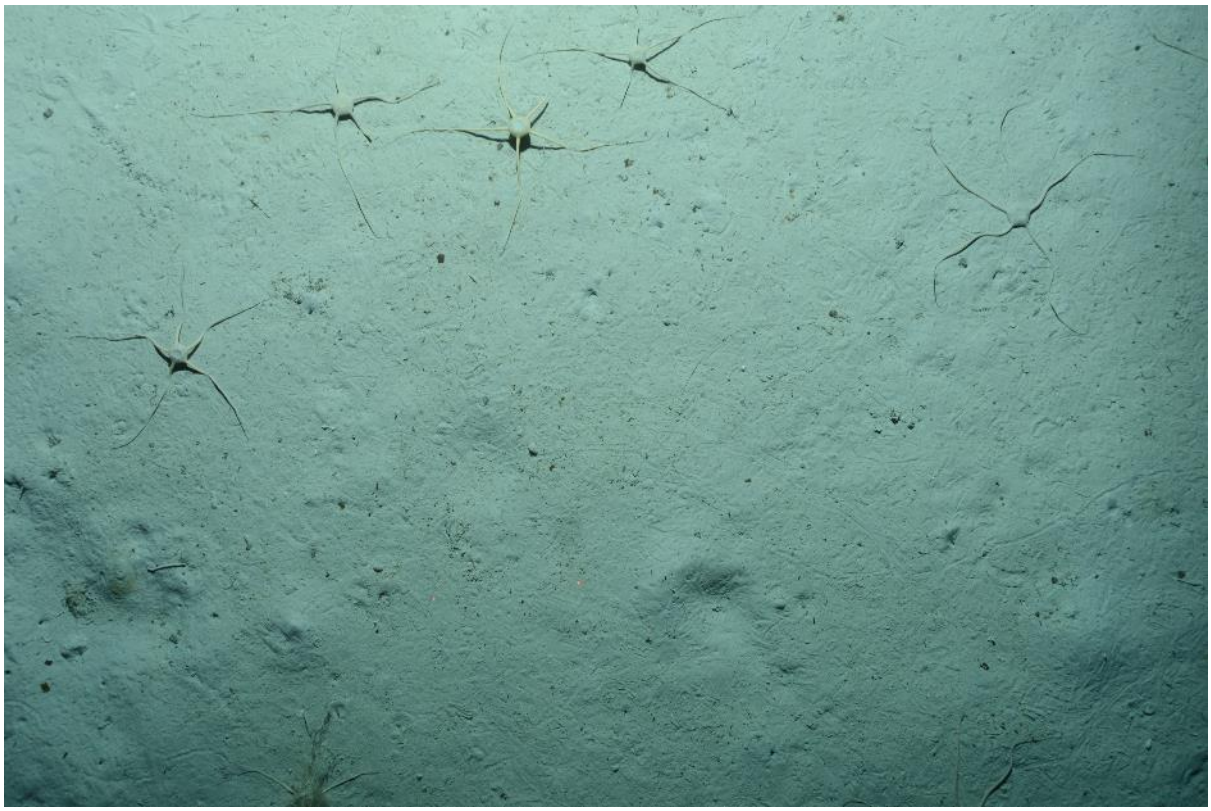
Station 113, Site R-22 (11/03/2019, Start: 2342 h, End: 12/03/2019, 0042 h NZST)

1265 to 1263 m

Flat bottom, muddy substrate, fauna mostly ophiuroids, glass sponges (some vase), with many burrows, plus echinoids, anemones, asteroids, carnivorous sponges and a few eels.



TAN1902_STN113_030 (sponge, Tam-O-Shanter, ophiuroids)



TAN1902_STN113_040 (ophiuroids)

TAN1902_STN113_160 (muddy sediment community)

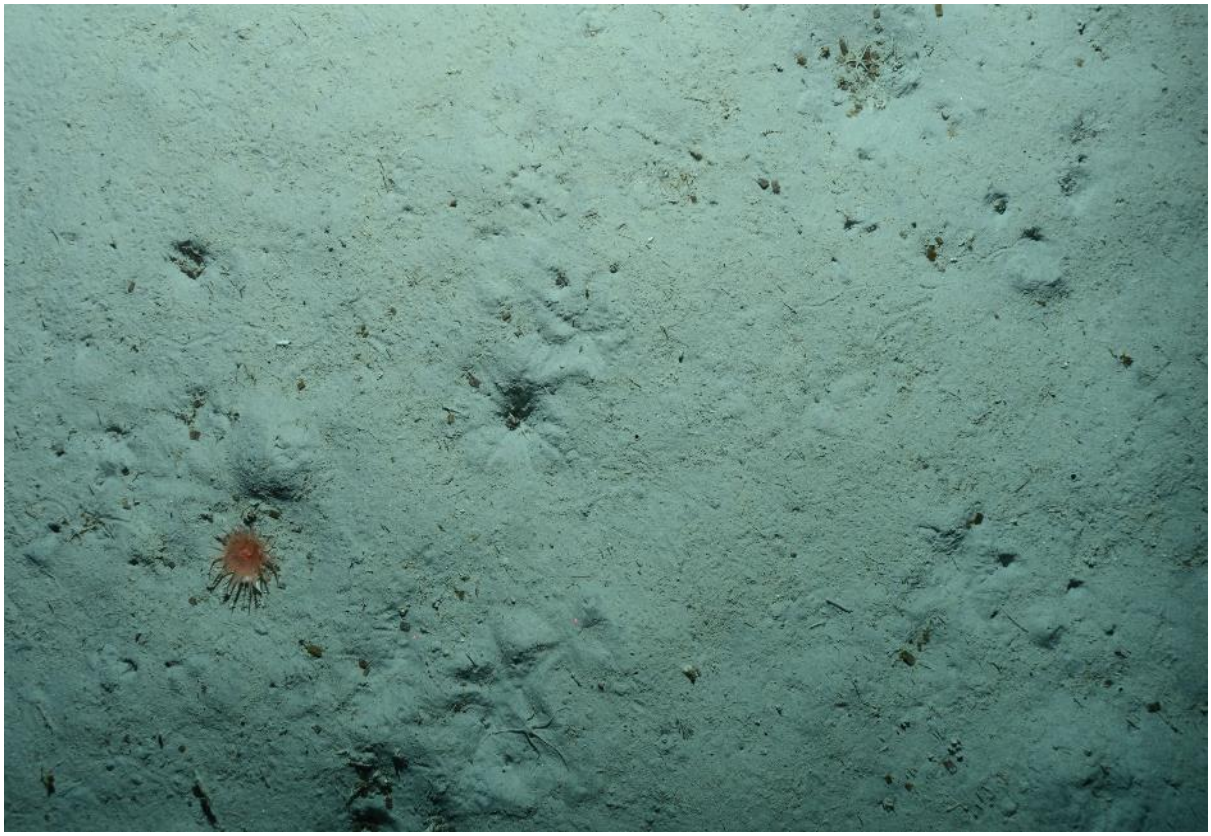
TAN1902_STN113_214 (ophiuroids)

Station 114, Site R-19 (12/03/2019, Start: 0256 h, End: 0356 h NZST)

1262 to 1242 m

Flat bottom, muddy substrate, fauna mostly ophiuroids, echinoids and rings of burrows, with some glass sponges (but significantly less than R22), burrows, tracks, plus echinoids, anemones, asteroids, brisingids, gastropods and a few eels.

TAN1902_STN114_089 (ring of burrows)



TAN1902_STN114_100 (anemone)

TAN1902_STN114_190 (sponge, ophiuroids, crinoids)

Station 115, Site R-42 (12/03/2019, Start: 0536 h, End: 0637 h NZST)

1225 to 1229 m
Flat bottom, muddy substrate, fauna mostly ophiuroids, with burrows, tracks, echinoids and rings of burrows, with some glass sponges.

TAN1902_STN115_026 (*Hygrosoma hoplacantha*)

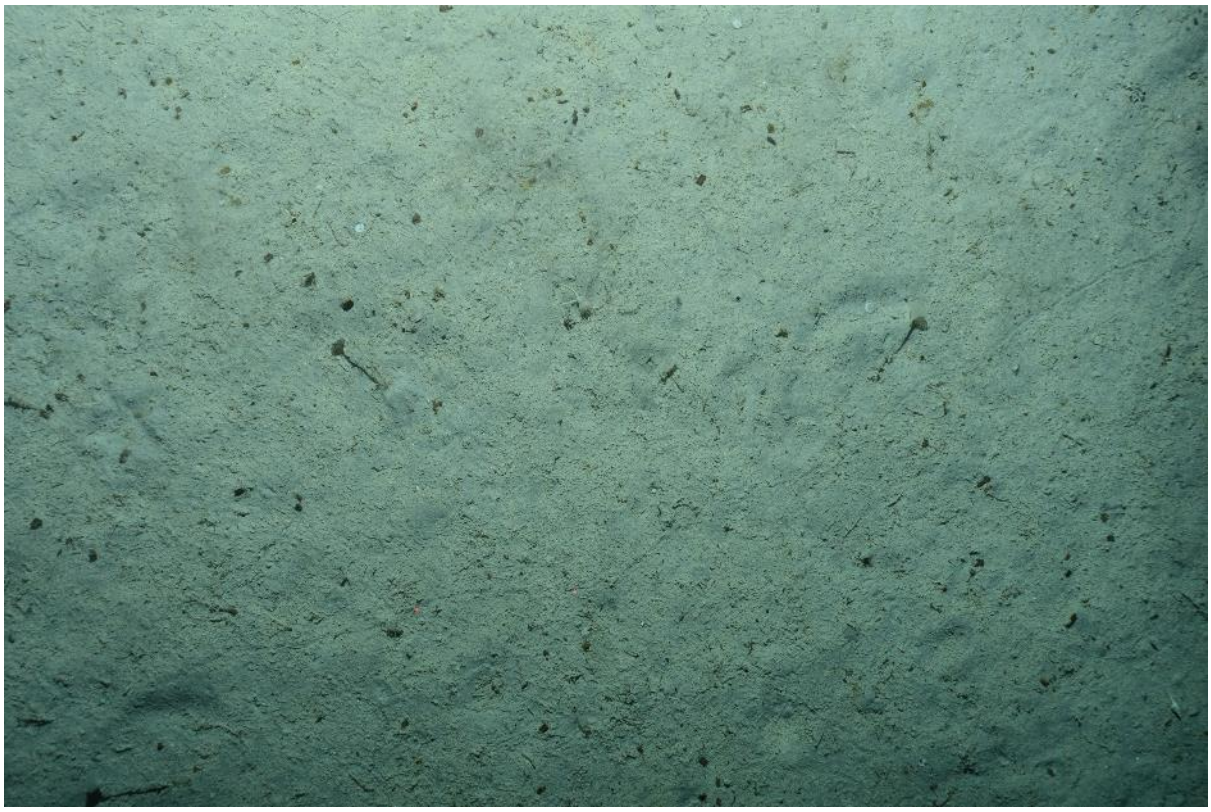
TAN1902_STN115_098 (ophiuroid, ring of burrows)

TAN1902_STN115_208 (ophiuroid, ring of burrows)

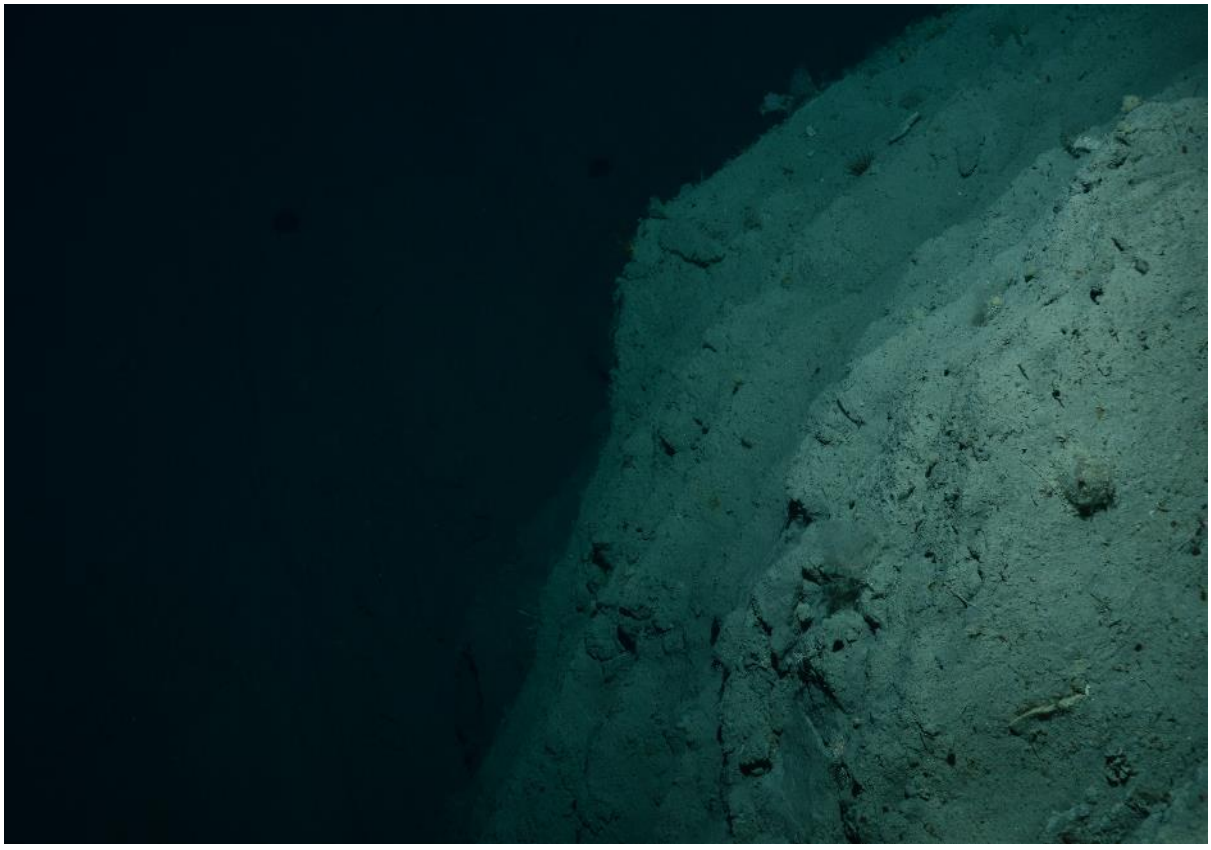
Station 117, Site R-16 (12/03/2019, Start: 0952 h, End: 1052 h NZST)

1359 to 1420 m, transect run SE to NW across canyon wall onto canyon floor

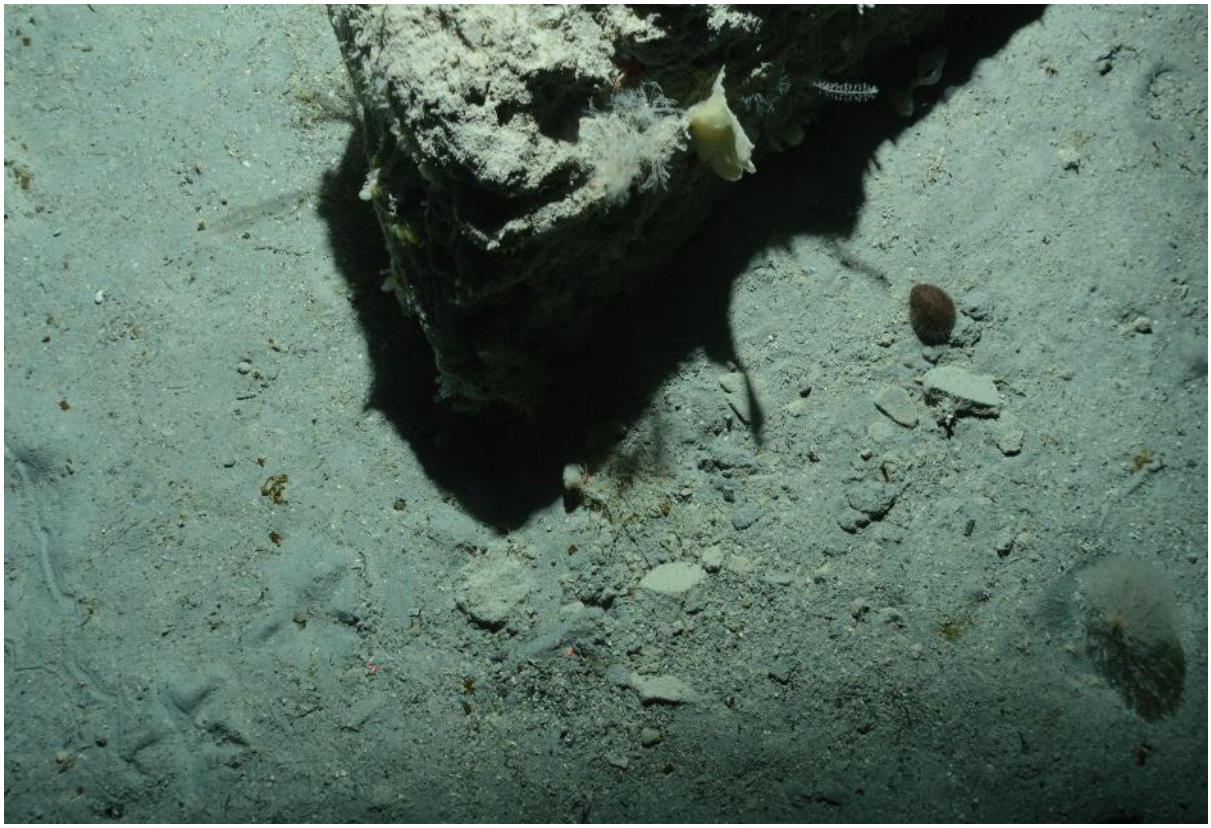
Flat bottom at start of transect, muddy sand substrate, fauna mostly hexactinellid sponges ("lollipops"), with burrows, tracks, asteroids, holothurians and a few eels. At first drop-off (1360-1380 m), substrate changes to cobbles, boulder rubble and large rectangular slabs of fallen rock with few encrusting organisms (mainly seapens and demosponges), interspersed and covered by muddy sandy to gravelly sediment, hosting mainly echinoids. At second drop-off (1380-1400 m), similar terrain, with few seapens and hexactinellid sponges on rocky outcrops and echinoids and asteroids on intervening soft sediment, which are occasionally rippled. At third drop-off at 1400-1420 m, similar terrain and few encrusting fauna, passing into more extensive muddy substrates on the canyon floor, with more burrows and tracks, plus hexactinellid sponges ("lollipops"), echnioids, seapens, rings of burrows, anemones, asteroids, rattails, dead salps and large active burrows.



Hex sponges "lollipops", TAN1902_STN117_013



TAN1902_STN117_094 (drop-off)

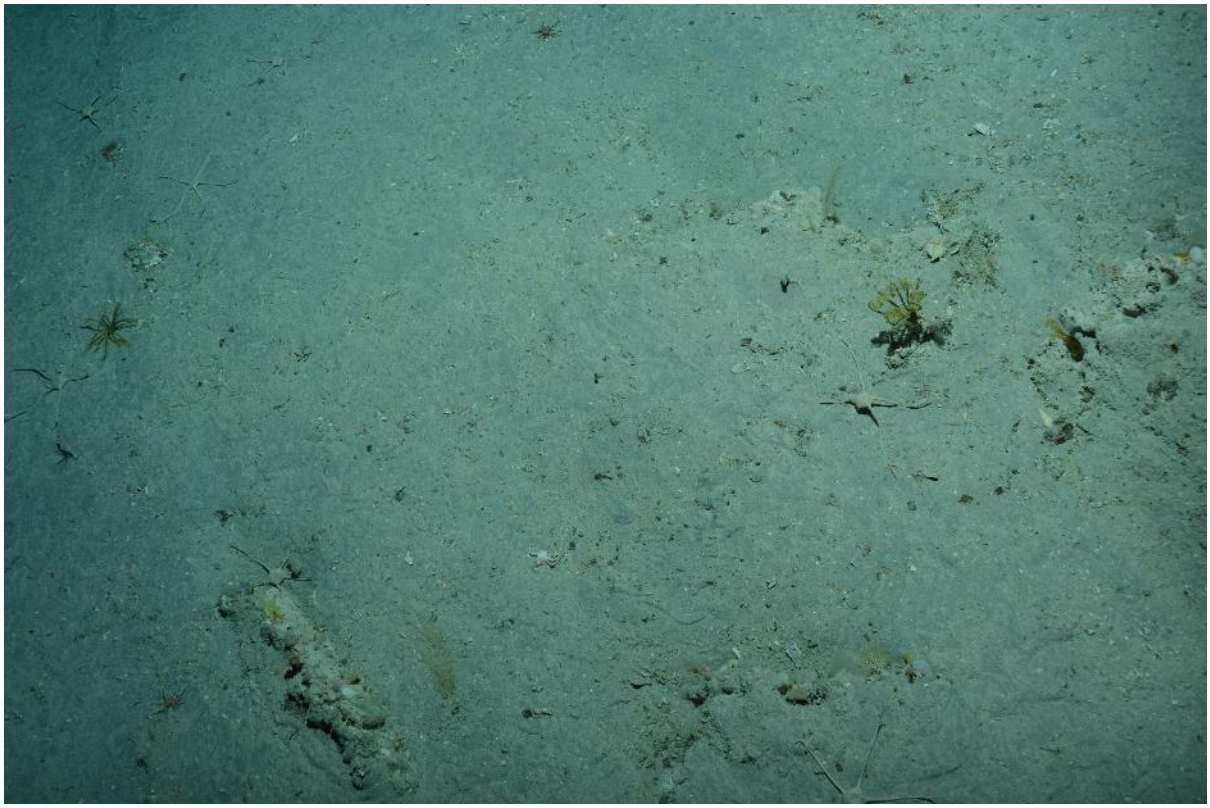


TAN1902_STN117_100 (mixed substrate community)

Station 118, Site R-18 (12/03/2019, Start: 1300 h, End: 1404 h NZST)

1328 to 1473 m

Transect run West to East across canyon wall onto canyon floor at the intersection of two canyon branches. Fauna mostly sponges, ophiuroids, fishes (mostly rattails) and eels, and sea pens.



TAN1902_STN118_028 (feather star (crinoid))

TAN1902_STN118_080 (gorgonian octocorals)

TAN1902_STN118_115 (spatangoid echinoid)

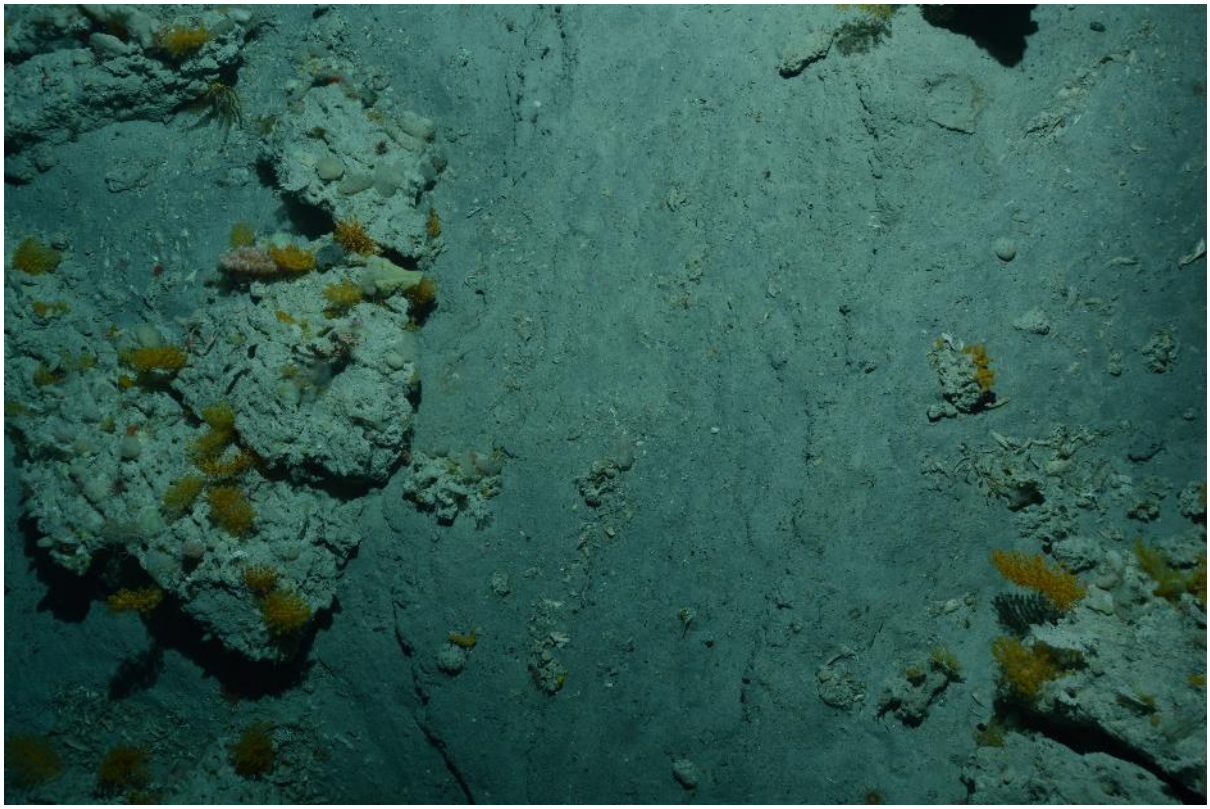
TAN1902_STN118_031 (brittle stars, crinoids)

Station 119, Site R-20 (12/03/2019, Start: 1612 h, End: 1732 h NZST)

1305 to 1499 m, transect run North to South across canyon wall onto canyon floor. Drop-offs and outcrops with large boulders on the canyon wall, transitioning to alternating rippled sand and muddy sediment on the canyon floor. Fauna mostly sponges and ophiuroids, with large numbers and variety of gorgonian octocorals, plus spatangid echinoids and bony fish.

TAN1902_STN119_314 (anemone)

TAN1902_STN119_160 (rattail, brisingid starfish, black coral)



TAN1902_STN119_144

Station 120, Site R-4 (12/03/2019, Start: 2024 h, End: 2128 h NZST)

1325 to 1622 m

Transect run across canyon wall onto canyon floor. Substrate comprising muddy sediment above the canyon with some shell hash; canyon wall with exposed bedrock and boulders; canyon floor mostly muddy sediment and sand, with a few burrows. Fauna comprising sponges, ophiuroids, gorgonians (esp on side of canyon on exposed rock), plus a few molluscs and bony fish – especially eels.

TAN1902_STN120_159 (lithodid crab)

TAN1902_STN120_022 (Tam O' Shanter echinoid, *Sperosoma*)

Station 121, Site R-11 (13/03/2019, Start: 0001 h, End: 0102 h NZST)

1339 m
Flat bottom, muddy substrate, fauna mostly burrows, tracks, anemones, with echinoids, hexactinellid sponges, plus occasional seapens, crinoids, holothurians, octopod, eels and rattails.

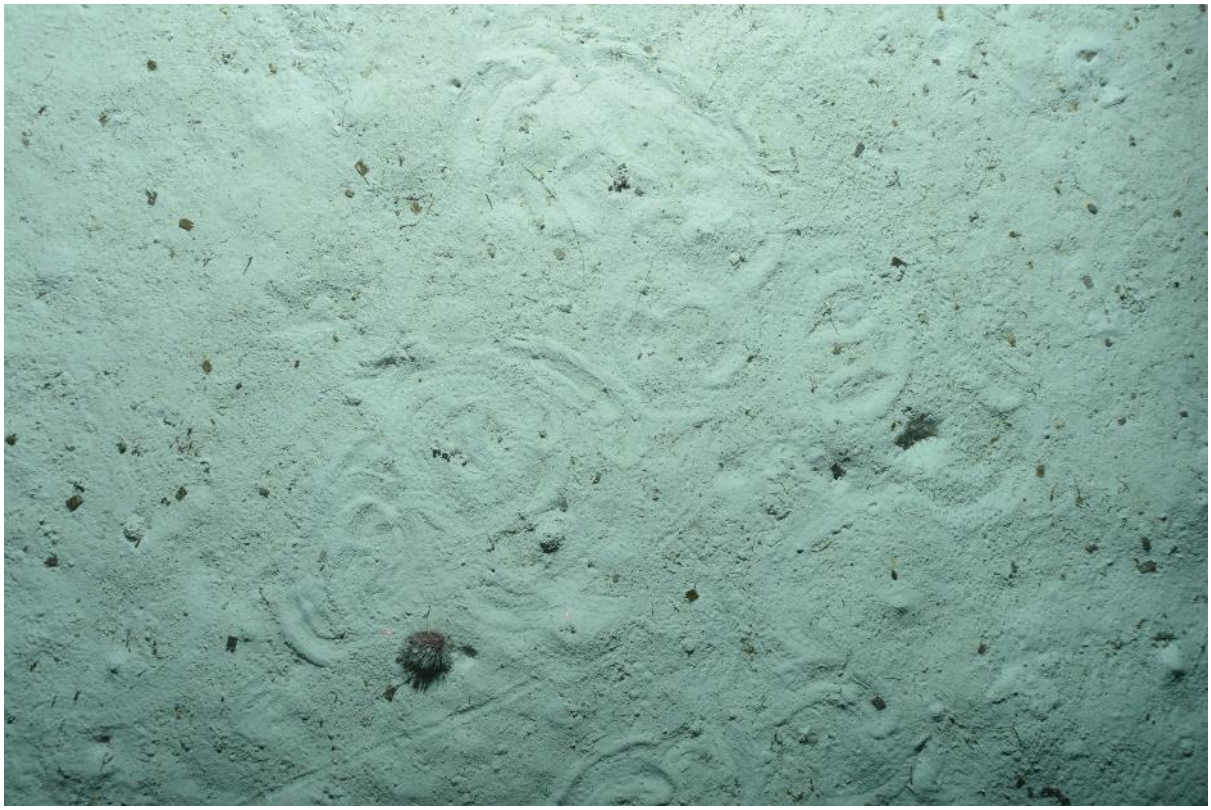
Transect ran NE to SW

TAN1902_STN121_037 (sea-pen)

Station 122, Site R-13 (13/03/2019, Start: 0305 h, Re-start: 0309, End: 0410 h NZST)

1337-1338 m
Flat bottom, muddy substrate, fauna mostly burrows, tracks, anemones and echinoids, with hexactinellid sponges, holothurians, rings of burrows and rattails. Low fauna overall.

Issues with OFOP; re-started camera and OFOP at the start of the transect. Transect ran NE to SW.



TAN1902_STN122_016 (spatangoid echinoid)

Station 123, Site OTEMP-21_REF (13/03/2019, Start: 0607 h, End: 0651 h NZST)

1330-1333 m
Flat bottom, muddy substrate, fauna mostly burrows, tracks, with anemones, echinoids, hexactinellid sponges, holothurians, ophiuroids, gastropods and rattails. Low fauna overall.

Transect ran S to N.

TAN1902_STN123_046 (holothurioid)

Station 124, Site R-14 (13/03/2019, Start: 0832 h, End: 0934 h NZST)

1324-1325 m

Flat bottom, muddy substrate, fauna mostly burrows, tracks, hexactinellid sponges, anemones, with demosponges, echinoids, holothurians, asteroids, eels and rattails. Low fauna overall.

Transect ran S to N (curved line).

TAN1902_STN124_086 (asteroid)

TAN1902_STN124_056

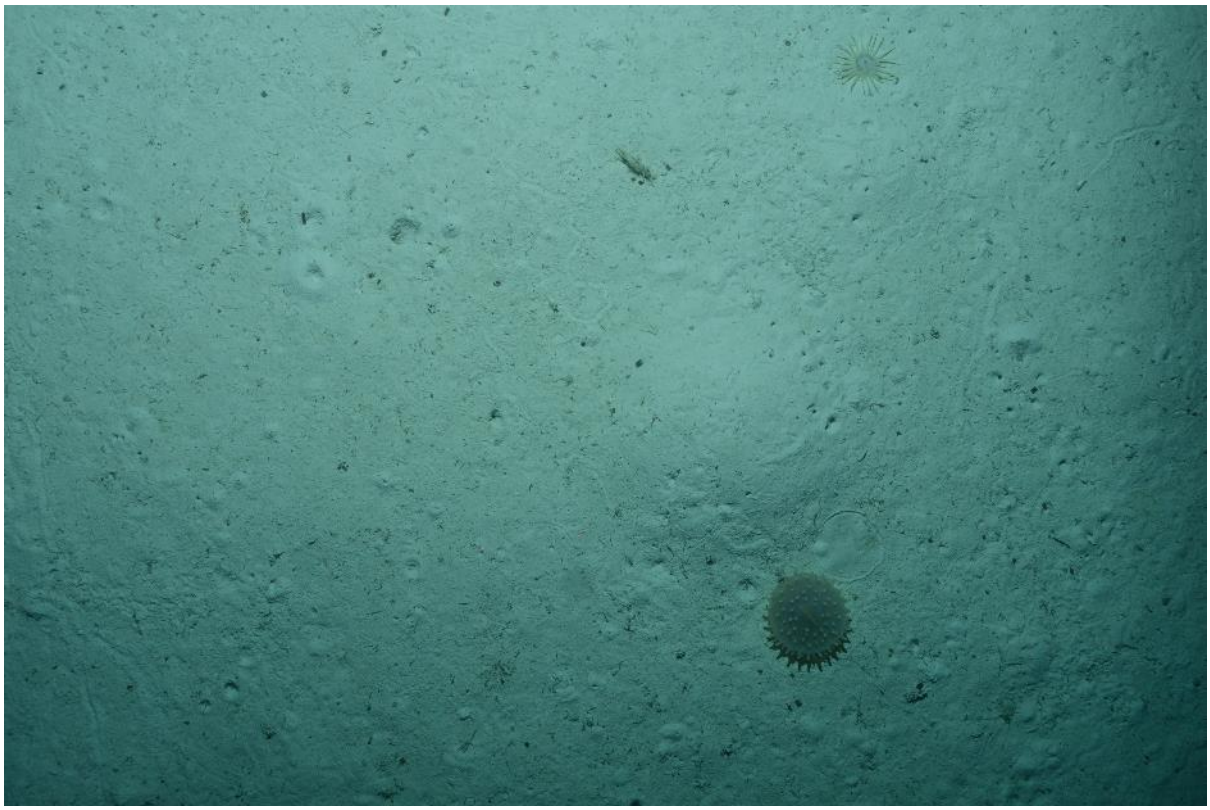
TAN1902_STN124_087 (sponge)

Station 144, Site R-33 (15/03/2019, Start: 1434 h, End: 1536 h NZST)

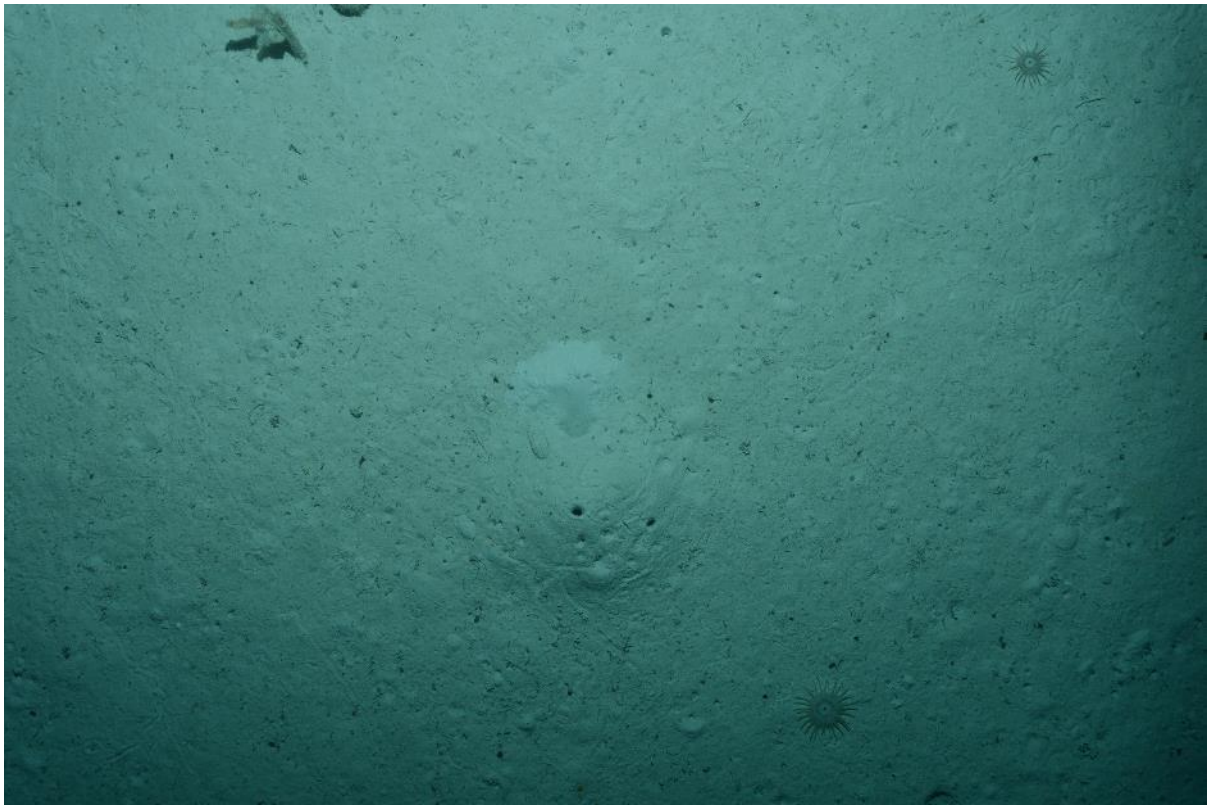
1395-1392 m

Flat bottom, muddy substrate, fauna sparse except for sponges and anemones, with a few fish, sea pens, and low numbers of echinoderms (just a few starfish and echinoids – no ophiuroids seen).

TAN1902_STN144_004 (sponge)



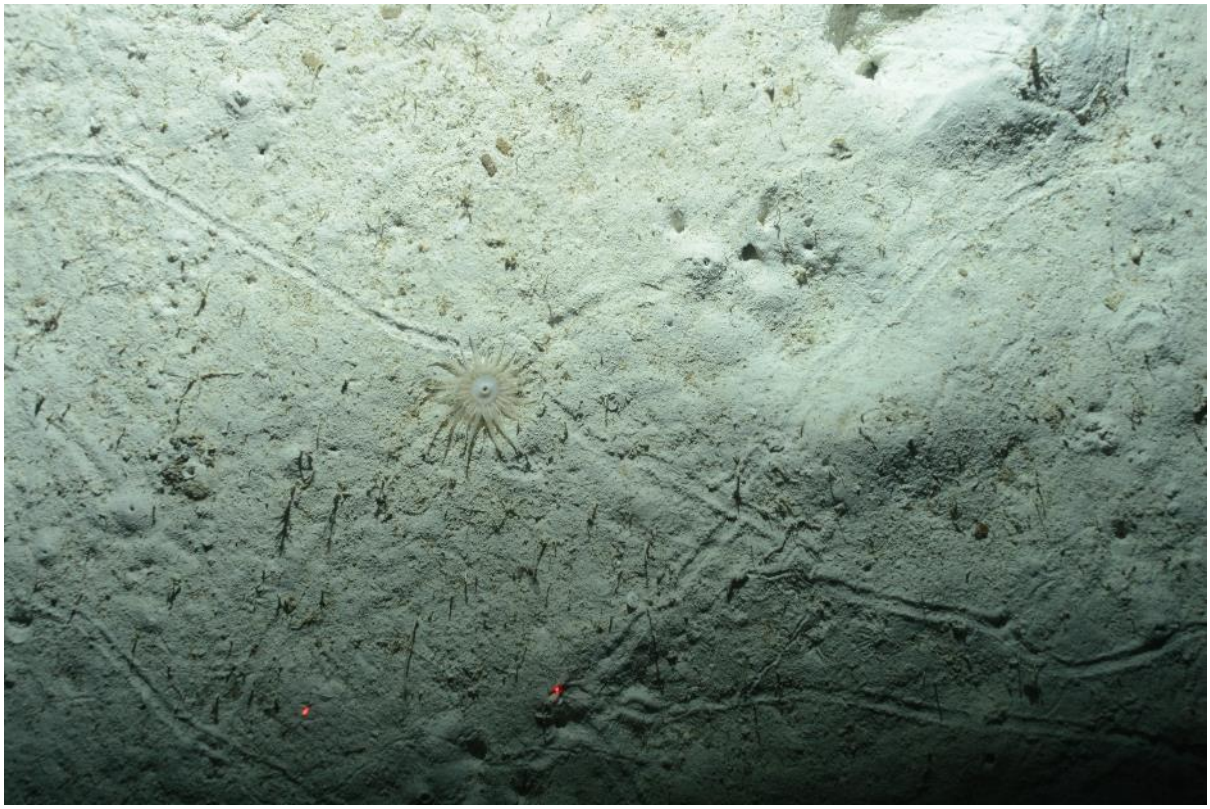
TAN1902_STN144_146 (Corallimorpharia)



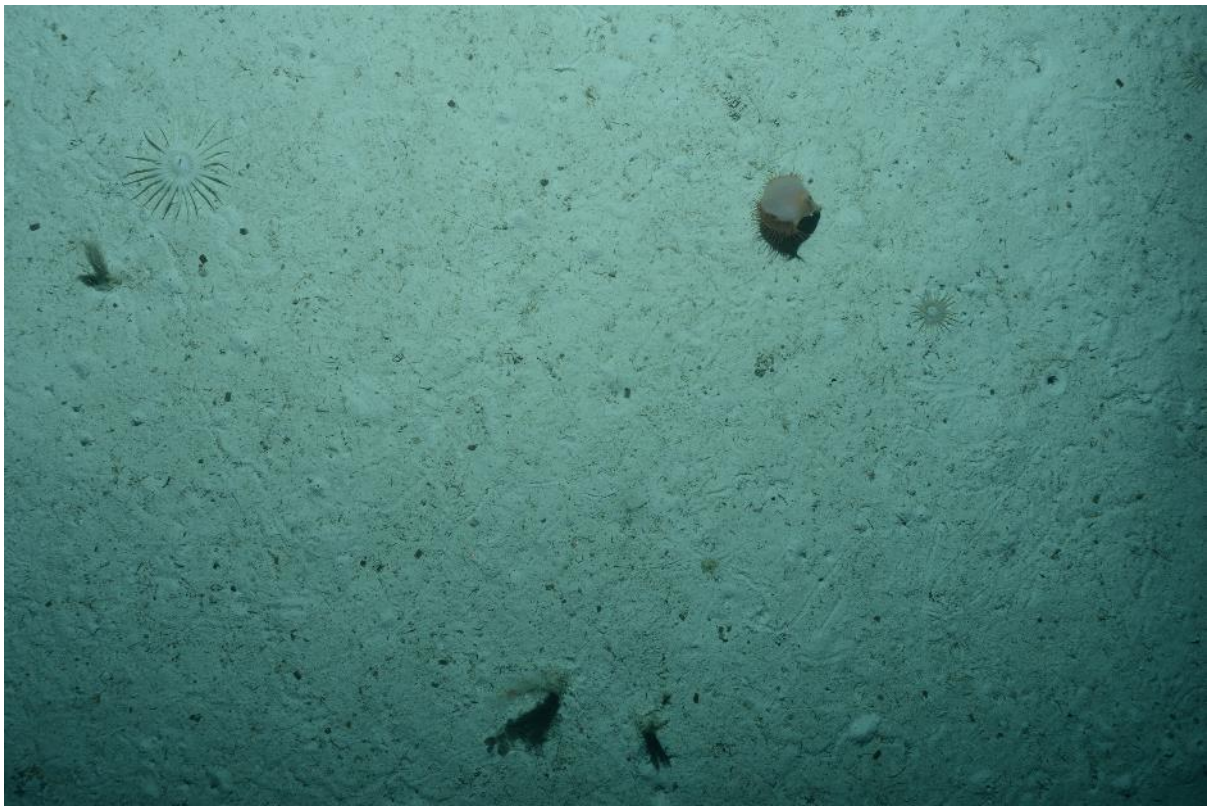
TAN1902_STN144_095 (?polychaete and burrow)

Station 145, Site R-31 (15/03/2019, Start: 1756 h, End: 1858 h NZST)

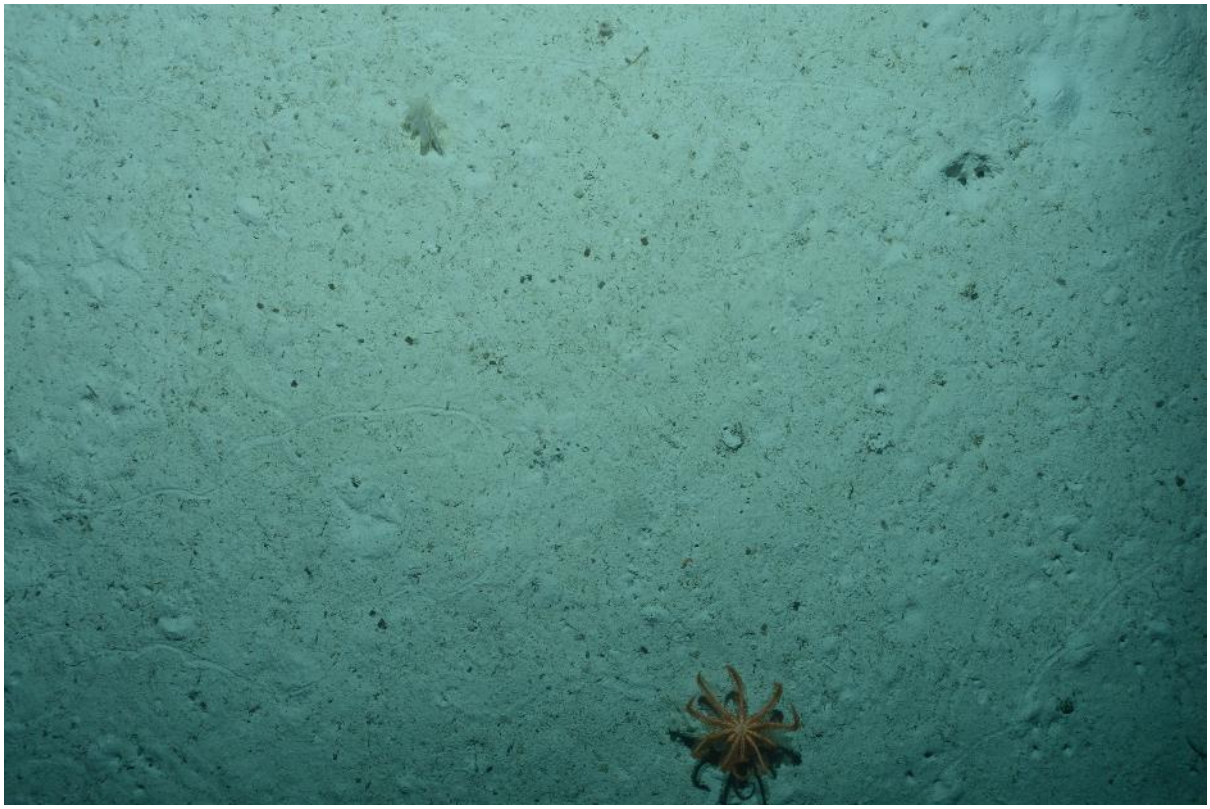
1390-1393 m
Flat bottom, muddy substrate, fauna sparse except for a few sponges and anemones.



TAN1902_STN145_037 (anemone)



TAN1902_STN145_095 (anemones)



TAN1902_STN145_204 (brisingid starfish)

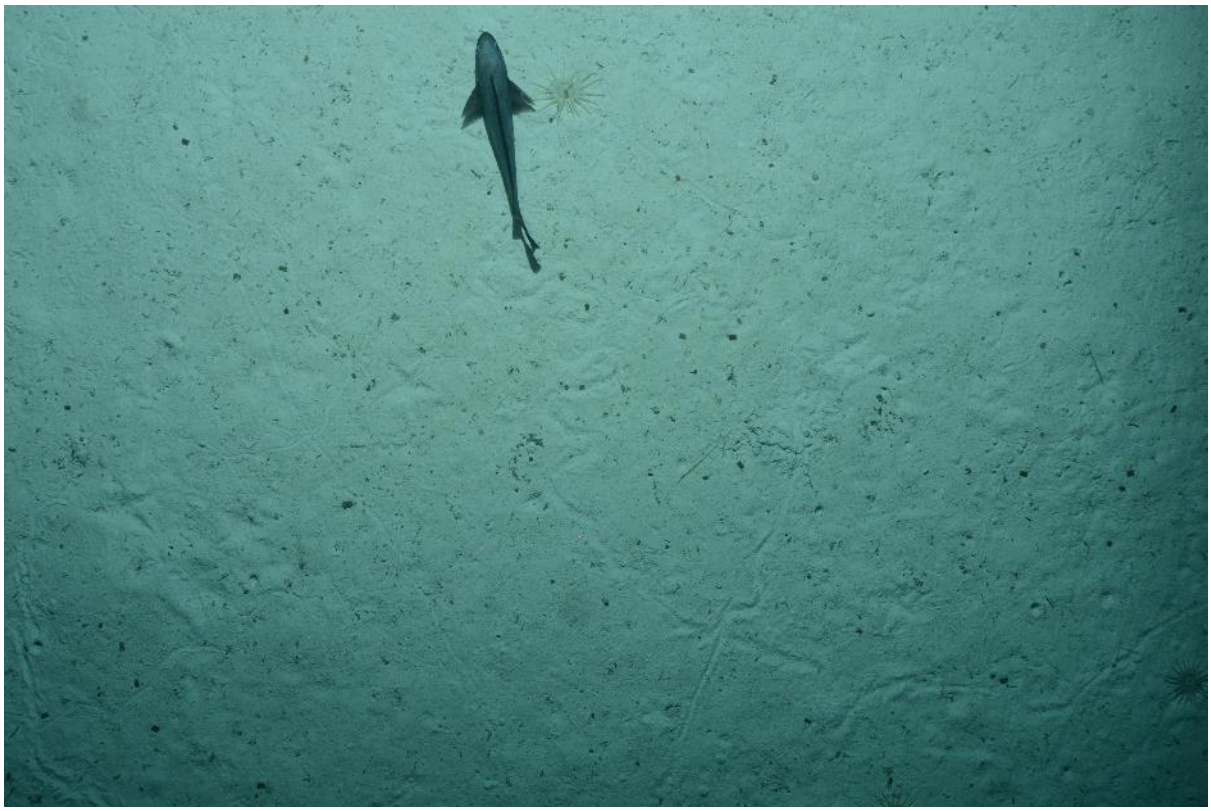
Station 146, Site R-32 (15/03/2019, Start: 2110 h, End: 2212 h NZST)

1375-1378 m

Flat bottom, muddy substrate, fauna very sparse except for a few sponges, anemones, and bony fishes.

Anemones, TAN1902_STN146_016

TAN1902_STN146_082 (sponge)



TAN1902_STN146_249 (fish and anemone)

Station 147, Site R-34 (16/03/2019, Start: 0000 h, End: 0100 h NZST)

1365-1366 m
Flat bottom, muddy substrate, burrows and tracks, fauna sparse except for anemones, sponges ("tulip" hexactinellids, carnivorous and other demosponges), holothurians, with gastropods, seapens and rattails.

Transect run N to S.

TAN1902_STN147_006 (tracks in the muddy sediment)

Carnivorous demosponge, TAN1902_STN147_027

TAN1902_STN147_079 (rattail)

Station 148, Site R-36 (16/03/2019, Start: 0338 h, End: 0438 h NZST)

1334 m

Flat bottom, muddy substrate, burrows and tracks, fauna sparse except for anemones, sponges (hexactinellids, demosponges), holothurians, echinoids, with asteroids, ophiuroids, gastropods, eels and rattails.

Transect run SE to NW.

TAN1902_STN148_030 (starfish, ascidian, buried starfish, anemone, mound)

TAN1902_STN148_089 (starfish, anemone)

Station 149, Site R-35 (16/03/2019, Start: 1710 h, End: 0810 h NZST)

1344 to 1348 m

DTIS was high over ground most of the time. Substrate muddy, lots of anemones and some hexactinellid and demospongiid sponges; also holothurians, echinoids, and a few fish.

TAN1902_STN149_068 (asteroid)

TAN1902_STN149_166 (anemone, sponges, ophiuroid, burrow)

TAN1902_STN149_231 (anemones)

Station 150, Site R-12 (16/03/2019, Start: 1018 h, End: 1120 h NZST)

1349 1351 m

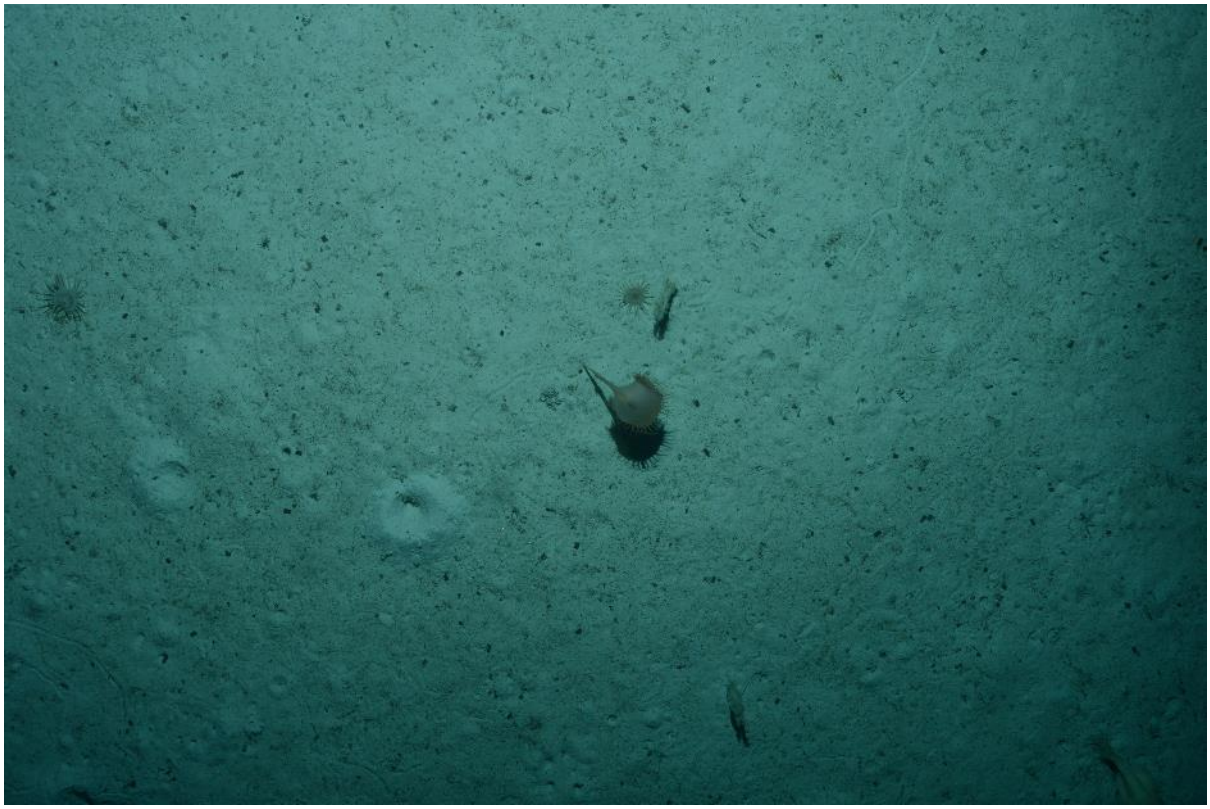
Substrate of muddy sediment, with lots of track marks and burrow. Fauna mostly sponges (hexact and demo), anemones, echinoids, and holothurians.

TAN1902_STN150_127 (anemone escaping worm)

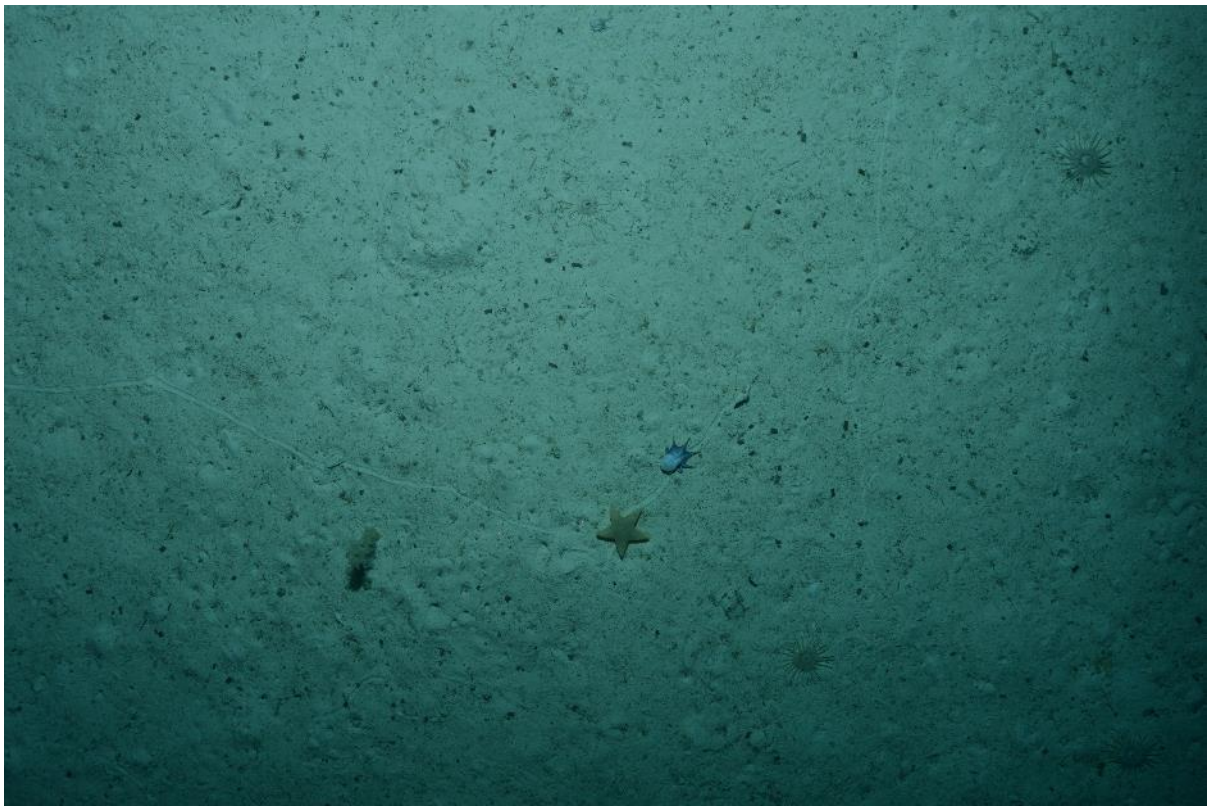
TAN1902_STN150_243 (carnivorous sponge)

Station 152, Site R-29 (16/03/2019, Start: 1423 h, End: 1524 h NZST)

1366 to 1368 m
Flat transect with substrate of muddy sediment with a few tracks and occasional burrow visible. Fauna dominated by sponges, anemones, with a few tam o shanters, rattails and other bony fish. No eels.



TAN1902_STN152_036 (anemones)



TAN1902_STN152_039 (asteroid and octopus)

TAN1902_STN152_116 (holothurian)

Station 153, Site R-28 (16/03/2019, Start: 1727 h, End: 1828 h NZST)

1390 to 1392 m
Flat transect with substrate of muddy sediment with a few tracks and burrows. Fauna mostly sponges and anemones, with a few holothurians, asteroids, fish, and echinoids.

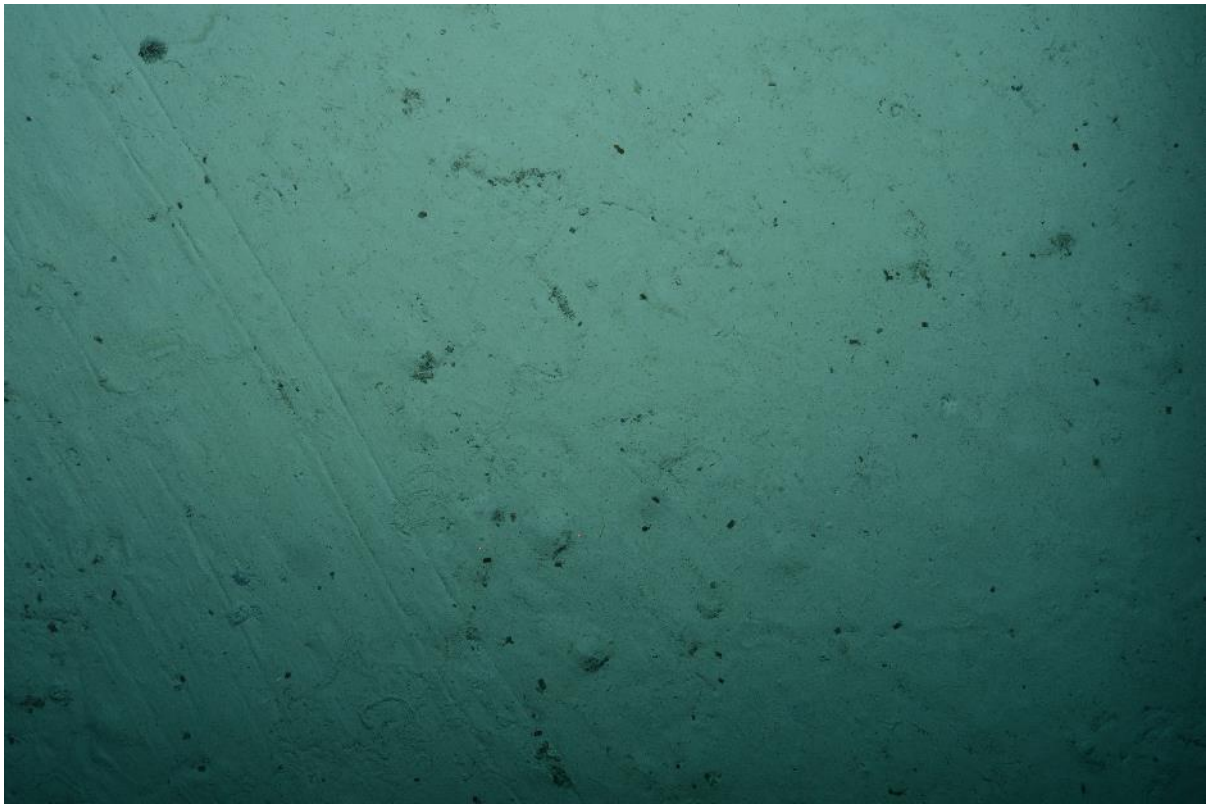
TAN1902_STN153_097 (actinostolid anemone)

TAN1902_STN153_156 (anemone)

Station 180, Site R-26 - Canyon (19/03/2019, Start: 0215 h, End: 0320 h NZST)

1613 to 1685 m

Transect into canyon. Substrate mostly muddy sediment with burrows and tracks; a few boulders and cobbly areas once deeper (about 1630 m). Fauna comprising sponges, echinoids, anemones, holothurioids, bony fish and sea pens. Possible fishing trawl marks on the muddy sediment near the end of the transect.



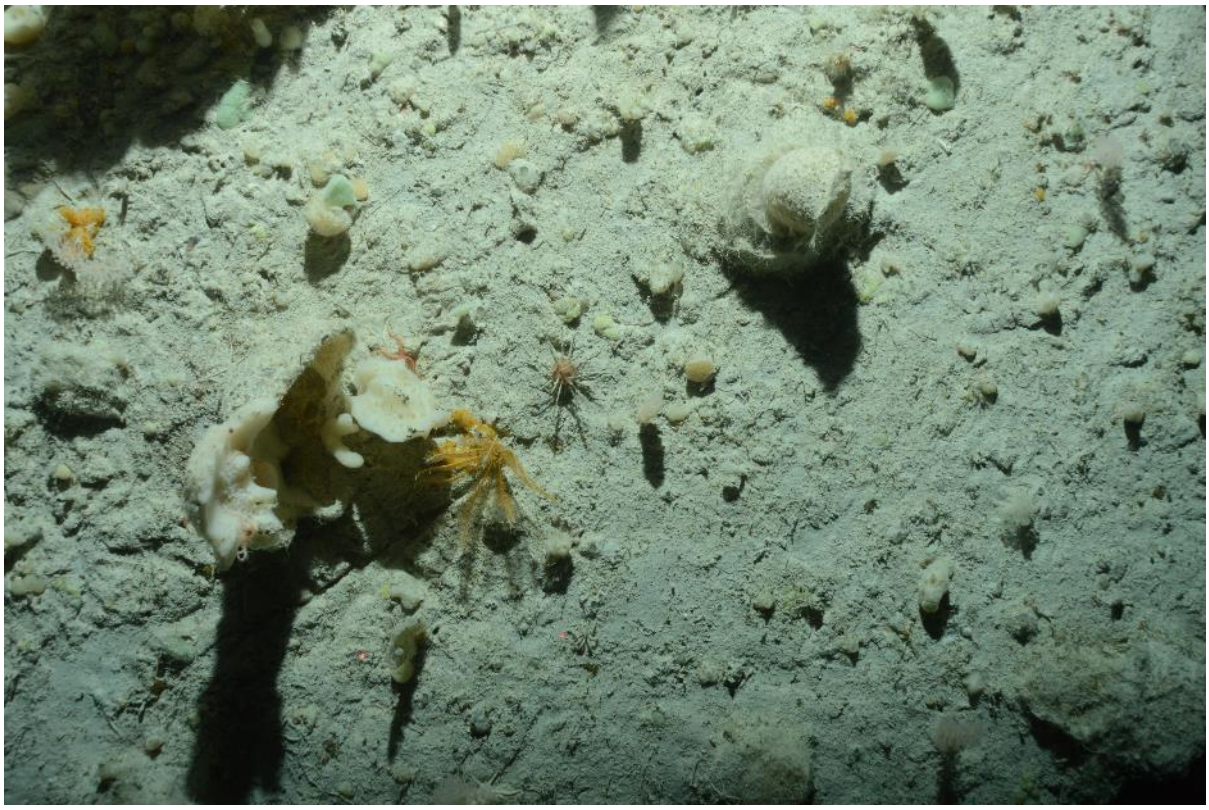
TAN1902_STN180_251 (trawl marks)

Station 181, Site R-27 (19/03/2019, Start: 0515 h, End: 0615 h NZST)

1445 to 1583 m

Transect descending into the channel; soft substrate at the top, then terraced pavements of rock down to bottom of channel, including a steep drop-off. Fauna comprising lots of sponges on the soft sediments and communities of larger ear sponges on bedrock areas.

TAN1902_STN181_055 (soft-sediment community)

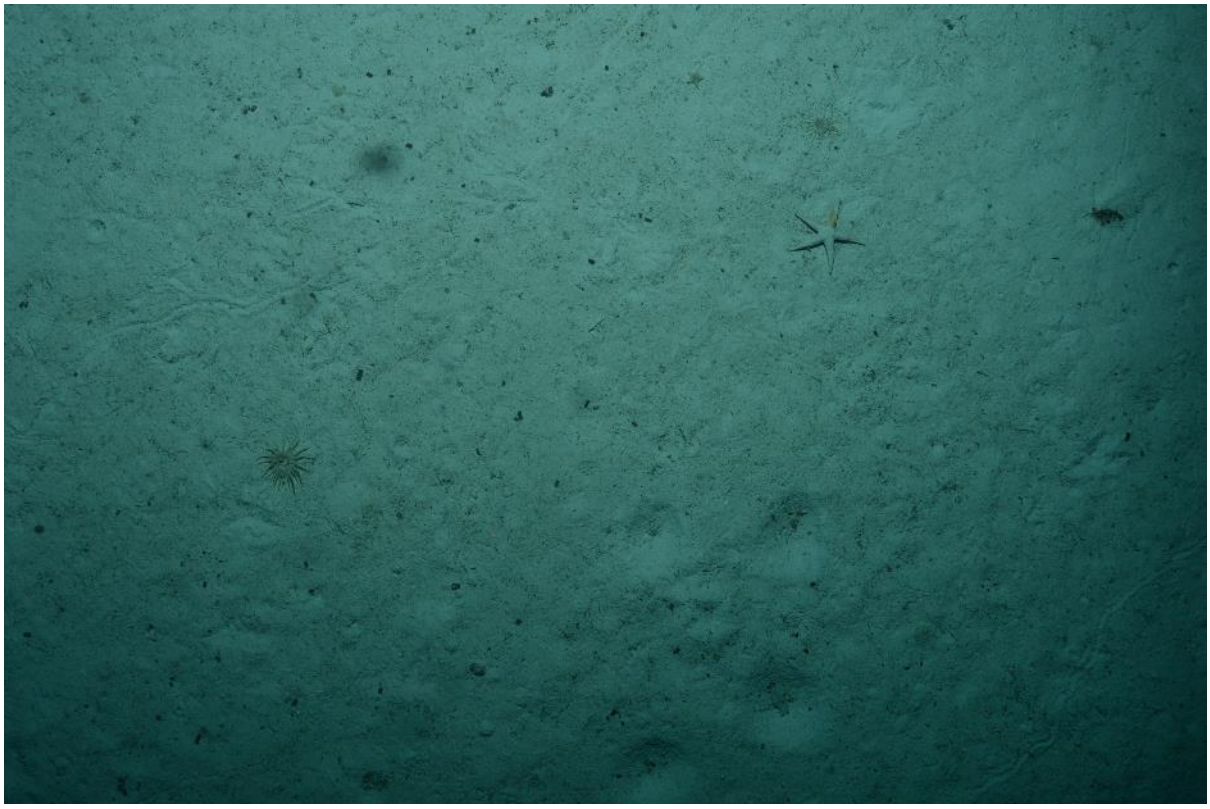


TAN1902_STN181_109 (crinoids, echinoids, and sponges on hard substrate)

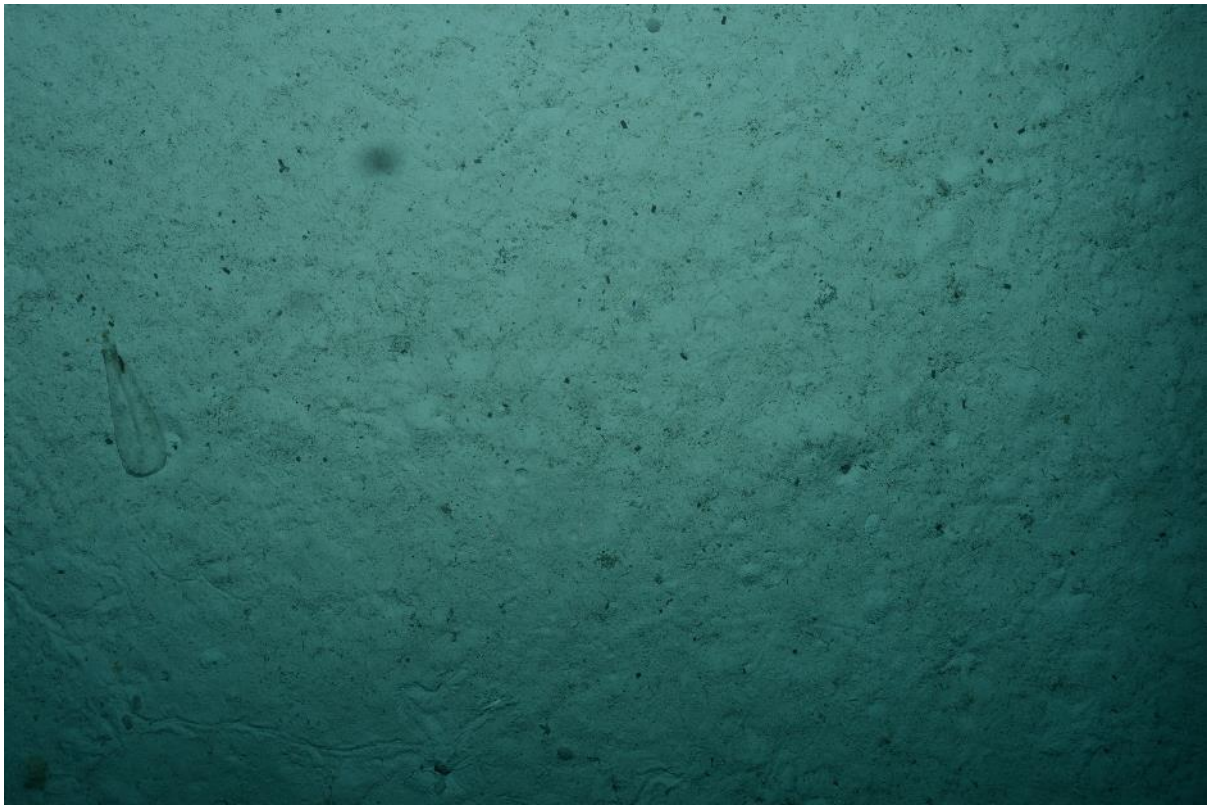
Station 185, Site R-50 (19/03/2019, Start: 1513 h, End: 1615 h NZST)

1356 to 1360 m

Flat bottom composed of muddy sediment with a moderate level of burrows and tracks. Fauna was mainly sponges, holothurians, bryozoans, echinoids and anemones – and a few asteroids. Also there were several fish, a couple of eels, an octopus, and a few large salps that had fallen to the seafloor.



TAN1902_STN185_007 (asteroid, anemone)

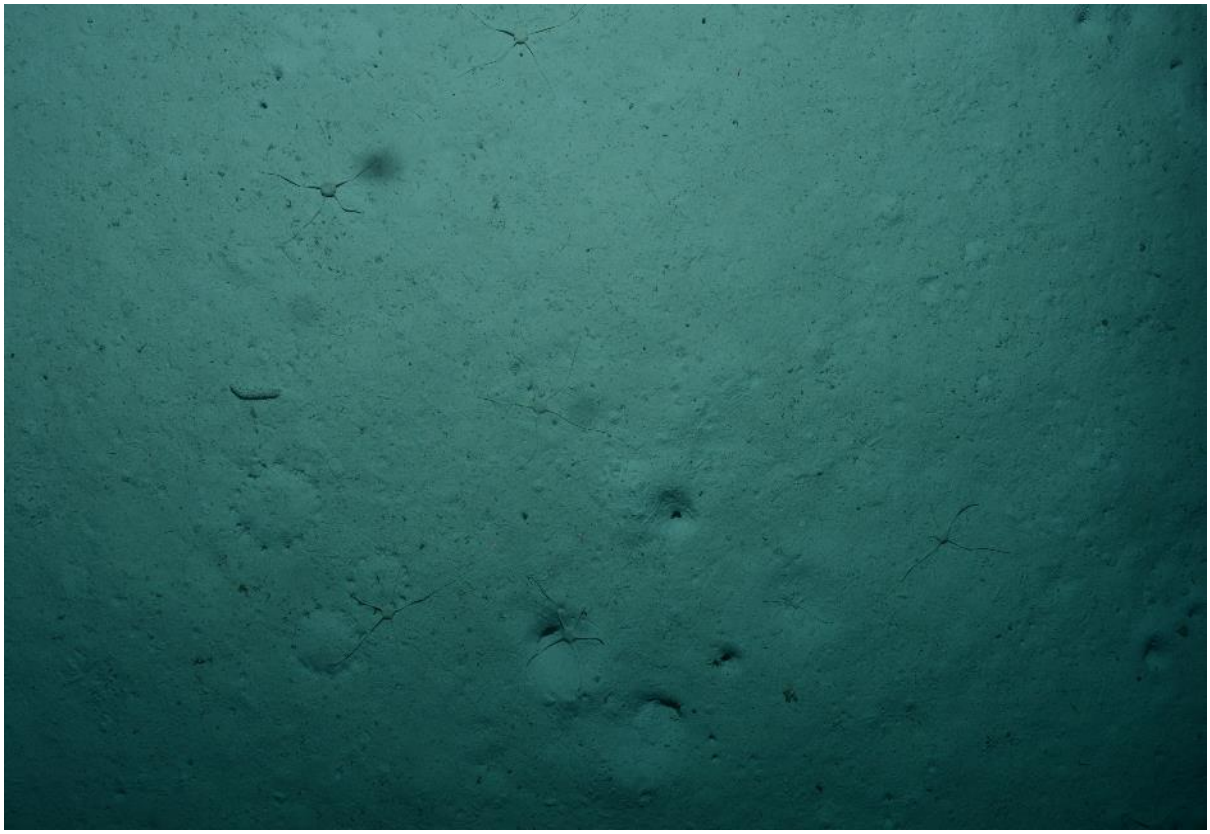


TAN1902_STN185_078 (salp)

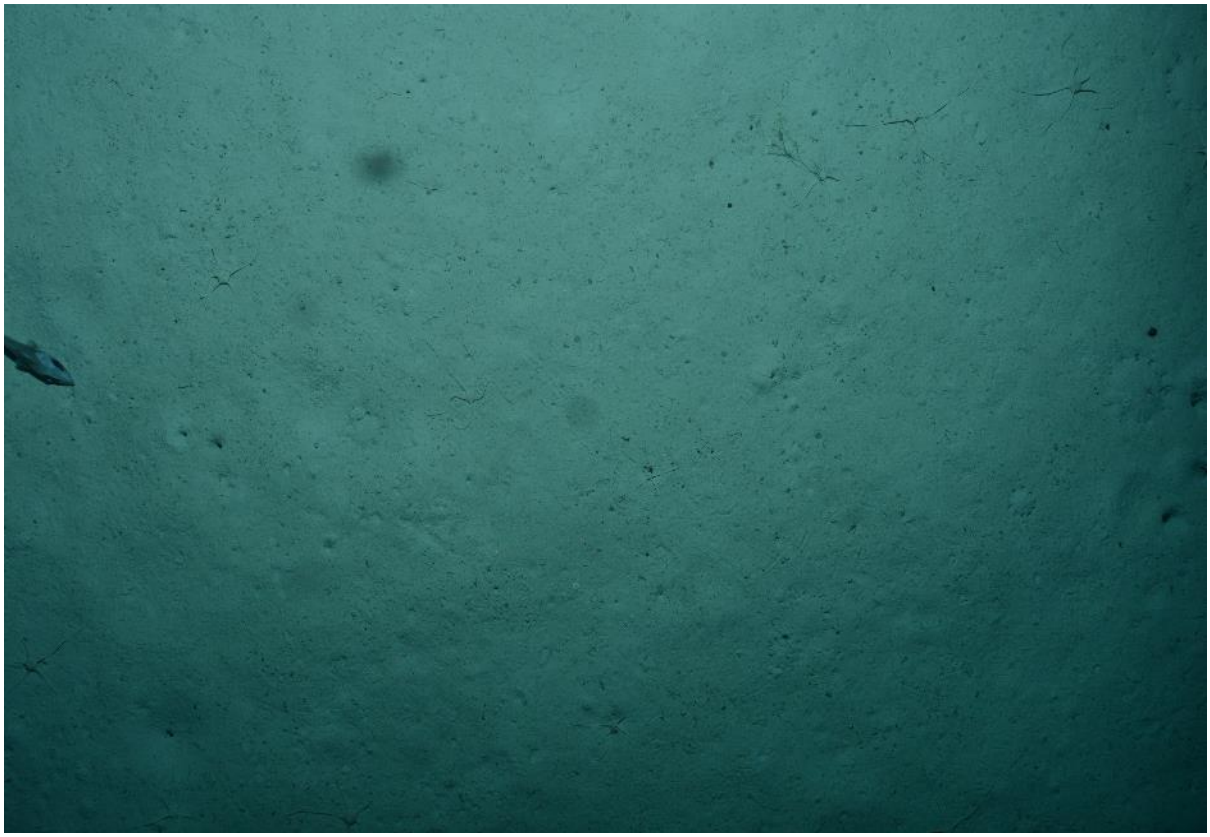
Station 187, Site R-49 (19/03/2019, Start: 2034 h, End: 2135 h NZST)

1212 to 1205 m

Relatively shallow, but flat with muddy sediment as usual; lots of burrows and rings of burrows. Fauna dominated by ophiuroids, with a smattering of fish and eels and the occasional sponge, asteroid, and echinoid.



TAN1902_STN187_011 (rings of burrows, ophiuroids, zoanthids)



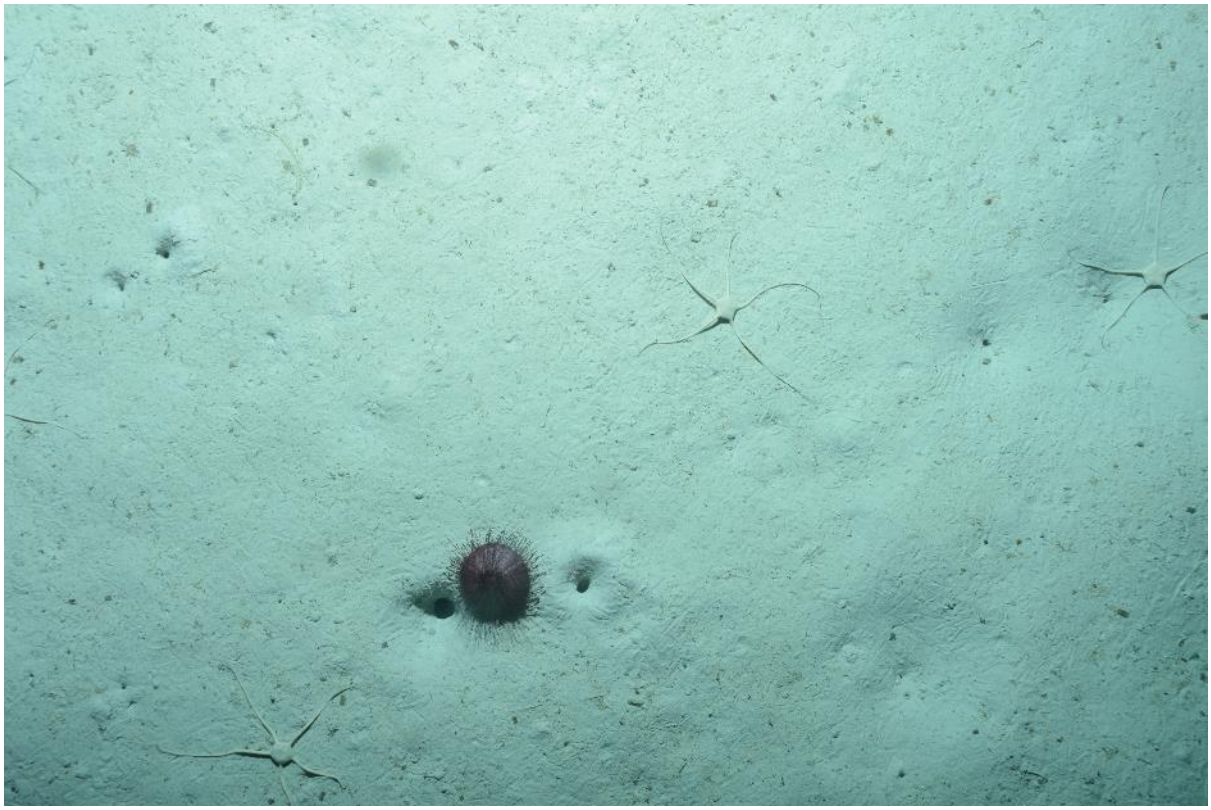
TAN1902_STN187_176 (rattail)

Station 189, Site R-48 (20/03/2019, Start: 0129 h, End: 0231 h NZST)

1221 to 1224 m
Relatively flat with muddy sediment; lots of burrows and rings of burrows. Fauna dominated by ophiuroids, with occasional eels, anemones, glass sponges, echinoids and asteroids.

Track run S to N.

TAN1902_STN189_067 (ophiuroid, ring of burrows)



TAN1902_STN189_181 (Tam-O-Shanter echinoid, ophiuroid)

TAN1902_STN189_223

Station 192, Site R-47 (20/03/2019, Start: 0705 h, End: 0810 h NZST)

1326 to 1362 m from intra-canyon ledge to small drop-off onto canyon floor.
Relatively flat with muddy sediment at start of transect, with lots of burrows and tracks with low fauna (holothurians, vase glass sponges and echinoids. Sporadic large to medium boulders with encrusting organisms (sponges) with mud overlays and interspersed with muddy substrates (echinoids) up to ~20 m drop-off. Fauna becomes dominated by ophiuroids and rings of burrows for last 20 minutes to end of the line.

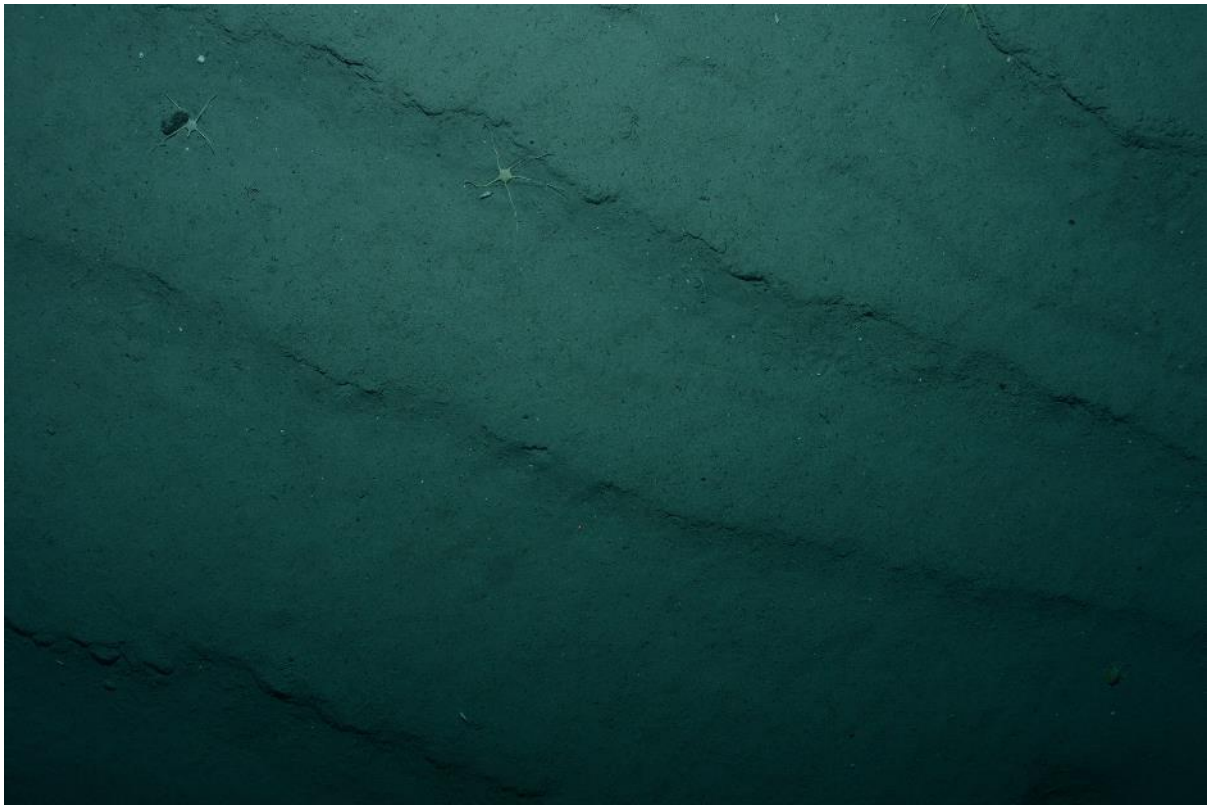
Track run SE to NW.

Station 194, Site R-46 (20/03/2019, Start: 1211 h, End: 1335 h NZST)

1150 to 1350 m
Beginning above canyon, to the north, and dropping down onto canyon floor. Shell hash and mud substrate above giving way to muddy sediments and mudstone bedrock down slope with numerous

ledges and drop-offs. Dominant organisms comprised ophiuroids, echinoids, eels, fish, a few gorgonions and an octopus.

TAN1902_STN194_065 (Cidaroid echinoid and gastropod mollusc above canyon)



TAN1902_STN194_104 (hard mud bedform with ophiuroid)

TAN1902_STN194_182 (sponge on wall of canyon)

Station 196, Site R-45 (20/03/2019, Start: 1732 h, End: 1801 h NZST)

1110 to 1112 m
Flat bottom with muddy sediment and burrows. Fauna mostly rings of burrows, ophiuroids, porifera, echinoids, asteroids (mostly *Zoroaster* spp.) and sea pens (probably *Radicipes* spp. gorgonians).

TAN1902_STN196_069 (rings of burrows)

TAN1902_STN196_228 (bryozoan and ophiuroid)

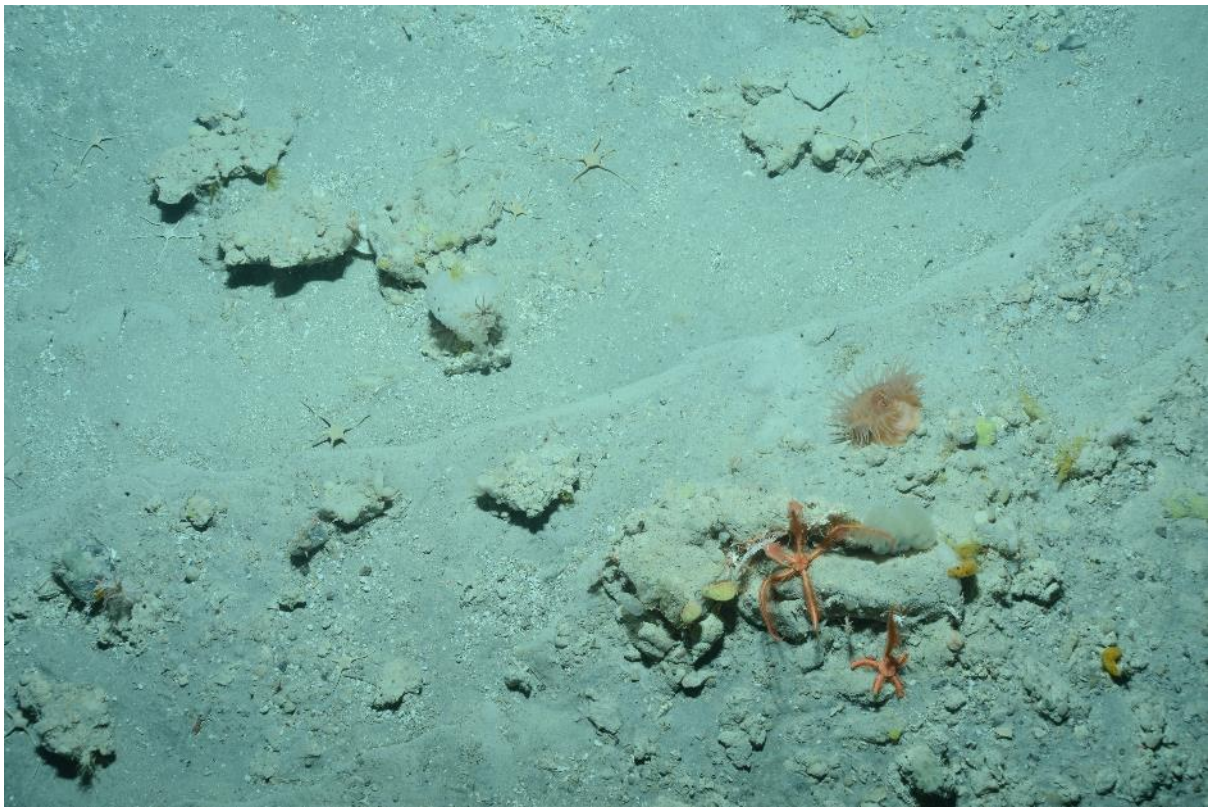
Station 198, Site R-44, Canyon. (20/03/2019, Start: 2138 h, End: 2240 h NZST)

1168 to 1294 m

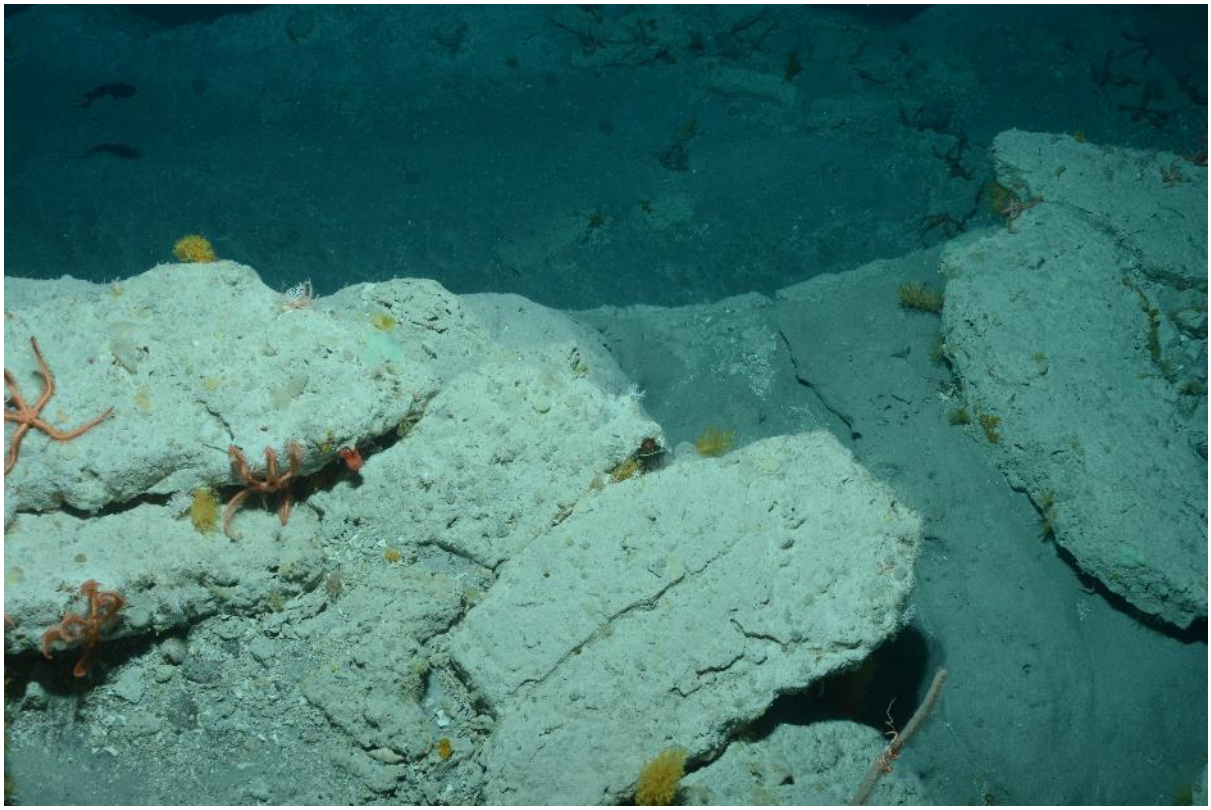
Levee dominated by soft muddy sediments, burrow, rings of burrows and ophiuroids, slope characterized by mudstone bedrock outcrops, boulders and cobbles and gorgonians, channel floor near wall characterized by compact muddy sediments and many ophiuroids and few gastropods giving way to softer sediments and burrows/rings of burrows away from channel wall. Sparse fish and eels throughout.

TAN1902_STN198_022 (ophiuroids)

TAN1902_STN198_046 (brisingid asteroids)

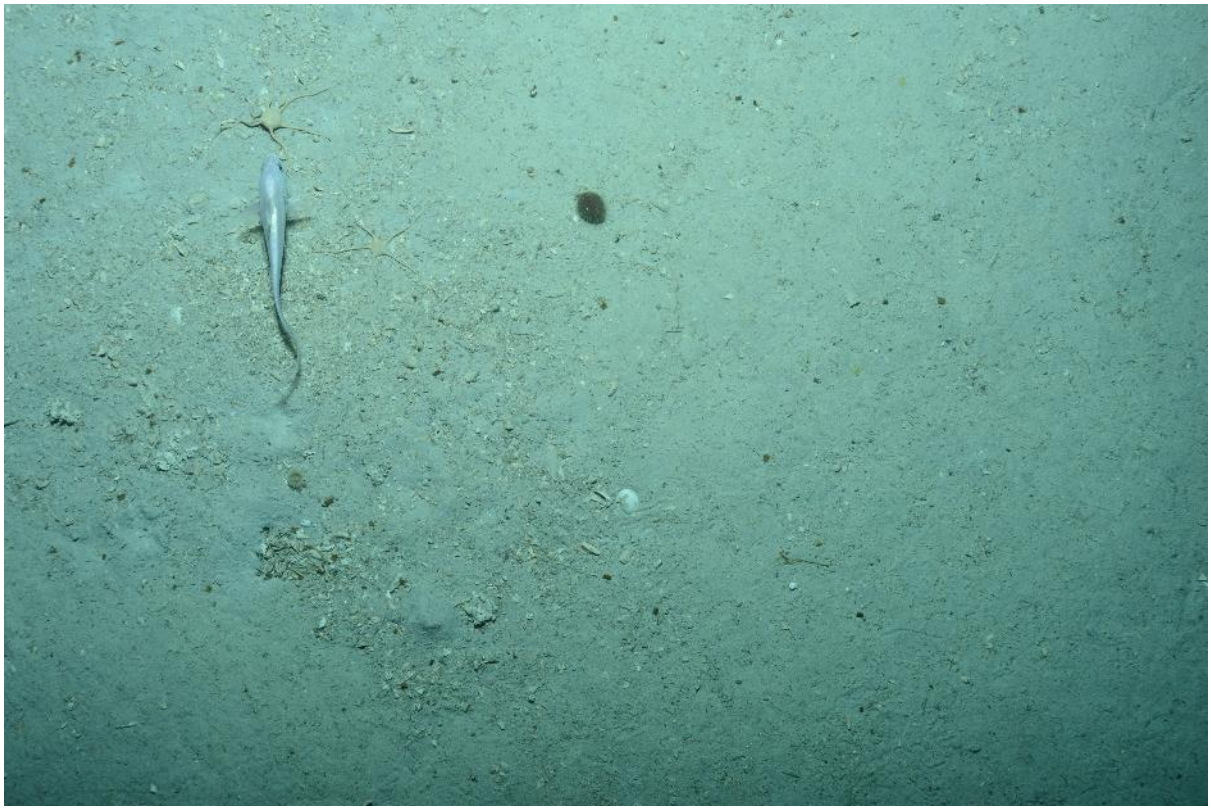


TAN1902_STN198_063 (hard bottom community)



TAN1902_STN198_065 (brisingid asteroids, gorgonian octocorals)

TAN1902_STN198_081 (sponge)



TAN1902_STN198_098 (rattail fish, ophiuroid, spatangoid echinoid)

TAN1902_STN198_222 (burrows, ophiuroid)

Station 200, Site R-43 (21/03/2019, Start: 0157 h, End: 0258 h NZST)

1098 to 1096 m
Flat bottom with muddy sediment, burrows and tracks. Fauna mostly rings of burrows and ophiuroids, with some anemones, echinoids, asteroids and gorgonians, probably *Radicipes* spp.. Low (visible) fauna.

Transect ran N to S.

TAN1902_STN200_013 (brisingid asteroid, rings of burrows, anemone)

TAN1902_STN200_025 (asteroid - *Zoroaster* sp., ophiuroid, rings of burrows)

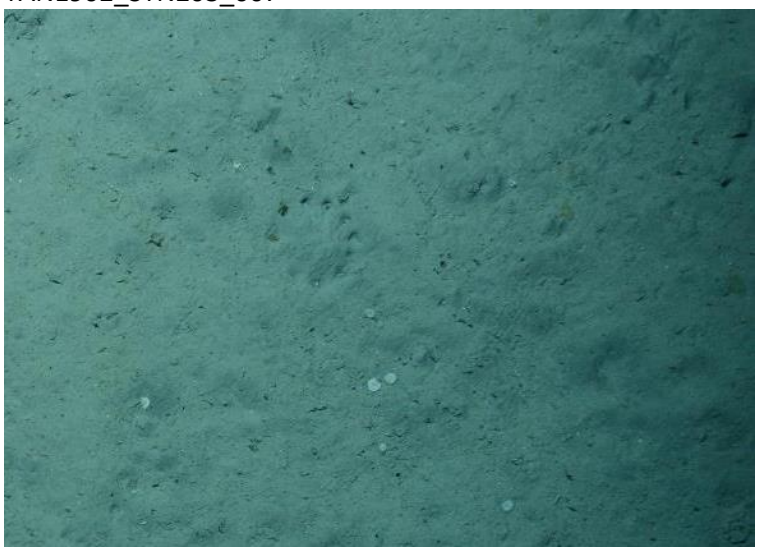
Station 203, Site R-41 (21/03/2019, Start: 0747 h, End: 0847 h NZST)

1183 to 1188 m

Flat bottom with sandy mud sediment, with prominent white, flat discs (forams?), large mounded burrows and tracks. Fauna mostly rings of burrows, gastropods and anemones, with some echinoids, asteroids, sponges, holothurians and seapens. Low (visible) fauna.

Transect ran S to N.

TAN1902_STN203_007



TAN1902_STN203_019, white, flat discs (forams?)

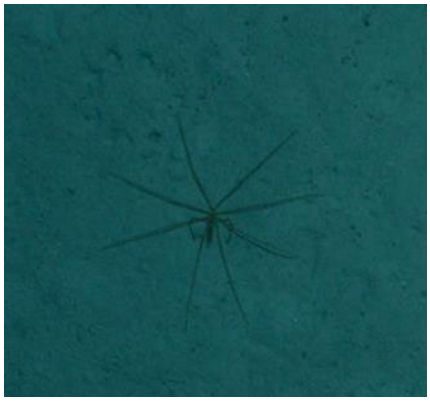
Station 205, Site R-40 (21/03/2019, Start: 1223 h, End: 1326 h NZST)

1183 to 1188 m

Shallow channel transect characterized by muddy sediments, burrows, rings of burrows, and sponges and to a lesser extent fish, eels, and gorgonians. Occasional anemones and holothurians. No visible transition in geology or fauna across channel wall.

TAN1902_STN205_003

TAN1902_STN205_058

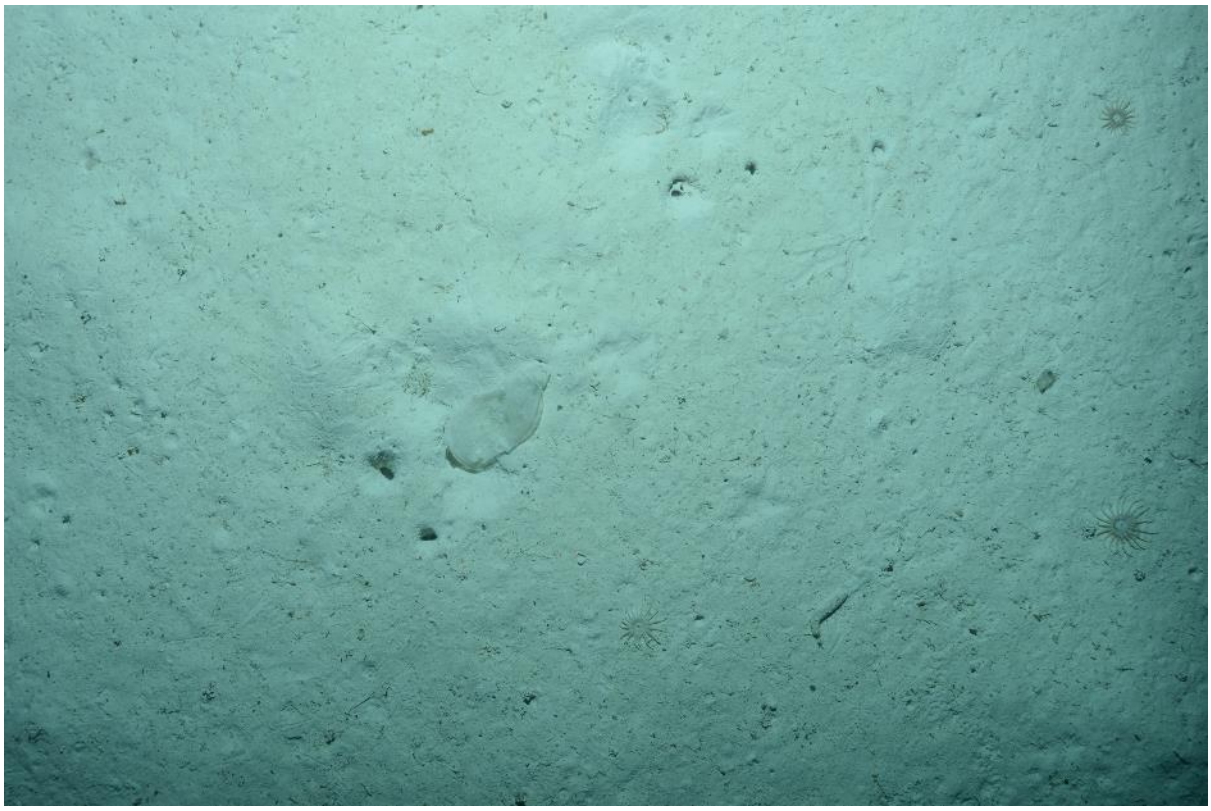


TAN1902_STN205_198, sea spider

Station 207, Site Rigel (21/03/2019, Start: 1722 h, End: 1825 h NZST)

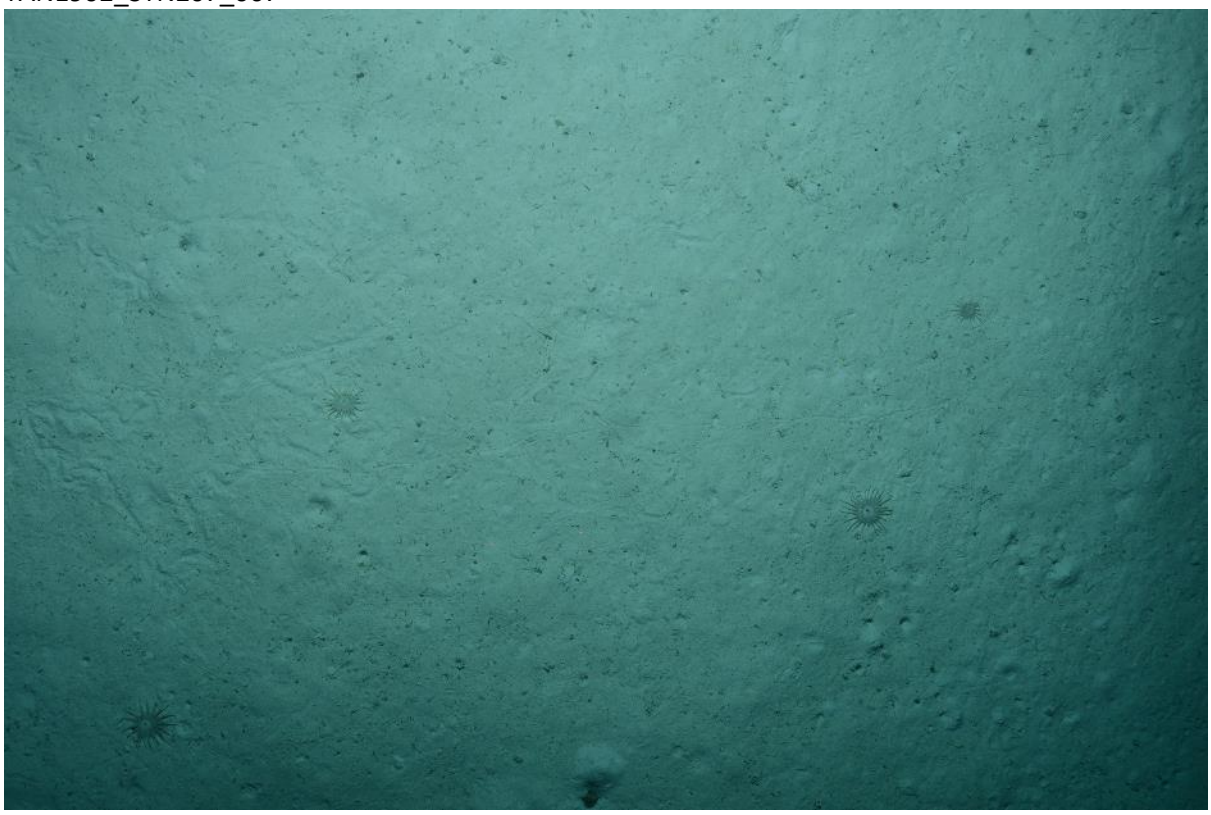
1235 to 1237 m

Flat bottom with muddy sediment with numerous burrows. Fauna characterised by sponges and anemones, with holothurians, gorgonians (probably a species of *Radicipes*, a golden coral) also common, along with a few fish (mainly eels, rattails, and sharks), and asteroids.



TAN1902_STN207_002, dead salp

TAN1902_STN207_067



TAN1902_STN207_109, anemones

Station 209, Site R-39 (21/03/2019, Start: 2233 h, End: 2334 h NZST)

1301 to 1302 m

Flat bottom with muddy sediment, with prominent glass sponges (vase and "tulip"), burrows and tracks. Fauna mostly sponges, with anemones, echinoids, asteroids and holothurians.

Transect ran S to N.

TAN1902_STN209_026, sponges

TAN1902_STN209_049, large agglutinated foraminifera

TAN1902_STN209_134, bryozoan “circle”

TAN1902_STN209_171, brown anemone

Station 212, Site R-38 (22/03/2019, Start: 0450 h, End: 0551 h NZST)

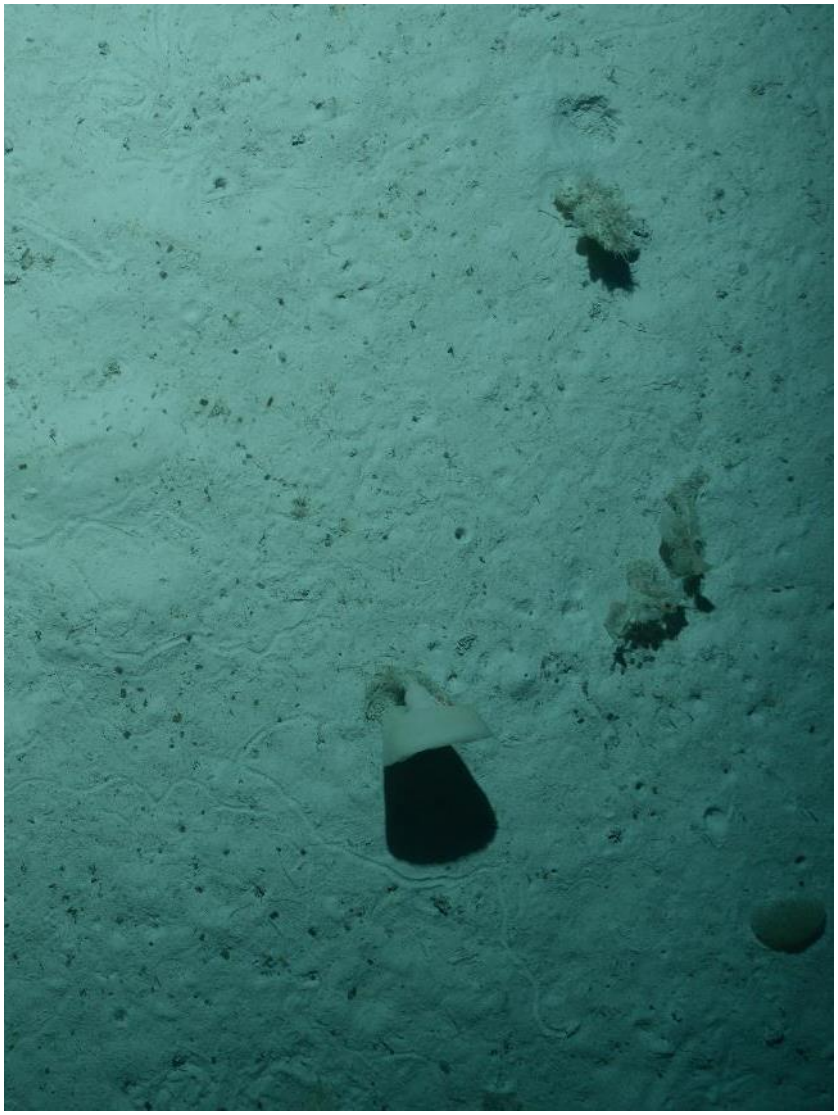
13251 to 1323 m

Flat bottom with muddy sediment, with prominent demosponges and glass sponges (vase and “tulip”), anemones, burrows and tracks. Other fauna includes echinoids, asteroids, holothurians, *Radicipes* gorgonian corals, seapens, crinoids, eels and sharks.

Transect ran NW to SE.

TAN1902_STN212_005, “vase” glass sponge

TAN1902_STN212_013



TAN1902_STN212_021, various sponges

TAN1902_STN212_167, *Radicipes* spp. Gorgonian

Station 215, Site R-37 (22/03/2019, Start: 1202 h, End: 1303 h NZST)

1355 to 1361 m

Flat substrate comprising muddy sediment with many tracks and a few burrows. Fauna comprised mostly hexactinellid (glass) sponges and anemones, with the occasional asteroid, echinoid, and holothurioid, as well as a few fish, eels, and large salps that had fallen to the seafloor *postmortem*.

TAN1902_STN215_115 (rattail, anemone)

TAN1902_STN215_187 (anemone)

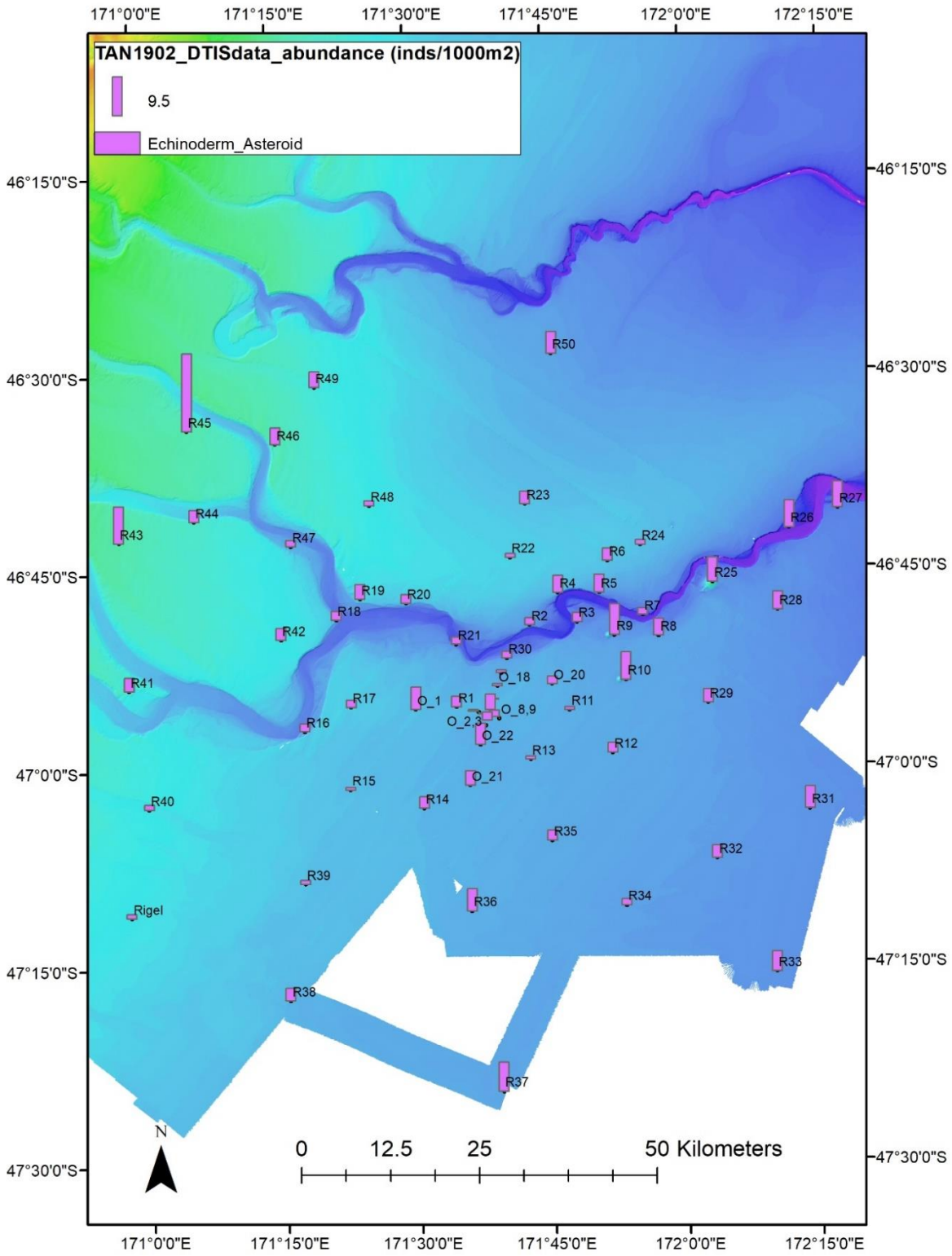
Station 232, Site OTEMP_22 (24/03/2019, Start: 0812 h, End: 0835 h NZST)

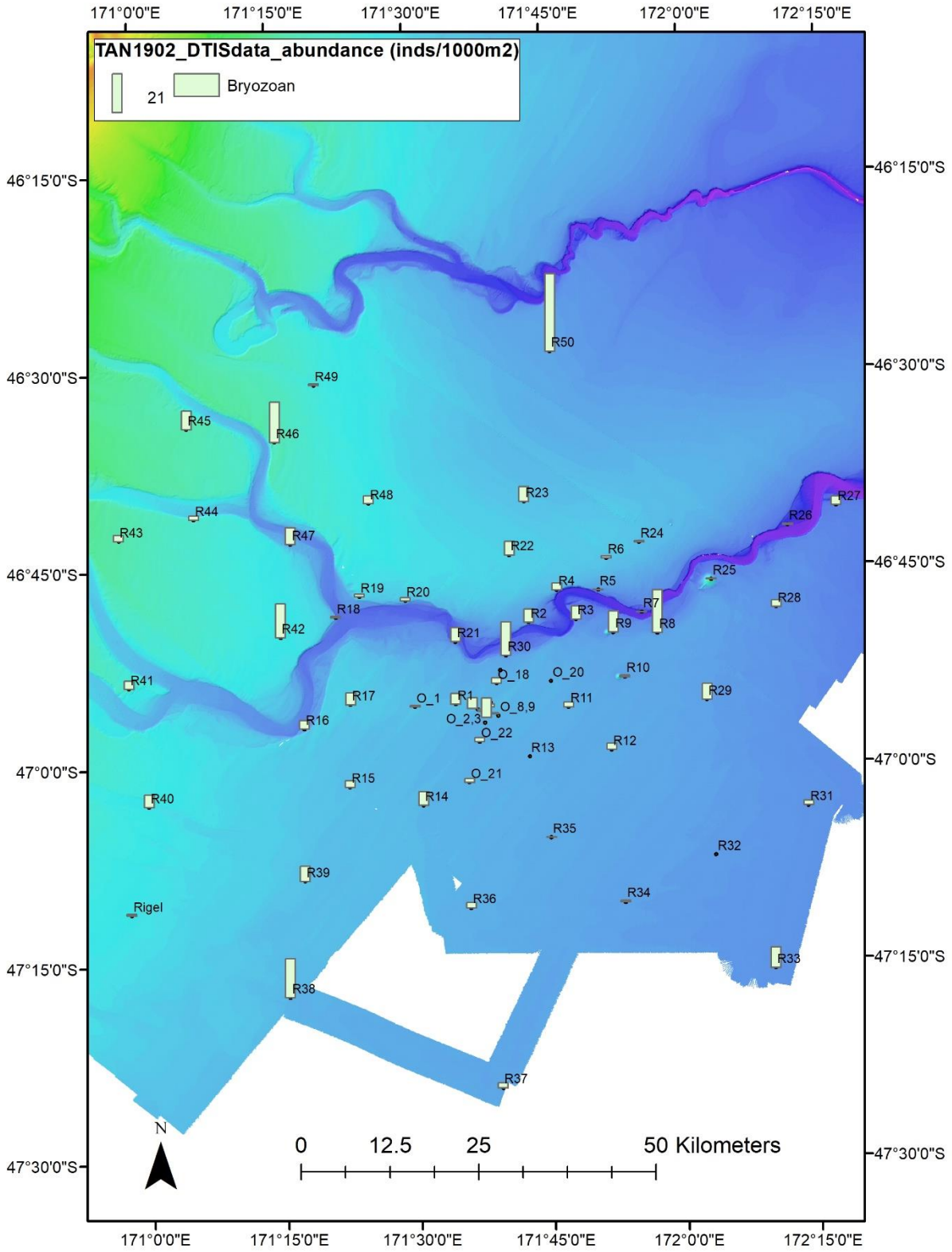
1337 to 1340 m
Flat substrate with muddy sediment, tracks and burrows. Fauna comprising mostly anemones, plus a few eels, sponges and occasional holothurians, asteroids, and sea pens.

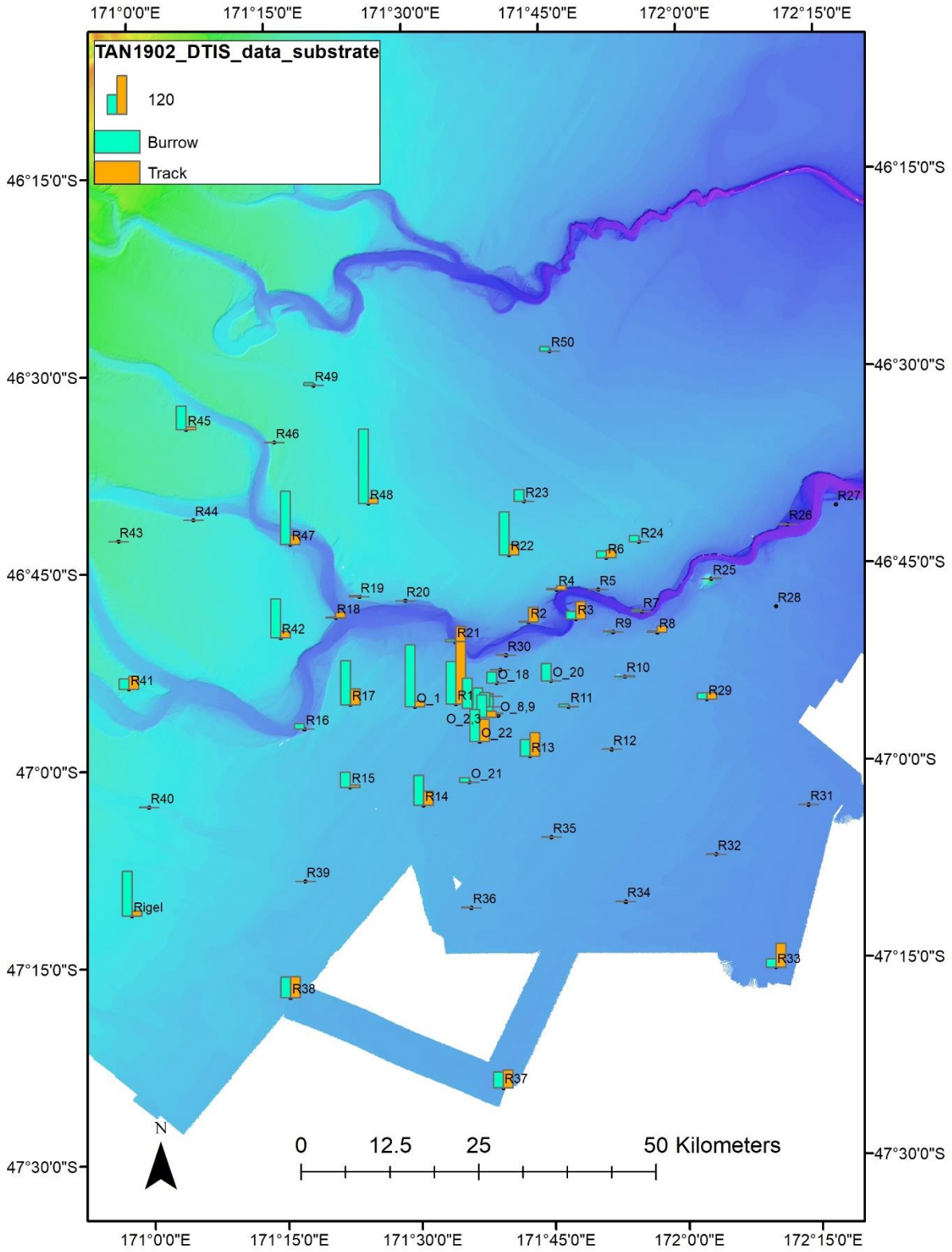
TAN1902_STN232_079 (asteroid)

TAN1902_STN232_080 (basketwork eel)

Appendix D DTIS abundance plots (inds./1000 m^2) for grouped classifications




TAN1902_DTISdata_abundance (inds/1000m2)
21
Bryozoan
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R24
R22
R6
R25
R4
R5
R19
R20
R7
R28
R18
R3
R2
R42
R9
R8
R21
R30
R10
O_18
O_20
R41
R29
R17
O_1
R1
R11
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTIS_data_substrate
120
Burrow
Track
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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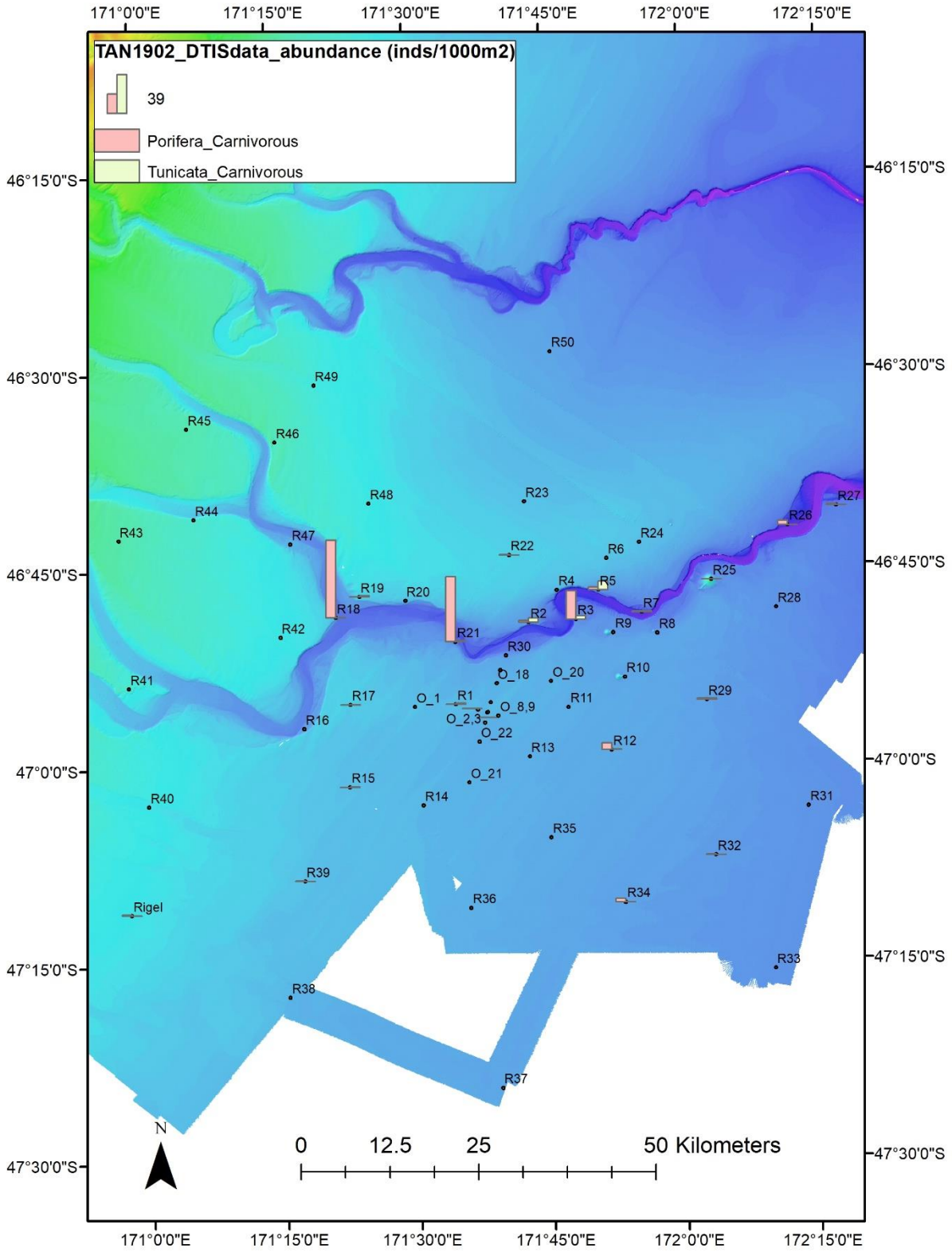
R30
R10
O_18
O_20
R41
R17
O_1
R1
R29
R11
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
Rigel
R36
R34
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
39
Porifera_Carnivorous
Tunicata_Carnivorous
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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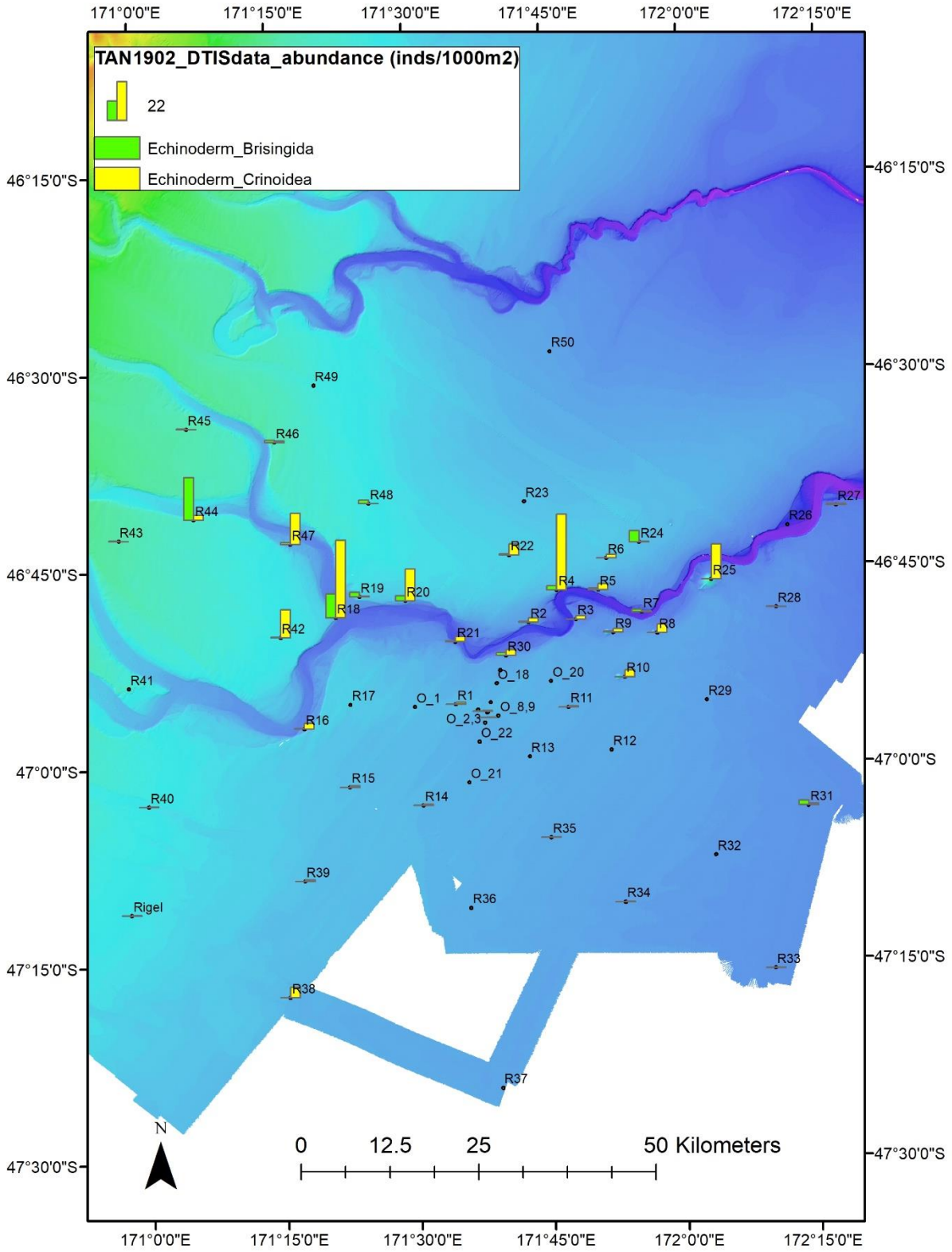
O_20
R10
R41
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
22
Echinoderm_Brisingida
Echinoderm_Crinoidea
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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O_1
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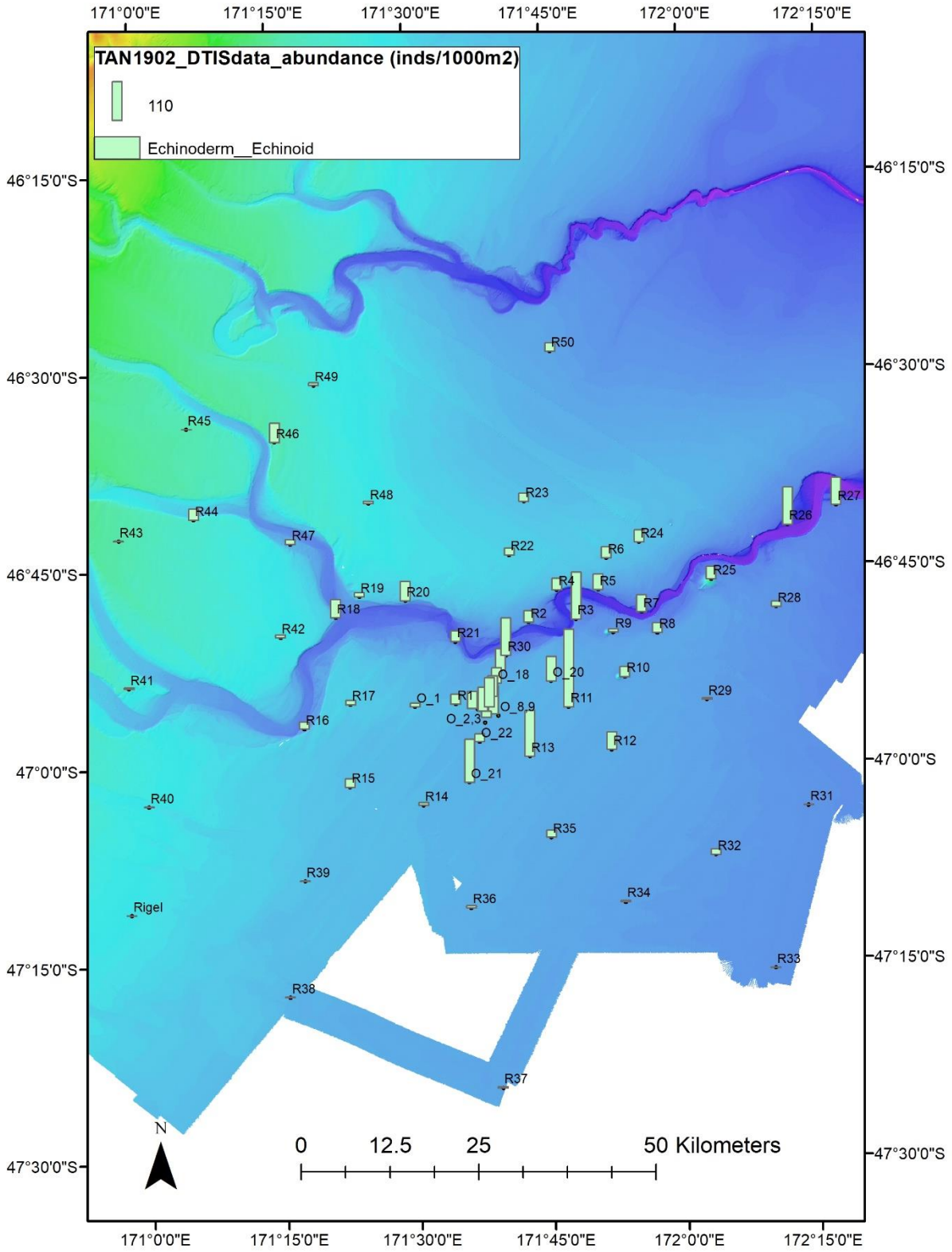
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
110
Echinoderm__Echinoid
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
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R42
R21
R30
O_18
O_20
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R41
R17
O_1
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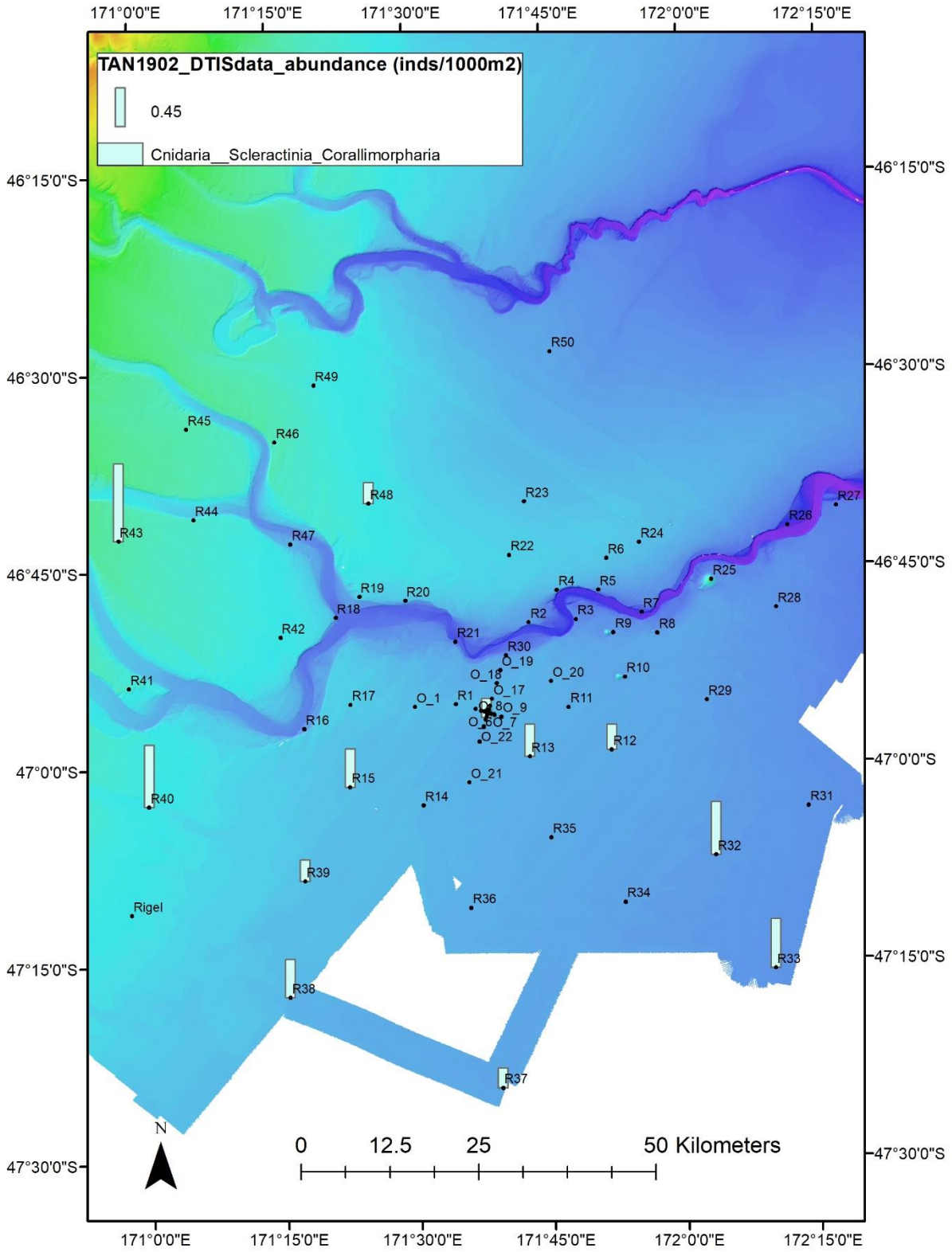
R11
R29
O_8,9
O_2,3
R16
O_22
R13
R12
O_21
R15
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
0.45
Cnidaria__Scleractinia_Corallimorpharia
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171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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O_17
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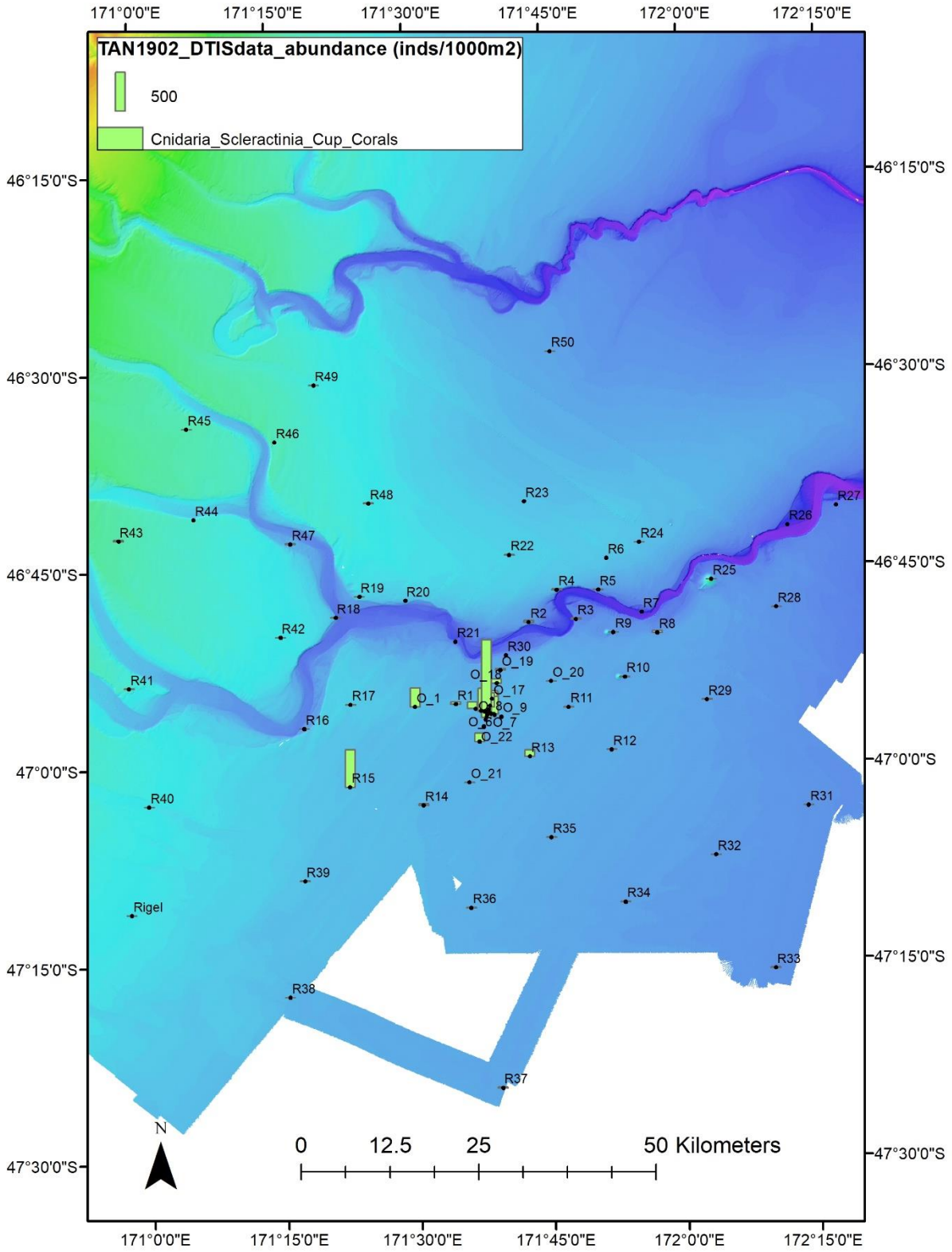
R16
O_7
O_22
R13
R12
R40
R15
O_21
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
500
Cnidaria_Scleractinia_Cup_Corals
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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O_22
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R34
Rigel
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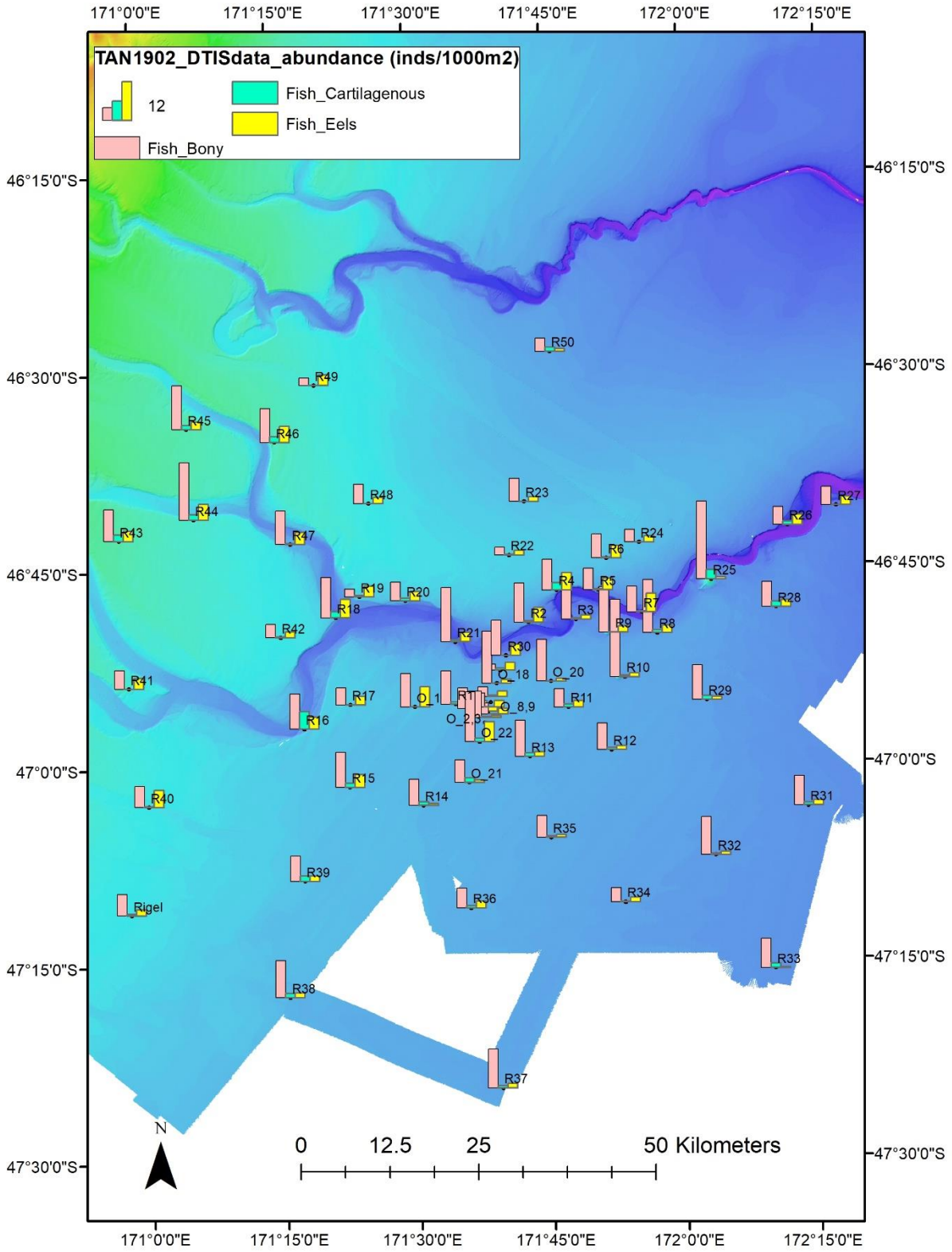
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
12
Fish_Cartilagenous
Fish_Eels
Fish_Bony
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
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R40
R14
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Rigel
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R37
N
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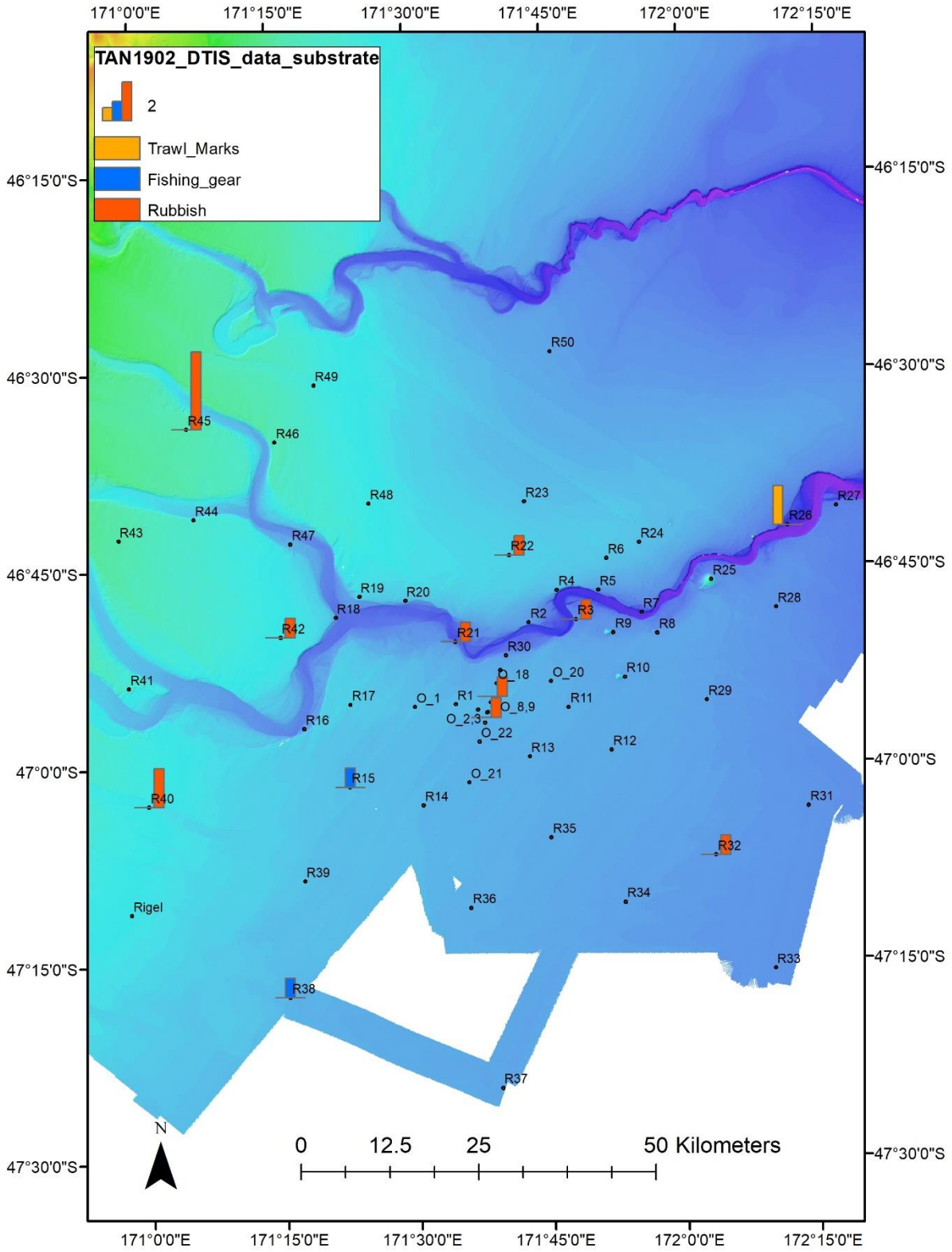
12.5
25
50 Kilometers


TAN1902_DTIS_data_substrate
2
Trawl_Marks
Fishing_gear
Rubbish
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
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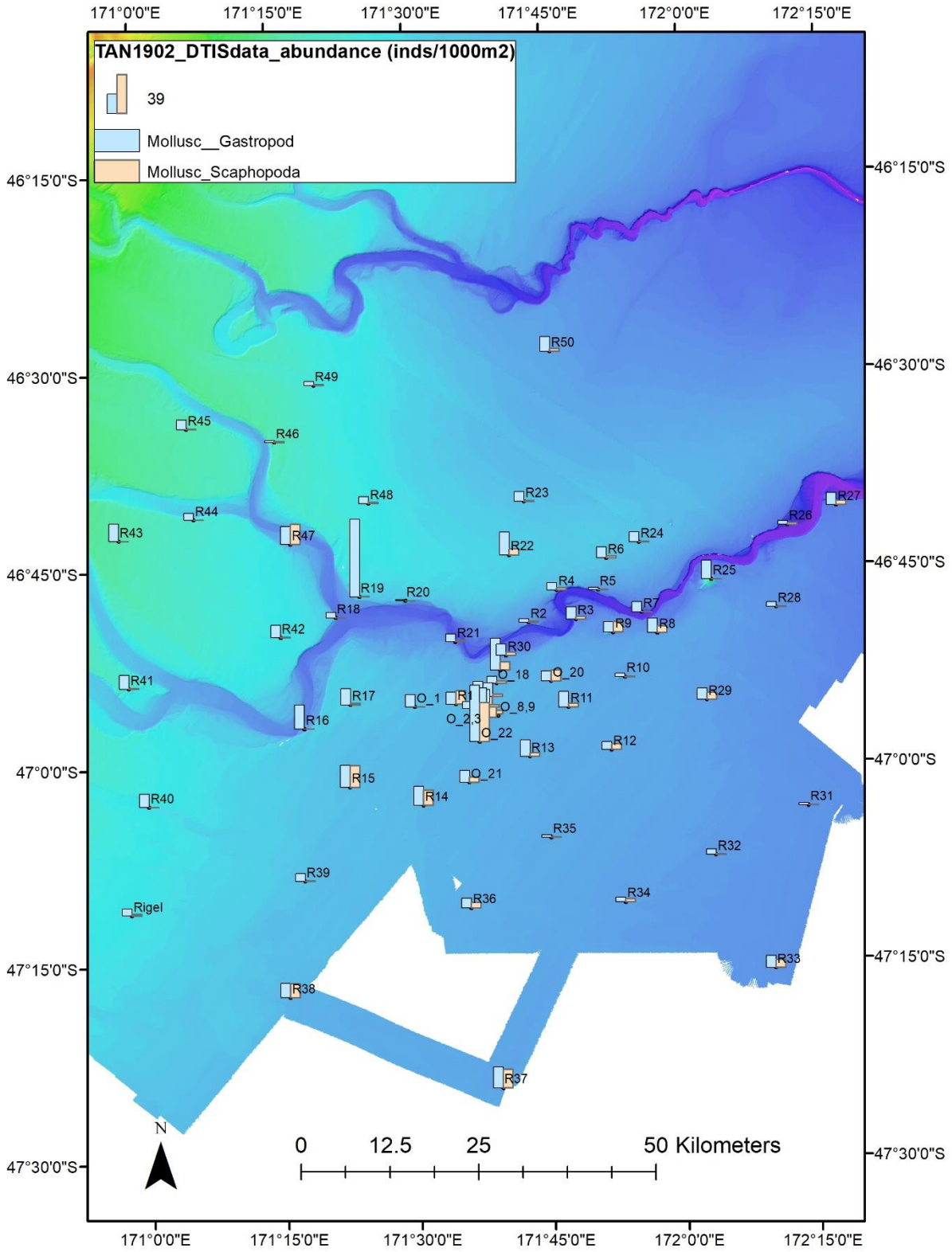
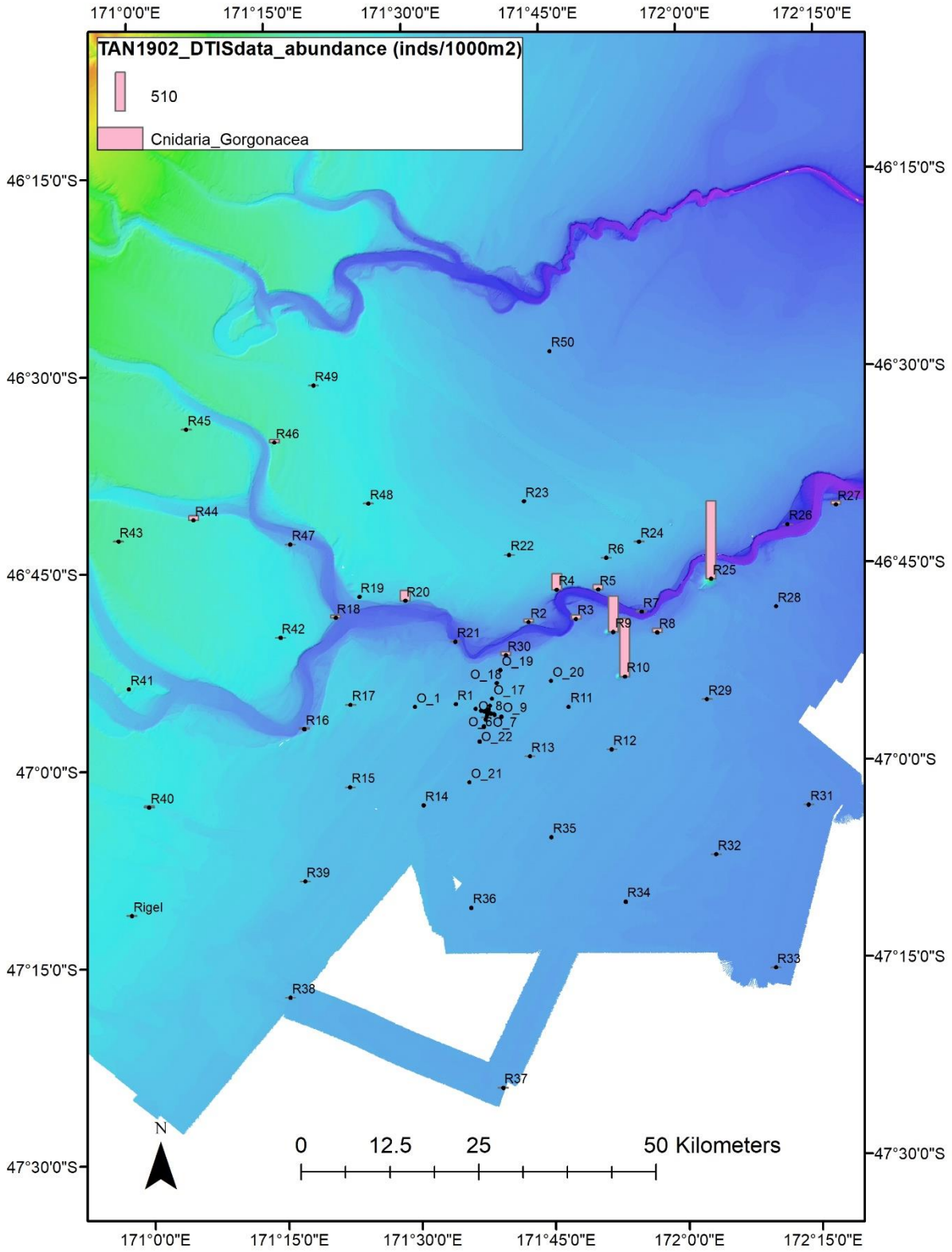
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
39
Mollusc__Gastropod
Mollusc_Scaphopoda
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R7
R28
R18
R2
R3
R42
R21
R9
R8
R30
R41
O_18
O_20
R10
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
510
Cnidaria_Gorgonacea
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
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R46
R48
R23
R44
R43
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R22
R24
R6
R27
R26
R25
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O_19
R10
O_18
O_20
R41
R17
O_1
R1
O_17
R11
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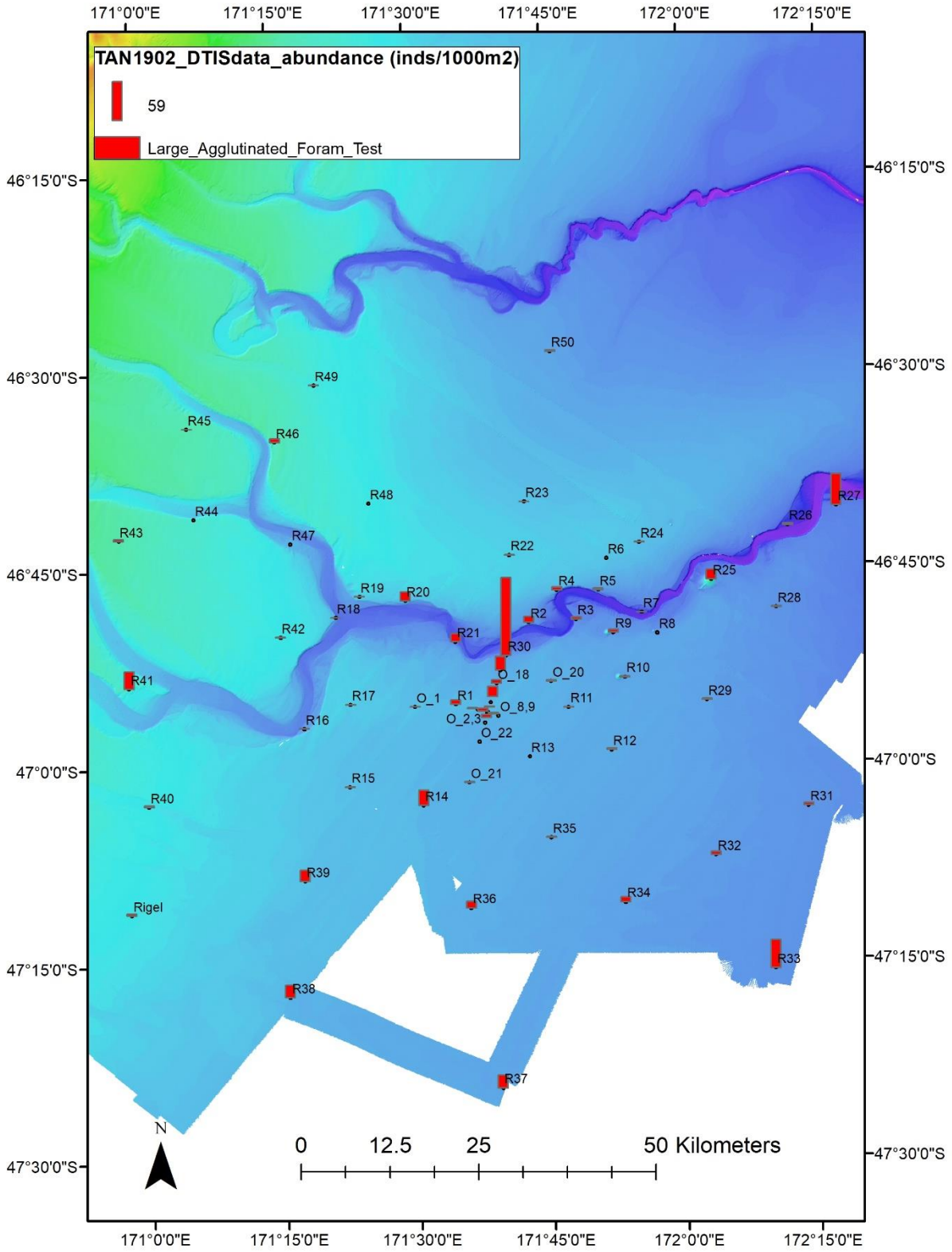
O_8
O_9
R16
O_6
O_7
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
59
Large_Agglutinated_Foram_Test
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
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R43
R47
R22
R6
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R25
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R5
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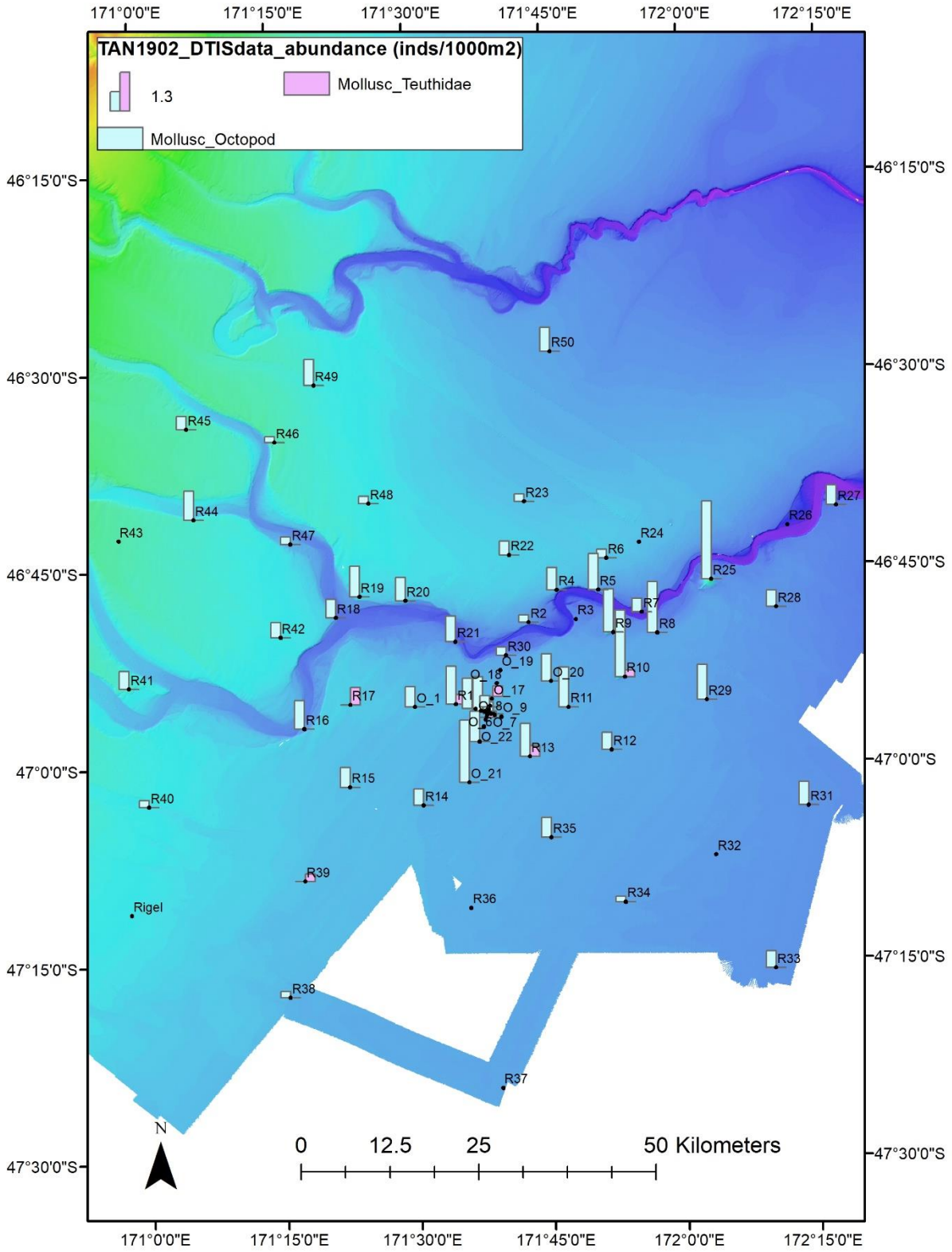
R42
R21
R30
R41
O_18
O_20
R10
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
1.3
Mollusc_Teuthidae
Mollusc_Octopod
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
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O_18
O_20
R29
R17
O_1
R1
O_17
R11
O_8
O_9
R16
O_6
O_7
O_22
R13
R12
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O_21
R14
R31
R40
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Rigel
R33
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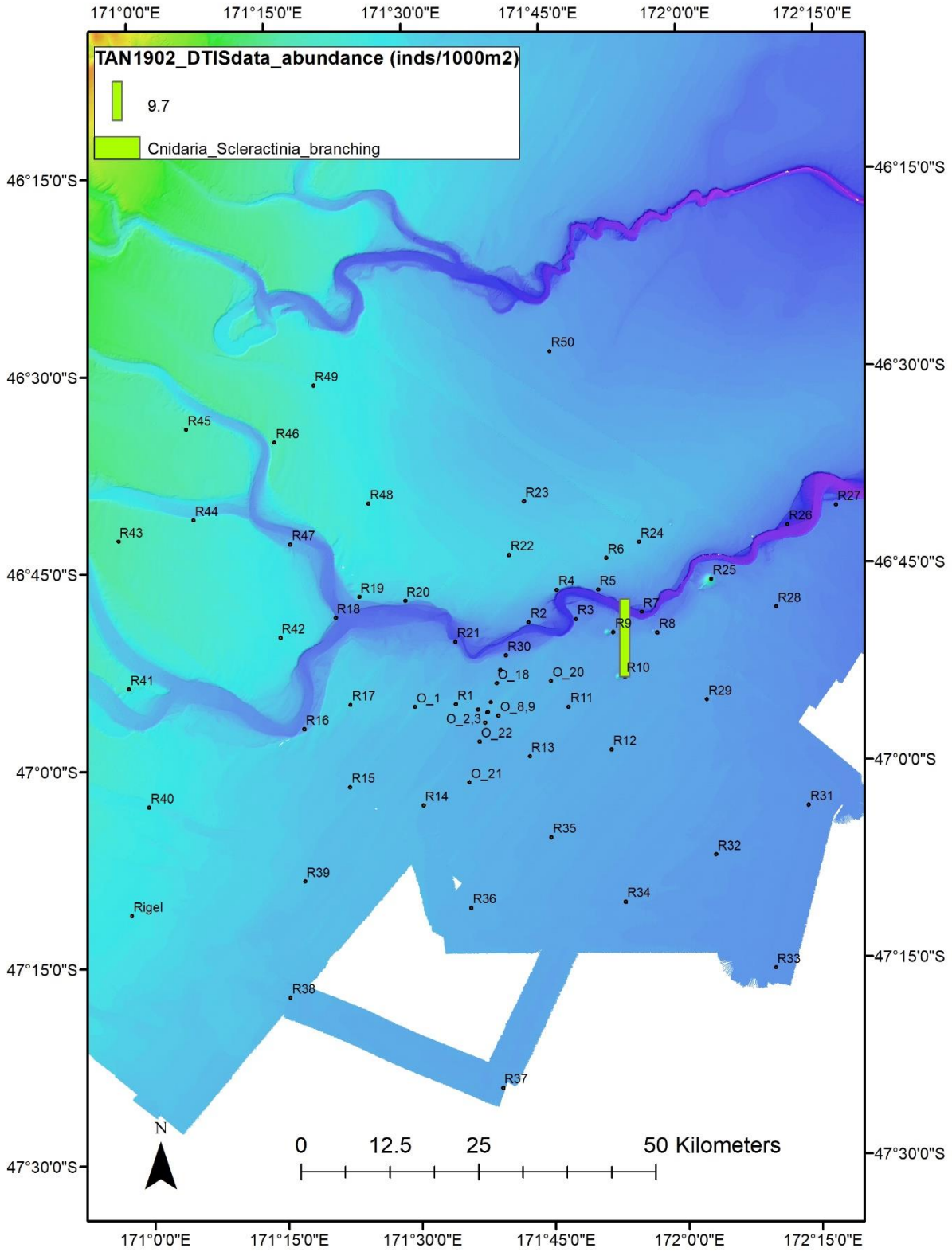
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
9.7
Cnidaria_Scleractinia_branching
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
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R48
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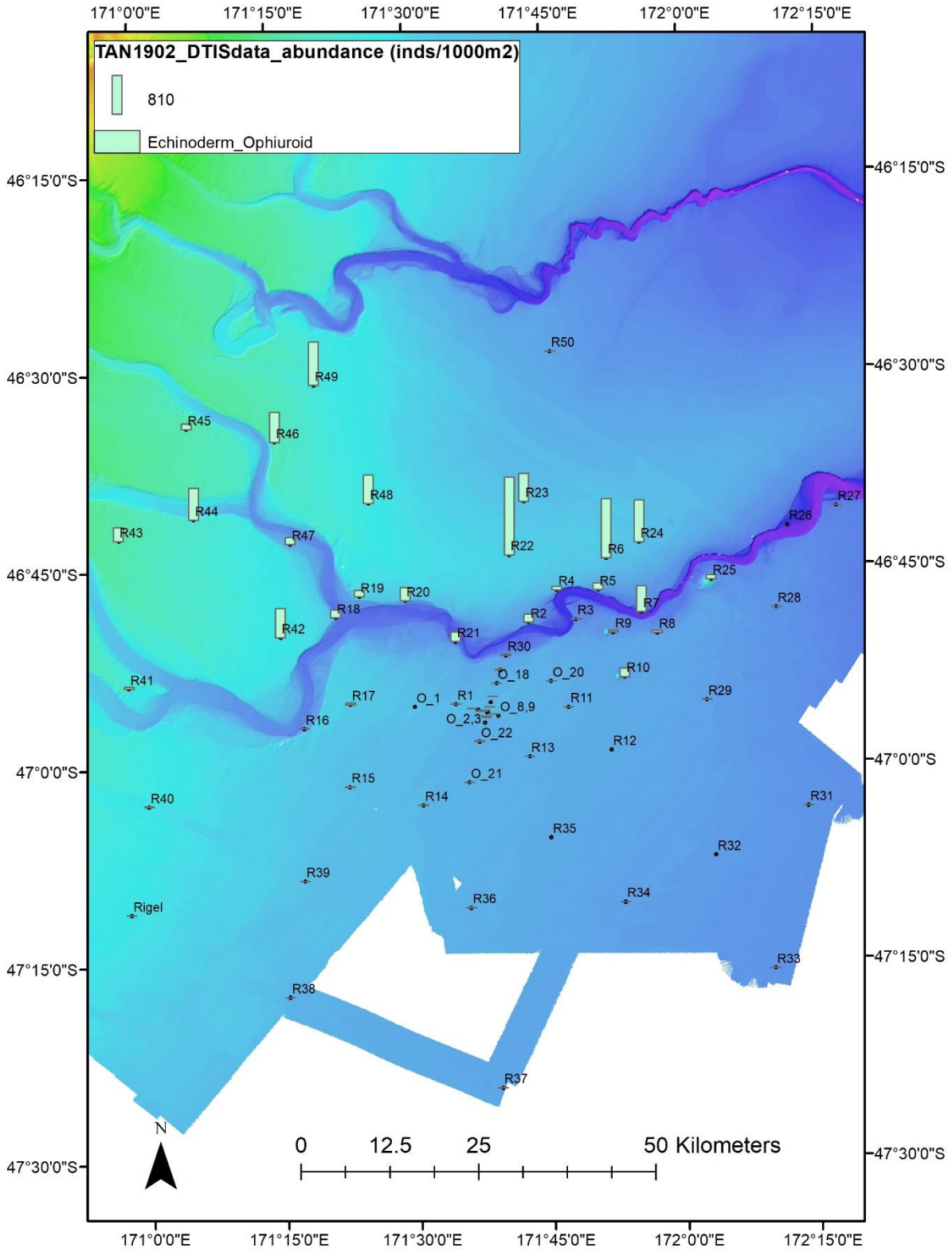
O_18
O_20
R41
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
810
Echinoderm_Ophiuroid
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
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O_1
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R11
R29
O_8,9
R16
O_2,3
O_22
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R12
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O_21
R40
R14
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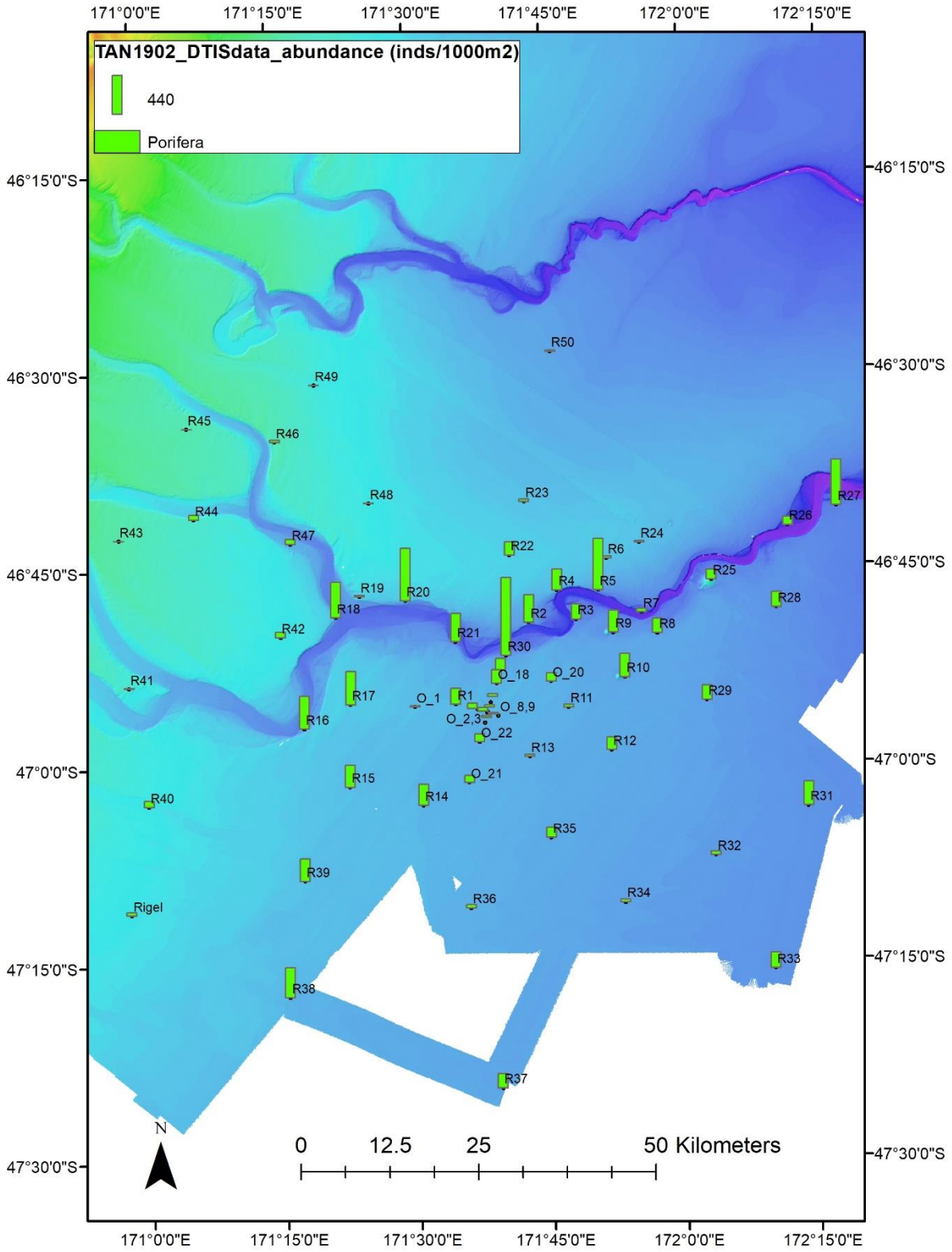
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
440
Porifera
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
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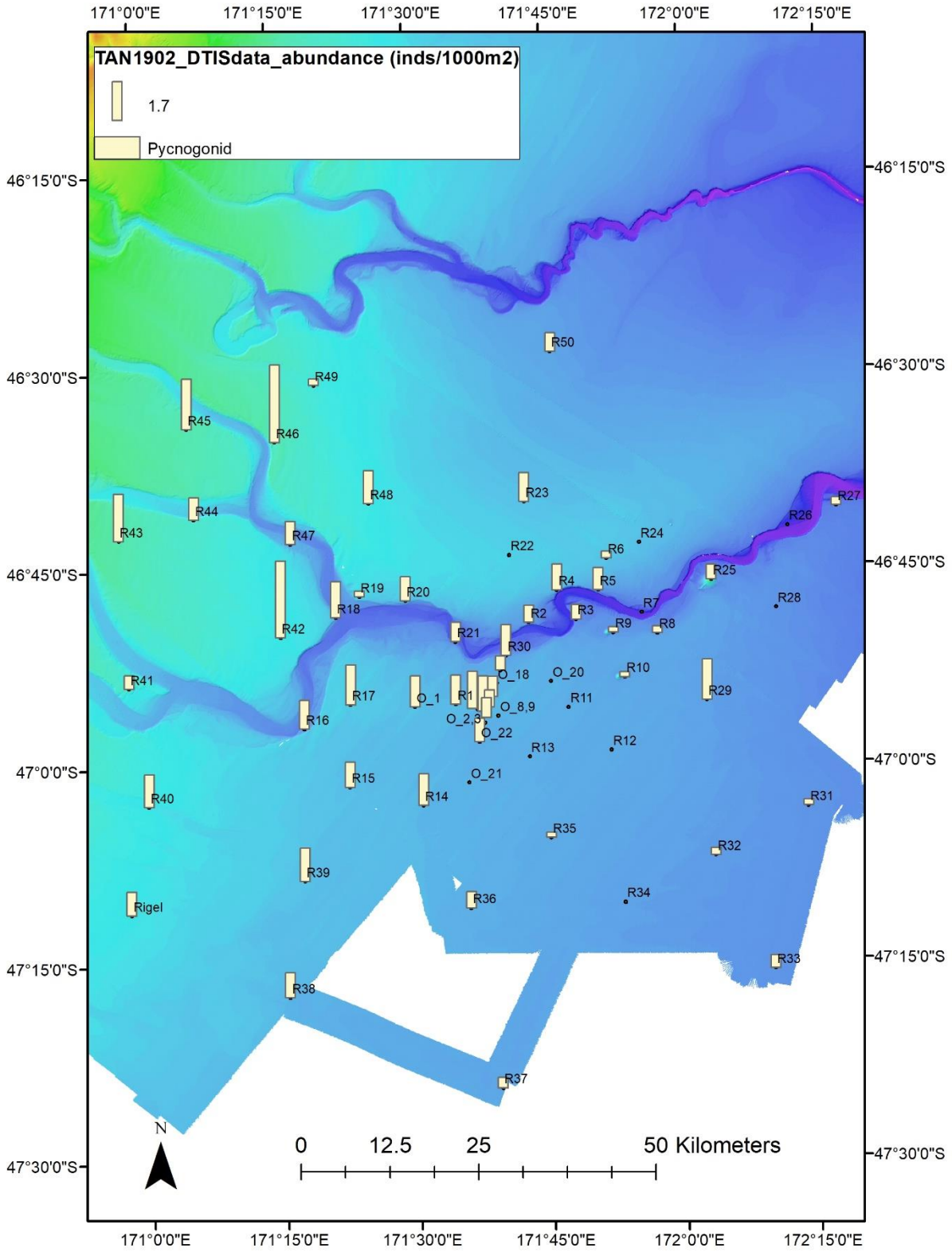
O_18
O_20
R41
R17
O_1
R1
R11
R29
R16
O_8,9
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
1.7
Pycnogonid
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
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O_18
O_20
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O_1
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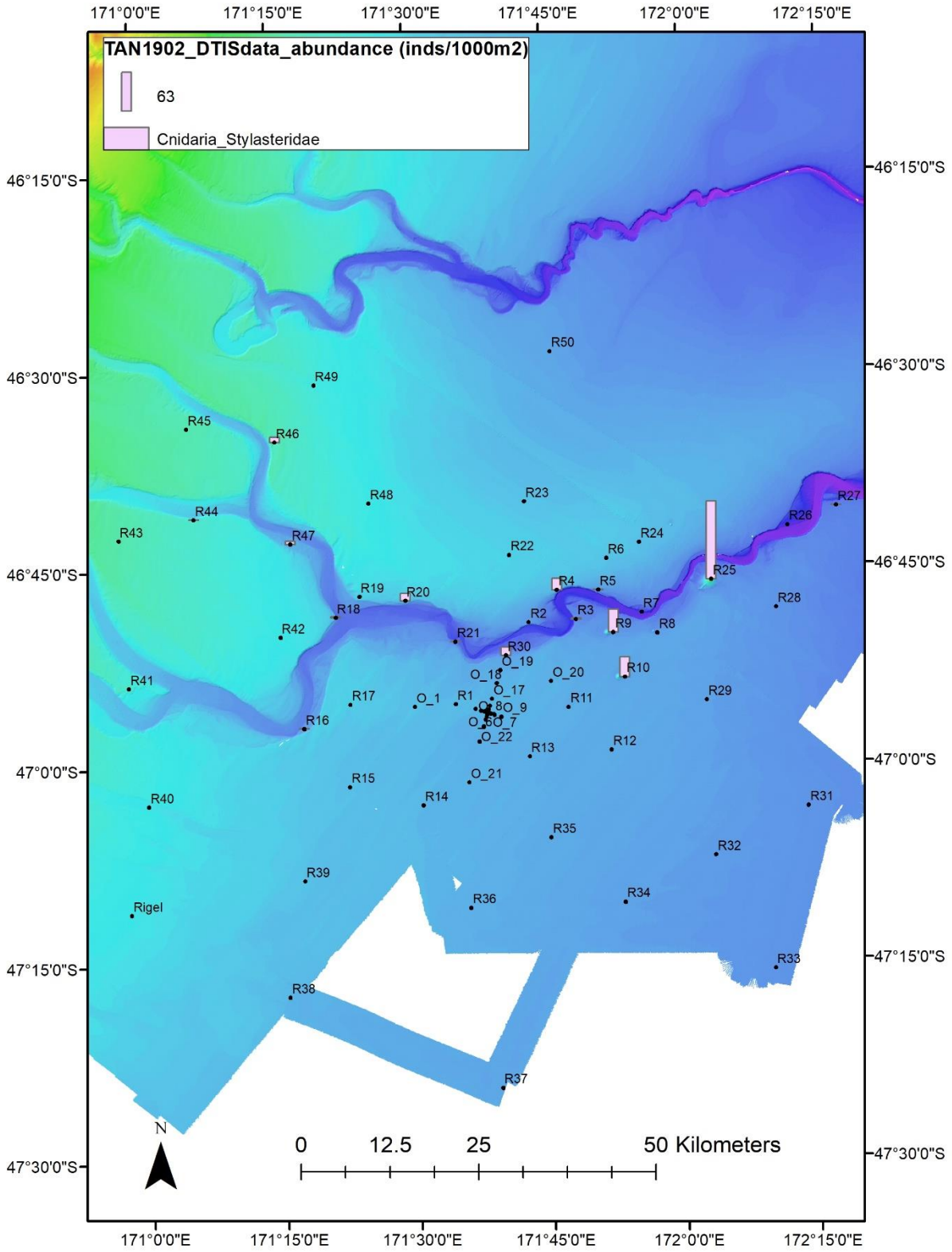
R11
R29
R16
O_8,9
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
63
Cnidaria_Stylasteridae
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
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O_20
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O_1
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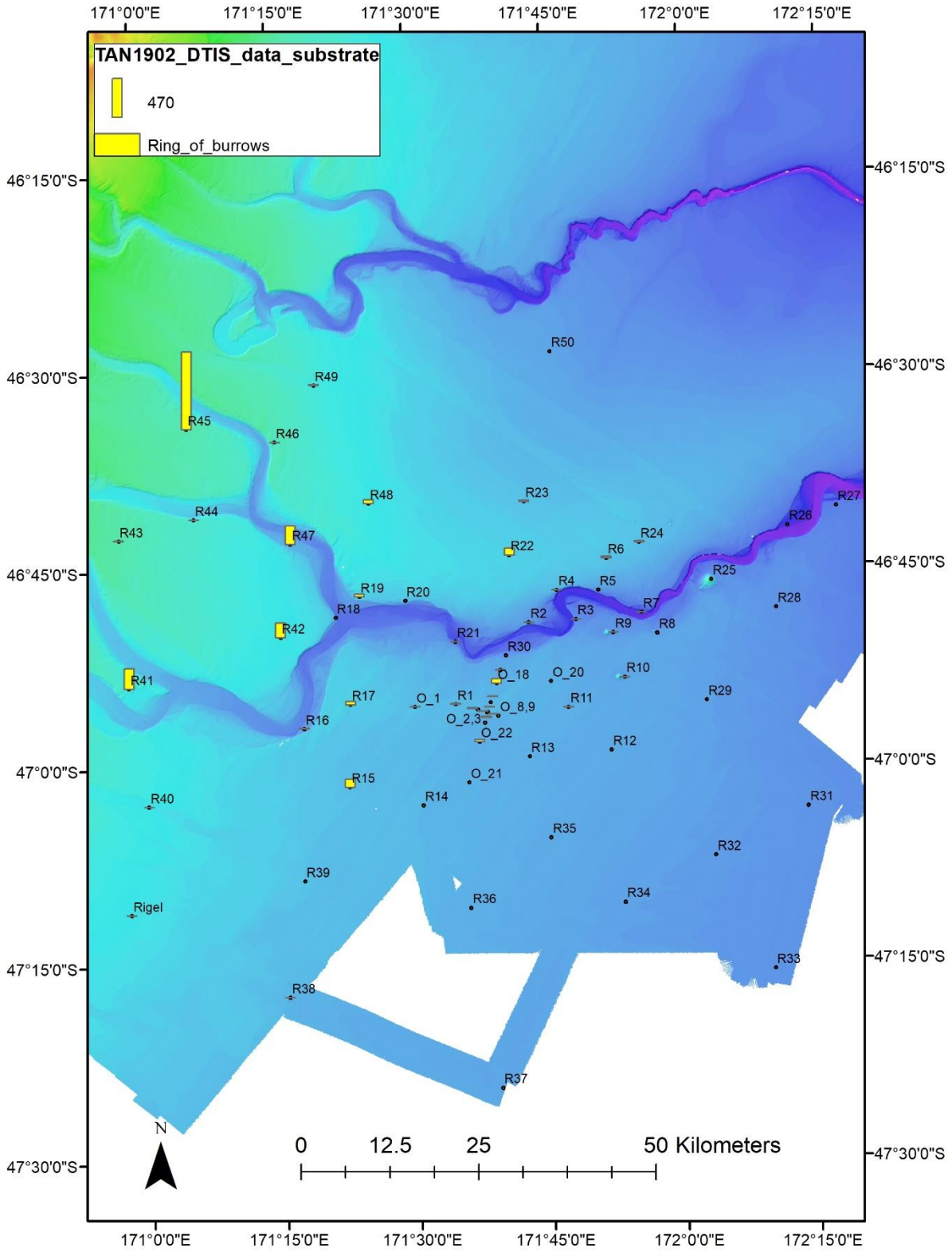
O_17
R11
R29
O_8
O_9
R16
O_6
O_7
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTIS_data_substrate
470
Ring_of_burrows
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
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O_20
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O_1
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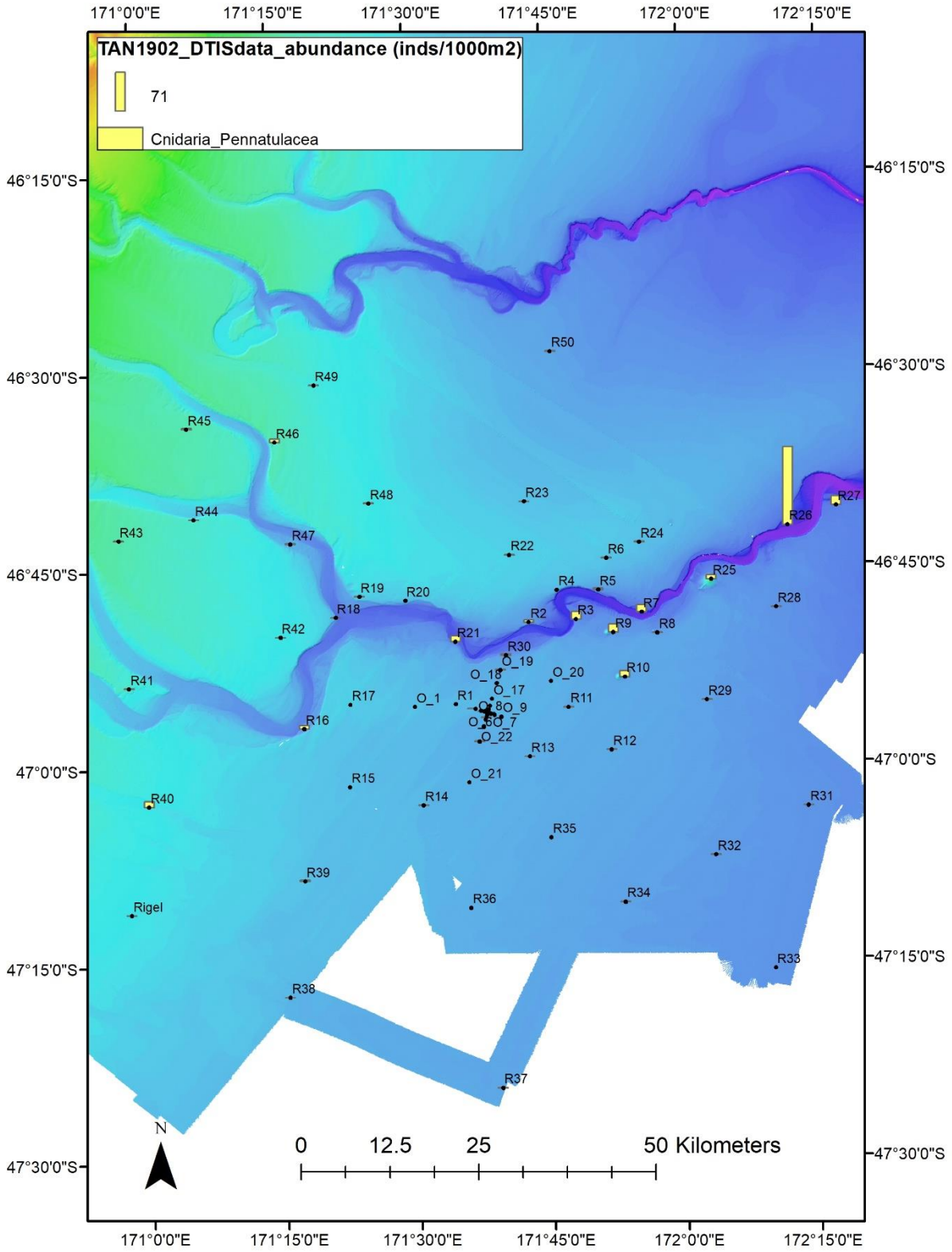
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_DTISdata_abundance (inds/1000m2)
71
Cnidaria_Pennatulacea
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R44
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R30
O_19
O_18
O_20
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O_17
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O_1
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R11
R29
O_8
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R16
O_6
O_7
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R13
R12
R15
O_21
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R14
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R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers

Appendix E DTIS data: SIMPER analysis between kR-groups (PRIMER).

SIMPER

Similarity Percentages - species contributions

One-Way Analysis

Data worksheet
Name: Data6_4th root_DTISfauna_23May
Data type: Abundance
Sample selection: All
Variable selection: All

Parameters
Resemblance: S17 Bray-Curtis similarity
Cut off for low contributions: 70.00%

Factor Groups

Sample	kRCluster	Sample	kRCluster	Sample	kRCluster
6	E	150	I	24	J
7	I	152	I	25	J
8	I	153	I	27	J
9	I	185	I	110	J
10	I	209	I	28	A
12	I	212	I	29	A
13	I	215	I	111	A
14	I	232	I	112	A
15	I	18	F	113	A
16	I	19	F	115	A
23	I	30	F	114	D
34	I	31	F	145	H
121	I	33	F	205	H
122	I	117	F	146	B
123	I	118	F	207	B
124	I	119	F	180	G
125	I	120	F	187	C
144	I	181	F	189	C
147	I	192	F	196	C
148	I	194	F	200	C
149	I	198	F	203	C

Group E
Less than 2 samples in group

Group I
Average similarity: 77.24

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Porifera	3.11	7.63	4.79	9.88	9.88
Cnidaria_Actinaria	2.97	7.15	5.32	9.25	19.13
Tunicata	2.34	5.71	5.60	7.39	26.53
Echinoderm _Echinoid	2.23	5.11	2.46	6.61	33.14
Echinoderm_Holothurian	1.88	5.02	8.56	6.50	39.64
Mollusc _Gastropod	1.93	4.95	7.98	6.41	46.05
Fish_Bony	1.66	4.40	7.69	5.70	51.75
Cnidaria_Scleractinia_Cup Corals	2.24	4.28	2.15	5.54	57.29
Mollusc_Scaphopoda	1.54	3.64	4.20	4.71	62.00
Worm	1.57	3.52	3.40	4.55	66.55
Echinoderm_Asteroid	1.19	2.98	4.55	3.86	70.41

Group F
Average similarity: 77.21

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Porifera	4.05	7.73	4.54	10.01	10.01
Echinoderm_Ophiuroid	3.22	5.61	2.56	7.26	17.27
Echinoderm _Echinoid	2.57	5.19	9.03	6.72	24.00
Cnidaria_Gorgonacea	2.54	4.76	3.61	6.17	30.16
Cnidaria_Actinaria	2.24	4.50	8.50	5.83	35.99
Fish_Bony	1.81	3.81	10.01	4.94	40.93
Tunicata	1.94	3.42	3.06	4.42	45.35
Mollusc _Gastropod	1.63	3.17	4.48	4.10	49.45
Fish_Eels	1.39	2.93	8.27	3.80	53.25
Bryozoan	1.49	2.79	3.56	3.62	56.86
Echinoderm_Crinoidea	1.56	2.77	4.09	3.59	60.45
Echinoderm_Asteroid	1.28	2.65	10.93	3.43	63.89
Echinoderm_Holothurian	1.31	2.55	4.90	3.30	67.18
Cnidaria_Alcyonacea	1.21	2.40	5.56	3.10	70.29

Group J
Average similarity: 80.59

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	8.35	10.50	10.36	10.36
Cnidaria_Gorgonacea	4.54	6.75	3.50	8.37	18.73
Porifera	3.70	6.34	10.55	7.86	26.59
Echinoderm_Ophiuroid	2.92	4.66	13.97	5.78	32.38
Fish_Bony	2.10	3.67	21.77	4.55	36.93
Echinoderm _Echinoid	2.16	3.62	6.36	4.49	41.42
Cnidaria_Actinaria	2.09	3.59	20.52	4.46	45.88
Cnidaria_Alcyonacea	2.06	3.28	6.53	4.07	49.94
Mollusc _Gastropod	1.80	2.95	4.79	3.66	53.60
Crustacean_galatheid_Chirostylidae	1.91	2.91	8.01	3.62	57.22
Echinoderm_Asteroid	1.56	2.73	29.12	3.39	60.61
Cnidaria_Hydrozoa	1.94	2.66	2.90	3.30	63.90
Echinoderm_Crinoidea	1.55	2.38	8.66	2.96	66.86
Cnidaria_Pennatulacea	1.55	2.21	2.44	2.75	69.61
Cnidaria_Scleractinia_Cup Corals	1.51	2.19	5.00	2.72	72.32

Group A
Average similarity: 77.70

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	5.40	14.49	10.29	18.64	18.64
Porifera	2.53	6.31	14.60	8.12	26.76
Tunicata	2.74	5.83	2.41	7.50	34.26
Echinoderm _Echinoid	2.20	5.81	5.23	7.47	41.74
Cnidaria_Actinaria	2.28	5.42	7.48	6.97	48.71
Mollusc _Gastropod	1.87	5.16	18.01	6.64	55.35
Fish_Bony	1.51	4.04	7.06	5.20	60.55
Fish_Eels	1.25	3.29	9.92	4.24	64.79
Echinoderm_Asteroid	1.18	3.13	7.75	4.03	68.82
Bryozoan	1.34	2.87	2.96	3.69	72.51

Group D
Less than 2 samples in group

Group H
Average similarity: 76.58

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Cnidaria_Actinaria	3.51	8.89	SD=0!	11.60	11.60
Porifera	3.48	8.04	SD=0!	10.50	22.11
Tunicata	3.56	7.70	SD=0!	10.05	32.16
Echinoderm_Holothurian	1.77	4.57	SD=0!	5.97	38.13
Fish_Bony	1.66	4.41	SD=0!	5.76	43.89
Cnidaria_Hydrozoa	1.49	3.81	SD=0!	4.98	48.86
Large_Agglutinated_Foram_Test	1.33	3.53	SD=0!	4.60	53.47
Bryozoan	1.44	3.52	SD=0!	4.60	58.07
Mollusc _Gastropod	1.56	3.33	SD=0!	4.35	62.42
Cnidaria_Gorgonacea	1.63	3.22	SD=0!	4.21	66.63
Fish_Eels	1.32	3.10	SD=0!	4.05	70.68

Group B
Average similarity: 78.08

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Cnidaria_Actinaria	4.82	12.92	SD=0!	16.55	16.55
Porifera	2.48	6.99	SD=0!	8.95	25.50
Echinoderm_Holothurian	2.30	6.49	SD=0!	8.31	33.81
Tunicata	1.87	5.23	SD=0!	6.69	40.50
Fish_Bony	1.73	4.58	SD=0!	5.87	46.37
Mollusc _Gastropod	1.59	4.36	SD=0!	5.59	51.96
Large_Agglutinated_Foram_Test	1.39	3.69	SD=0!	4.73	56.69
Crustacean_Isopoda	1.15	3.10	SD=0!	3.98	60.66
Echinoderm_Asteroid	1.17	2.89	SD=0!	3.70	64.36
Cnidaria_Gorgonacea	1.24	2.79	SD=0!	3.57	67.93
Fish_Eels	1.08	2.79	SD=0!	3.57	71.50

Group G
Less than 2 samples in group

Group C
Average similarity: 76.84

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	4.08	10.51	4.27	13.68	13.68
Mollusc _Gastropod	1.76	5.10	7.64	6.63	20.31
Cnidaria_Actinaria	1.79	4.62	3.32	6.02	26.33
Fish_Bony	1.61	4.62	8.06	6.01	32.34
Cnidaria_Zoanthidea	1.52	4.50	11.03	5.85	38.20
Echinoderm_Asteroid	1.52	4.07	5.64	5.30	43.50
Cnidaria_Scleractinia_Cup Corals	1.52	4.07	3.69	5.29	48.79
Fish_Eels	1.30	4.00	10.81	5.20	53.99
Bryozoan	1.40	3.90	5.48	5.07	59.07
Porifera	1.28	3.57	6.86	4.65	63.71
Echinoderm _Echinoid	1.27	3.25	2.69	4.23	67.94
Tunicata	1.04	2.96	9.23	3.85	71.79

Groups E & I
Average dissimilarity = 29.62

Species	Group E Av.Abund	Group I Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Scleractinia_Cup Corals	3.95	2.24	3.05	1.87	10.29	10.29
Mollusc_Scaphopoda	0.00	1.54	2.41	4.03	8.12	18.41
Tunicata	0.91	2.34	2.23	2.72	7.54	25.95
Echinoderm_Ophiuroid	0.00	1.25	1.94	2.35	6.53	32.49
Porifera	1.88	3.11	1.93	1.79	6.51	38.99
Crustacean_Isopoda	0.00	1.05	1.64	2.94	5.55	44.55
Worm	2.35	1.57	1.42	2.18	4.78	49.33
Cnidaria_Actinaria	2.23	2.97	1.29	1.23	4.36	53.68
Fish_Cartilagenous	0.00	0.79	1.23	1.99	4.14	57.82
Echinoderm _Echinoid	1.79	2.23	1.20	1.44	4.07	61.89
Large_Agglutinated_Foram_Test	0.91	1.37	0.95	1.38	3.22	65.11
Bryozoan	0.91	1.25	0.89	1.56	3.02	68.13
Crustacean_shrimp	1.53	1.03	0.80	1.56	2.71	70.84

Groups E & F
Average dissimilarity = 44.13

Species	Group E Av.Abund	Group F Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.00	3.22	4.43	2.52	10.04	10.04
Cnidaria_Scleractinia_Cup Corals	3.95	0.88	4.23	3.17	9.59	19.63
Cnidaria_Gorgonacea	0.00	2.54	3.46	3.84	7.84	27.47
Porifera	1.88	4.05	2.95	2.33	6.68	34.14
Worm	2.35	0.46	2.59	3.36	5.87	40.01
Echinoderm_Crinoidea	0.00	1.56	2.13	2.87	4.82	44.84
Cnidaria_Stylasteridae	0.00	1.23	1.68	2.20	3.82	48.65
Cnidaria_Pennatulacea	0.00	1.21	1.66	1.82	3.77	52.42
Cnidaria_Alcyonacea	0.00	1.21	1.66	4.75	3.77	56.20
Echinoderm_Brisingida	0.00	1.10	1.52	1.96	3.43	59.63
Tunicata	0.91	1.94	1.45	1.61	3.28	62.91
Crustacean_Cirripedia	0.00	0.96	1.28	0.84	2.90	65.81
Porifera_Carnivorous	0.00	0.89	1.18	0.78	2.68	68.49
Mollusc_Scaphopoda	0.00	0.85	1.17	1.22	2.65	71.15

Groups I & F
Average dissimilarity = 34.54

Species	Group I Av.Abund	Group F Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Gorgonacea	0.33	2.54	2.77	2.69	8.03	8.03
Echinoderm_Ophiuroid	1.25	3.22	2.57	1.60	7.45	15.48
Cnidaria_Scleractinia_Cup Corals	2.24	0.88	2.01	1.32	5.83	21.31
Porifera	3.11	4.05	1.57	1.54	4.53	25.85
Echinoderm_Crinoidea	0.35	1.56	1.54	1.80	4.46	30.30
Cnidaria_Stylasteridae	0.00	1.23	1.54	2.26	4.45	34.75
Cnidaria_Alcyonacea	0.05	1.21	1.46	3.68	4.22	38.97
Worm	1.57	0.46	1.42	1.57	4.10	43.07
Echinoderm_Brisingida	0.03	1.10	1.35	1.96	3.91	46.99
Crustacean_Cirripedia	0.07	0.96	1.18	0.90	3.41	50.40
Cnidaria_Pennatulacea	0.49	1.21	1.12	1.53	3.25	53.65
Porifera_Carnivorous	0.19	0.89	1.12	0.89	3.24	56.89
Cnidaria_Actinaria	2.97	2.24	1.09	1.28	3.16	60.05
Large_Agglutinated_Foram_Test	1.37	1.44	1.08	1.28	3.12	63.17
Mollusc_Scaphopoda	1.54	0.85	1.04	1.37	3.00	66.17
Tunicata	2.34	1.94	0.95	1.38	2.76	68.93
Echinoderm _Echinoid	2.23	2.57	0.94	1.41	2.72	71.65

Groups E & J
Average dissimilarity = 48.68

Species	Group E Av.Abund	Group J Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	0.00	4.88	5.91	8.23	12.14	12.14
Cnidaria_Gorgonacea	0.00	4.54	5.42	3.97	11.14	23.27
Echinoderm_Ophiuroid	0.00	2.92	3.50	7.12	7.18	30.45
Cnidaria_Scleractinia_Cup Corals	3.95	1.51	2.94	5.39	6.03	36.48
Cnidaria_Alcyonacea	0.00	2.06	2.49	4.98	5.12	41.60
Cnidaria_Stylasteridae	0.00	2.05	2.41	1.43	4.95	46.56
Crustacean_galatheid_Chirostylidae	0.00	1.91	2.28	5.17	4.68	51.24
Porifera	1.88	3.70	2.20	5.20	4.51	55.75
Worm	2.35	0.67	2.00	3.86	4.10	59.86
Echinoderm_Crinoidea	0.00	1.55	1.86	4.10	3.83	63.69
Cnidaria_Pennatulacea	0.00	1.55	1.85	2.97	3.80	67.49
Mollusc_Bivalvia	0.00	1.26	1.51	5.74	3.11	70.60

Groups I & J
Average dissimilarity = 40.14

Species	Group I Av.Abund	Group J Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	0.07	4.88	5.37	7.39	13.37	13.37
Cnidaria_Gorgonacea	0.33	4.54	4.65	3.55	11.59	24.96
Cnidaria_Alcyonacea	0.05	2.06	2.24	4.75	5.59	30.55
Cnidaria_Stylasteridae	0.00	2.05	2.23	1.64	5.54	36.09
Crustacean_galatheid_Chirostylidae	0.11	1.91	1.98	3.94	4.94	41.03
Echinoderm_Ophiuroid	1.25	2.92	1.85	2.24	4.62	45.65
Cnidaria_Hydrozoa	0.67	1.94	1.44	1.76	3.60	49.25
Echinoderm_Crinoidea	0.35	1.55	1.35	2.15	3.36	52.61
Cnidaria_Scleractinia_Cup Corals	2.24	1.51	1.22	1.10	3.04	55.65
Cnidaria_Pennatulacea	0.49	1.55	1.22	1.86	3.03	58.68
Mollusc_Bivalvia	0.32	1.26	1.07	1.99	2.67	61.35
Cnidaria_Actinaria	2.97	2.09	1.04	1.32	2.60	63.95
Worm	1.57	0.67	1.02	1.43	2.53	66.48
Tunicata	2.34	1.59	0.94	1.32	2.35	68.83
Porifera	3.11	3.70	0.88	1.36	2.19	71.01

Groups F & J
Average dissimilarity = 28.16

Species	Group F Av.Abund	Group J Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	0.96	4.88	3.96	3.06	14.07	14.07
Cnidaria_Gorgonacea	2.54	4.54	2.07	1.74	7.36	21.42
Cnidaria_Stylasteridae	1.23	2.05	1.44	2.16	5.11	26.53
Crustacean_galatheid_Chirostylidae	0.73	1.91	1.18	1.96	4.18	30.71
Echinoderm_Ophiuroid	3.22	2.92	1.10	1.43	3.91	34.62
Cnidaria_Hydrozoa	1.00	1.94	1.03	1.63	3.67	38.29
Cnidaria_Scleractinia_Cup Corals	0.88	1.51	0.99	1.48	3.53	41.82
Large_Agglutinated_Foram_Test	1.44	1.11	0.95	1.21	3.39	45.21
Echinoderm_Brisingida	1.10	0.21	0.93	1.55	3.31	48.52
Porifera	4.05	3.70	0.90	1.72	3.21	51.73
Porifera_Carnivorous	0.89	0.18	0.89	0.89	3.17	54.90
Cnidaria_Alcyonacea	1.21	2.06	0.86	2.04	3.06	57.96
Mollusc_Scaphopoda	0.85	1.02	0.83	1.42	2.94	60.90
Mollusc_Bivalvia	0.48	1.26	0.79	1.73	2.79	63.69

Tunicata	1.94	1.59	0.75	1.35	2.68	66.37
Cnidaria_Pennatulacea	1.21	1.55	0.68	1.25	2.41	68.77
Crustacean_crab	0.13	0.71	0.66	1.49	2.35	71.12

Groups E & A
Average dissimilarity = 42.43

Species	Group E Av.Abund	Group A Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.00	5.40	8.60	7.87	20.27	20.27
Cnidaria_Scleractinia_Cup Corals	3.95	0.53	5.47	4.69	12.90	33.17
Worm	2.35	0.33	3.20	3.89	7.55	40.72
Tunicata	0.91	2.74	2.91	1.56	6.85	47.57
Cnidaria_Pennatulacea	0.00	1.05	1.67	2.34	3.95	51.52
Echinoderm_Crinoidea	0.00	1.06	1.64	1.58	3.87	55.39
Mollusc_Scaphopoda	0.00	1.02	1.62	3.37	3.82	59.21
Cnidaria_Gorgonacea	0.00	0.99	1.57	1.54	3.71	62.92
Echinoderm_Holothurian	1.95	0.98	1.55	1.68	3.66	66.58
Crustacean_Isopoda	0.00	0.90	1.44	6.17	3.40	69.98
Echinoderm_Brisingida	0.00	0.71	1.13	1.08	2.67	72.65

Groups I & A
Average dissimilarity = 32.72

Species	Group I Av.Abund	Group A Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	1.25	5.40	5.98	4.30	18.29	18.29
Cnidaria_Scleractinia_Cup Corals	2.24	0.53	2.48	1.34	7.58	25.88
Worm	1.57	0.33	1.77	1.77	5.42	31.30
Tunicata	2.34	2.74	1.46	1.33	4.47	35.77
Cnidaria_Actinaria	2.97	2.28	1.44	1.43	4.40	40.18
Echinoderm_Holothurian	1.88	0.98	1.30	1.66	3.97	44.15
Echinoderm_Crinoidea	0.35	1.06	1.22	1.44	3.74	47.89
Porifera	3.11	2.53	1.21	1.40	3.71	51.60
Large_Agglutinated_Foram_Test	1.37	0.61	1.21	1.57	3.70	55.30
Cnidaria_Gorgonacea	0.33	0.99	1.18	1.37	3.60	58.89
Echinoderm_Brisingida	0.03	0.71	1.01	1.17	3.07	61.97
Echinoderm _Echinoid	2.23	2.20	0.99	1.47	3.01	64.98
Cnidaria_Pennatulacea	0.49	1.05	0.92	1.20	2.82	67.81
Bryozoan	1.25	1.34	0.90	1.35	2.75	70.56

Groups F & A
Average dissimilarity = 30.59

Species	Group F Av.Abund	Group A Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	3.22	5.40	2.76	1.72	9.01	9.01
Porifera	4.05	2.53	2.02	1.74	6.59	15.60
Cnidaria_Gorgonacea	2.54	0.99	1.98	1.93	6.48	22.08
Cnidaria_Stylasteridae	1.23	0.00	1.54	2.26	5.05	27.13
Tunicata	1.94	2.74	1.51	1.35	4.95	32.08
Cnidaria_Alcyonacea	1.21	0.12	1.39	2.91	4.53	36.61
Large_Agglutinated_Foram_Test	1.44	0.61	1.28	1.40	4.18	40.79
Crustacean_Cirripedia	0.96	0.00	1.18	0.86	3.85	44.64
Porifera_Carnivorous	0.89	0.27	1.12	0.94	3.66	48.30
Cnidaria_Scleractinia_Cup Corals	0.88	0.53	1.07	1.27	3.51	51.81
Echinoderm_Crinoidea	1.56	1.06	0.99	1.30	3.22	55.03
Crustacean_galatheid_Chirostylidae	0.73	0.00	0.91	1.62	2.96	57.99
Cnidaria_Hydrozoa	1.00	0.55	0.90	1.34	2.93	60.93
Echinoderm_Brisingida	1.10	0.71	0.87	1.25	2.86	63.78
Cnidaria_Pennatulacea	1.21	1.05	0.82	1.61	2.67	66.46
Pycnogonid	1.02	0.53	0.79	1.48	2.59	69.04
Mollusc_Scaphopoda	0.85	1.02	0.76	1.36	2.47	71.51

Groups J & A
Average dissimilarity = 39.20

Species	Group J Av.Abund	Group A Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.47	8.92	13.94	13.94
Cnidaria_Gorgonacea	4.54	0.99	3.91	2.83	9.98	23.93
Echinoderm_Ophiuroid	2.92	5.40	2.80	2.94	7.15	31.08
Cnidaria_Stylasteridae	2.05	0.00	2.24	1.61	5.70	36.78
Cnidaria_Alcyonacea	2.06	0.12	2.18	4.04	5.56	42.34
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.11	5.59	5.39	47.73
Cnidaria_Hydrozoa	1.94	0.55	1.60	1.87	4.08	51.81
Tunicata	1.59	2.74	1.53	1.41	3.90	55.71
Porifera	3.70	2.53	1.34	2.02	3.42	59.13
Cnidaria_Scleractinia_Cup Corals	1.51	0.53	1.17	1.48	2.98	62.11

Mollusc_Bivalvia	1.26	0.23	1.14	2.59	2.90	65.01
Large_Agglutinated_Foram_Test	1.11	0.61	0.90	1.77	2.30	67.31
Echinoderm_Crinoidea	1.55	1.06	0.80	1.32	2.04	69.35
Cnidaria_Pennatulacea	1.55	1.05	0.76	1.61	1.95	71.30

Groups E & D
Average dissimilarity = 36.69

Species	Group E Av.Abund	Group D Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.00	3.42	5.91	Undefined!	16.11	16.11
Cnidaria_Scleractinia_Cup Corals	3.95	0.85	5.35	Undefined!	14.59	30.69
Worm	2.35	0.00	4.05	Undefined!	11.03	41.72
Crustacean_shrimp	1.53	0.00	2.64	Undefined!	7.20	48.93
Echinoderm_Brisingida	0.00	1.27	2.19	Undefined!	5.97	54.90
Mollusc _Gastropod	1.88	2.97	1.89	Undefined!	5.16	60.07
Tunicata_Carnivorous	0.00	1.01	1.74	Undefined!	4.75	64.81
Echinoderm_Holothurian	1.95	1.01	1.62	Undefined!	4.42	69.24
Fish_Cartilagenous	0.00	0.85	1.47	Undefined!	3.99	73.23

Groups I & D
Average dissimilarity = 34.16

Species	Group I Av.Abund	Group D Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	1.25	3.42	3.39	3.25	9.93	9.93
Worm	1.57	0.00	2.40	2.80	7.02	16.95
Cnidaria_Scleractinia_Cup Corals	2.24	0.85	2.10	1.12	6.14	23.09
Cnidaria_Actinaria	2.97	1.70	1.93	1.66	5.66	28.75
Echinoderm_Brisingida	0.03	1.27	1.91	7.71	5.60	34.35
Porifera	3.11	1.98	1.72	1.65	5.04	39.39
Mollusc _Gastropod	1.93	2.97	1.63	2.87	4.78	44.17
Crustacean_Isopoda	1.05	0.00	1.60	2.94	4.68	48.85
Crustacean_shrimp	1.03	0.00	1.58	3.44	4.63	53.48
Echinoderm_Holothurian	1.88	1.01	1.33	4.81	3.88	57.36
Tunicata_Carnivorous	0.20	1.01	1.27	2.16	3.71	61.07
Mollusc_Scaphopoda	1.54	0.71	1.24	2.04	3.64	64.71
Echinoderm _Echinoid	2.23	1.85	1.13	1.44	3.31	68.02
Tunicata	2.34	1.71	0.99	1.28	2.89	70.91

Groups F & D
Average dissimilarity = 32.91

Species	Group F Av.Abund	Group D Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Gorgonacea	2.54	0.00	3.38	3.83	10.26	10.26
Porifera	4.05	1.98	2.74	2.21	8.32	18.59
Mollusc _Gastropod	1.63	2.97	1.79	3.97	5.45	24.04
Cnidaria_Stylasteridae	1.23	0.00	1.64	2.20	5.00	29.03
Cnidaria_Alcyonacea	1.21	0.00	1.62	4.75	4.94	33.97
Crustacean_shrimp	0.95	0.00	1.26	2.70	3.83	37.80
Crustacean_Cirripedia	0.96	0.00	1.25	0.84	3.80	41.60
Echinoderm_Ophiuroid	3.22	3.42	1.25	1.16	3.78	45.38
Porifera_Carnivorous	0.89	0.00	1.16	0.78	3.51	48.90
Large_Agglutinated_Foram_Test	1.44	0.94	1.11	1.32	3.38	52.28
Crustacean_Isopoda	0.82	0.00	1.10	2.00	3.36	55.63
Cnidaria_Scleractinia_Cup Corals	0.88	0.85	1.10	2.98	3.35	58.98
Tunicata_Carnivorous	0.50	1.01	1.02	1.95	3.09	62.07
Crustacean_galatheid_Chirostylidae	0.73	0.00	0.96	1.57	2.93	65.00
Echinoderm _Echinoid	2.57	1.85	0.96	1.79	2.92	67.92
Cnidaria_Pennatulacea	1.21	0.71	0.95	1.81	2.89	70.81

Groups J & D
Average dissimilarity = 41.77

Species	Group J Av.Abund	Group D Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.78	8.28	13.85	13.85
Cnidaria_Gorgonacea	4.54	0.00	5.31	3.96	12.71	26.56
Cnidaria_Alcyonacea	2.06	0.00	2.44	4.99	5.84	32.40
Cnidaria_Stylasteridae	2.05	0.00	2.36	1.43	5.65	38.05
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.23	5.14	5.35	43.40
Porifera	3.70	1.98	2.03	4.91	4.86	48.26
Mollusc_Bivalvia	1.26	0.00	1.48	5.72	3.55	51.81
Mollusc _Gastropod	1.80	2.97	1.38	4.26	3.31	55.11
Echinoderm_Brisingida	0.21	1.27	1.25	2.52	3.00	58.11
Tunicata_Carnivorous	0.00	1.01	1.20	16.15	2.86	60.97
Crustacean_shrimp	0.97	0.00	1.14	4.74	2.73	63.70
Fish_Bony	2.10	1.24	1.01	8.16	2.42	66.12
Cnidaria_Hydrozoa	1.94	1.20	0.99	1.67	2.36	68.49
Cnidaria_Pennatulacea	1.55	0.71	0.97	1.49	2.32	70.80

Groups A & D
Average dissimilarity = 26.69

Species	Group A Av.Abund	Group D Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	5.40	3.42	3.06	3.20	11.47	11.47
Tunicata	2.74	1.71	1.96	1.50	7.33	18.80
Mollusc _Gastropod	1.87	2.97	1.71	5.57	6.41	25.21
Cnidaria_Gorgonacea	0.99	0.00	1.53	1.54	5.74	30.94
Crustacean_shrimp	0.91	0.00	1.41	4.89	5.29	36.23
Crustacean_Isopoda	0.90	0.00	1.40	6.20	5.26	41.49
Tunicata_Carnivorous	0.17	1.01	1.32	2.09	4.93	46.42
Cnidaria_Hydrozoa	0.55	1.20	1.13	1.26	4.22	50.65
Echinoderm_Brisingida	0.71	1.27	1.04	1.32	3.91	54.56
Cnidaria_Actinaria	2.28	1.70	0.90	0.84	3.35	57.91
Cnidaria_Scleractinia_Cup Corals	0.53	0.85	0.89	1.69	3.33	61.24
Porifera	2.53	1.98	0.84	1.07	3.13	64.37
Echinoderm_Crinoidea	1.06	0.85	0.82	1.25	3.07	67.44
Pycnogonid	0.53	0.71	0.81	1.86	3.03	70.47

Groups E & H
Average dissimilarity = 37.82

Species	Group E Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Scleractinia_Cup Corals	3.95	0.89	4.76	48.06	12.60	12.60
Tunicata	0.91	3.56	4.13	2.39	10.91	23.51
Worm	2.35	0.56	2.77	2.27	7.33	30.84
Cnidaria_Gorgonacea	0.00	1.63	2.53	2.52	6.69	37.53
Porifera	1.88	3.48	2.49	1.99	6.59	44.12
Cnidaria_Actinaria	2.23	3.51	1.99	3.13	5.26	49.38
Cnidaria_Pennatulacea	0.00	1.26	1.96	1.65	5.18	54.56
Crustacean_Isopoda	0.00	1.11	1.72	12.37	4.56	59.12
Echinoderm_Ophiuroid	0.00	1.07	1.66	2.17	4.40	63.51
Crustacean_shrimp	1.53	0.51	1.59	1.44	4.21	67.72
Cnidaria_Zoanthidea	0.00	0.95	1.47	0.71	3.88	71.60

Groups I & H

Average dissimilarity = 28.24

Species	Group I Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Mollusc_Scaphopoda	1.54	0.00	2.13	4.03	7.56	7.56
Cnidaria_Scleractinia_Cup Corals	2.24	0.89	1.87	1.11	6.62	14.18
Cnidaria_Gorgonacea	0.33	1.63	1.85	1.96	6.57	20.75
Tunicata	2.34	3.56	1.85	1.50	6.55	27.29
Echinoderm _Echinoid	2.23	1.00	1.78	1.57	6.30	33.59
Worm	1.57	0.56	1.45	1.40	5.14	38.73
Cnidaria_Zoanthidea	0.29	0.95	1.32	1.16	4.69	43.42
Cnidaria_Pennatulacea	0.49	1.26	1.21	1.40	4.28	47.70
Cnidaria_Hydrozoa	0.67	1.49	1.19	1.55	4.22	51.91
Cnidaria_Actinaria	2.97	3.51	1.18	1.53	4.20	56.11
Porifera	3.11	3.48	1.14	1.46	4.04	60.15
Echinoderm_Brisingida	0.03	0.64	0.90	1.01	3.18	63.33
Crustacean_shrimp	1.03	0.51	0.88	1.31	3.10	66.43
Echinoderm_Crinoidea	0.35	0.82	0.82	1.63	2.90	69.33
Echinoderm_Ophiuroid	1.25	1.07	0.76	1.33	2.68	72.01

Groups F & H

Average dissimilarity = 30.93

Species	Group F Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	3.22	1.07	2.69	1.75	8.71	8.71
Tunicata	1.94	3.56	2.05	1.67	6.62	15.33
Echinoderm _Echinoid	2.57	1.00	1.94	4.04	6.26	21.59
Cnidaria_Actinaria	2.24	3.51	1.57	2.64	5.08	26.68
Cnidaria_Stylasteridae	1.23	0.00	1.52	2.25	4.90	31.58
Cnidaria_Gorgonacea	2.54	1.63	1.28	1.63	4.14	35.71
Porifera	4.05	3.48	1.26	1.50	4.07	39.78
Cnidaria_Zoanthidea	0.44	0.95	1.16	1.29	3.76	43.55
Crustacean_Cirripedia	0.96	0.00	1.16	0.85	3.74	47.28
Porifera_Carnivorous	0.89	0.00	1.07	0.79	3.46	50.74
Cnidaria_Alcyonacea	1.21	0.35	1.07	1.98	3.45	54.19
Mollusc_Scaphopoda	0.85	0.00	1.05	1.25	3.41	57.59
Cnidaria_Scleractinia_Cup Corals	0.88	0.89	1.02	3.13	3.30	60.90
Echinoderm_Brisingida	1.10	0.64	0.95	1.34	3.06	63.95
Echinoderm_Crinoidea	1.56	0.82	0.91	1.34	2.93	66.88

Crustacean_galatheid_Chirostylidae	0.73	0.00	0.89	1.60	2.88	69.76
Large_Agglutinated_Foram_Test	1.44	1.33	0.86	1.16	2.80	72.55

Groups J & H
Average dissimilarity = 38.45

Species	Group J Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.38	9.13	13.99	13.99
Cnidaria_Gorgonacea	4.54	1.63	3.15	2.29	8.19	22.18
Cnidaria_Stylasteridae	2.05	0.00	2.20	1.55	5.72	27.90
Tunicata	1.59	3.56	2.17	1.93	5.66	33.56
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.08	5.44	5.41	38.96
Echinoderm_Ophiuroid	2.92	1.07	2.01	3.14	5.23	44.19
Cnidaria_Alcyonacea	2.06	0.35	1.88	3.18	4.90	49.09
Cnidaria_Actinaria	2.09	3.51	1.57	3.60	4.08	53.17
Mollusc_Bivalvia	1.26	0.00	1.38	6.12	3.59	56.76
Echinoderm _Echinoid	2.16	1.00	1.28	3.87	3.33	60.09
Mollusc_Scaphopoda	1.02	0.00	1.16	1.29	3.01	63.10
Cnidaria_Zoanthidea	0.51	0.95	1.04	1.26	2.70	65.80
Crustacean_crab	0.71	0.00	0.80	1.60	2.07	67.87
Echinoderm_Crinoidea	1.55	0.82	0.79	1.90	2.06	69.93
Cnidaria_Hydrozoa	1.94	1.49	0.77	2.09	2.00	71.93

Groups A & H
Average dissimilarity = 31.99

Species	Group A Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	5.40	1.07	6.11	5.94	19.10	19.10
Cnidaria_Actinaria	2.28	3.51	1.88	2.21	5.88	24.98
Tunicata	2.74	3.56	1.78	1.31	5.56	30.53
Echinoderm _Echinoid	2.20	1.00	1.72	3.45	5.36	35.90
Porifera	2.53	3.48	1.49	1.55	4.66	40.56
Mollusc_Scaphopoda	1.02	0.00	1.43	3.52	4.48	45.04
Cnidaria_Hydrozoa	0.55	1.49	1.35	1.49	4.22	49.26
Cnidaria_Zoanthidea	0.12	0.95	1.33	1.04	4.16	53.42
Echinoderm_Holothurian	0.98	1.77	1.14	1.47	3.55	56.97
Cnidaria_Gorgonacea	0.99	1.63	1.10	1.24	3.45	60.42

Large_Agglutinated_Foram_Test	0.61	1.33	1.02	2.30	3.19	63.61
Echinoderm_Brisingida	0.71	0.64	0.98	1.24	3.06	66.67
Pycnogonid	0.53	0.91	0.83	1.51	2.60	69.27
Cnidaria_Scleractinia_Cup Corals	0.53	0.89	0.83	1.71	2.59	71.86

Groups D & H
Average dissimilarity = 32.61

Species	Group D Av.Abund	Group H Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	3.42	1.07	3.57	4.62	10.94	10.94
Tunicata	1.71	3.56	2.80	1.68	8.60	19.54
Cnidaria_Actinaria	1.70	3.51	2.74	4.46	8.41	27.94
Cnidaria_Gorgonacea	0.00	1.63	2.46	2.52	7.55	35.50
Porifera	1.98	3.48	2.27	1.86	6.96	42.46
Mollusc _Gastropod	2.97	1.56	2.15	2.82	6.58	49.04
Crustacean_Isopoda	0.00	1.11	1.68	12.39	5.14	54.18
Tunicata_Carnivorous	1.01	0.00	1.53	211.95	4.69	58.87
Cnidaria_Zoanthidea	0.00	0.95	1.43	0.71	4.38	63.25
Echinoderm _Echinoid	1.85	1.00	1.29	8.31	3.95	67.20
Echinoderm_Holothurian	1.01	1.77	1.15	4.65	3.51	70.71

Groups E & B
Average dissimilarity = 38.23

Species	Group E Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Scleractinia_Cup Corals	3.95	1.07	4.56	45.00	11.92	11.92
Cnidaria_Actinaria	2.23	4.82	4.11	5.55	10.76	22.67
Mollusc_Bivalvia	0.00	1.66	2.57	0.71	6.73	29.41
Cnidaria_Gorgonacea	0.00	1.24	1.96	3.65	5.12	34.53
Worm	2.35	1.13	1.91	3.31	4.99	39.52
Crustacean_Isopoda	0.00	1.15	1.82	10.05	4.77	44.29
Tunicata	0.91	1.87	1.51	54.17	3.95	48.24
Mollusc_Scaphopoda	0.00	0.95	1.50	3.57	3.91	52.15
Cnidaria_Pennatulacea	0.00	0.92	1.45	8.14	3.80	55.95
Mollusc_Octopod	0.91	0.00	1.44	38.88	3.77	59.72
Porifera_Carnivorous	0.00	0.83	1.31	8.23	3.43	63.15
Fish_Cartilagenous	0.00	0.80	1.26	14.10	3.30	66.45
Cnidaria_Alcyonacea	0.00	0.76	1.20	1433.47	3.14	69.59

Echinoderm_Ophiuroid	0.00	0.68	1.05	0.71	2.75	72.34

Groups I & B
Average dissimilarity = 27.94

Species	Group I Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Actinaria	2.97	4.82	2.68	2.10	9.58	9.58
Mollusc_Bivalvia	0.32	1.66	2.33	1.14	8.33	17.91
Cnidaria_Scleractinia_Cup Corals	2.24	1.07	1.70	1.03	6.09	24.00
Echinoderm _Echinoid	2.23	1.30	1.62	1.41	5.81	29.81
Cnidaria_Gorgonacea	0.33	1.24	1.36	1.88	4.85	34.66
Bryozoan	1.25	0.49	1.27	1.49	4.53	39.20
Echinoderm_Ophiuroid	1.25	0.68	1.19	1.36	4.26	43.46
Porifera	3.11	2.48	1.09	1.48	3.89	47.35
Porifera_Carnivorous	0.19	0.83	1.06	3.08	3.81	51.16
Cnidaria_Alcyonacea	0.05	0.76	1.01	3.74	3.62	54.78
Mollusc_Octopod	0.66	0.00	0.95	1.50	3.40	58.18
Mollusc_Scaphopoda	1.54	0.95	0.88	1.57	3.15	61.33
Cnidaria_Hydrozoa	0.67	0.53	0.84	1.26	3.01	64.34
Worm	1.57	1.13	0.82	1.20	2.95	67.28
Tunicata	2.34	1.87	0.78	1.25	2.80	70.09

Groups F & B
Average dissimilarity = 36.56

Species	Group F Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Actinaria	2.24	4.82	3.24	4.97	8.87	8.87
Echinoderm_Ophiuroid	3.22	0.68	3.23	1.84	8.82	17.69
Mollusc_Bivalvia	0.48	1.66	2.05	1.30	5.61	23.30
Porifera	4.05	2.48	1.97	1.81	5.39	28.69
Cnidaria_Gorgonacea	2.54	1.24	1.66	2.04	4.54	33.23
Echinoderm _Echinoid	2.57	1.30	1.58	1.69	4.31	37.54
Echinoderm_Crinoidea	1.56	0.32	1.54	1.93	4.22	41.76
Cnidaria_Stylasteridae	1.23	0.00	1.54	2.24	4.20	45.96
Echinoderm_Brisingida	1.10	0.00	1.38	2.01	3.78	49.73
Bryozoan	1.49	0.49	1.29	1.65	3.53	53.27
Echinoderm_Holothurian	1.31	2.30	1.24	3.23	3.39	56.65

Porifera_Carnivorous	0.89	0.83	1.18	1.70	3.24	59.89
Crustacean_Cirripedia	0.96	0.00	1.17	0.85	3.20	63.10
Cnidaria_Scleractinia_Cup Corals	0.88	1.07	1.06	2.70	2.89	65.99
Mollusc_Octopod	0.81	0.00	1.01	2.99	2.77	68.76
Worm	0.46	1.13	0.95	1.49	2.59	71.34

Groups J & B
Average dissimilarity = 41.86

Species	Group J Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.44	9.03	13.00	13.00
Cnidaria_Gorgonacea	4.54	1.24	3.62	2.78	8.64	21.64
Cnidaria_Actinaria	2.09	4.82	3.06	6.04	7.31	28.95
Echinoderm_Ophiuroid	2.92	0.68	2.48	2.58	5.92	34.87
Cnidaria_Stylasteridae	2.05	0.00	2.23	1.54	5.32	40.19
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.10	5.44	5.02	45.21
Mollusc_Bivalvia	1.26	1.66	1.84	3.38	4.40	49.61
Cnidaria_Hydrozoa	1.94	0.53	1.56	1.78	3.72	53.33
Cnidaria_Alcyonacea	2.06	0.76	1.45	3.40	3.47	56.80
Echinoderm_Crinoidea	1.55	0.32	1.36	2.42	3.25	60.05
Porifera	3.70	2.48	1.35	3.78	3.23	63.28
Mollusc_Octopod	1.19	0.00	1.32	20.97	3.15	66.44
Echinoderm_Holothurian	1.23	2.30	1.18	6.93	2.82	69.26
Bryozoan	1.45	0.49	1.16	1.29	2.77	72.03

Groups A & B
Average dissimilarity = 35.84

Species	Group A Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	5.40	0.68	6.78	4.69	18.91	18.91
Cnidaria_Actinaria	2.28	4.82	3.68	3.09	10.26	29.17
Mollusc_Bivalvia	0.23	1.66	2.34	1.09	6.53	35.70
Echinoderm_Holothurian	0.98	2.30	1.89	2.36	5.29	40.98
Tunicata	2.74	1.87	1.66	1.48	4.63	45.61
Echinoderm _Echinoid	2.20	1.30	1.36	1.40	3.79	49.40
Bryozoan	1.34	0.49	1.30	1.46	3.63	53.03
Worm	0.33	1.13	1.22	1.69	3.40	56.43

Echinoderm_Crinoidea	1.06	0.32	1.18	1.41	3.29	59.72
Large_Agglutinated_Foram_Test	0.61	1.39	1.13	2.38	3.14	62.87
Echinoderm_Brisingida	0.71	0.00	1.02	1.14	2.84	65.70
Cnidaria_Scleractinia_Cup Corals	0.53	1.07	0.96	1.46	2.67	68.37
Mollusc_Octopod	0.66	0.00	0.93	2.13	2.59	70.96

Groups D & B
Average dissimilarity = 40.12

Species	Group D Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Actinaria	1.70	4.82	4.82	6.53	12.01	12.01
Echinoderm_Ophiuroid	3.42	0.68	4.25	2.69	10.58	22.59
Mollusc_Bivalvia	0.00	1.66	2.51	0.71	6.25	28.84
Mollusc _Gastropod	2.97	1.59	2.13	12.51	5.32	34.16
Echinoderm_Holothurian	1.01	2.30	1.98	153.38	4.94	39.10
Echinoderm_Brisingida	1.27	0.00	1.95	39.96	4.87	43.96
Cnidaria_Gorgonacea	0.00	1.24	1.91	3.64	4.75	48.71
Crustacean_Isopoda	0.00	1.15	1.77	10.13	4.42	53.13
Worm	0.00	1.13	1.75	2.68	4.37	57.50
Mollusc_Octopod	1.01	0.00	1.55	39.96	3.87	61.37
Tunicata_Carnivorous	1.01	0.00	1.55	39.96	3.87	65.24
Crustacean_shrimp	0.00	0.88	1.35	5.18	3.37	68.61
Porifera_Carnivorous	0.00	0.83	1.28	8.18	3.18	71.79

Groups H & B
Average dissimilarity = 27.21

Species	Group H Av.Abund	Group B Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Tunicata	3.56	1.87	2.38	1.88	8.75	8.75
Mollusc_Bivalvia	0.00	1.66	2.29	0.87	8.40	17.15
Cnidaria_Actinaria	3.51	4.82	1.85	2.69	6.81	23.96
Porifera	3.48	2.48	1.40	1.52	5.14	29.10
Bryozoan	1.44	0.49	1.35	1.59	4.98	34.08
Cnidaria_Hydrozoa	1.49	0.53	1.34	1.58	4.93	39.01
Mollusc_Scaphopoda	0.00	0.95	1.33	4.33	4.87	43.89
Cnidaria_Zoanthidea	0.95	0.32	1.32	1.15	4.86	48.75
Porifera_Carnivorous	0.00	0.83	1.16	9.84	4.28	53.03

Mollusc_Octopod	0.82	0.00	1.15	5.70	4.24	57.27
Echinoderm_Ophiuroid	1.07	0.68	1.01	1.27	3.70	60.96
Worm	0.56	1.13	0.99	1.29	3.65	64.61
Echinoderm _Echinoid	1.00	1.30	0.93	1.76	3.40	68.01
Echinoderm_Brisingida	0.64	0.00	0.90	0.87	3.30	71.31

Groups E & G

Average dissimilarity = 42.19

Species	Group E Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Scleractinia_Cup Corals	3.95	0.00	6.50	Undefined!	15.40	15.40
Cnidaria_Pennatulacea	0.00	3.45	5.68	Undefined!	13.47	28.87
Worm	2.35	0.76	2.61	Undefined!	6.20	35.07
Porifera_Carnivorous	0.00	1.41	2.31	Undefined!	5.49	40.55
Echinoderm _Echinoid	1.79	3.17	2.27	Undefined!	5.38	45.93
Tunicata	0.91	2.25	2.20	Undefined!	5.21	51.14
Porifera	1.88	3.07	1.96	Undefined!	4.65	55.79
Mollusc_Scaphopoda	0.00	1.13	1.86	Undefined!	4.41	60.20
Pycnogonid	1.08	0.00	1.78	Undefined!	4.22	64.42
Crustacean_Isopoda	0.00	1.07	1.76	Undefined!	4.17	68.59
Fish_Cartilagenous	0.00	0.99	1.64	Undefined!	3.88	72.47

Groups I & G

Average dissimilarity = 30.70

Species	Group I Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Pennatulacea	0.49	3.45	4.39	5.37	14.31	14.31
Cnidaria_Scleractinia_Cup Corals	2.24	0.00	3.25	1.82	10.59	24.90
Porifera_Carnivorous	0.19	1.41	1.82	2.93	5.94	30.84
Echinoderm_Ophiuroid	1.25	0.00	1.81	2.34	5.88	36.71
Echinoderm _Echinoid	2.23	3.17	1.46	1.50	4.77	41.48
Cnidaria_Alcyonacea	0.05	0.90	1.26	4.31	4.09	45.57
Worm	1.57	0.76	1.19	1.46	3.88	49.45
Cnidaria_Actinaria	2.97	2.46	1.04	1.21	3.38	52.83
Mollusc_Octopod	0.66	0.00	0.98	1.48	3.20	56.04
Cnidaria_Zoanthidea	0.29	0.90	0.98	1.72	3.20	59.23
Cnidaria_Hydrozoa	0.67	0.00	0.97	1.27	3.15	62.39
Pycnogonid	0.68	0.00	0.96	1.40	3.13	65.52
Porifera	3.11	3.07	0.91	1.83	2.95	68.47

Bryozoan	1.25	0.90	0.84	1.58	2.75	71.21

Groups F & G
Average dissimilarity = 34.98

Species	Group F Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	3.22	0.00	4.17	2.53	11.91	11.91
Cnidaria_Pennatulacea	1.21	3.45	2.89	3.53	8.26	20.17
Cnidaria_Gorgonacea	2.54	0.76	2.28	2.62	6.52	26.69
Echinoderm_Crinoidea	1.56	0.00	2.00	2.87	5.73	32.41
Cnidaria_Stylasteridae	1.23	0.00	1.58	2.20	4.53	36.94
Porifera	4.05	3.07	1.53	1.93	4.37	41.31
Porifera_Carnivorous	0.89	1.41	1.44	2.12	4.12	45.44
Echinoderm_Brisingida	1.10	0.00	1.42	1.96	4.07	49.51
Pycnogonid	1.02	0.00	1.31	6.45	3.76	53.27
Cnidaria_Hydrozoa	1.00	0.00	1.28	1.99	3.67	56.93
Crustacean_Cirripedia	0.96	0.00	1.21	0.84	3.45	60.38
Cnidaria_Scleractinia_Cup Corals	0.88	0.00	1.11	0.97	3.19	63.57
Mollusc_Octopod	0.81	0.00	1.04	2.93	2.98	66.55
Large_Agglutinated_Foram_Test	1.44	1.23	0.94	1.20	2.68	69.23
Crustacean_galatheid_Chirostylidae	0.73	0.00	0.93	1.57	2.66	71.89

Groups J & G
Average dissimilarity = 43.35

Species	Group J Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.59	8.36	12.91	12.91
Cnidaria_Gorgonacea	4.54	0.76	4.27	3.16	9.85	22.76
Echinoderm_Ophiuroid	2.92	0.00	3.31	6.98	7.64	30.40
Cnidaria_Stylasteridae	2.05	0.00	2.29	1.43	5.27	35.68
Cnidaria_Pennatulacea	1.55	3.45	2.20	2.82	5.08	40.75
Cnidaria_Hydrozoa	1.94	0.00	2.18	2.92	5.04	45.79
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.16	5.09	4.99	50.78
Echinoderm_Crinoidea	1.55	0.00	1.77	4.09	4.07	54.85
Cnidaria_Scleractinia_Cup Corals	1.51	0.00	1.74	2.65	4.02	58.87
Mollusc_Bivalvia	1.26	0.00	1.43	5.70	3.31	62.18
Porifera_Carnivorous	0.18	1.41	1.41	3.19	3.26	65.44
Mollusc_Octopod	1.19	0.00	1.36	20.09	3.13	68.57

Cnidaria_Alcyonacea	2.06	0.90	1.33	2.82	3.07	71.64

Groups A & G
Average dissimilarity = 34.99

Species	Group A Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	5.40	0.00	8.01	7.97	22.89	22.89
Cnidaria_Pennatulacea	1.05	3.45	3.57	5.16	10.19	33.08
Porifera_Carnivorous	0.27	1.41	1.70	2.56	4.86	37.95
Echinoderm_Crinoidea	1.06	0.00	1.53	1.58	4.38	42.32
Echinoderm _Echinoid	2.20	3.17	1.42	3.29	4.06	46.38
Tunicata	2.74	2.25	1.34	1.09	3.82	50.21
Cnidaria_Alcyonacea	0.12	0.90	1.17	2.58	3.34	53.55
Cnidaria_Zoanthidea	0.12	0.90	1.17	2.70	3.33	56.88
Echinoderm_Brisingida	0.71	0.00	1.05	1.08	3.01	59.89
Porifera	2.53	3.07	1.02	1.92	2.92	62.82
Mollusc_Octopod	0.66	0.00	0.96	2.04	2.75	65.56
Large_Agglutinated_Foram_Test	0.61	1.23	0.92	1.92	2.63	68.20
Echinoderm_Holothurian	0.98	1.51	0.90	1.25	2.58	70.77

Groups D & G
Average dissimilarity = 43.41

Species	Group D Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	3.42	0.00	5.47	Undefined!	12.61	12.61
Cnidaria_Pennatulacea	0.71	3.45	4.38	Undefined!	10.09	22.70
Mollusc _Gastropod	2.97	1.38	2.55	Undefined!	5.88	28.58
Porifera_Carnivorous	0.00	1.41	2.25	Undefined!	5.18	33.76
Echinoderm _Echinoid	1.85	3.17	2.11	Undefined!	4.87	38.63
Echinoderm_Brisingida	1.27	0.00	2.03	Undefined!	4.68	43.31
Cnidaria_Hydrozoa	1.20	0.00	1.92	Undefined!	4.42	47.73
Porifera	1.98	3.07	1.74	Undefined!	4.02	51.74
Crustacean_Isopoda	0.00	1.07	1.71	Undefined!	3.94	55.68
Mollusc_Octopod	1.01	0.00	1.61	Undefined!	3.72	59.40
Tunicata_Carnivorous	1.01	0.00	1.61	Undefined!	3.72	63.12
Cnidaria_Alcyonacea	0.00	0.90	1.44	Undefined!	3.31	66.43
Cnidaria_Zoanthidea	0.00	0.90	1.44	Undefined!	3.31	69.74

Crustacean_shrimp	0.00	0.90	1.44	Undefined!	3.31	73.05

Groups H & G
Average dissimilarity = 32.65

Species	Group H Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Pennatulacea	1.26	3.45	3.19	2.82	9.76	9.76
Echinoderm _Echinoid	1.00	3.17	3.16	22.51	9.66	19.42
Cnidaria_Hydrozoa	1.49	0.00	2.17	8.99	6.63	26.05
Porifera_Carnivorous	0.00	1.41	2.04	221.10	6.25	32.30
Tunicata	3.56	2.25	1.91	1.20	5.85	38.16
Mollusc_Scaphopoda	0.00	1.13	1.64	221.10	5.02	43.18
Echinoderm_Ophiuroid	1.07	0.00	1.55	2.16	4.75	47.93
Cnidaria_Actinaria	3.51	2.46	1.52	2.56	4.66	52.60
Cnidaria_Zoanthidea	0.95	0.90	1.37	15.38	4.20	56.80
Pycnogonid	0.91	0.00	1.32	3.43	4.03	60.83
Cnidaria_Scleractinia_Cup Corals	0.89	0.00	1.29	19.78	3.95	64.78
Cnidaria_Gorgonacea	1.63	0.76	1.26	1.34	3.87	68.65
Echinoderm_Crinoidea	0.82	0.00	1.19	4.68	3.66	72.30

Groups B & G
Average dissimilarity = 27.94

Species	Group B Av.Abund	Group G Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Pennatulacea	0.92	3.45	3.74	89.13	13.38	13.38
Cnidaria_Actinaria	4.82	2.46	3.50	5.18	12.51	25.89
Echinoderm _Echinoid	1.30	3.17	2.74	2.10	9.79	35.68
Mollusc_Bivalvia	1.66	0.00	2.40	0.71	8.60	44.27
Cnidaria_Scleractinia_Cup Corals	1.07	0.00	1.58	6.53	5.64	49.92
Pycnogonid	0.88	0.00	1.29	5.15	4.63	54.55
Echinoderm_Holothurian	2.30	1.51	1.16	157.32	4.14	58.69
Echinoderm_Ophiuroid	0.68	0.00	0.98	0.71	3.51	62.20
Porifera	2.48	3.07	0.87	37.88	3.11	65.32
Cnidaria_Zoanthidea	0.32	0.90	0.86	1.23	3.06	68.38
Porifera_Carnivorous	0.83	1.41	0.85	4.24	3.05	71.42

Groups E & C
Average dissimilarity = 37.21

Species	Group E Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.00	4.08	6.84	3.49	18.37	18.37
Cnidaria_Scleractinia_Cup Corals	3.95	1.52	4.10	5.37	11.01	29.39
Worm	2.35	0.31	3.42	4.46	9.20	38.58
Cnidaria_Zoanthidea	0.00	1.52	2.56	9.38	6.88	45.46
Cnidaria_Gorgonacea	0.00	1.11	1.83	1.77	4.92	50.38
Crustacean_shrimp	1.53	0.53	1.68	2.02	4.51	54.88
Cnidaria_Pennatulacea	0.00	0.97	1.63	7.38	4.38	59.27
Mollusc_Scaphopoda	0.00	0.75	1.27	1.78	3.42	62.68
Echinoderm_Holothurian	1.95	1.21	1.24	1.53	3.32	66.01
Crustacean_Isopoda	0.00	0.72	1.21	1.74	3.25	69.26
Large_Agglutinated_Foram_Test	0.91	1.04	1.00	1.04	2.70	71.96

Groups I & C
Average dissimilarity = 35.47

Species	Group I Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	1.25	4.08	4.28	2.23	12.06	12.06
Porifera	3.11	1.28	2.71	2.58	7.64	19.70
Tunicata	2.34	1.04	1.93	2.34	5.45	25.15
Worm	1.57	0.31	1.88	1.86	5.30	30.45
Cnidaria_Zoanthidea	0.29	1.52	1.88	2.53	5.29	35.74
Cnidaria_Actinaria	2.97	1.79	1.84	1.42	5.18	40.92
Echinoderm _Echinoid	2.23	1.27	1.64	1.45	4.62	45.54
Cnidaria_Scleractinia_Cup Corals	2.24	1.52	1.63	1.12	4.58	50.12
Cnidaria_Gorgonacea	0.33	1.11	1.38	1.61	3.88	54.00
Large_Agglutinated_Foram_Test	1.37	1.04	1.23	1.40	3.48	57.48
Mollusc_Scaphopoda	1.54	0.75	1.19	1.60	3.35	60.83
Echinoderm_Holothurian	1.88	1.21	1.02	1.54	2.87	63.70
Cnidaria_Hydrozoa	0.67	0.89	0.98	1.30	2.75	66.45
Fish_Cartilagenous	0.79	0.46	0.93	1.38	2.62	69.08
Crustacean_shrimp	1.03	0.53	0.87	1.31	2.46	71.54

Groups F & C
Average dissimilarity = 34.82

Species	Group F Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Porifera	4.05	1.28	3.59	3.03	10.30	10.30
Echinoderm_Crinoidea	1.56	0.00	2.04	2.95	5.85	16.15
Cnidaria_Gorgonacea	2.54	1.11	1.94	1.78	5.58	21.74
Echinoderm_Ophiuroid	3.22	4.08	1.93	1.37	5.55	27.29
Echinoderm _Echinoid	2.57	1.27	1.69	2.47	4.87	32.15
Cnidaria_Stylasteridae	1.23	0.00	1.61	2.27	4.63	36.78
Cnidaria_Zoanthidea	0.44	1.52	1.43	2.00	4.10	40.89
Large_Agglutinated_Foram_Test	1.44	1.04	1.31	1.34	3.75	44.64
Tunicata	1.94	1.04	1.25	1.52	3.58	48.22
Cnidaria_Scleractinia_Cup Corals	0.88	1.52	1.24	1.44	3.57	51.79
Crustacean_Cirripedia	0.96	0.00	1.23	0.86	3.53	55.32
Porifera_Carnivorous	0.89	0.00	1.13	0.80	3.26	58.58
Cnidaria_Alcyonacea	1.21	0.39	1.11	1.61	3.20	61.78
Crustacean_galatheid_Chirostylidae	0.73	0.00	0.95	1.62	2.71	64.49
Echinoderm_Brisingida	1.10	0.55	0.93	1.18	2.66	67.15
Fish_Cartilagenous	0.85	0.46	0.88	1.38	2.52	69.68
Cnidaria_Hydrozoa	1.00	0.89	0.80	1.30	2.29	71.97

Groups J & C
Average dissimilarity = 41.39

Species	Group J Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Crustacean_Cirripedia	4.88	0.00	5.68	9.03	13.73	13.73
Cnidaria_Gorgonacea	4.54	1.11	3.94	2.67	9.53	23.25
Porifera	3.70	1.28	2.79	6.34	6.75	30.00
Cnidaria_Stylasteridae	2.05	0.00	2.32	1.61	5.61	35.61
Crustacean_galatheid_Chirostylidae	1.91	0.00	2.19	5.68	5.30	40.91
Cnidaria_Alcyonacea	2.06	0.39	1.95	2.64	4.72	45.64
Echinoderm_Crinoidea	1.55	0.00	1.79	4.57	4.33	49.97
Echinoderm_Ophiuroid	2.92	4.08	1.60	1.37	3.88	53.85
Mollusc_Bivalvia	1.26	0.00	1.46	6.31	3.52	57.37
Cnidaria_Hydrozoa	1.94	0.89	1.33	1.63	3.22	60.58

Cnidaria_Zoanthidea	0.51	1.52	1.21	1.74	2.91	63.50
Echinoderm _Echinoid	2.16	1.27	1.03	1.91	2.49	65.99
Large_Agglutinated_Foram_Test	1.11	1.04	1.00	1.33	2.42	68.41
Mollusc_Scaphopoda	1.02	0.75	0.88	1.69	2.12	70.53

Groups A & C
Average dissimilarity = 29.79

Species	Group A Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Tunicata	2.74	1.04	2.61	1.63	8.77	8.77
Echinoderm_Ophiuroid	5.40	4.08	2.22	1.30	7.47	16.24
Cnidaria_Zoanthidea	0.12	1.52	2.13	4.40	7.16	23.39
Porifera	2.53	1.28	1.84	2.39	6.18	29.57
Cnidaria_Scleractinia_Cup Corals	0.53	1.52	1.58	1.70	5.31	34.88
Echinoderm_Crinoidea	1.06	0.00	1.56	1.70	5.25	40.12
Echinoderm _Echinoid	2.20	1.27	1.42	1.94	4.78	44.90
Cnidaria_Hydrozoa	0.55	0.89	1.08	1.32	3.64	48.54
Large_Agglutinated_Foram_Test	0.61	1.04	1.07	1.10	3.60	52.14
Cnidaria_Actinaria	2.28	1.79	1.04	1.01	3.48	55.63
Cnidaria_Gorgonacea	0.99	1.11	1.01	1.29	3.40	59.02
Pycnogonid	0.53	1.03	0.97	1.50	3.27	62.29
Echinoderm_Brisingida	0.71	0.55	0.92	1.17	3.08	65.37
Echinoderm_Holothurian	0.98	1.21	0.89	1.34	2.98	68.34
Fish_Cartilagenous	0.47	0.46	0.83	1.49	2.77	71.12

Groups D & C
Average dissimilarity = 28.86

Species	Group D Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Cnidaria_Zoanthidea	0.00	1.52	2.49	9.38	8.61	8.61
Mollusc _Gastropod	2.97	1.76	1.99	4.74	6.89	15.50
Cnidaria_Gorgonacea	0.00	1.11	1.78	1.77	6.17	21.66
Echinoderm_Ophiuroid	3.42	4.08	1.75	1.38	6.05	27.71
Tunicata_Carnivorous	1.01	0.00	1.65	22.10	5.72	33.43
Echinoderm_Crinoidea	0.85	0.00	1.39	22.10	4.81	38.24
Echinoderm_Brisingida	1.27	0.55	1.20	1.32	4.17	42.41
Crustacean_Isopoda	0.00	0.72	1.17	1.74	4.07	46.48

Porifera	1.98	1.28	1.12	2.52	3.88	50.36
Tunicata	1.71	1.04	1.10	3.36	3.81	54.16
Cnidaria_Scleractinia_Cup Corals	0.85	1.52	1.09	1.70	3.77	57.94
Fish_Cartilagenous	0.85	0.46	1.03	1.95	3.58	61.52
Large_Agglutinated_Foram_Test	0.94	1.04	0.96	1.03	3.34	64.86
Echinoderm _Echinoid	1.85	1.27	0.94	1.42	3.24	68.10
Cnidaria_Hydrozoa	1.20	0.89	0.92	1.37	3.20	71.31

Groups H & C
Average dissimilarity = 32.78

Species	Group H Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	1.07	4.08	4.44	2.54	13.53	13.53
Tunicata	3.56	1.04	3.74	2.94	11.40	24.93
Porifera	3.48	1.28	3.23	3.43	9.87	34.80
Cnidaria_Actinaria	3.51	1.79	2.57	2.66	7.84	42.64
Cnidaria_Zoanthidea	0.95	1.52	1.40	1.50	4.28	46.92
Echinoderm_Crinoidea	0.82	0.00	1.22	6.10	3.72	50.63
Mollusc_Scaphopoda	0.00	0.75	1.12	1.89	3.41	54.04
Cnidaria_Gorgonacea	1.63	1.11	1.05	1.11	3.20	57.25
Large_Agglutinated_Foram_Test	1.33	1.04	0.99	1.42	3.02	60.27
Cnidaria_Hydrozoa	1.49	0.89	0.99	1.14	3.00	63.27
Echinoderm_Brisingida	0.64	0.55	0.94	1.23	2.88	66.16
Cnidaria_Scleractinia_Cup Corals	0.89	1.52	0.94	1.79	2.88	69.03
Fish_Cartilagenous	0.82	0.46	0.93	2.05	2.83	71.86

Groups B & C
Average dissimilarity = 37.00

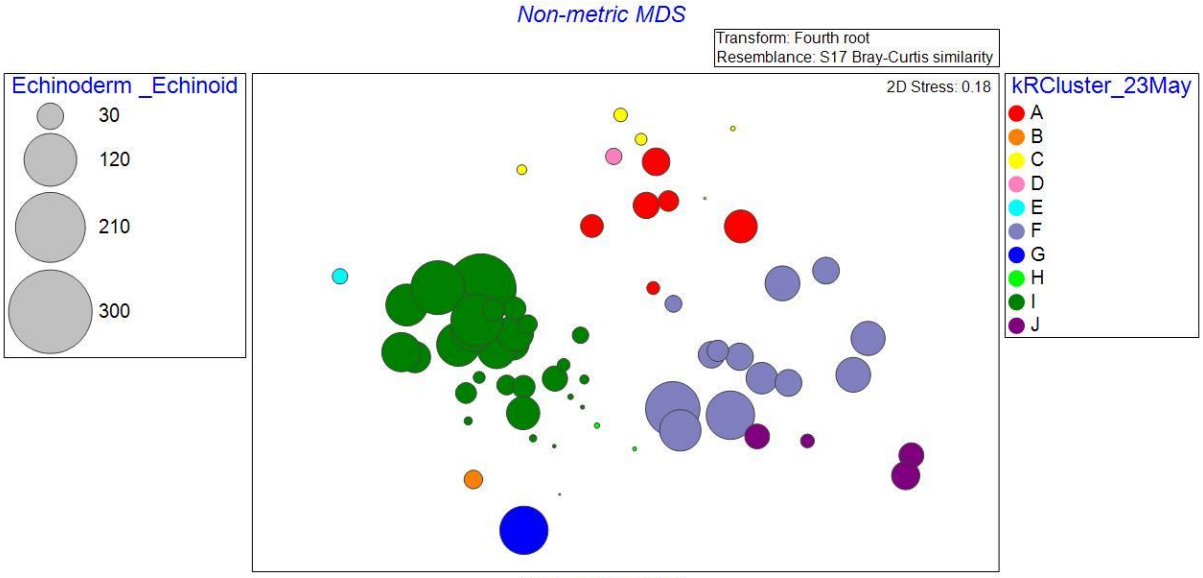
Species	Group B Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.68	4.08	5.11	2.51	13.82	13.82
Cnidaria_Actinaria	4.82	1.79	4.60	4.27	12.43	26.25
Mollusc_Bivalvia	1.66	0.00	2.45	0.95	6.62	32.87
Cnidaria_Zoanthidea	0.32	1.52	1.81	3.04	4.89	37.76
Porifera	2.48	1.28	1.78	4.87	4.82	42.59
Echinoderm_Holothurian	2.30	1.21	1.63	2.40	4.41	46.99
Bryozoan	0.49	1.40	1.38	1.55	3.74	50.73

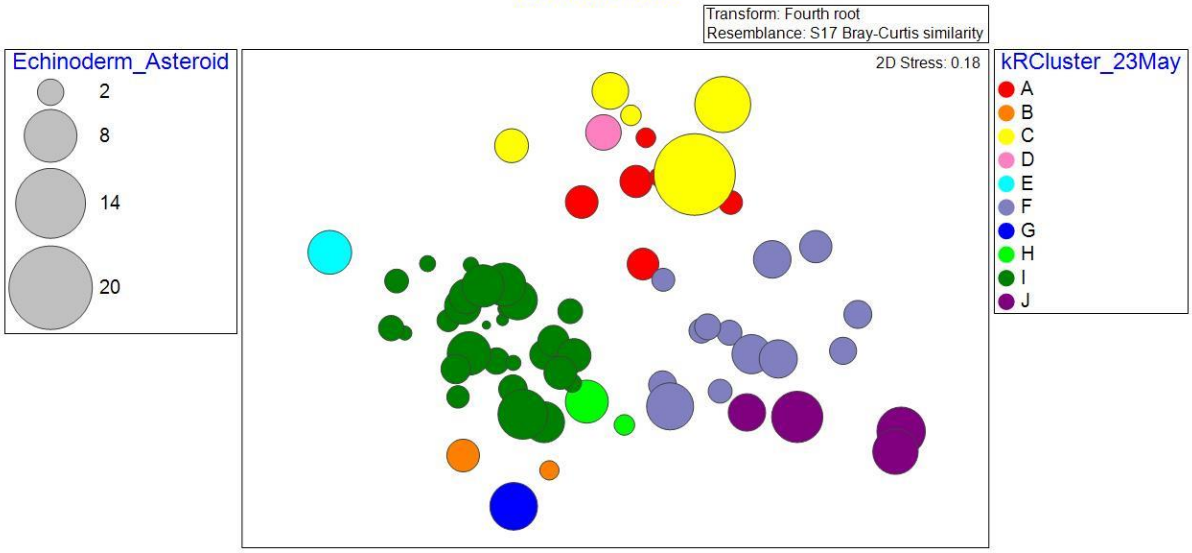
Porifera_Carnivorous	0.83	0.00	1.25	10.05	3.37	54.11
Tunicata	1.87	1.04	1.24	4.31	3.36	57.47
Worm	1.13	0.31	1.24	1.60	3.36	60.83
Large_Agglutinated_Foram_Test	1.39	1.04	1.06	1.52	2.86	63.69
Cnidaria_Hydrozoa	0.53	0.89	1.06	1.40	2.85	66.55
Mollusc_Octopod	0.00	0.67	1.03	1.81	2.77	69.32
Echinoderm _Echinoid	1.30	1.27	0.99	1.66	2.67	71.98

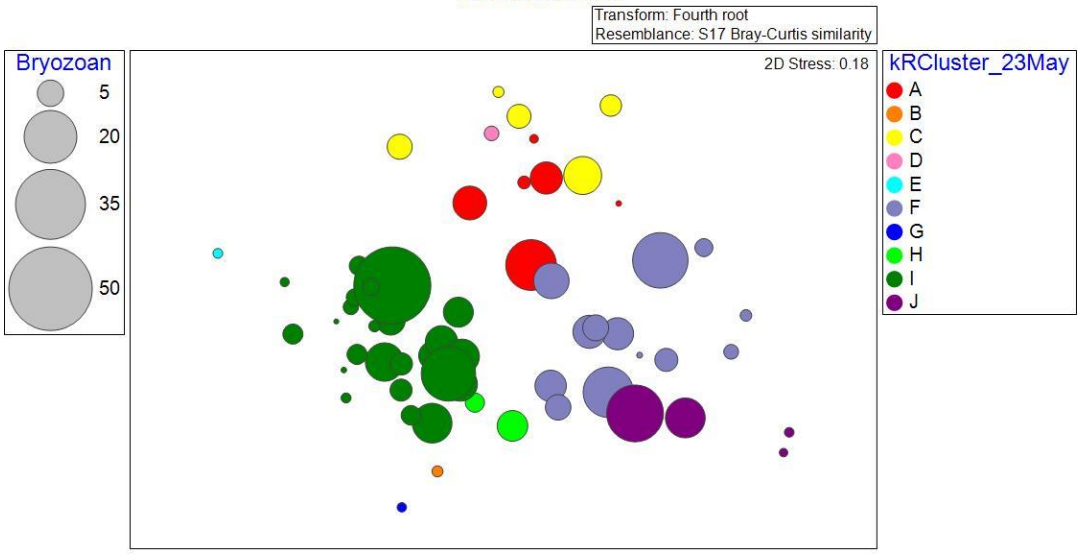
Groups G & C
Average dissimilarity = 39.85

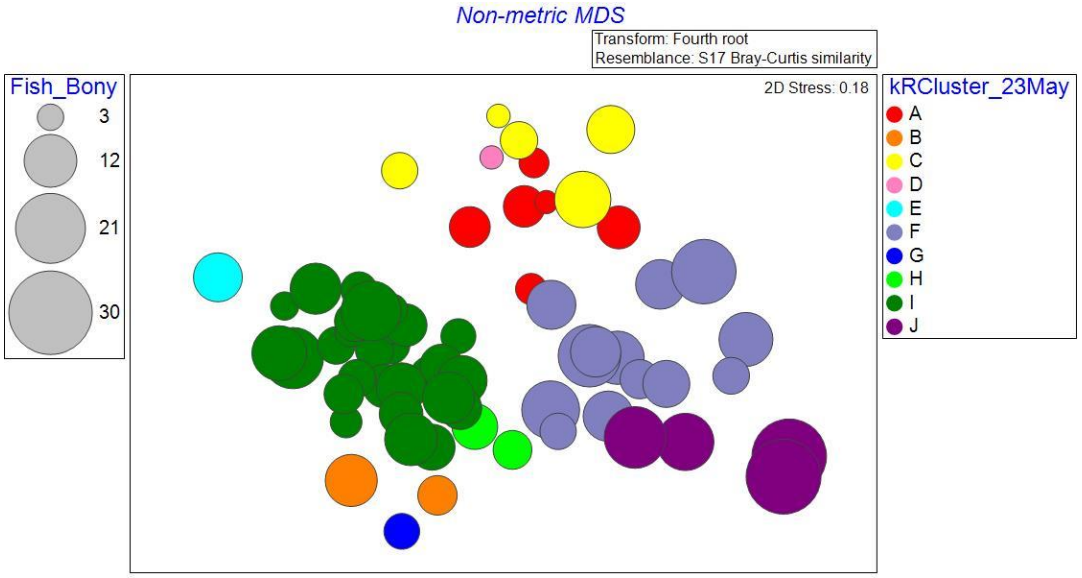
Species	Group G Av.Abund	Group C Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Echinoderm_Ophiuroid	0.00	4.08	6.35	3.48	15.92	15.92
Cnidaria_Pennatulacea	3.45	0.97	3.88	11.28	9.74	25.66
Echinoderm _Echinoid	3.17	1.27	2.96	4.95	7.43	33.09
Porifera	3.07	1.28	2.77	7.75	6.96	40.05
Cnidaria_Scleractinia_Cup Corals	0.00	1.52	2.37	3.94	5.94	45.98
Porifera_Carnivorous	1.41	0.00	2.20	23.17	5.51	51.50
Tunicata	2.25	1.04	1.89	5.69	4.73	56.23
Pycnogonid	0.00	1.03	1.60	5.61	4.01	60.24
Cnidaria_Hydrozoa	0.00	0.89	1.37	1.38	3.43	63.67
Cnidaria_Actinaria	2.46	1.79	1.07	1.19	2.69	66.35
Mollusc_Octopod	0.00	0.67	1.06	1.71	2.67	69.03
Fish_Cartilagenous	0.99	0.46	1.04	1.38	2.61	71.63

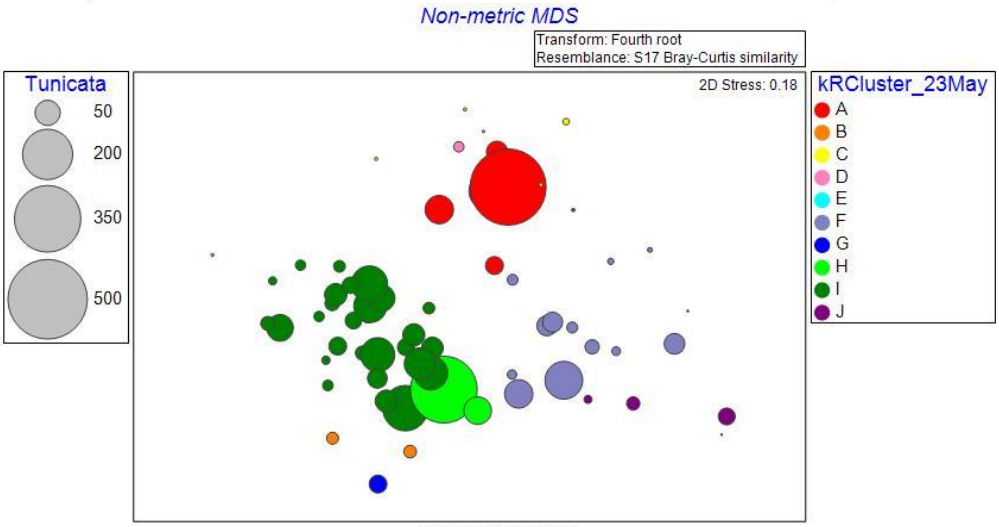
Bubble plots showing abundance of key epifaunal taxonomic groups:

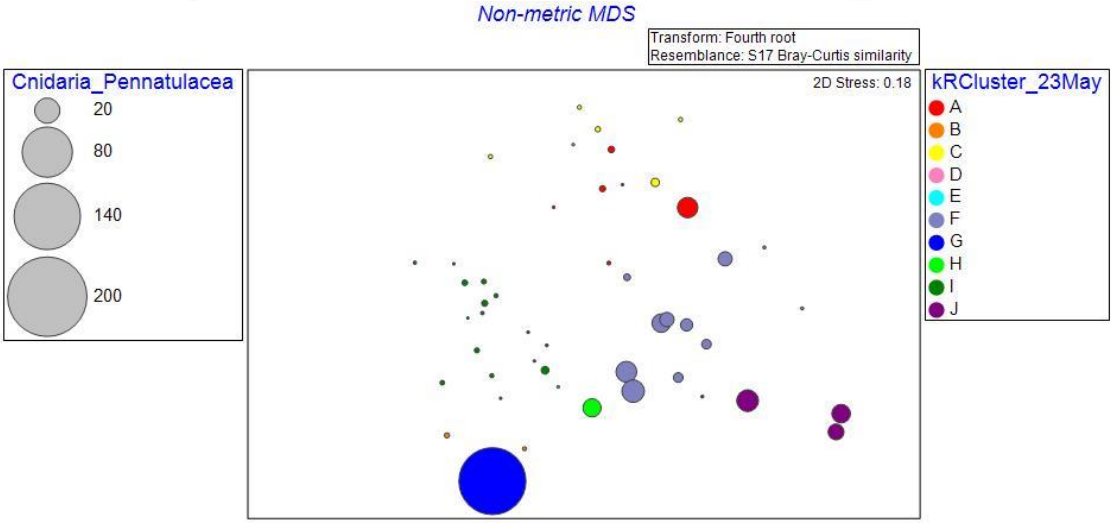


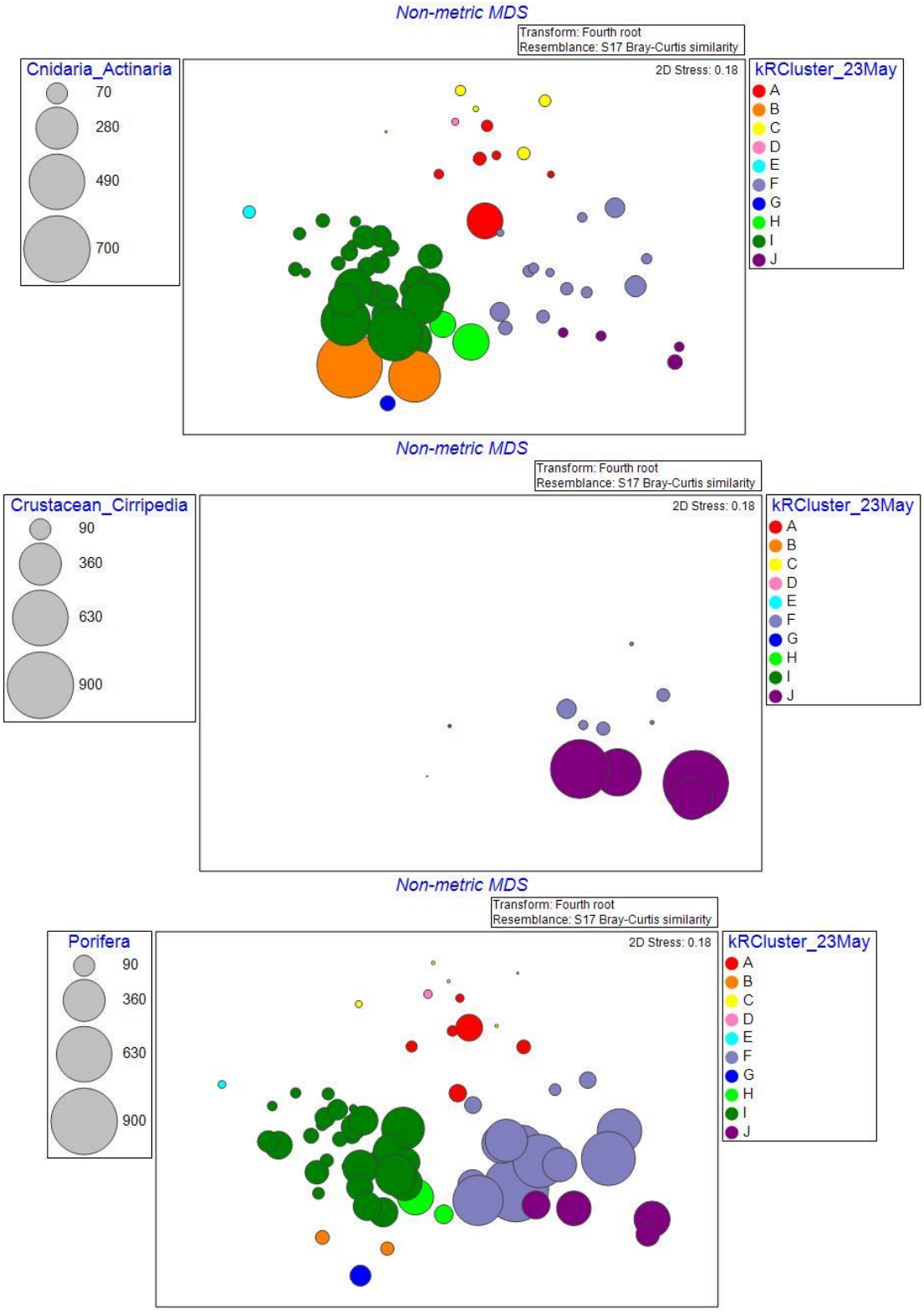


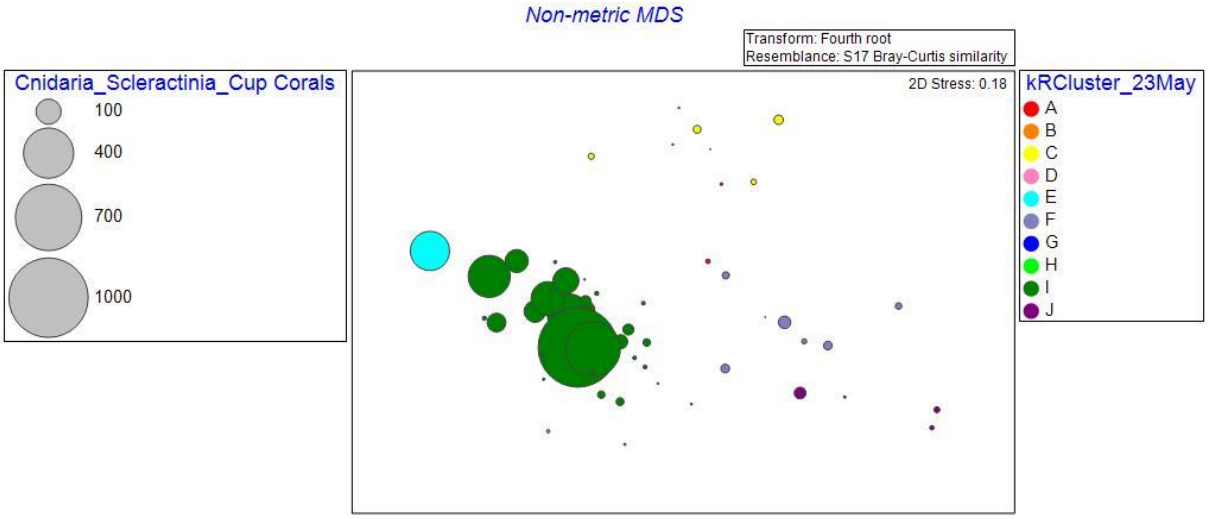


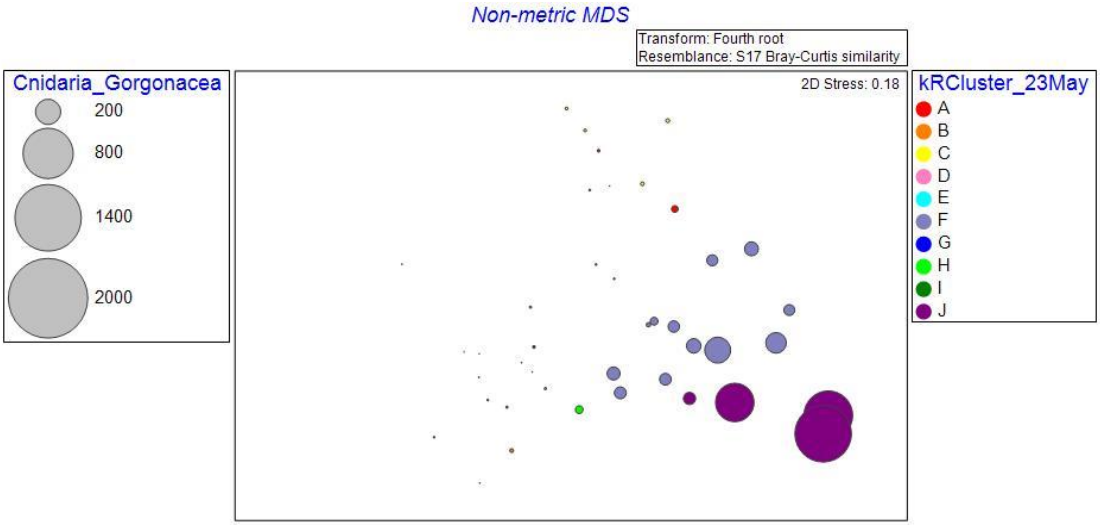

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Fish_Bony
3
12
21
30
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

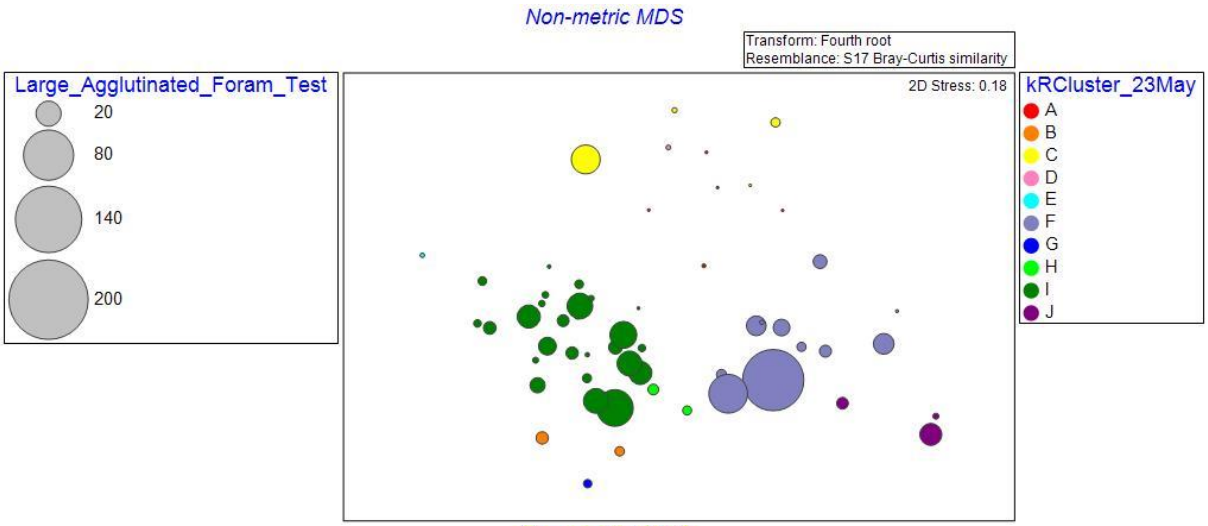

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Tunicata
50
200
350
500
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

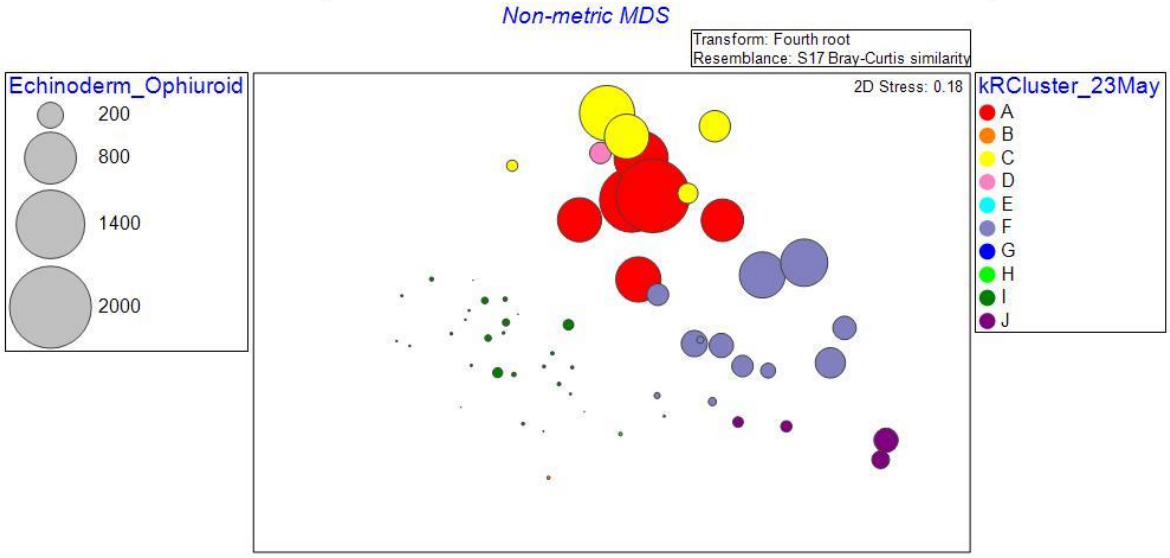

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Cnidaria_Pennatulacea
20
80
140
200
kRCluster_23May
A
B
C
D
E
F
G
H
I
J


Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Cnidaria_Actinaria
70
280
490
700
kRCluster_23May
A
B
C
D
E
F
G
H
I
J
Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Crustacean_Cirripedia
90
360
630
900
kRCluster_23May
A
B
C
D
E
F
G
H
I
J
Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Porifera
90
360
630
900
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

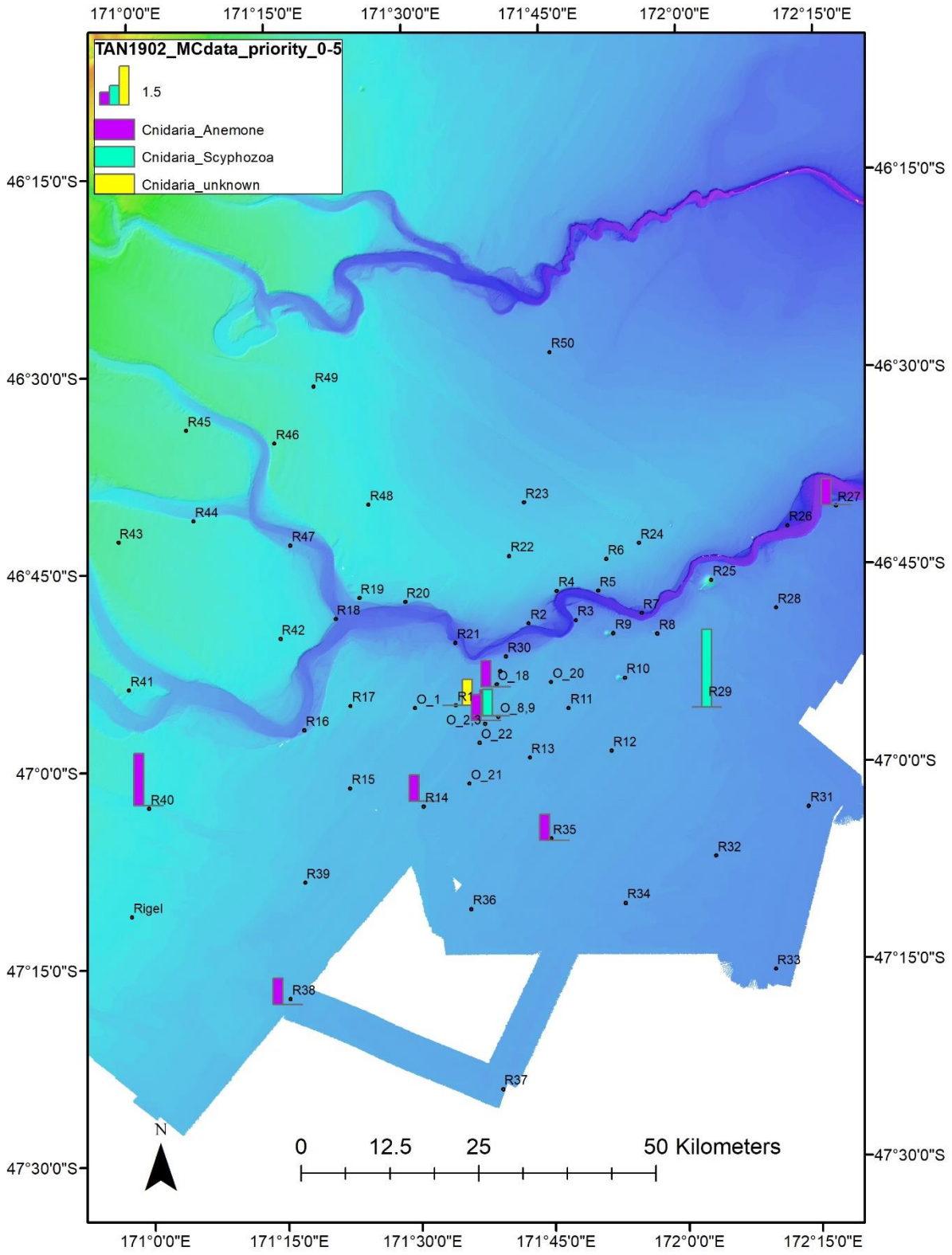

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Cnidaria_Scleractinia_Cup Corals
100
400
700
1000
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

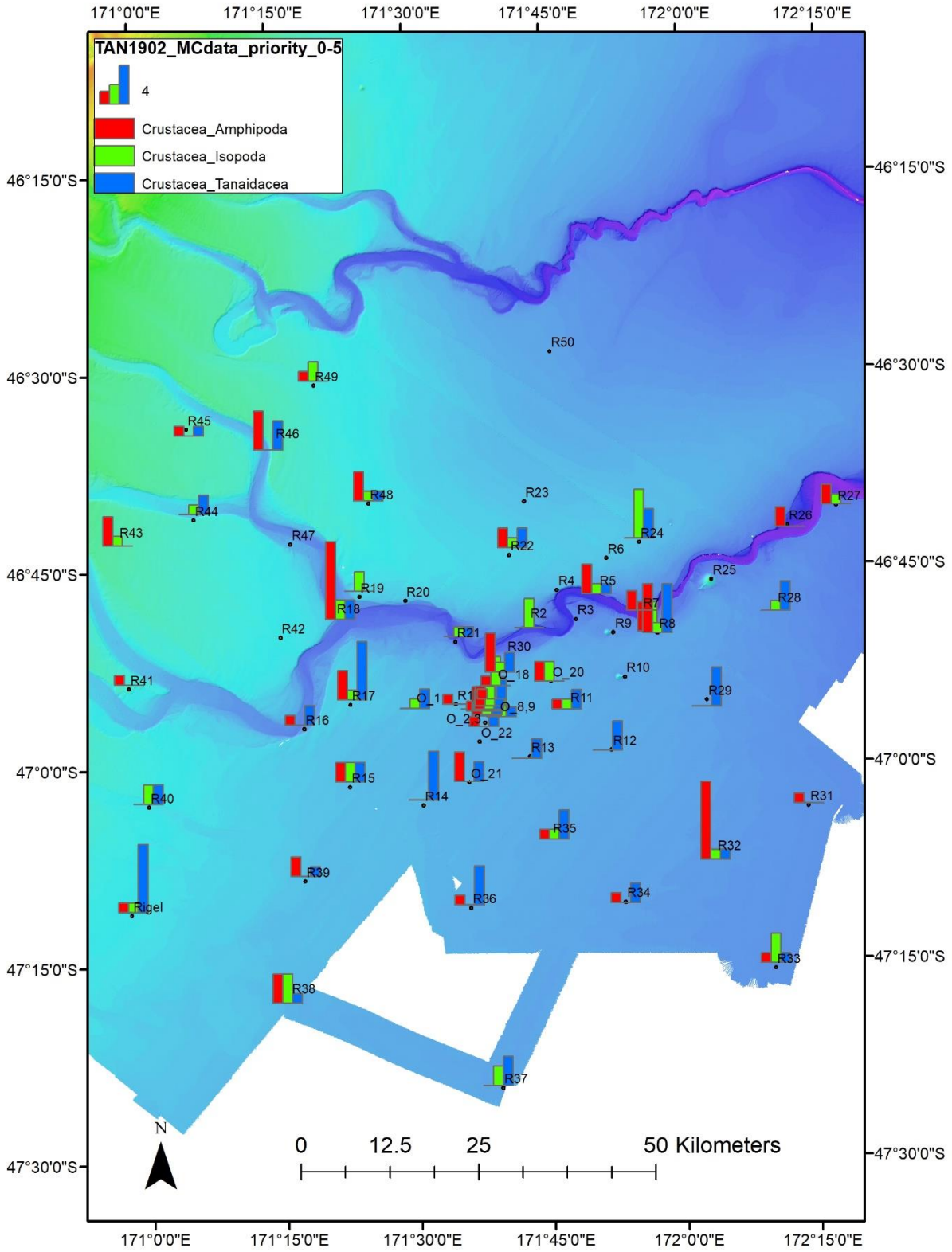

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Cnidaria_Gorgonacea
200
800
1400
2000
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

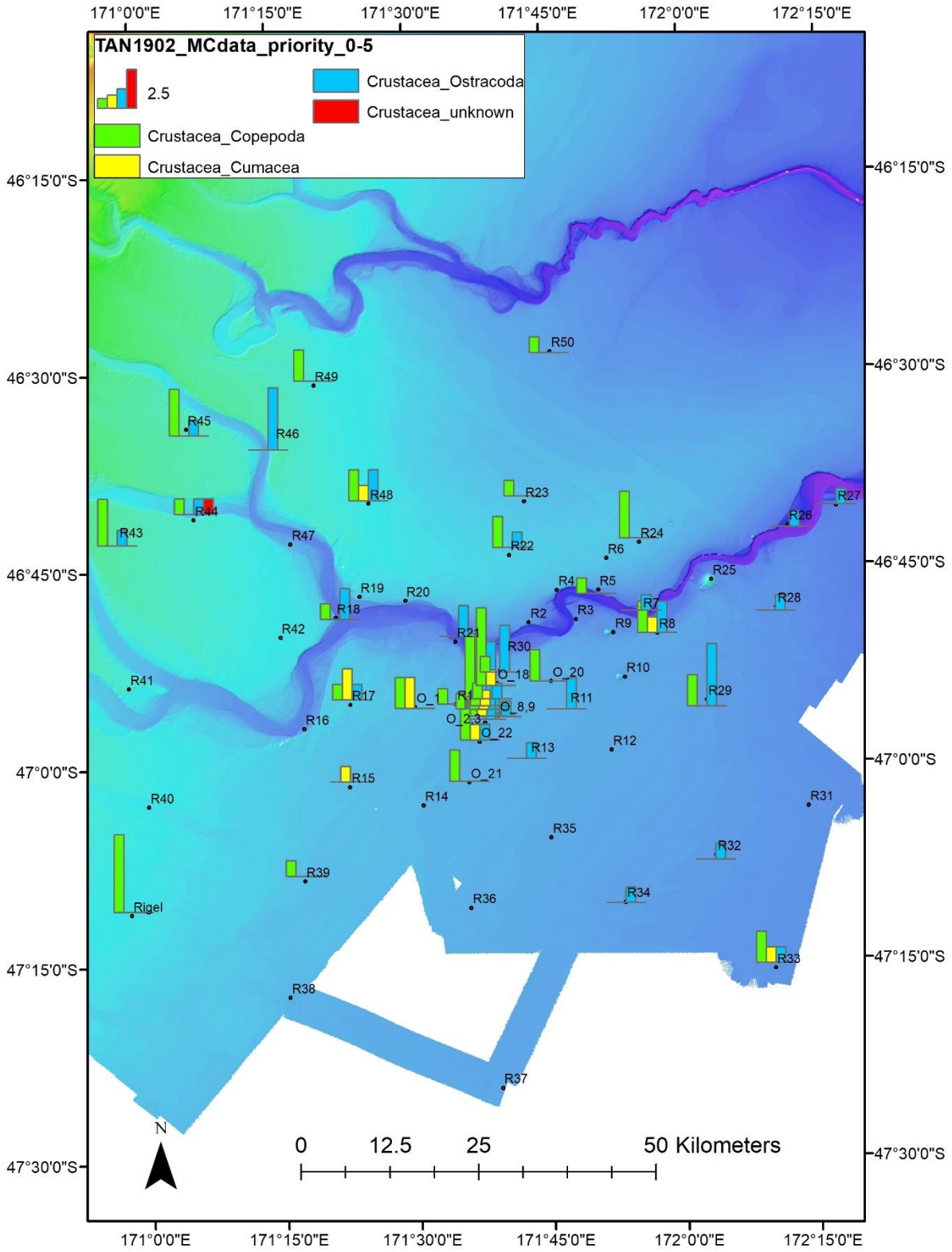

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Large_Agglutinated_Foram_Test
20
80
140
200
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

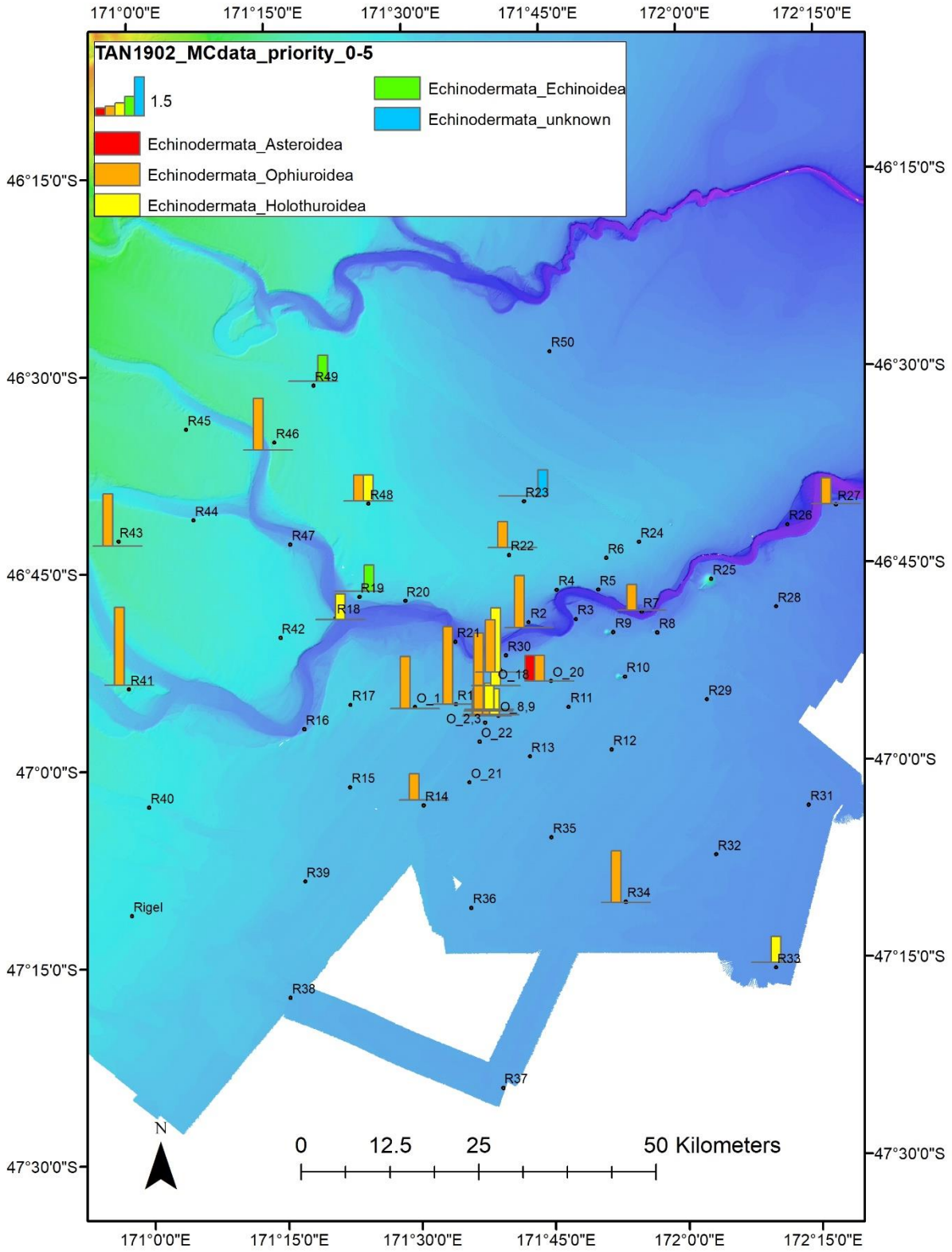

Non-metric MDS
Transform: Fourth root
Resemblance: S17 Bray-Curtis similarity
2D Stress: 0.18
Echinoderm_Ophiuroid
200
800
1400
2000
kRCluster_23May
A
B
C
D
E
F
G
H
I
J

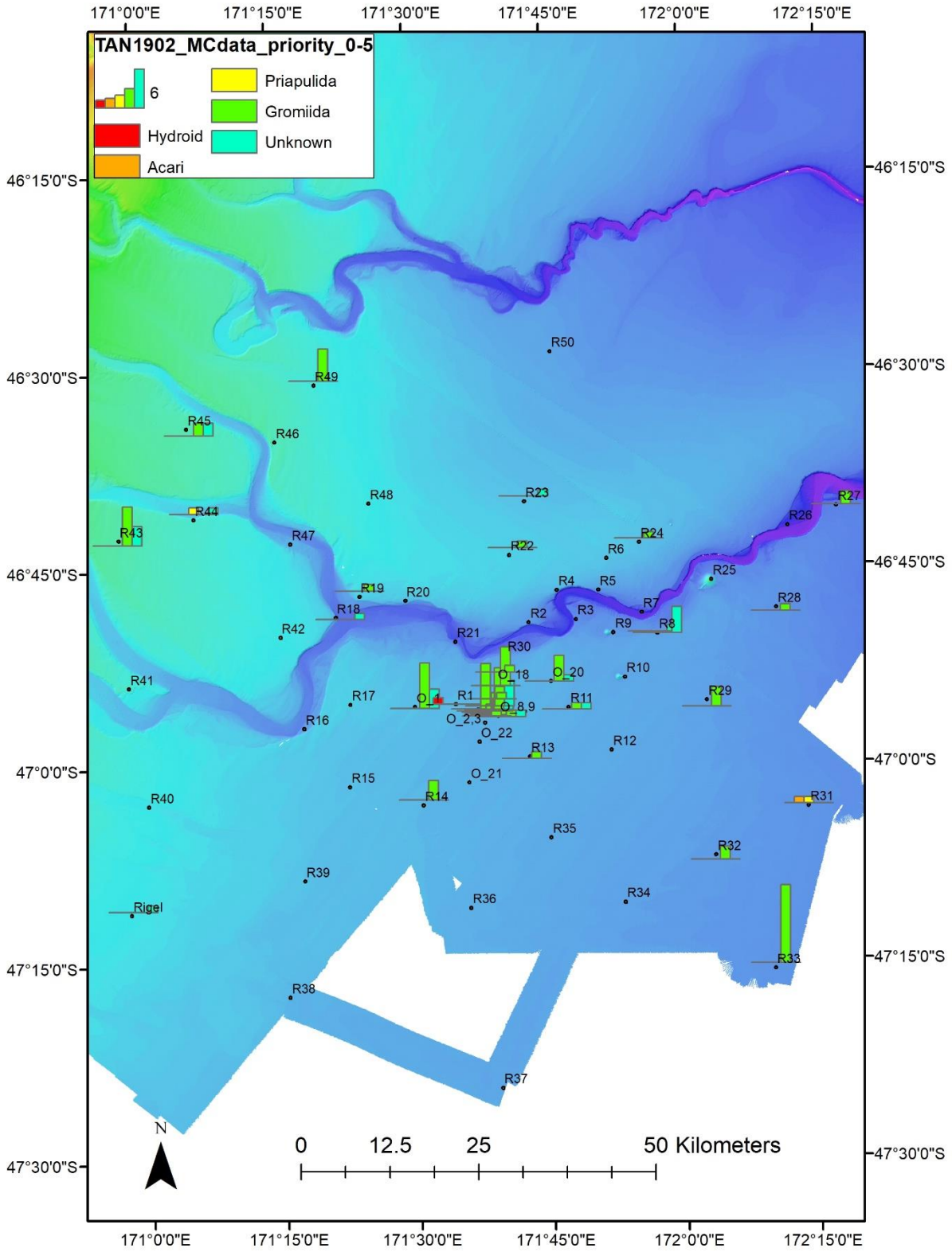
Appendix F Multicore data_abundance plots (priority 0-5 cm samples)

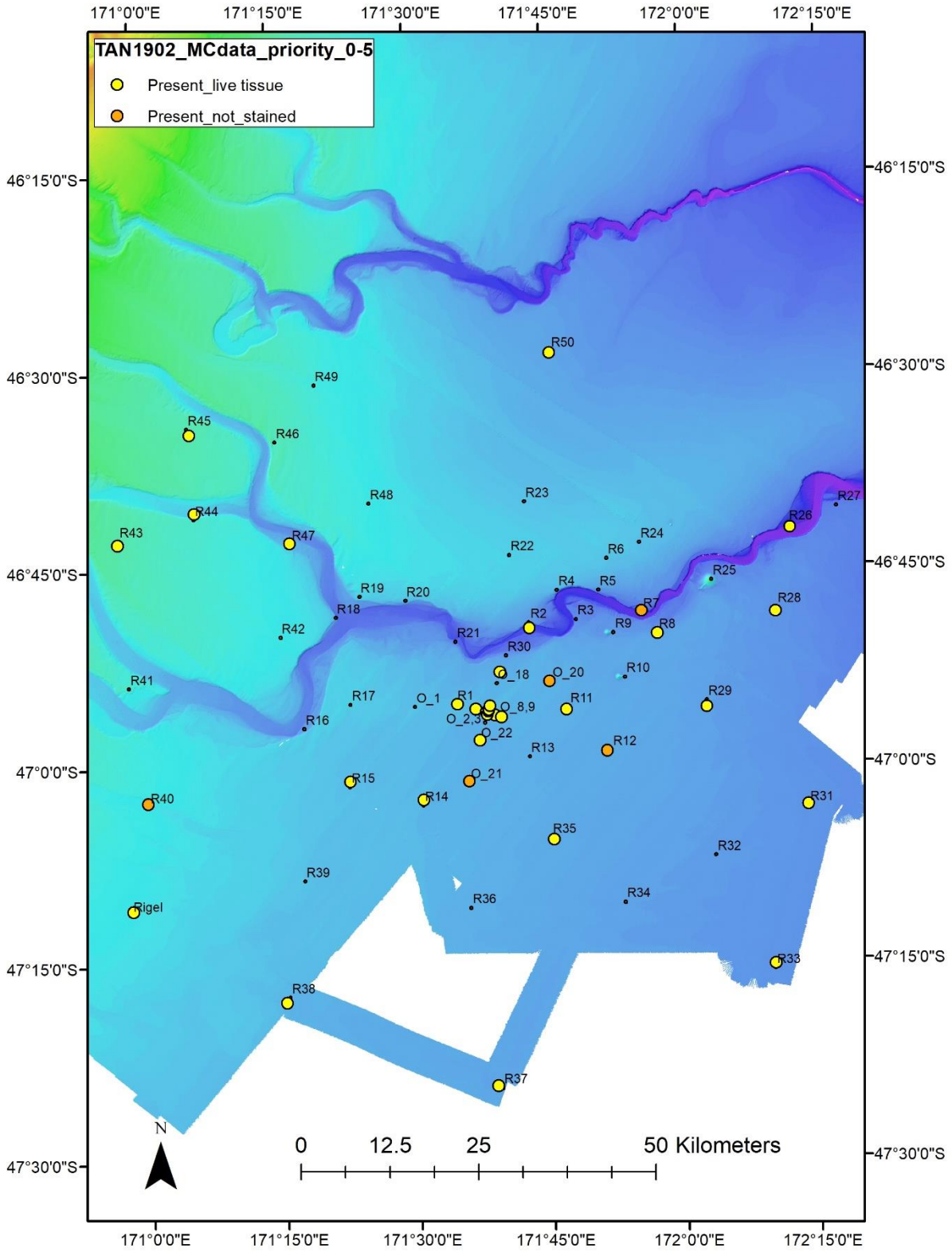


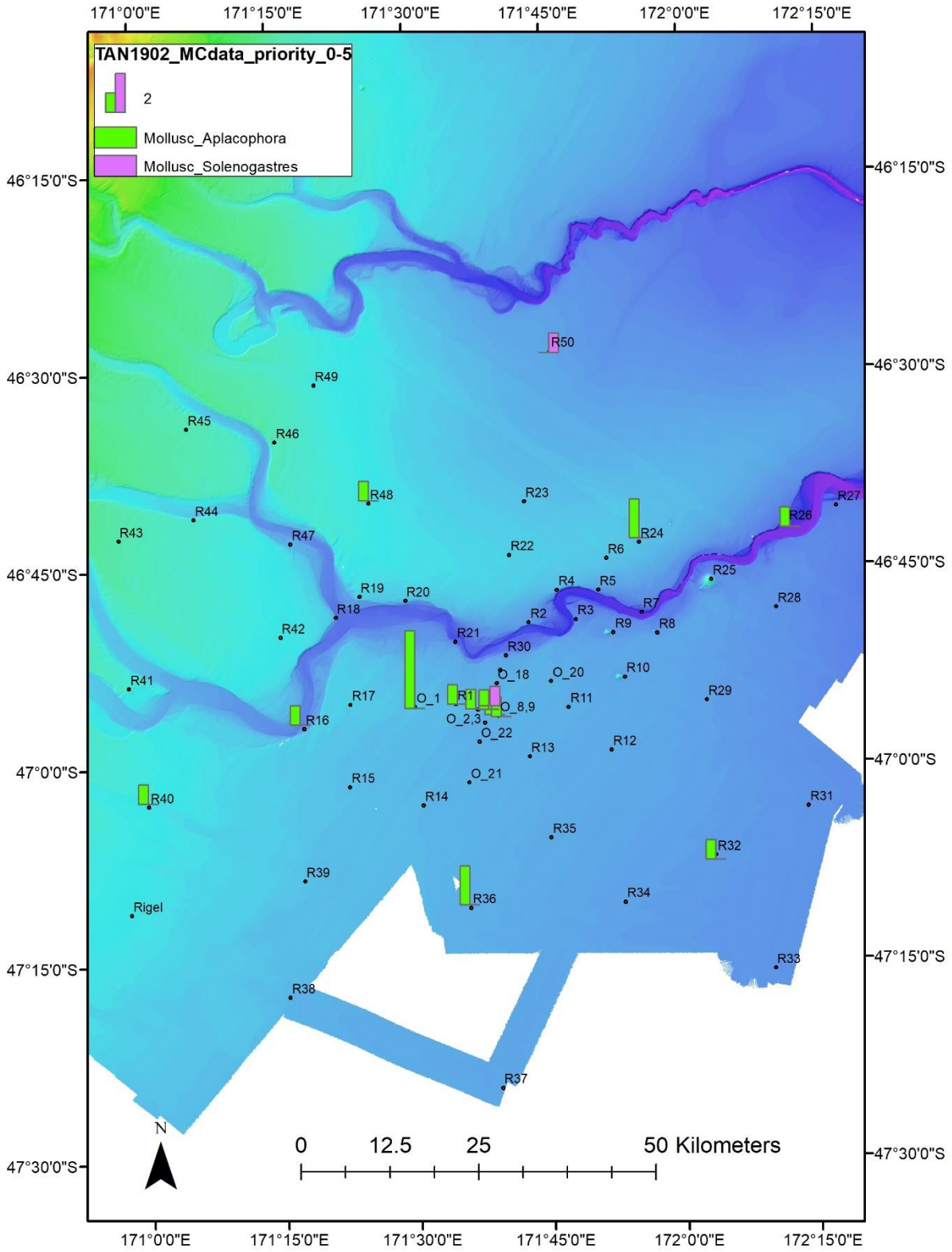

TAN1902_MCdata_priority_0-5
4
Crustacea_Amphipoda
Crustacea_Isopoda
Crustacea_Tanaidacea
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R18
R2
R3
R7
R28
R42
R21
R9
R8
R30
O_18
O_20
R10
R41
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers

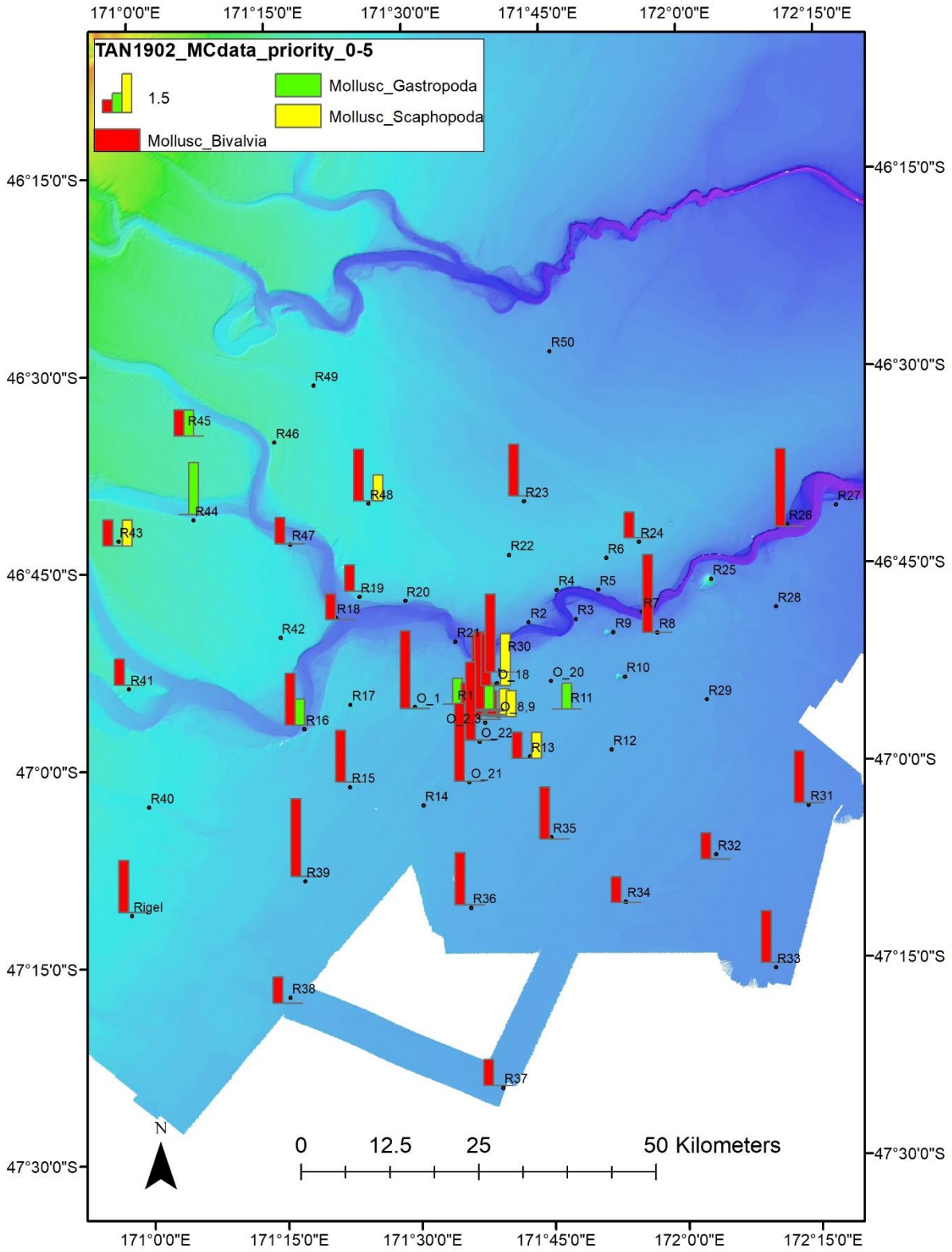

TAN1902_MCdata_priority_0-5
2.5
Crustacea_Ostracoda
Crustacea_unknown
Crustacea_Copepoda
Crustacea_Cumacea
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R43
R47
R22
R24
R26
R6
R25
R4
R5
R19
R20
R18
R2
R3
R7
R28
R42
R21
R9
R8
R30
O_18
O_20
R10
R41
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R34
Rigel
R36
R33
R38
R37
N
0
12.5
25
50 Kilometers

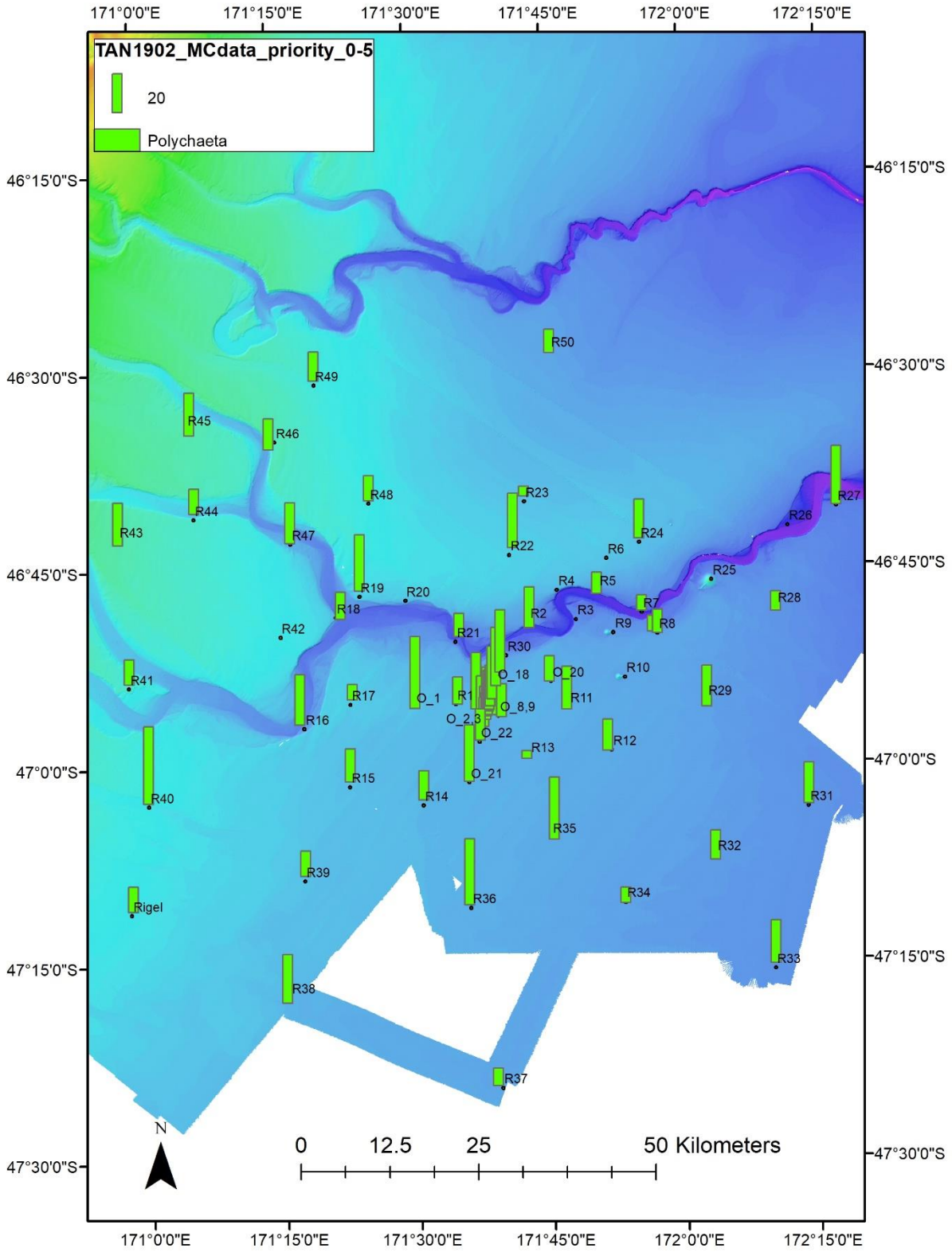

TAN1902_MCdata_priority_0-5
1.5
Echinodermata_Asteroidea
Echinodermata_Ophiuroidea
Echinodermata_Holothuroidea
Echinodermata_Echinoidea
Echinodermata_unknown
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R43
R47
R22
R24
R6
R26
R25
R19
R20
R4
R5
R28
R18
R2
R3
R7
R42
R21
R9
R8
R30
R41
O_18
O_20
R10
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R34
R36
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers

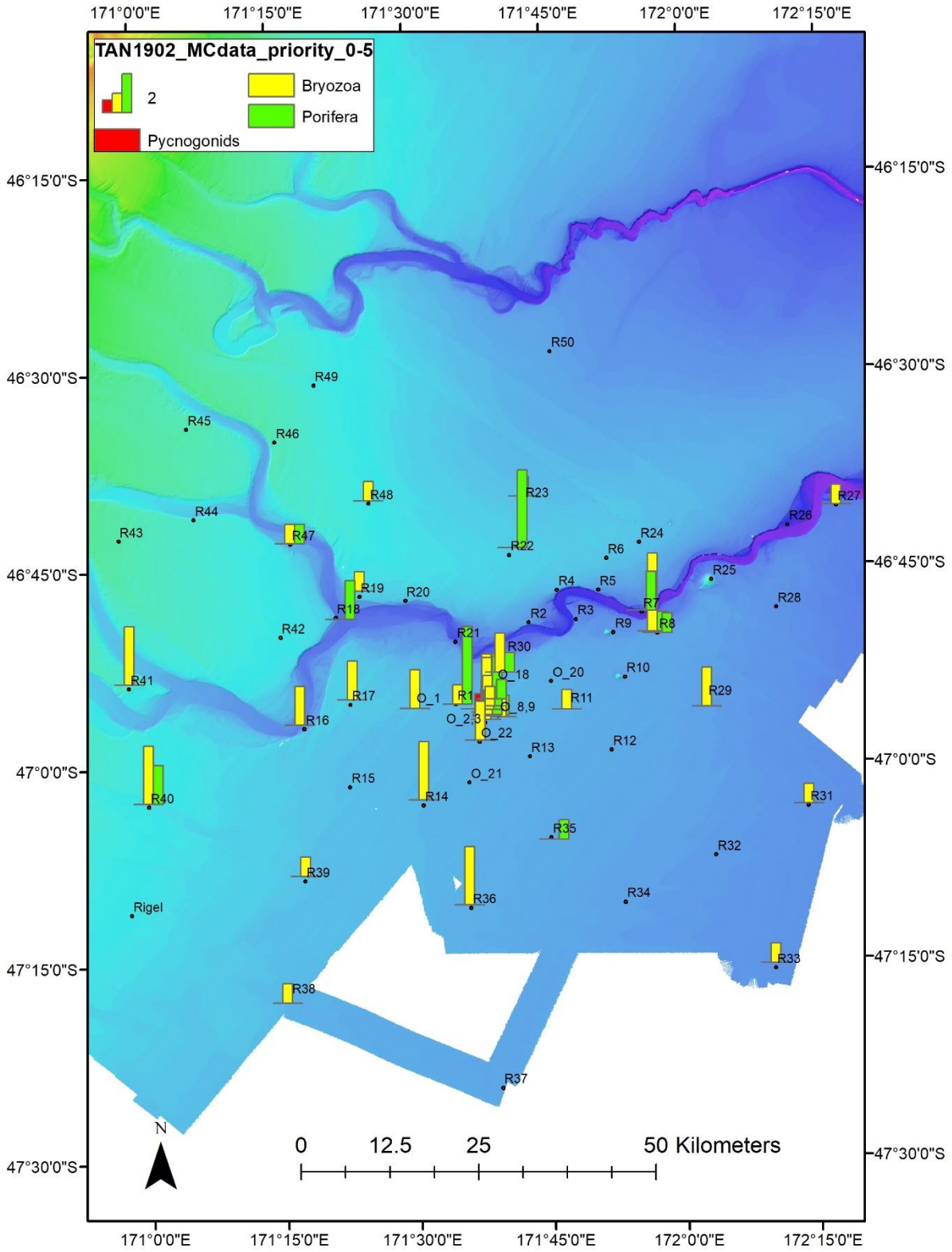

TAN1902_MCdata_priority_0-5
6
Hydroid
Acari
Priapulida
Gromiida
Unknown
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R26
R44
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R18
R2
R3
R7
R28
R42
R21
R9
R8
R30
O_18
O_20
R10
R41
R17
O_1
R1
R11
R29
O_8,9
O_2,3
R16
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers

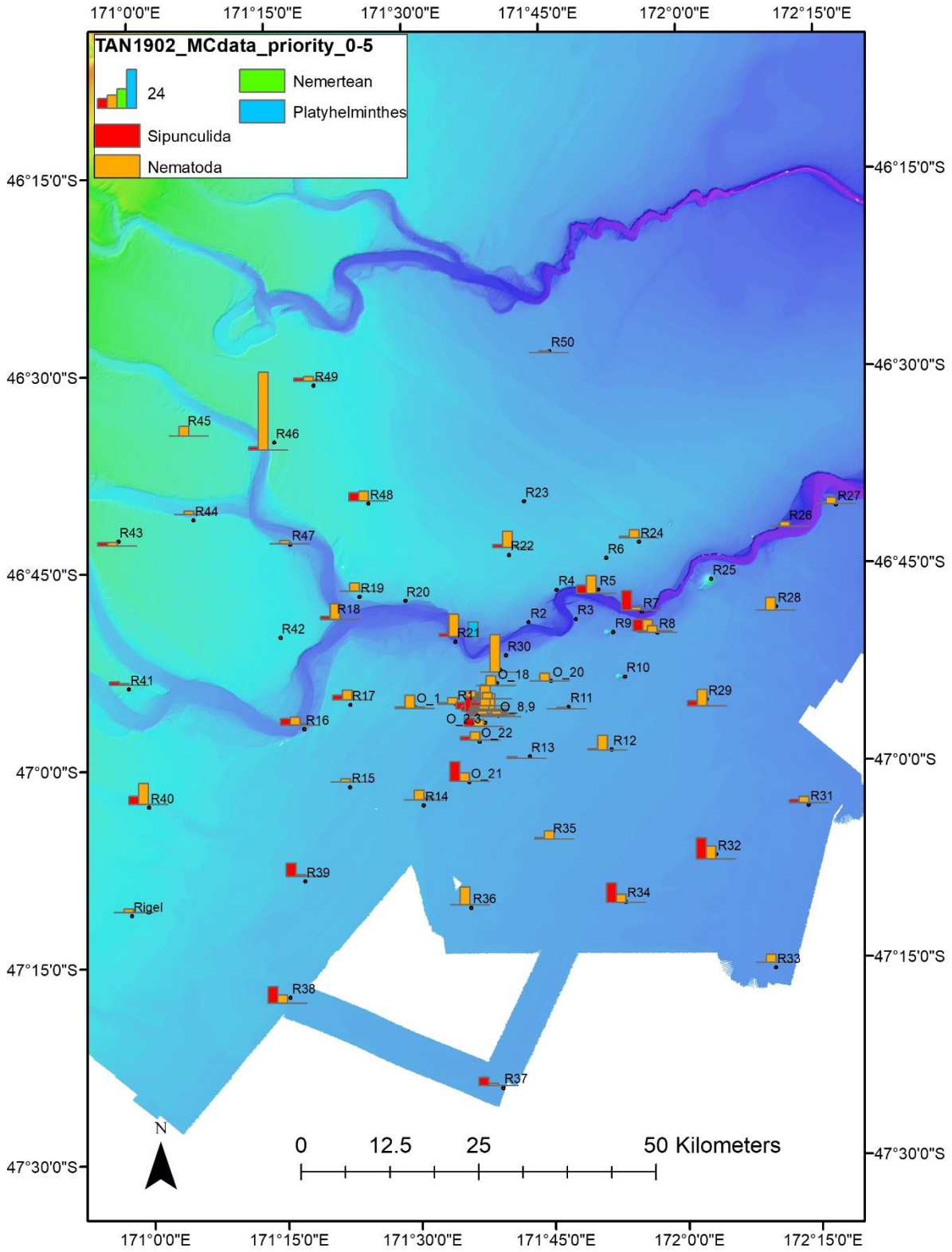

TAN1902_MCdata_priority_0-5
Present_live tissue
Present_not_stained
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R7
R28
R18
R2
R3
R9
R8
R42
R21
R30
O_18
O_20
R10
R41
R17
O_1
R1
O_8,9
R11
R29
O_2,3
R16
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers

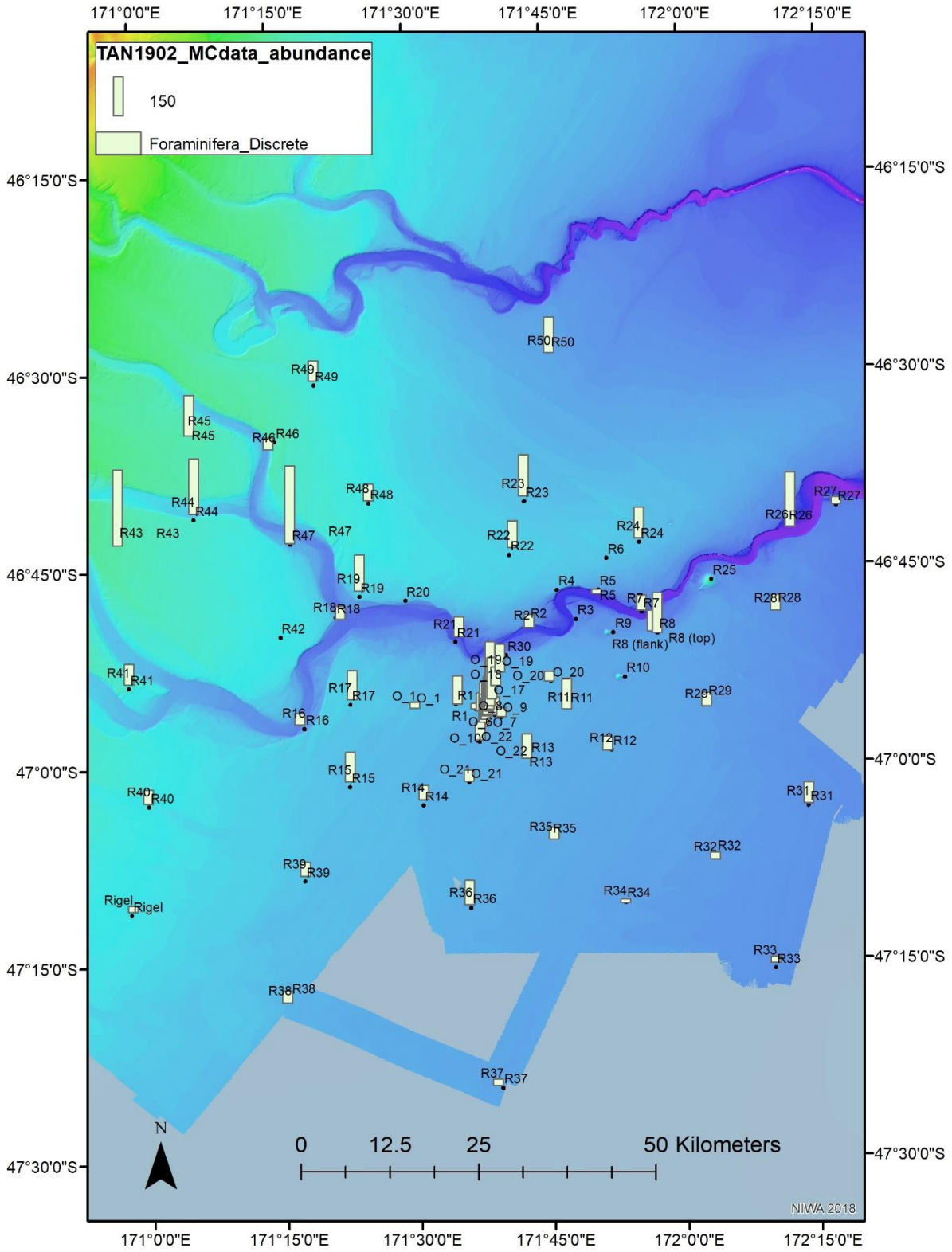

TAN1902_MCdata_priority_0-5
2
Mollusc_Aplacophora
Mollusc_Solenogastres
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R43
R47
R24
R26
R22
R6
R25
R4
R5
R19
R20
R7
R28
R18
R2
R3
R42
R21
R9
R8
R30
R10
O_18
O_20
R41
R17
O_1
R1
R11
R29
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_MCdata_priority_0-5
1.5
Mollusc_Gastropoda
Mollusc_Scaphopoda
Mollusc_Bivalvia
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R26
R44
R43
R47
R24
R22
R6
R25
R19
R20
R4
R5
R7
R28
R18
R2
R3
R9
R8
R42
R21
R30
R10
R41
O_18
O_20
R29
R17
O_1
R1
R11
O_8,9
R16
O_2,3
O_22
R13
R12
R15
O_21
R31
R40
R14
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_MCdata_priority_0-5
20
Polychaeta
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R43
R47
R22
R24
R26
R6
R25
R19
R20
R4
R5
R28
R18
R2
R3
R7
R42
R21
R9
R8
R30
R10
R41
O_18
O_20
R29
R17
O_1
R1
R11
O_8,9
R16
O_2,3
O_22
R12
R13
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_MCdata_priority_0-5
2
Pycnogonids
Bryozoa
Porifera
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R28
R18
R2
R3
R7
R42
R21
R9
R8
R30
R41
O_18
O_20
R10
R17
O_1
R1
R11
R29
R16
O_8,9
O_23
O_22
R13
R12
R40
R15
O_21
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_MCdata_priority_0-5
24
Nemertean
Platyhelminthes
Sipunculida
Nematoda
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
R50
R49
R45
R46
R48
R23
R27
R44
R26
R43
R47
R22
R24
R6
R25
R4
R5
R19
R20
R7
R28
R18
R2
R3
R42
R21
R9
R8
R30
R41
O_18
O_20
R10
R17
O_1
R1
R11
R29
O_8,9
R16
O_23
O_22
R13
R12
R15
O_21
R40
R14
R31
R35
R32
R39
R36
R34
Rigel
R33
R38
R37
N
0
12.5
25
50 Kilometers


TAN1902_MCdata_abundance
150
Foraminifera_Discrete
171°0'0"E
171°15'0"E
171°30'0"E
171°45'0"E
172°0'0"E
172°15'0"E
46°15'0"S
46°30'0"S
46°45'0"S
47°0'0"S
47°15'0"S
47°30'0"S
N
0
12.5
25
50 Kilometers
NIWA 2018

Appendix G Multicore data – SIMPER analysis

SIMPER

Similarity Percentages - species contributions

One-Way Analysis

Data worksheet
Name: Data6_log_no discrete foram
Data type: Abundance
Sample selection: All
Variable selection: All

Parameters
Resemblance: S17 Bray-Curtis similarity
Cut off for low contributions: 70.00%

Factor Groups

Sample	KRCluster_log_noforam
TAN1902/37_MAF_1	B
TAN1902/40_MAFA_1	B
TAN1902/41_MAF_1	B
TAN1902/44_MAF_1	B
TAN1902/49_MAF_1	B
TAN1902/52_MAF_1	B
TAN1902/57_MAF_1	B
TAN1902/60_MAF_1	B
TAN1902/64_MAF_1	B
TAN1902/67_MAF_1	B
TAN1902/70_MAF_1	B
TAN1902/76_MAF_1	B
TAN1902/79_MAF_1	B
TAN1902/83_MAF_1	B
TAN1902/87_MAF_1	B
TAN1902/91_MAF_1	B
TAN1902/95_MAF_1	B
TAN1902/99_MAF_1	B
TAN1902/103_MAF_1	B
TAN1902/106_MAF_1	B
TAN1902/127_MAFA_1	B
TAN1902/128_MAFA_1	B
TAN1902/130_MAFA_1	B
TAN1902/131_MAFA_1	B
TAN1902/133_MAFA_1	B
TAN1902/135_MAFA_1	B
TAN1902/137_MAFA_1	B
TAN1902/138_MAFA_1	B
TAN1902/141_MAFA_1	B
TAN1902/154_MAFA_1	B
TAN1902/155_MAFA_1	B
TAN1902/157_MAFA_1	B
TAN1902/158_MAFA_1	B
TAN1902/159_MAFA_1	B
TAN1902/160_MAFA_1	B
TAN1902/166_MAF_1	B

TAN1902/169_MAFA_1	B
TAN1902/170_MAFA_1	B
TAN1902/171_MAFA_1	B
TAN1902/175_MAFA_1	B
TAN1902/178_MAFA_1	B
TAN1902/182_MAFA_1	B
TAN1902/188_MAFA_1	B
TAN1902/191_MAFA_1	B
TAN1902/193_MAFA_1	B
TAN1902/195_MAFA_1	B
TAN1902/197_MAFA_1	B
TAN1902/199_MAFA_1	B
TAN1902/202_MAFA_1	B
TAN1902/204_MAFA_1	B
TAN1902/206_MAFA_1	B
TAN1902/208_MAFA_1	B
TAN1902/210_MAFA_1	B
TAN1902/213_MAFA_1	B
TAN1902/216_MAFA_1	B
TAN1902/218_MAFA_1	B
TAN1902/219_MAFA_1	B
TAN1902/220_MAFA_1	B
TAN1902/233_MAFA_1	B
TAN1902/73_MAF_1	A
TAN1902/129_MAFA_1	A
TAN1902/136_MAFA_1	A
TAN1902/173_MAFA_1	A
TAN1902/183_MAFA_1	A
TAN1902/186_MAFA_1	A

Group B
Average similarity: 58.76

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Polychaeta	2.94	22.90	5.46	38.97	38.97
Nematoda	1.90	12.67	3.23	21.56	60.53
Crustacea_Tanaidacea	0.83	3.99	0.95	6.78	67.32
Sipunculida	0.95	3.94	0.74	6.71	74.03

Group A
Average similarity: 33.10

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Polychaeta	1.96	22.45	1.26	67.82	67.82
Mollusc_Bivalvia	0.71	5.89	0.75	17.80	85.62

Groups B & A
Average dissimilarity = 60.11

Species	Group B Av.Abund	Group A Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Nematoda	1.90	0.35	8.71	2.17	14.48	14.48
Polychaeta	2.94	1.96	6.24	1.08	10.38	24.87
Sipunculida	0.95	0.12	5.28	1.08	8.78	33.64
Crustacea_Tanaidacea	0.83	0.18	4.37	1.28	7.27	40.91
Crustacea_Amphipoda	0.75	0.18	3.93	1.28	6.54	47.45
Mollusc_Bivalvia	0.58	0.71	3.46	1.21	5.75	53.20
Crustacea_Isopoda	0.56	0.23	3.38	1.11	5.62	58.82
Gromiida	0.60	0.12	3.23	0.91	5.37	64.19
Crustacea_Ostracoda	0.36	0.53	3.20	1.02	5.32	69.50
Crustacea_Copepoda	0.54	0.23	2.85	1.03	4.74	74.24

Appendix H Summary of knowledge – Solitary cup corals

Prepared by NIWA benthic scientists Di Tracey, Jenny Beaumont and Sadie Mills

Deep-sea scleractinian cup corals occur as solitary individuals or in small clumps attached to hard substrate or living in areas of soft sediment. Those that occur in soft sediments include the Flabellum cup coral (Family Flabellidae) whose distribution covers regions of flat slope, as well as the *Stephanocyathus platypus* species of the Caryophylliidae family. Other cup corals, such as *Desmophyllum dianthus* (also Family Caryophylliidae) are found on hard substrate or structures, including hard corals. While cup corals occur as solitary individuals, reef-like or thicket forms of branching scleractinian stony corals can provide extensive three-D matrices and important biogenic habitat.

Distribution data

The figures below (Figure A1 and Figure A2) show the distribution and abundances of cup corals around New Zealand using data from NIWA's Invertebrate Collection Specify database, *niwainvert*, together with TAN1902 data from the GSB. The Specify data are records of specimens collected from scientific voyages around NZ. Figure A1 is the available data on cup corals from depths below 500 m. Figure A2 is the available data on cup corals from depths below 1000 m. Please note the different scales in the legend. The abundances of LBBs (cup corals and possibly small anemones – ID is still in progress) observed within the GSB are much higher than the NZ wide *niwainvert* data. It should, however, be noted that while the position data are accurate, the counts recorded within Specify are qualitative rather than quantitative and are not necessarily representative of the seabed communities.

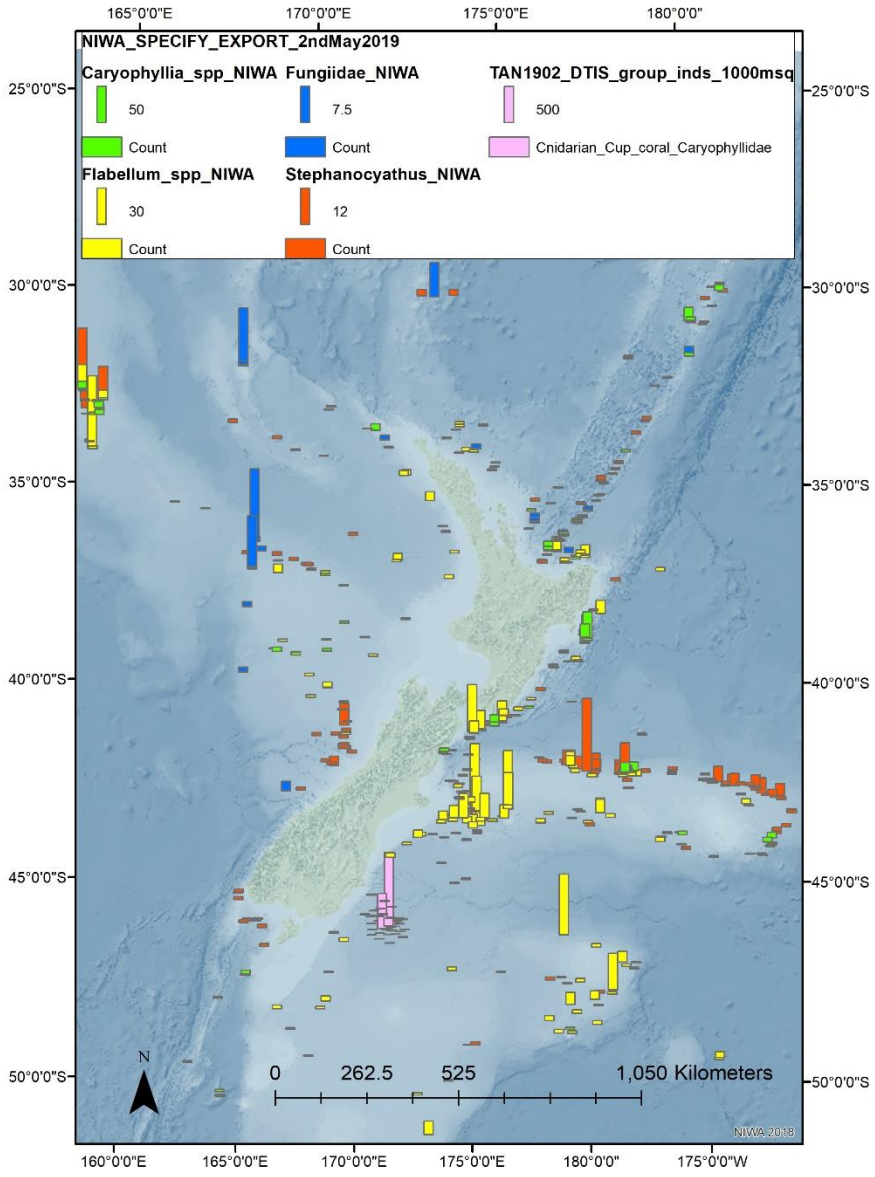


Figure A1: NIWA Invertebrate Collection Specify data export of cup coral data below 500 m and abundance of LBBs (inds./1000 m^2) from DTIS data within the GSB. Note the different scales.

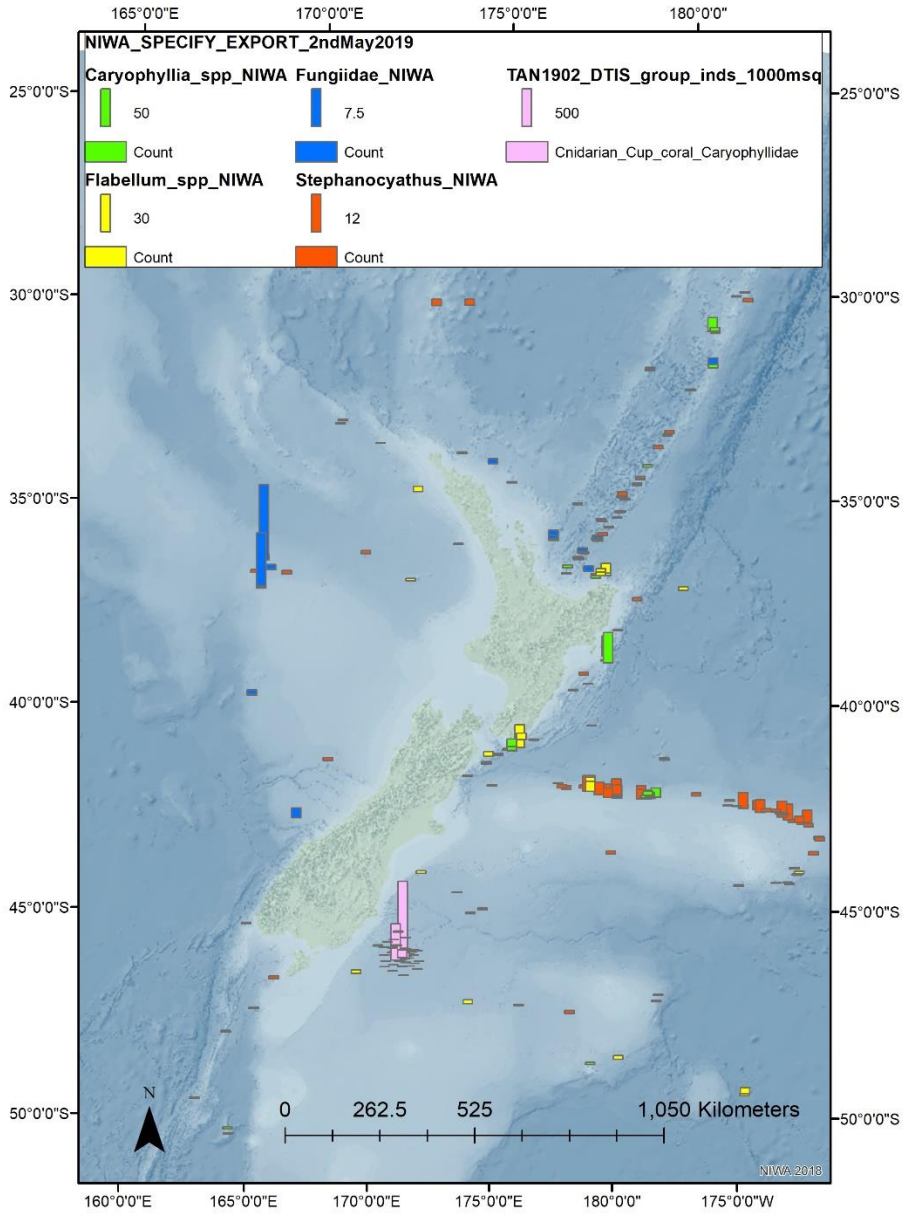


Figure A2: NIWA Invertebrate Collection Specify data export of cup coral data below 1000 m and abundance of LBBs (inds./1000 m2) from DTIS data within the GSB. Note the different scales.

Figure A3 and Figure A4 show combined data from 5 voyages to the Chatham Rise (Anderson, O.F. et al. In press; Bowden et al. In press) together with TAN1902 data from the GSB. Both datasets were collected using NIWA's DTIS and are plotted as abundances per 1000 m^2. Figure A3 is all data from depths greater than 500 m and Figure A4 is all data from depths greater than 1000 m. Again, please note the different scales on the plots. The abundances of the LBBs in the GSB is much higher than those observed on the Chatham Rise.

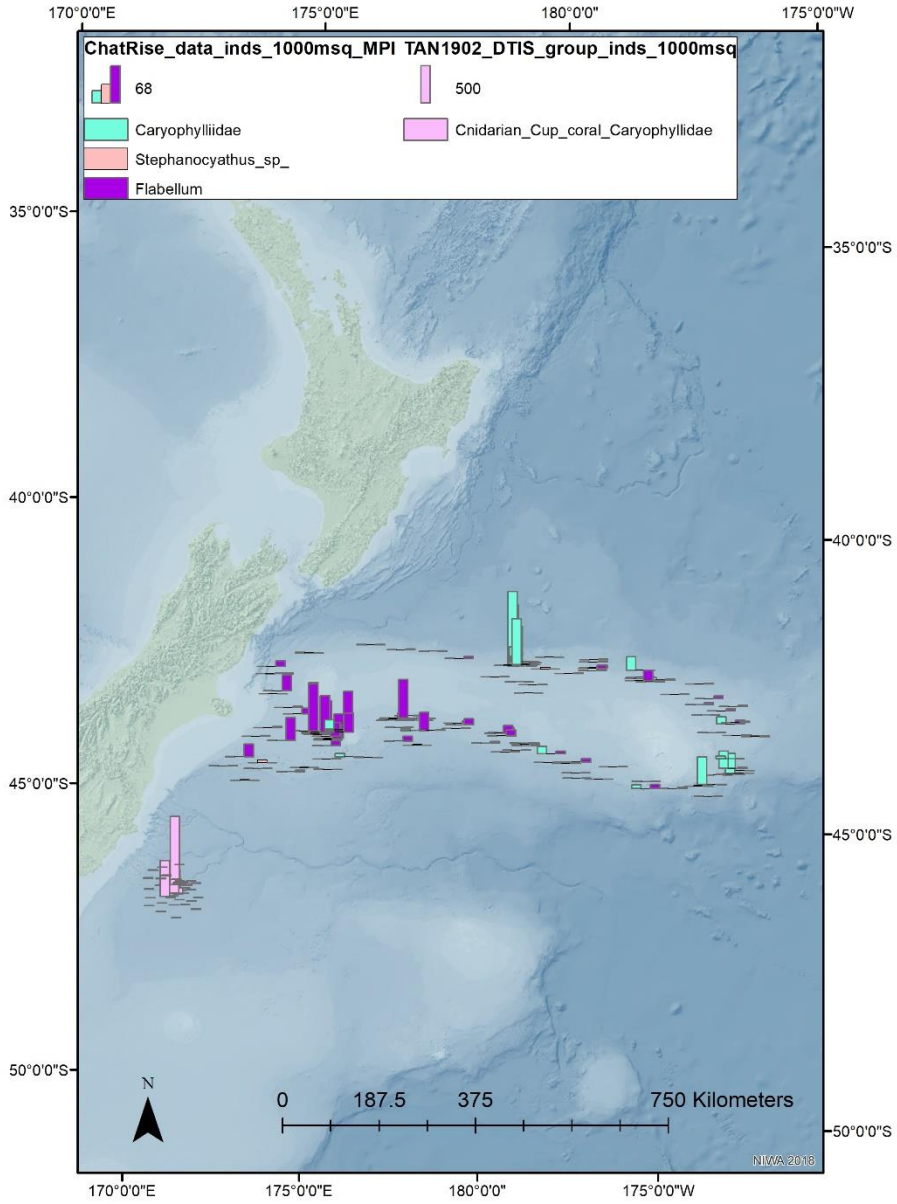


Figure A3: Abundances of cup corals from the Chatham Rise below 500 m and abundance of LBBs (inds./1000 m^2) from DTIS data within the GSB. Note the different scales. Chatham rise data from Anderson, O.F. et al. (In press) and Bowden et al. (In press).

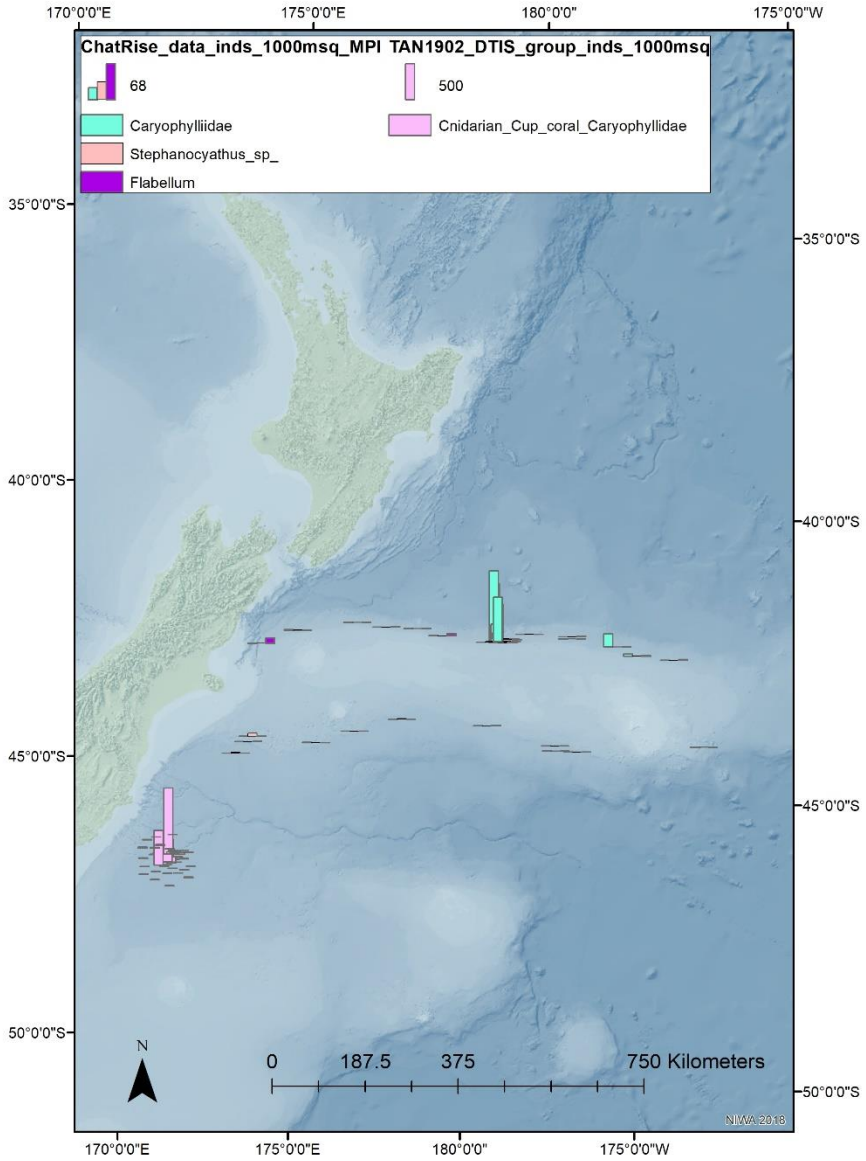


Figure A4: Abundances of cup corals from the Chatham Rise below 1000 m and abundance of LBBs (inds./1000 m^2) from DTIS data within the GSB. Note the different scales. Chatham rise data from Anderson, O.F. et al. (In press) and Bowden et al. (In press).

Sedimentation

Here we describe what the sediment-associated cup coral groups known response might be to impacts such as drilling operations. Global data have been summarised for a branching stony coral as currently information is lacking for the NZ region. However, some information on the response of a New Zealand black coral to elevated sedimentation is available.

Anthropogenic threats to cold-water stony coral reefs are trawling and hydrocarbon drilling, with both activities causing increased levels of suspended particles. The key threat identified by the New Zealand Department of Conservation (DOC) for marine invertebrates, including corals, were fishing and land-use associated impacts such as sedimentation (Freeman et al. 2010; Freeman et al. 2014). Sedimentation or deposition of material from land use activities and marine activities such as dredging or seabed mining may also pose a threat to shallow water corals in locations where the relief is low and/or where tidal flow is low and material can accumulate on the corals (Tracey and Hjorvarsdottir In review).

Currently New Zealand has no data on burial threshold levels for cup corals but a study is in place to investigate sedimentation impacts on deep-sea sponges and a branching coral (NIWA led Programme "The resilience of deep-sea benthic communities to the effects of sedimentation"). The experimental aspect of this research will not be completed until late 2019 when it is intended to provide information on the concentrations and distances over which impacts of suspended sediment on faunal communities become 'ecologically significant', as well as assess the short to medium term resilience and recovery of species and communities. https://niwa.co.nz/coasts-and-oceans/research-projects/resilience-of-deep-sea-benthic-fauna-to-sedimentation-from-seabed-mining

In the New Zealand fiord region, the variably-coloured snake star species *Astrobrachion constrictum* lives tightly wound around the branches of *Antipathella fiordensis* (Stewart 1998) during the day, and at night it unwinds to feed using various methods: it either catches organisms floating past in the water column or sweeps up detritus that lands on the mucus layer of the coral surface (Stewart 1998). This doesn't harm the coral and aids in keeping it clean and healthy, safe from potential negative impacts in areas of heavy sedimentation or in catastrophic landslide events (Grange 1991). Evidence for the benefit to the coral of this ophiuroid cleaning action was seen in the Gulf of Mexico following the Deepwater Horizon blowout event. Girard et al. (2016) found that the colonies of octocoral *Paramuricea biscaya* that carried one or more ophiuroids (*Asteroschema clavigerum*) were on average less visibly impacted by the oil spill than corals that did not host any. Note that cup corals do not have associated fauna to help with sedimentation impacts.

The efficiency of a branching scleractinian stony coral, *Lophelia pertusa,* in rejecting local sediments and drill cuttings from the coral surface was evaluated by (Larsson and Purser 2011) and found not to differ between sediment types. Further results showed that the coral efficiently removed deposited material even after repeated exposures, indicating an efficient cleaning mechanism. In an experiment focusing on burial, fine-fraction drill cuttings were deposited on corals over time. Drill cutting covered coral area increased with repeated depositions, with accumulation mainly occurring on and adjacent to regions of the coral skeleton lacking tissue cover. Tissue was smothered, and polyp mortality occurred where polyps became wholly covered by material. Burial of coral by drill cuttings to the current threshold level used in environmental risk assessment models by the offshore industry (6.3 mm) may result in damage to *L. pertusa* colonies. In the summary Larsson,Purser (2011) stated that *L. pertusa* is probably well equipped for coping with naturally occurring sediment deposition rates and that the mechanisms used to remove deposited particles, i.e., mucus shedding and eventual ciliary action, are efficient and not easily exhausted. Sediments can, despite these active cleaning mechanisms, still accumulate on the coral structure. *L. pertusa* is not found within NZ waters but it is possible that the stony coral species found here may have a similar response to sedimentation.

While there are no data available on the response of cup corals to sedimentation, it is possible that they have this same ability to shed mucous and use ciliary action to cope with elevated sediment

Biology of stony cup corals

Endemism: Endemic species include various *Flabellum* cup corals.

Age and growth: No age and growth data are available for New Zealand stony cup corals.

The cup or calyce region of the branching or solitary form of corals can be examined for growth increments e.g. see Hamel et al. (2010), who obtained age estimates from skeletal patterns in the cup coral *Flabellum alabastrum*). Age and growth studies *Desmophyllum cristagelli* are presented in Table 1 below. Ages were highly variable and ranged form 7-535 years. However the growth rates were all slow 0.5 to 3.1 mm / years with the exception of a cup coral growth rate observed in situ on an artificial structure of known age which might not reflect growth in natural habitats (e.g., changed local environments).

Table H-1: Growth rates and age estimates of *Desmophyllum cristagalli* (a cup coral that attaches to hard substrates). (Table from Tracey et al. 2018).

PROTECTED CORAL GROUPS

Coral species	Location of collection (with depth in metres of collection)	Age (years old)	Growth (mm/yr)	Growth parameter measured	Method	Reference
Stony Corals (Scleractinia)						
Desmophyllum cristagalli	Northwest Spain, Atlantic Ocean (940-990)		6.35	Linear extension	Man-made structure of known age	Duncan 1877
Desmophyllum cristagalli	Pacific, Atlantic, Southern Ocean (420-2200)	7–535	0.1–3.1	Linear extension	U/Th dating	Chen *et al.* 2000
Desmophyllum cristagalli	Baltimore Canyon, Atlantic Ocean	>200	0.5–1.0	Linear extension	14C dating; U/Th dating	Risk *et al.* 2002
Desmophyllum cristagalli	South Pacific Ocean		0.5–2	Linear extension	210Pb dating	Adkins *et al.* 2004

Reproduction: No New Zealand data available. There is some evidence for gonochorism (broadcast-spawners) in *Desmophyllum dianthus* colonies in shallow depths within the Patagonian fjords (Feehan 2016). Congeneric species can vary their strategy from spawning to brooding depending upon their habitat; e.g., North East Atlantic *Flabellum* spp. are spawners, whereas Antarctic representatives of *Flabellum* spp. are brooders (Waller 2005).

Appendix I Sediment grain-size data (0–1 cm depth)

Table I-1: Summary of laser grain-size analyses from TAN1902 multicore surface (0-1 cm) samples. Analyses were performed on a Beckman Coulter LS 12 320 dual wavelength laser-particle sizer, following standard laboratory protocols. Ultrasonic dispersion was not used to avoid destruction of delicate foraminiferal tests. Rather, washing solution and moderate mechanical stirring was used to gently disaggregate sediment sub-samples. The dominant texture is very-poorly sorted sandy silt. Note that sample TAN1902/131 (site R8) from the top of a sea mount contained a coarse component of gravel-sized barnacle plates, which cannot be analysed in the laser sizer.

Sample ID	Site	Latitude	Longitude	Textural group	Sediment name	Arithmetic mean (µm)	Mean (Folk & Ward)	%Sand	%Mud	%Silt	%Clay
TAN1902/37	OTEMP_1	-46.929	171.504	Sandy Mud	Very Fine Sandy Fine Silt	112	Very Coarse Silt	47%	53%	53%	0.1%
TAN1902/39	OTEMP_1	-46.929	171.503	Sandy Mud	Very Fine Sandy Fine Silt	113	Very Coarse Silt	49%	51%	51%	0.1%
TAN1902/40	R1	-46.924	171.583	Muddy Sand	Very Coarse Silty Very Fine Sand	117	Very Coarse Silt	57%	43%	43%	0.1%
TAN1902/41	OTEMP_2	-46.931	171.616	Muddy Sand	Fine Silty Medium Sand	159	Very Fine Sand	59%	41%	41%	0.0%
TAN1902/42	OTEMP_2	-46.931	171.614	Muddy Sand	Very Coarse Silty Fine Sand	131	Very Coarse Silt	53%	47%	47%	0.0%
TAN1902/43	OTEMP_2	-46.930	171.614	Sandy Mud	Fine Sandy Fine Silt	112	Very Coarse Silt	47%	53%	53%	0.1%
TAN1902/44	OTEMP_3	-46.933	171.626	Sandy Mud	Very Fine Sandy Fine Silt	102	Very Coarse Silt	44%	56%	56%	0.1%
TAN1902/47	OTEMP_3	-46.933	171.626	Sandy Mud	Very Fine Sandy Fine Silt	97	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/48	OTEMP_3	-46.933	171.626	Sandy Mud	Very Fine Sandy Fine Silt	98	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/49	OTEMP_4	-46.934	171.633	Muddy Sand	Very Coarse Silty Very Fine Sand	127	Very Coarse Silt	51%	49%	49%	0.1%
TAN1902/50	OTEMP_4	-46.934	171.633	Sandy Mud	Fine Sandy Fine Silt	101	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/51	OTEMP_4	-46.934	171.633	Sandy Mud	Fine Sandy Medium Silt	101	Very Coarse Silt	43%	57%	57%	0.0%
TAN1902/52	OTEMP_5	-46.935	171.636	Sandy Mud	Very Fine Sandy Fine Silt	101	Very Coarse Silt	42%	58%	58%	0.1%
TAN1902/54	OTEMP_5	-46.935	171.636	Sandy Mud	Very Fine Sandy Fine Silt	94	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/56	OTEMP_5	-46.935	171.636	Sandy Mud	Very Fine Sandy Fine Silt	91	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/57	OTEMP_6	-46.936	171.642	Muddy Sand	Fine Silty Medium Sand	149	Very Fine Sand	58%	42%	42%	0.0%
TAN1902/58	OTEMP_6	-46.936	171.642	Muddy Sand	Very Coarse Silty Fine Sand	144	Very Fine Sand	63%	37%	37%	0.1%
TAN1902/59	OTEMP_6	-46.936	171.642	Muddy Sand	Very Coarse Silty Fine Sand	163	Very Fine Sand	67%	33%	33%	0.1%
TAN1902/60	OTEMP_7	-46.937	171.645	Sandy Mud	Very Fine Sandy Fine Silt	86	Very Coarse Silt	38%	62%	62%	0.1%
TAN1902/62	OTEMP_7	-46.937	171.645	Sandy Mud	Very Fine Sandy Fine Silt	92	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/63	OTEMP_7	-46.937	171.645	Sandy Mud	Fine Sandy Fine Silt	105	Very Coarse Silt	48%	52%	52%	0.1%
TAN1902/64	OTEMP_8	-46.938	171.651	Sandy Mud	Very Fine Sandy Fine Silt	100	Very Coarse Silt	44%	56%	56%	0.1%
TAN1902/65	OTEMP_8	-46.938	171.651	Sandy Mud	Very Fine Sandy Fine Silt	80	Coarse Silt	38%	62%	62%	0.1%
TAN1902/66	OTEMP_8	-46.938	171.651	Sandy Mud	Very Fine Sandy Very Coarse Silt	90	Very Coarse Silt	43%	57%	56%	0.1%
TAN1902/67	OTEMP_9	-46.941	171.664	Sandy Mud	Very Fine Sandy Fine Silt	115	Very Coarse Silt	49%	51%	51%	0.1%
TAN1902/68	OTEMP_9	-46.941	171.664	Sandy Mud	Very Fine Sandy Fine Silt	84	Very Coarse Silt	40%	60%	60%	0.1%

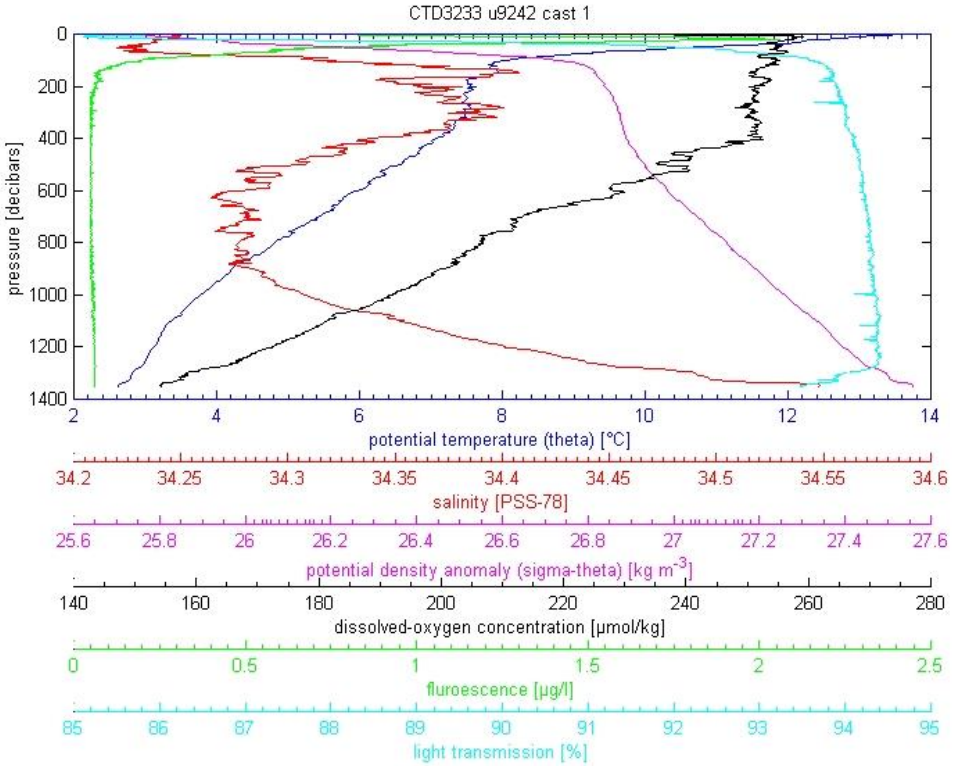
Sample ID	Site	Latitude	Longitude	Textural group	Sediment name	Arithmetic mean (µm)	Mean (Folk & Ward)	%Sand	%Mud	%Silt	%Clay
TAN1902/69	OTEMP_9	-46.941	171.664	Sandy Mud	Very Fine Sandy Fine Silt	96	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/70	OTEMP_10	-46.953	171.631	Sandy Mud	Very Fine Sandy Very Coarse Silt	79	Very Coarse Silt	38%	62%	62%	0.1%
TAN1902/71	OTEMP_10	-46.953	171.631	Sandy Mud	Very Fine Sandy Very Coarse Silt	70	Coarse Silt	36%	64%	64%	0.0%
TAN1902/72	OTEMP_10	-46.953	171.631	Sandy Mud	Very Fine Sandy Very Coarse Silt	78	Very Coarse Silt	38%	62%	62%	0.0%
TAN1902/73	OTEMP_11	-46.944	171.635	Sandy Mud	Very Fine Sandy Fine Silt	83	Very Coarse Silt	38%	62%	62%	0.0%
TAN1902/74	OTEMP_11	-46.944	171.635	Sandy Mud	Very Fine Sandy Fine Silt	82	Very Coarse Silt	39%	61%	61%	0.1%
TAN1902/75	OTEMP_11	-46.944	171.635	Sandy Mud	Very Fine Sandy Fine Silt	89	Very Coarse Silt	40%	60%	60%	0.1%
TAN1902/76	OTEMP_12	-46.940	171.637	Sandy Mud	Very Fine Sandy Fine Silt	102	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/77	OTEMP_12	-46.940	171.637	Sandy Mud	Very Fine Sandy Fine Silt	101	Very Coarse Silt	43%	57%	57%	0.0%
TAN1902/78	OTEMP_12	-46.940	171.637	Sandy Mud	Very Fine Sandy Fine Silt	91	Very Coarse Silt	40%	60%	60%	0.1%
TAN1902/79	OTEMP_13	-46.938	171.638	Muddy Sand	Fine Silty Fine Sand	125	Very Coarse Silt	51%	49%	49%	0.0%
TAN1902/80	OTEMP_13	-46.938	171.638	Sandy Mud	Very Fine Sandy Fine Silt	103	Very Coarse Silt	45%	55%	55%	0.1%
TAN1902/82	OTEMP_13	-46.938	171.638	Sandy Mud	Very Fine Sandy Fine Silt	93	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/83	OTEMP_14	-46.934	171.640	Sandy Mud	Very Fine Sandy Fine Silt	91	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/84	OTEMP_14	-46.934	171.640	Sandy Mud	Very Fine Sandy Fine Silt	100	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/85	OTEMP_14	-46.934	171.640	Sandy Mud	Fine Sandy Fine Silt	108	Very Coarse Silt	45%	55%	55%	0.1%
TAN1902/87	OTEMP_15	-46.931	171.641	Sandy Mud	Very Fine Sandy Fine Silt	92	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/88	OTEMP_15	-46.931	171.641	Sandy Mud	Very Fine Sandy Fine Silt	107	Very Coarse Silt	44%	56%	55%	0.1%
TAN1902/89	OTEMP_15	-46.931	171.641	Sandy Mud	Very Fine Sandy Fine Silt	90	Very Coarse Silt	40%	60%	60%	0.1%
TAN1902/91	OTEMP_16	-46.927	171.643	Sandy Mud	Very Fine Sandy Fine Silt	99	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/92	OTEMP_16	-46.927	171.643	Sandy Mud	Very Fine Sandy Fine Silt	97	Very Coarse Silt	42%	58%	58%	0.1%
TAN1902/95	OTEMP_17	-46.918	171.647	Sandy Mud	Very Fine Sandy Fine Silt	114	Very Coarse Silt	48%	52%	52%	0.1%
TAN1902/96	OTEMP_17	-46.918	171.647	Sandy Mud	Fine Sandy Fine Silt	110	Very Coarse Silt	47%	53%	53%	0.1%
TAN1902/98	OTEMP_17	-46.918	171.647	Sandy Mud	Fine Sandy Fine Silt	116	Very Coarse Silt	47%	53%	53%	0.1%
TAN1902/100	OTEMP_18	-46.901	171.654	Sandy Mud	Very Fine Sandy Fine Silt	104	Very Coarse Silt	44%	56%	55%	0.1%
TAN1902/100	OTEMP_18	-46.901	171.654	Sandy Mud	Very Fine Sandy Fine Silt	98	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/101	OTEMP_18	-46.901	171.654	Sandy Mud	Very Fine Sandy Fine Silt	106	Very Coarse Silt	46%	54%	54%	0.1%
TAN1902/104	OTEMP_19	-46.884	171.662	Muddy Sand	Fine Silty Very Fine Sand	108	Very Coarse Silt	51%	49%	49%	0.0%
TAN1902/105	OTEMP_19	-46.884	171.662	Muddy Sand	Fine Silty Very Fine Sand	126	Very Coarse Silt	57%	43%	43%	0.0%
TAN1902/106	OTEMP_20	-46.897	171.754	Sandy Mud	Very Fine Sandy Fine Silt	88	Very Coarse Silt	40%	60%	60%	0.1%
TAN1902/107	OTEMP_20	-46.897	171.754	Sandy Mud	Fine Sandy Medium Silt	109	Very Coarse Silt	43%	57%	57%	0.0%
TAN1902/108	OTEMP_20	-46.897	171.754	Sandy Mud	Very Fine Sandy Fine Silt	93	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/126	R15	-47.022	171.381	Sandy Mud	Very Fine Sandy Very Coarse Silt	89	Very Coarse Silt	47%	53%	53%	0.0%

Sample ID	Site	Latitude	Longitude	Textural group	Sediment name	Arithmetic mean (µm)	Mean (Folk & Ward)	%Sand	%Mud	%Silt	%Clay
TAN1902/128	R14	-47.045	171.517	Sandy Mud	Very Fine Sandy Fine Silt	76	Coarse Silt	37%	63%	63%	0.1%
TAN1902/129	R13	-46.994	171.709	Sandy Mud	Fine Sandy Fine Silt	99	Very Coarse Silt	40%	60%	60%	0.1%
TAN1902/130	R11	-46.933	171.785	Sandy Mud	Very Fine Sandy Fine Silt	86	Very Coarse Silt	38%	62%	62%	0.1%
TAN1902/131A	R8 (top)	-46.835	171.945	Muddy Sand	Fine Silty Medium Sand	250	Very Fine Sand	56%	44%	44%	0.1%
TAN1902/131B	R8 (top)	-46.835	171.945	Muddy Sand	Fine Silty Medium Sand	190	Very Coarse Silt	50%	50%	50%	0.1%
TAN1902/131C	R8 (top)	-46.835	171.945	Muddy Sand	Fine Silty Medium Sand	294	Very Fine Sand	57%	43%	43%	0.1%
TAN1902/133	R8 (flank)	-46.837	171.954	Muddy Sand	Very Coarse Silty Very Fine Sand	124	Very Coarse Silt	55%	45%	45%	0.0%
TAN1902/134	R24	-46.718	171.923	Sandy Mud	Very Fine Sandy Very Coarse Silt	62	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/136	R23	-46.662	171.711	Sandy Mud	Very Fine Sandy Very Coarse Silt	75	Coarse Silt	34%	66%	66%	0.0%
TAN1902/137	R22	-46.727	171.689	Sandy Mud	Very Fine Sandy Very Coarse Silt	59	Coarse Silt	38%	62%	62%	0.0%
TAN1902/138	R19	-46.778	171.406	Muddy Sand	Very Coarse Silty Fine Sand	120	Very Coarse Silt	60%	40%	39%	0.0%
TAN1902/139		-46.776	171.258	Muddy Sand	Very Coarse Silty Very Fine Sand	95	Very Coarse Silt	53%	47%	47%	0.0%
TAN1902/141	R17	-46.831	171.258	Sandy Mud	Very Fine Sandy Very Coarse Silt	90	Very Coarse Silt	48%	52%	52%	0.1%
TAN1902/154	R28	-46.811	172.173	Sandy Mud	Very Fine Sandy Fine Silt	63	Coarse Silt	27%	73%	73%	0.1%
TAN1902/155	R29	-46.931	172.044	Sandy Mud	Very Fine Sandy Fine Silt	81	Coarse Silt	34%	66%	65%	0.1%
TAN1902/157	R31	-47.055	172.231	Sandy Mud	Fine Sandy Fine Silt	85	Very Coarse Silt	38%	62%	62%	0.1%
TAN1902/158	R33	-47.257	172.167	Sandy Mud	Very Fine Sandy Fine Silt	74	Coarse Silt	35%	65%	65%	0.1%
TAN1902/159	R32	-47.125	172.058	Sandy Mud	Very Fine Sandy Fine Silt	83	Coarse Silt	37%	63%	63%	0.1%
TAN1902/160	R12	-46.986	171.859	Sandy Mud	Very Fine Sandy Fine Silt	74	Coarse Silt	33%	67%	67%	0.1%
TAN1902/166	OTEMP_21	-47.022	171.602	Sandy Mud	Very Fine Sandy Fine Silt	94	Very Coarse Silt	39%	61%	61%	0.1%
TAN1902/167A	OTEMP_21	-47.022	171.602	Sandy Mud	Very Fine Sandy Fine Silt	98	Very Coarse Silt	42%	58%	58%	0.1%
TAN1902/167B	OTEMP_21	-47.022	171.602	Sandy Mud	Very Fine Sandy Fine Silt	106	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/168	OTEMP_21	-47.022	171.602	Sandy Mud	Fine Sandy Fine Silt	96	Very Coarse Silt	42%	58%	58%	0.1%
TAN1902/169	R16	-46.947	171.291	Sandy Mud	Fine Sandy Very Coarse Silt	83	Very Coarse Silt	48%	52%	52%	0.0%
TAN1902/170	R18	-46.814	171.369	Muddy Sand	Very Coarse Silty Fine Sand	171	Very Fine Sand	73%	27%	26%	0.0%
TAN1902/172	R21	-46.839	171.588	Muddy Sand	Very Coarse Silty Very Fine Sand	109	Very Fine Sand	72%	28%	28%	0.0%
TAN1902/173	R2	-46.829	171.718	Muddy Sand	Medium Silty Fine Sand	248	Fine Sand	88%	12%	12%	0.0%
TAN1902/175	R5	-46.787	171.843	Muddy Sand	Very Coarse Silty Fine Sand	120	Very Fine Sand	66%	34%	34%	0.0%
TAN1902/178	R7	-46.809	171.926	Muddy Sand	Very Coarse Silty Fine Sand	113	Very Coarse Silt	60%	40%	40%	0.0%
TAN1902/182	R27	-46.676	172.286	Muddy Sand	Fine Silty Fine Sand	118	Very Coarse Silt	51%	49%	49%	0.1%
TAN1902/183	R26	-46.705	172.201	Muddy Sand	Medium Silty Fine Sand	151	Very Coarse Silt	58%	42%	42%	0.0%
TAN1902/186	R50	-46.481	171.762	Sandy Mud	Very Fine Sandy Fine Silt	71	Coarse Silt	31%	69%	69%	0.1%
TAN1902/188	R49	-46.511	171.329	Sandy Mud	Very Fine Sandy Very Coarse Silt	73	Coarse Silt	36%	64%	64%	0.0%

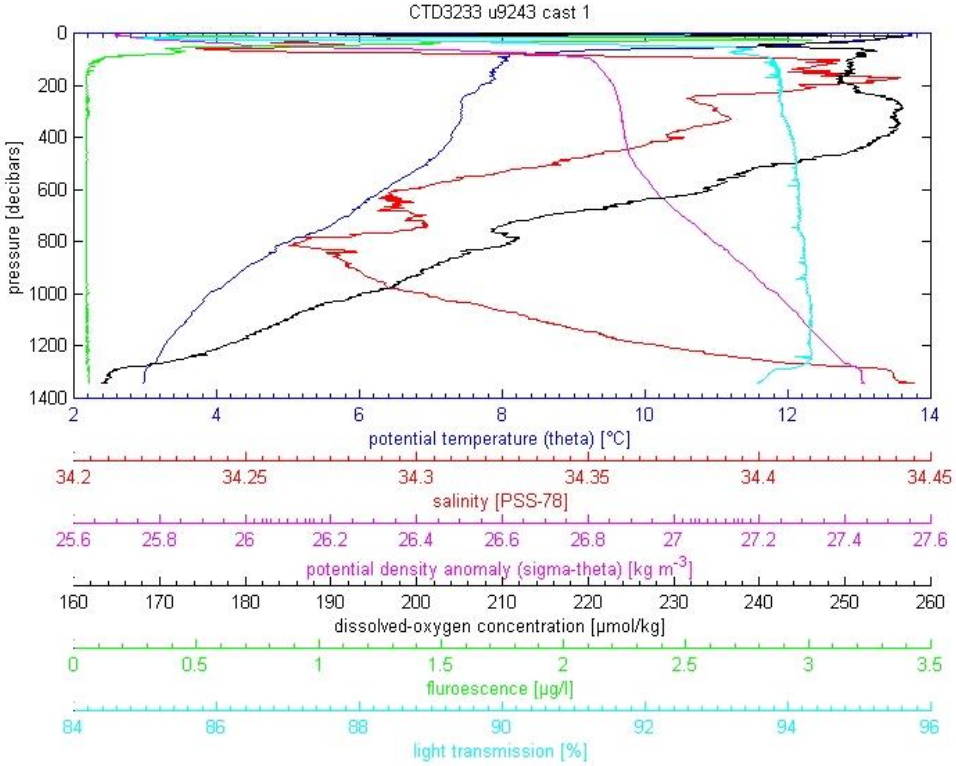
Sample ID	Site	Latitude	Longitude	Textural group	Sediment name	Arithmetic mean (µm)	Mean (Folk & Ward)	%Sand	%Mud	%Silt	%Clay
TAN1902/191	R48	-46.664	171.425	Sandy Mud	Very Fine Sandy Very Coarse Silt	44	Coarse Silt	27%	73%	73%	0.2%
TAN1902/193	R47	-46.717	171.279	Sandy Mud	Very Fine Sandy Very Coarse Silt	73	Coarse Silt	37%	63%	63%	0.1%
TAN1902/195	R46	-46.597	171.243	Sandy Mud	Very Fine Sandy Fine Silt	48	Coarse Silt	28%	72%	72%	0.1%
TAN1902/197A	R45	-46.577	171.098	Sandy Mud	Very Fine Sandy Very Coarse Silt	96	Very Coarse Silt	45%	55%	55%	0.1%
TAN1902/197B	R45	-46.577	171.098	Sandy Mud	Very Fine Sandy Very Coarse Silt	100	Very Coarse Silt	47%	53%	53%	0.1%
TAN1902/199	R44	-46.677	171.104	Muddy Sand	Medium Silty Fine Sand	118	Very Coarse Silt	50%	50%	50%	0.0%
TAN1902/202	R43	-46.714	170.961	Muddy Sand	Very Coarse Silty Fine Sand	112	Very Coarse Silt	54%	46%	46%	0.0%
TAN1902/204	R41	-46.891	170.976	Muddy Sand	Very Coarse Silty Very Fine Sand	106	Very Coarse Silt	51%	49%	49%	0.0%
TAN1902/206	R40	-47.043	171.007	Sandy Mud	Fine Sandy Fine Silt	101	Very Coarse Silt	48%	52%	52%	0.0%
TAN1902/208	Rigel	-47.179	170.974	Sandy Mud	Fine Sandy Fine Silt	110	Very Coarse Silt	44%	56%	56%	0.1%
TAN1902/210	R39	-47.139	171.295	Sandy Mud	Fine Sandy Fine Silt	122	Very Coarse Silt	48%	52%	52%	0.1%
TAN1902/213	R38	-47.299	171.256	Sandy Mud	Fine Sandy Fine Silt	92	Very Coarse Silt	44%	56%	56%	0.1%
TAN1902/216	R37	-47.408	171.647	Sandy Mud	Fine Sandy Fine Silt	97	Very Coarse Silt	43%	57%	57%	0.1%
TAN1902/218	R34	-47.180	171.889	Sandy Mud	Fine Sandy Fine Silt	90	Very Coarse Silt	41%	59%	59%	0.1%
TAN1902/219	R35	-47.097	171.758	Sandy Mud	Fine Sandy Fine Silt	103	Very Coarse Silt	45%	55%	55%	0.1%
TAN1902/220	R36	-47.179	171.599	Sandy Mud	Fine Sandy Fine Silt	106	Very Coarse Silt	46%	54%	54%	0.1%
TAN1902/233	OTEMP_22	-46.970	171.623	Sandy Mud	Very Fine Sandy Very Coarse Silt	64	Coarse Silt	33%	67%	67%	0.1%
TAN1902/234	OTEMP_22	-46.970	171.623	Sandy Mud	Very Fine Sandy Very Coarse Silt	70	Coarse Silt	35%	65%	65%	0.1%
TAN1902/235	OTEMP_22	-46.970	171.623	Sandy Mud	Very Fine Sandy Very Coarse Silt	71	Coarse Silt	35%	65%	65%	0.1%

Appendix J CTD profile plots and comparison plots (TAN1902 and TAN1303)

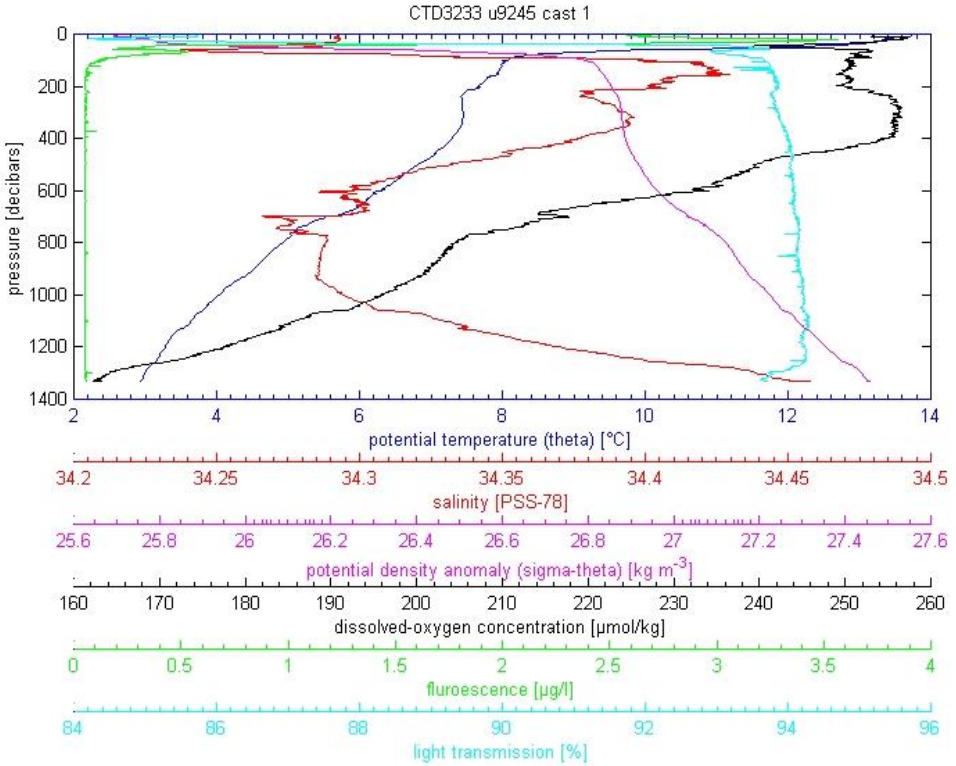
Figures below detail the CTD sensor data for CTD stations u9242 (TAN1902/222) to u9254 (TAN1902/238).



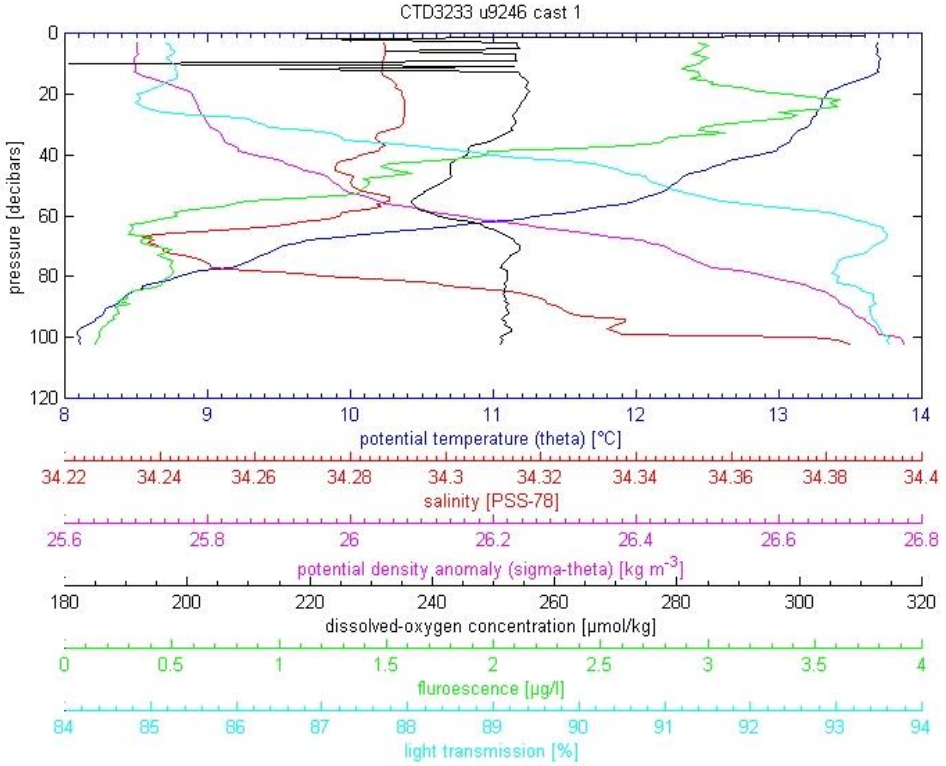
CTD sensor data collected from u9242 (TAN1902/222 – Regional south)



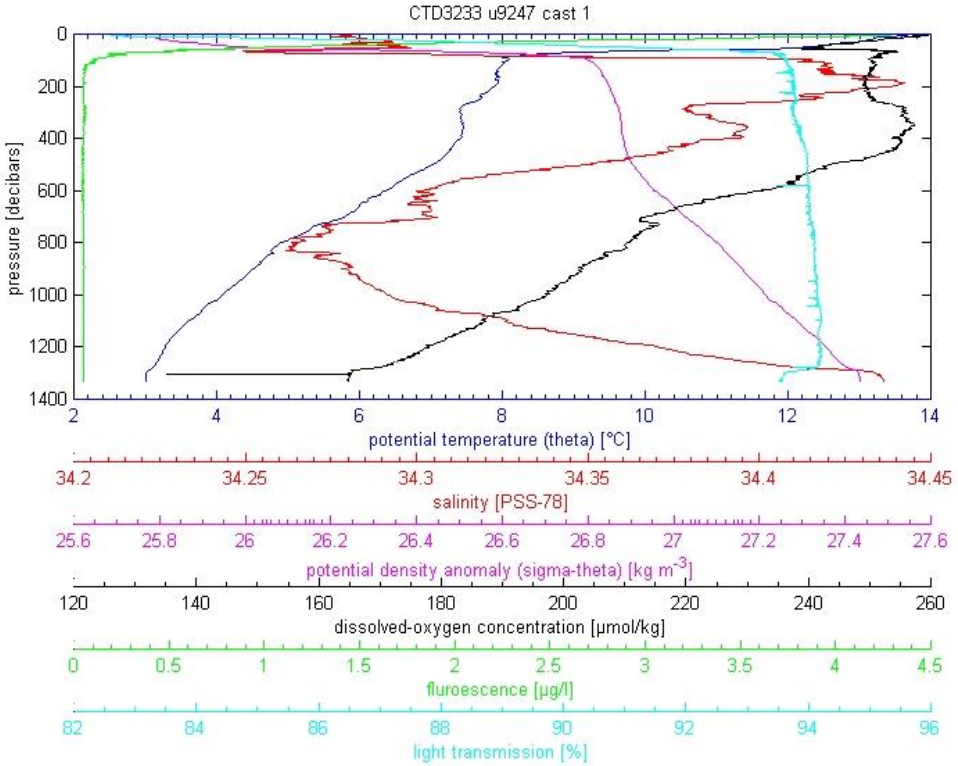
CTD sensor data collected from u9243 (TAN1902/223 – OTEMP_10)



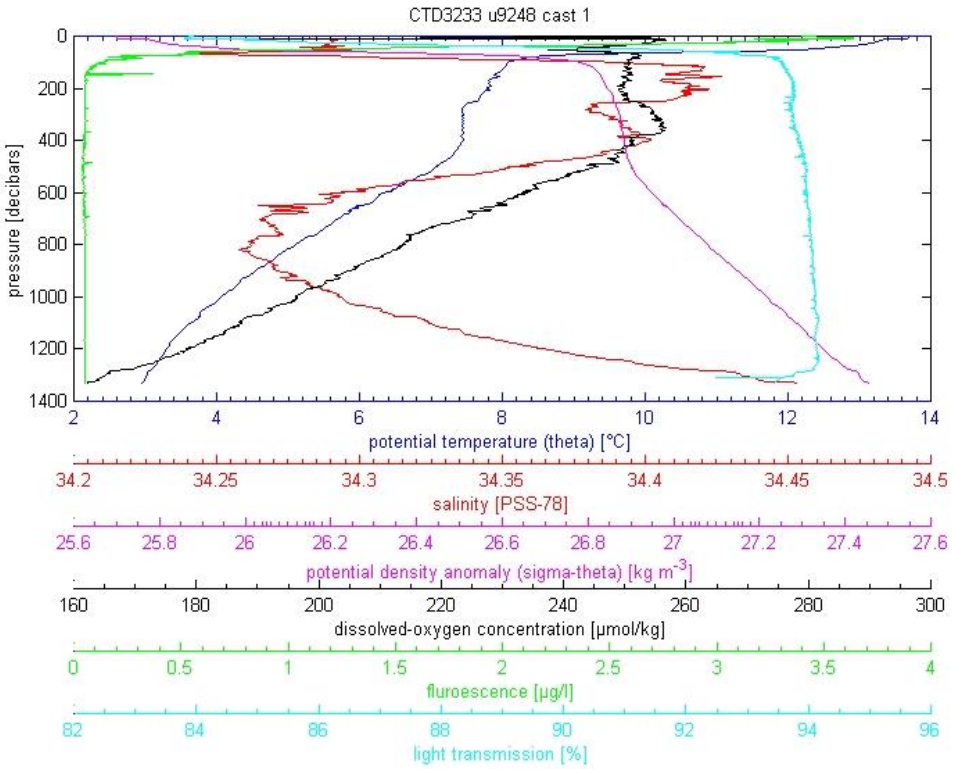
CTD sensor data collected from u9245 (TAN1902/225 – OTEMP_9).



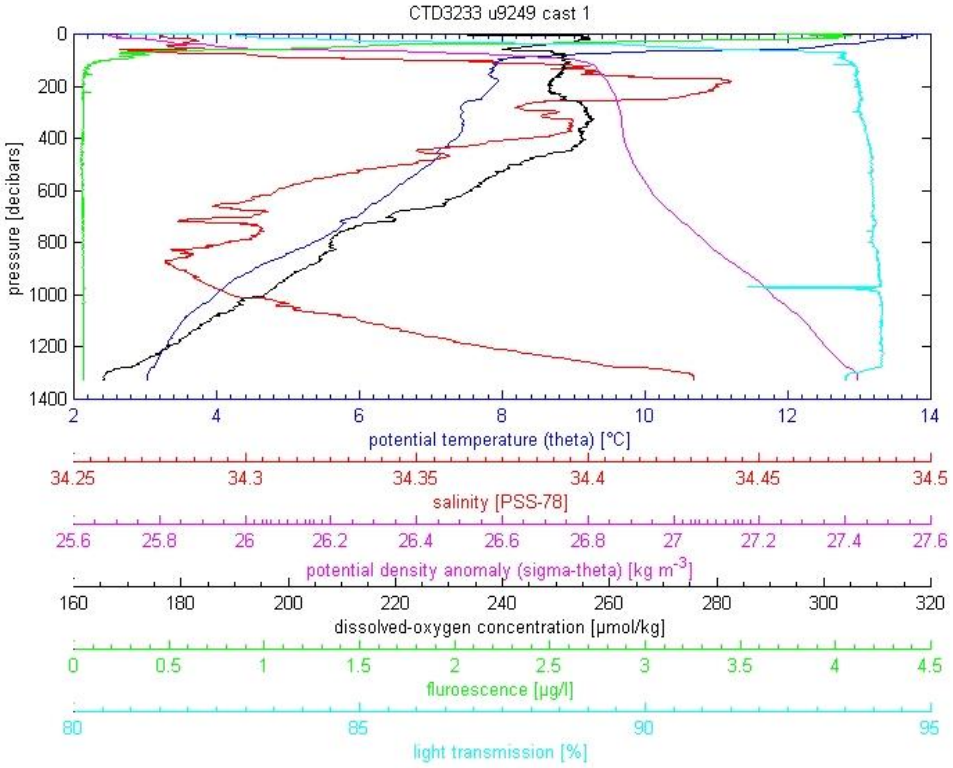
CTD sensor data collected from u9246 (TAN1902/226 – OTEMP_9



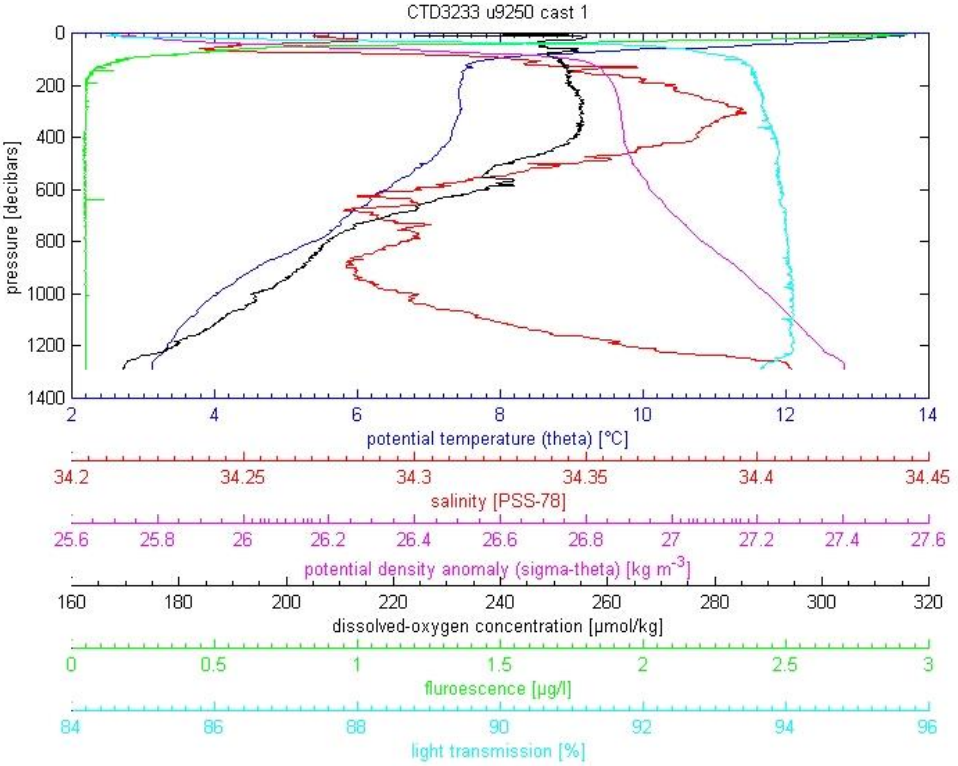
CTD sensor data collected from u9247 (TAN1902/227 – Tawhaki_1)



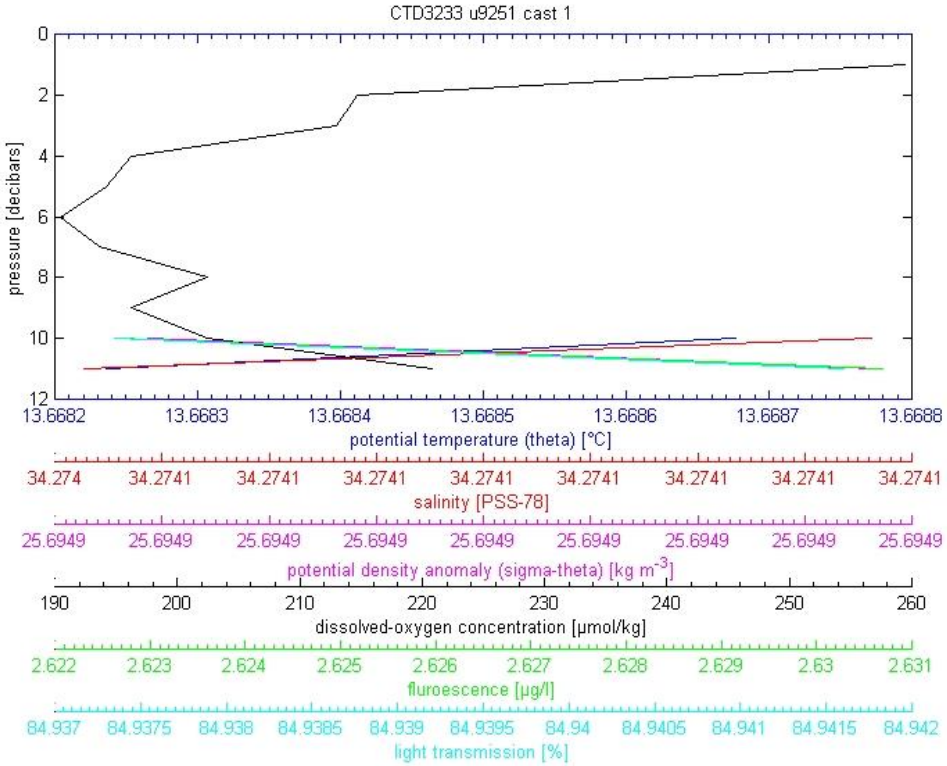
CTD sensor data collected from u9248 (TAN1902/228 – OTEMP_17



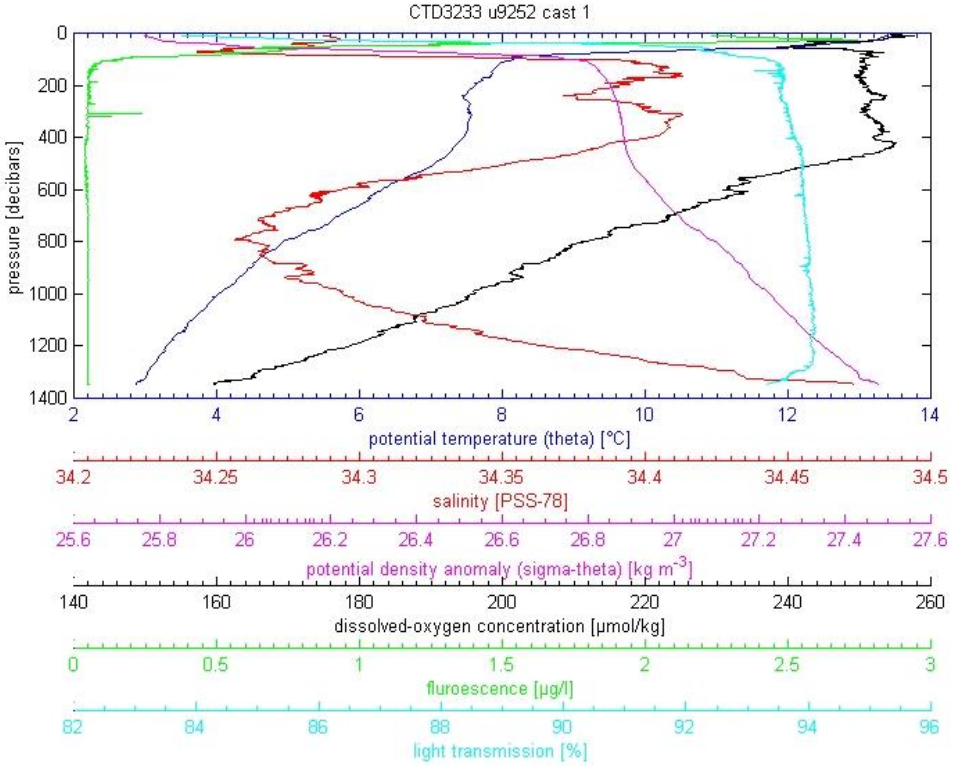
CTD sensor data collected from u9249 (TAN1902/229 – OTEMP_12



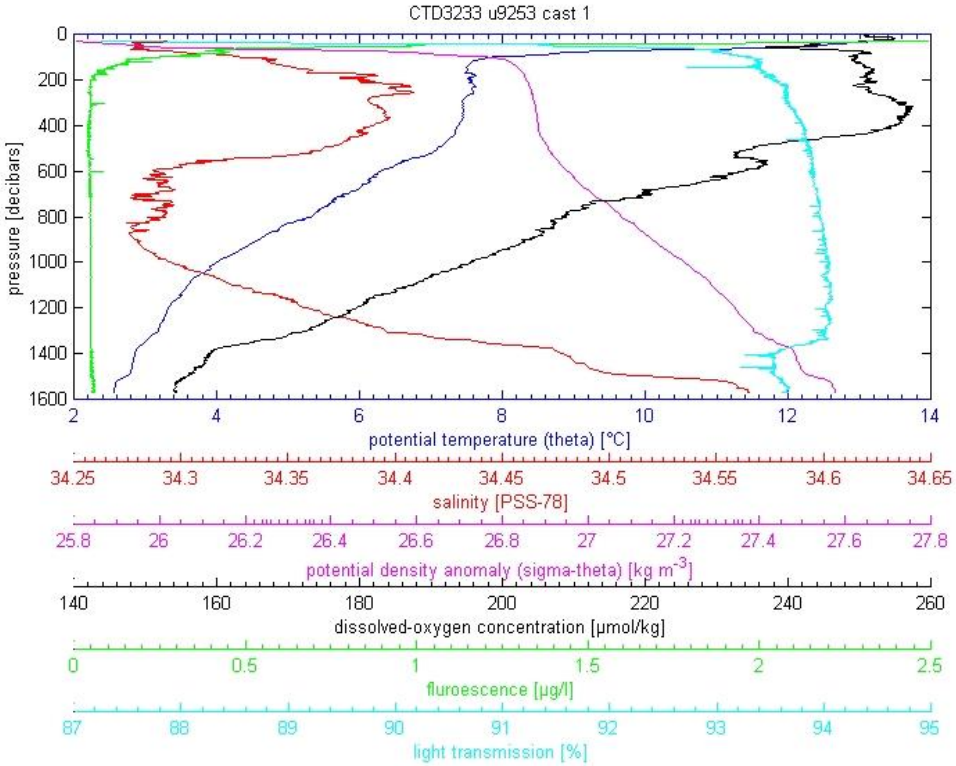
CTD sensor data collected from u9250 (TAN1902/230 – R17 Regional west).



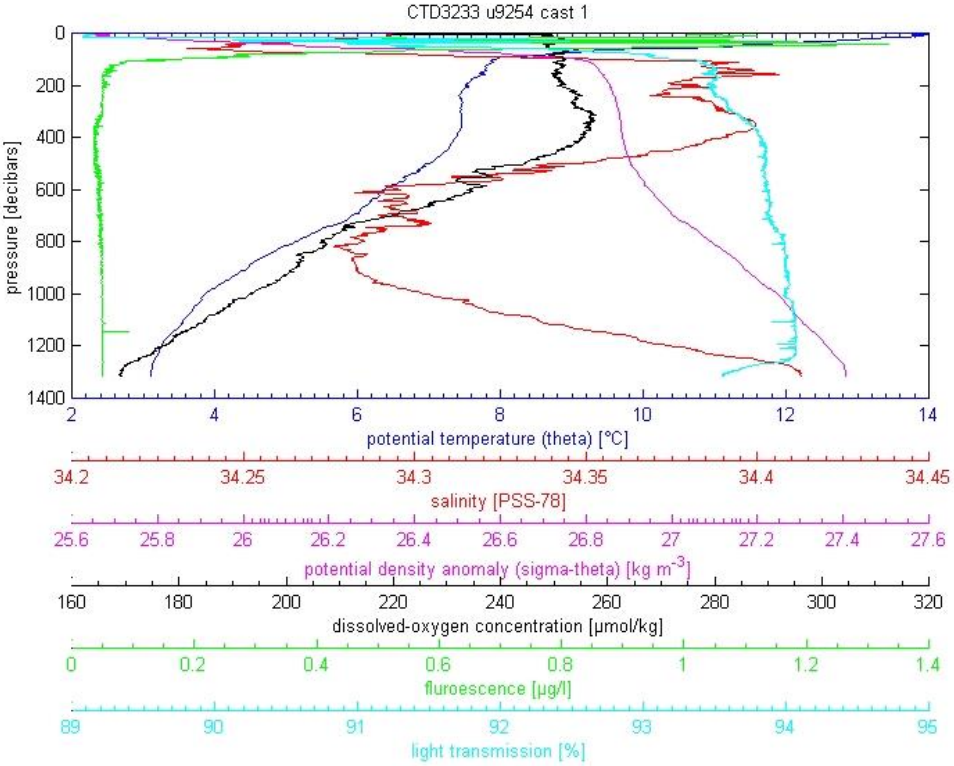
CTD sensor data collected from u9251 (TAN1902/231 – R17 west).



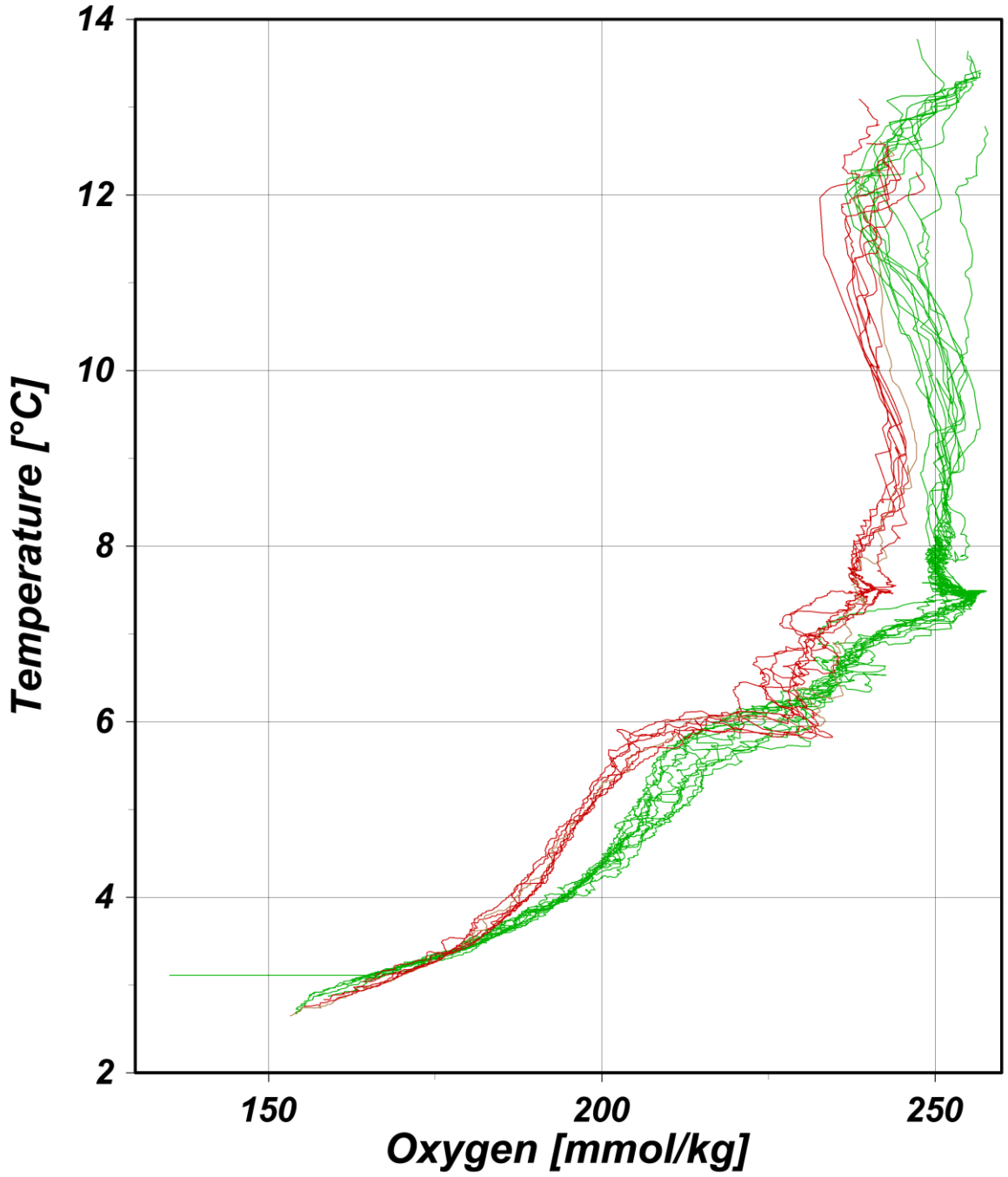
CTD sensor data collected from u9252 (TAN1902/236 – OTEMP_19).



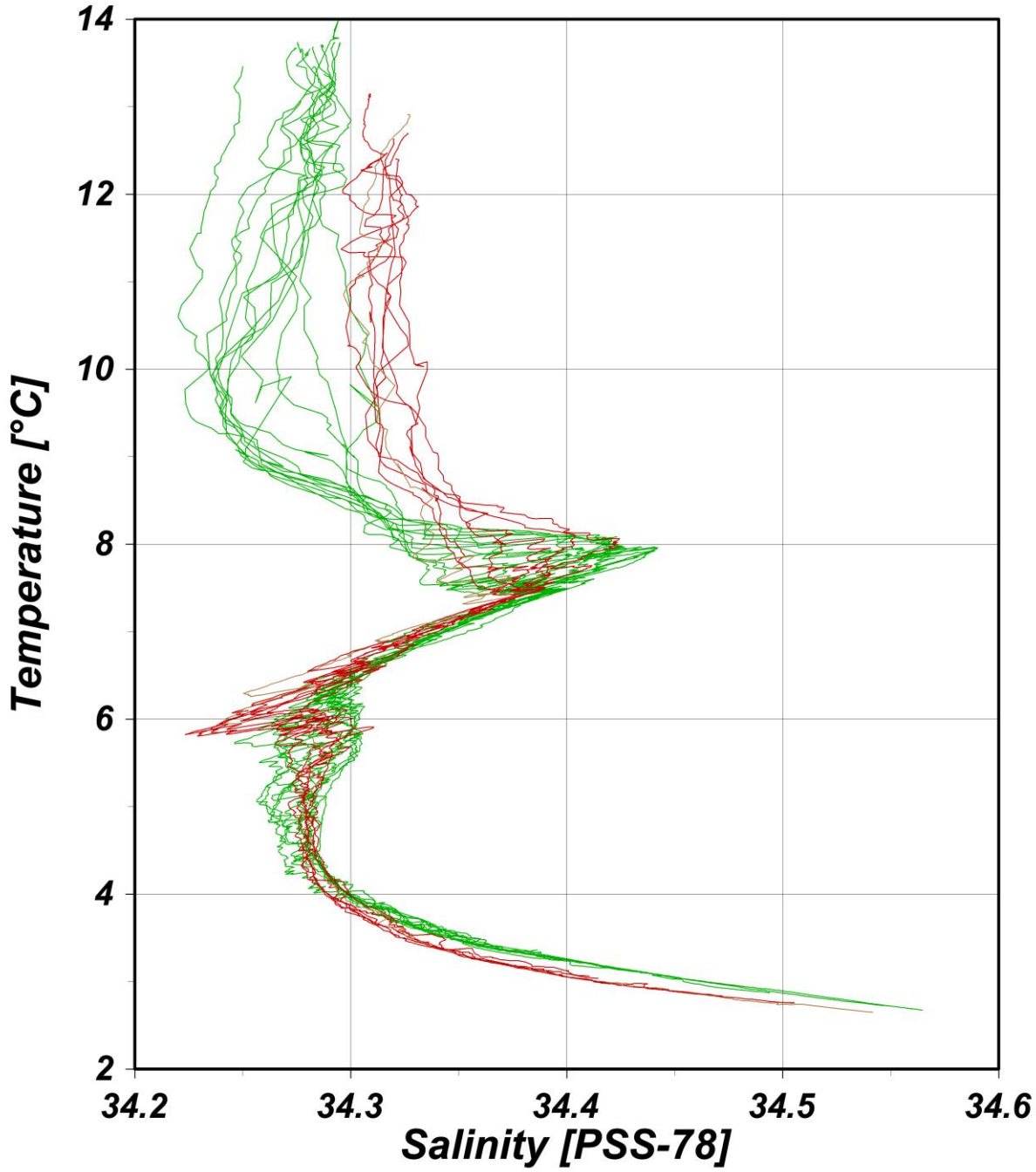
CTD sensor data collected from u9253 (TAN1902/237 – Channel axis).



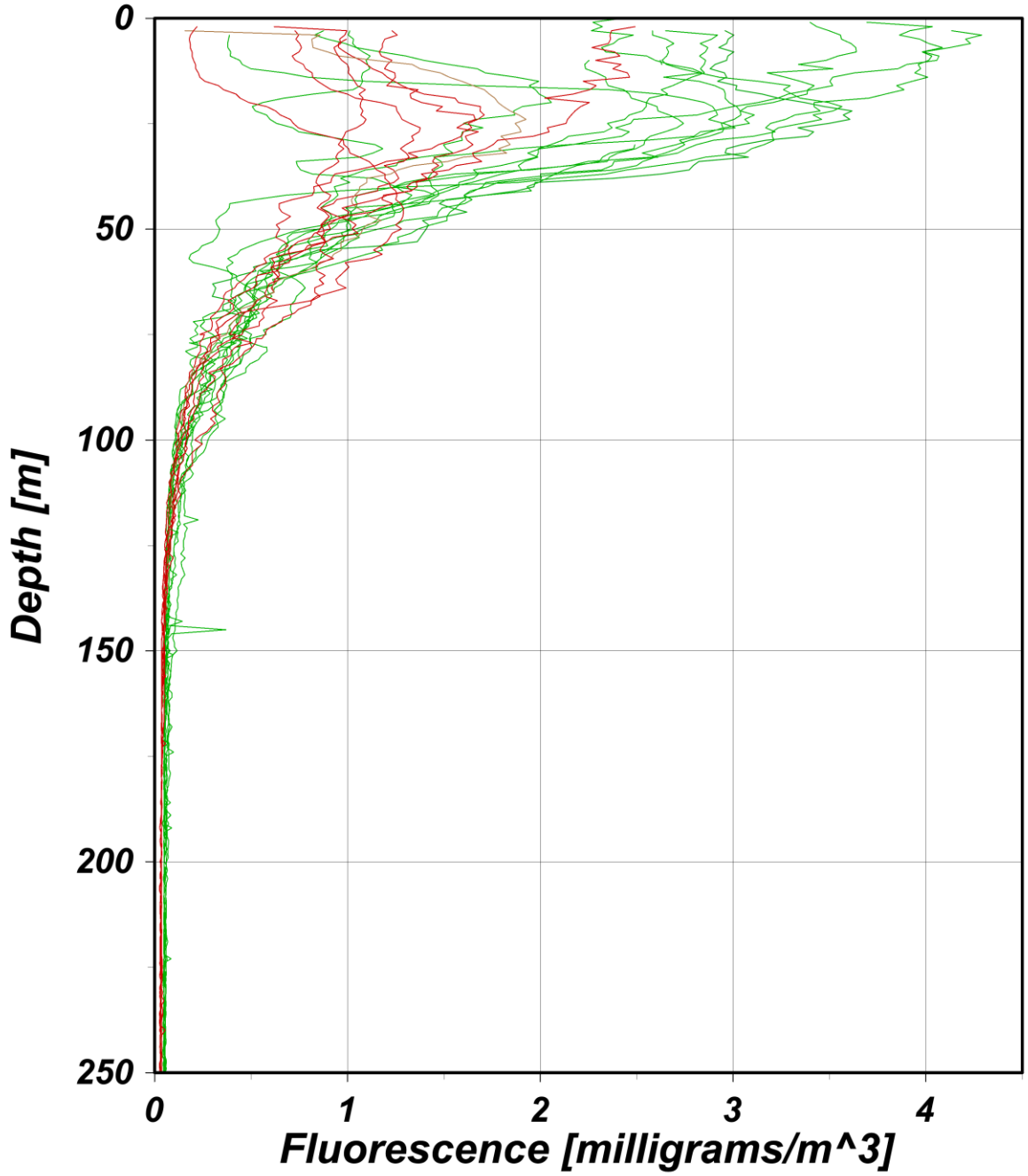
CTD sensor data collected from u9254 (TAN1902/238 – R23 Regional north).



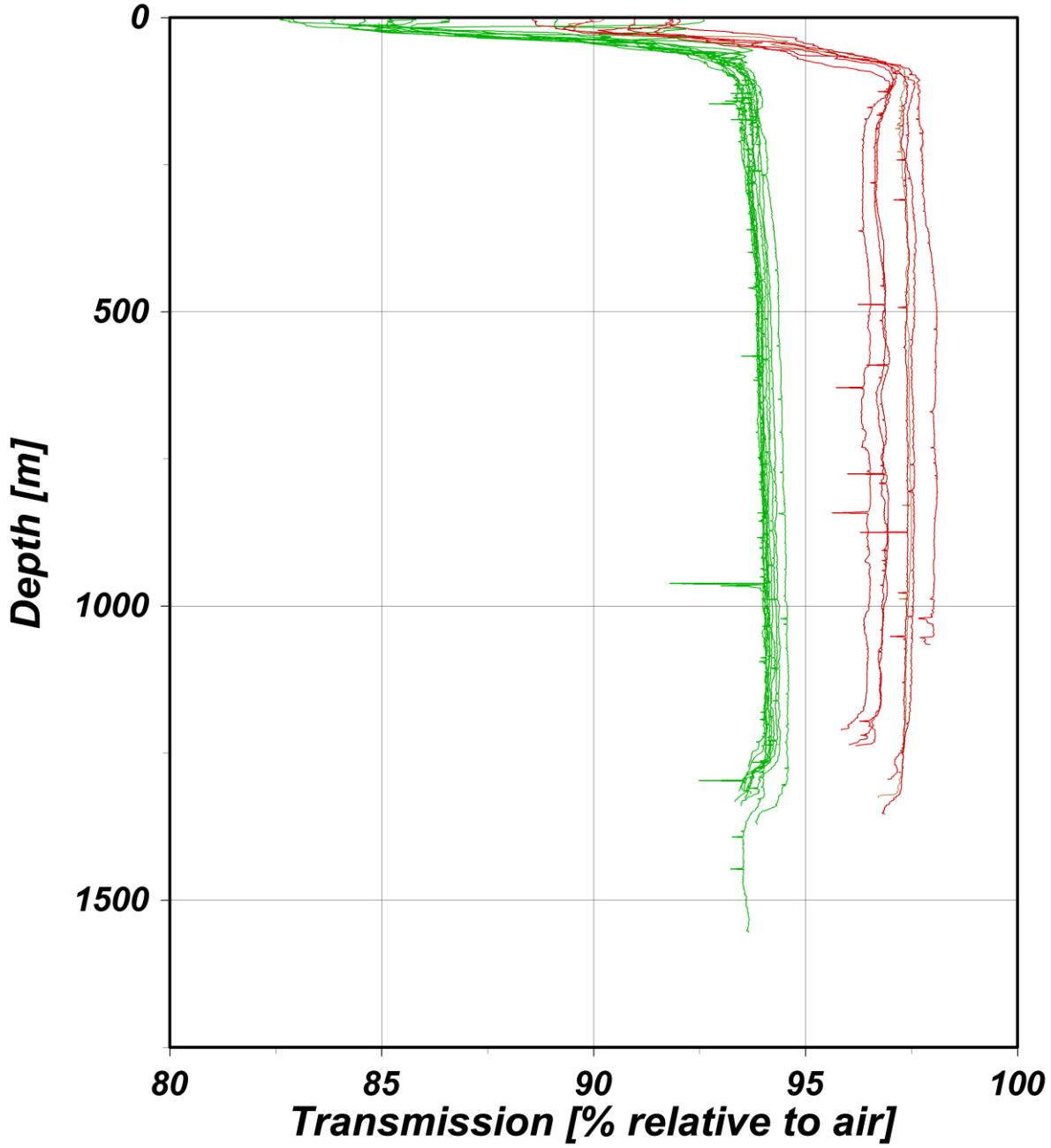
CTD data – comparison plot of dissolved oxygen vs temperature data from TAN1303 (red) and TAN1902 (green).



CTD data – comparison plot of salinity vs temperature data from TAN1303 (red) and TAN1902 (green).



CTD data – comparison plot of dissolved oxygen vs temperature data from TAN1303 (red) and TAN1902 (green).



CTD data – comparison profile plot of transmission data from TAN1303 (red) and TAN1902 (green).