

The National Marine Biological
Analytical Quality Control Scheme

Macrobenthic Exercise Results – MB18

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EXERCISE DETAILS

Macrobenthos #18

Type/Contents – Artificial Estuarine Sample based on subtidal Thames fauna & residue; approx. 0.225 litres muddy sand with some shell debris and leaf matter; 0.5 mm sieve mesh processing.

Circulated – 08/09/2010

Completion Date – 26/11/2010

Number of Participating Laboratories – 10

Number of Results Received – 9

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Appendices

Appendix 1 MB18 Instructions for participation

NMBAQC Scheme Macrobenthic Sample (MB18) – Artificial Sample Contents List

Residue Content

| | |
|---------|---|
| 175ml x | <0.5mm mud (source=PS36) |
| 25ml x | <0.5mm fine sand (source=PS37) |
| 25ml x | <1mm shell debris (source=unwanted OS residues) |
| 2-4 x | <1mm leaf matter (source=terrestrial plant) |

Faunal Content

Uncountable Faunal Fragments

Aphelochaeta marioni 2xtail

Countable Fauna (Total 20 Taxa, 158 Individuals)

| | | |
|--|-----|--|
| <i>Streblospio shrubsolii</i> | x30 | (medium, most anterior only) |
| <i>Pygospio elegans</i> | x1 | (complete) |
| <i>Hediste diversicolor</i> | x3 | (2xmedium; 1xbig) |
| <i>Polydora cornuta</i> | x3 | (anterior only, quite big) |
| <i>Capitella</i> | x3 | (small, incomplete) |
| <i>Tharyx "species A"</i> | x9 | (3xcomplete, 6xanterior only; medium->large) |
| <i>Aphelochaeta marioni</i> | x1 | (anterior only) |
| <i>Tubificoides benedii</i> | x29 | (large->small) |
| <i>Tubificoides pseudogaster (agg)</i> | x24 | ([poss. T.cre] swollen anterior, thin posterior, with long bifids) |
| <i>Heterochaeta costata</i> | x10 | (med->small, mostly incomplete) |
| <i>Enchytraeidae</i> | x3 | (complete) |
| <i>Eusarsiella zostericola</i> | x3 | (complete, med) |
| <i>Corophium volutator</i> | x30 | (complete, female and male mix, med->lrg) |
| <i>Corophium multisetosum</i> | x1 | (complete, large) |
| <i>Mytilus edulis (juv)</i> | x1 | (very small) |
| <i>Macoma balthica</i> | x3 | (medium) |
| <i>Abra tenuis</i> | x1 | (medium) |
| <i>Dolichopodidae (larva)</i> | x1 | (large, complete) |
| <i>Gammarus zaddachi</i> | x1 | (large, complete) |
| <i>Gammaridae (juv)</i> | x1 | (very small) |

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macroinvertebrate Exercise (MB) Results | | Summary Data |
|---|--|--|
| LabCode: LB1701 | | Diff. In No. Taxa -3 |
| SampleCode: MB18 | | Diff. In No. Individuals -5 |
| Exercise Deadline 26/11/2010 | | Missed/Lost Taxa (in residue) 0 |
| Sample Received 21/12/2010 | | Missed/Lost Individuals (in residue) 5 |
| Notes: Artificial Sample prepared by Unicumarine | | Taxonomic Errors 7 |
| 0.5mm sieve mesh | | Count Variance 0 |
| Sample stained | | Biomass %diff. 28.69 |
| | | Bray-Curtis Similarity index 84.24 |

| Thomson Unicumarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments | |
|---|--|--------------|----------------------------|-----------------------------------|--------------|------------|-------------------|-------------------------------------|---|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | | | |
| 1 | Streblospio shrubsoleii (med, most anterior only) | 30 | 0.0041 | Streblospio shrubsoleii | 31 | 0.0069 | 0 | -1 | Taxonomic error; incl. 1xPygospio elegans with taxon 1 | |
| 2 | Pygospio elegans (complete) | 1 | | | | | 0 | 1 | | |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.0853 | Hediste diversicolor | 3 | 0.1218 | 0 | 0 | | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.0028 | Atherospio disticha | 3 | 0.0036 | 0 | 0 | Taxonomic error | |
| 5 | Capitella (sml, incomplete) | 3 | 0.0002 | Capitella | 3 | 0.0003 | 0 | 0 | | |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | 0.0047 | Aphelochaeta "species A" | 6 | 0.0085 | 0 | 3 | Taxonomic error | |
| 7 | Aphelochaeta marioni (ant only) | 1 | 0.005 | Aphelochaeta marioni | 4 | 0.0088 | 0 | -3 | Taxonomic error; incl. 3xTharyx "species A" | |
| 8 | Tubificoides benedii (lrg->sml) | 29 | 0.0201 | Tubificoides benedii | 29 | 0.0249 | 0 | 0 | | |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant., thin post, with long bifid) | 24 | 0.0026 | Tubificoides pseudogaster | 28 | 0.0039 | 0 | -4 | Mixture, incl. 4xHeterochaeta costata | |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | 0.0003 | Heterochaeta costata | 2 | 0.0003 | 0 | 8 | 4 lost in processing | |
| 11 | Enchytraeidae (complete) | 3 | 0.0001 | Tubificoides heterochaetus | 3 | 0.0006 | 0 | 0 | Taxonomic error | |
| 12 | Eusarsiella zostericola (complete, med) | 3 | 0.0004 | OSTRACODA | 2 | 0.0000 | 0 | 1 | ID to species possible; 1 lost in processing | |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.1312 | Corophium volutator | 31 | 0.2047 | 0 | -1 | Taxonomic error; incl. 1xCorophium multisetosum with taxon 13 | |
| 14 | Corophium multisetosum (complete, lrg) | 1 | | | | | 0 | 1 | | |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | 0.0001 | Mytilus edulis | 1 | 0.0000 | 0 | 0 | | |
| 16 | Macoma balthica (med) | 3 | 0.0684 | Macoma balthica | 4 | 0.0681 | 0 | -1 | Taxonomic error; incl. Abra tenuis with taxon 16 | |
| 17 | Abra tenuis (med) | 1 | | | | | 0 | 1 | | |
| 18 | Dolichopodidae (larva) (lrg, complete) | 1 | 0.008 | INSECTA (pupa) | 1 | 0.0125 | 0 | 0 | ID to family possible | |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | 0.0128 | Gammarus zaddachi | 1 | 0.0206 | 0 | 0 | | |
| 20 | Gammaridae (juv) (v. sml) | 1 | 0.0001 | Gammaridae | 1 | 0.0001 | 0 | 0 | | |
| | | TOTAL | 158 | 0.3462 | TOTAL | 153 | 0.48549 | 0 | 5 | |
| Residue Content | | | | Residue Content | | | In Residue | Lost in Processing | Comments | |
| Component | Volume/Qty | | Component | Picked | | | | | | |
| - (mud residue <0.5mm) | 175ml | - | (mud residue <0.5mm) | - | - | - | n/a | | | |
| - (fine sand residue <0.5mm) | 25ml | - | (fine sand residue <0.5mm) | - | - | - | n/a | | | |
| - (shell debris <1mm) | 25ml | - | (shell debris <1mm) | - | - | 25ml | n/a | | | |
| - (leaf matter <1mm) | 2-4 | - | (leaf matter <1mm) | - | - | 2-4 | n/a | | | |
| - Aphelochaeta marioni (tail) | 2 | - | | 1 | | 0 | 1 | with taxon 20; 1 lost in processing | | |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macrobenthic Exercise (MB) Results | | Summary Data | |
|--|--|---------------------------------|-------|
| LabCode: LB1702 | | Diff. In No. Taxa | 0 |
| SampleCode: MB18 | | Diff. In No. Individuals | -16 |
| Exercise Deadline: 26/11/2010 | | Missed Taxa (in residue) | 0 |
| Sample Received: 09/12/2010 | | Missed Individuals (in residue) | 18 |
| Notes: Artificial Sample prepared by Unicomarine | | Taxonomic Errors | 3 |
| 0.5mm sieve mesh | | Count Variance | 2 |
| | | Biomass %diff. | 16.49 |
| | | Bray-Curtis Similarity index | 89.33 |

| Thomson Unicomarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|---|--------|----------|-------------------------------|--------|---------|-------------------|--------------------|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsolii (med, most anterior only) | 30 | 0.0031 | STREBLOSPIO SHRUBSOLII | 24 | 0.006 | 0 | 6 | 6 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | 0.0001 | SPIONIDAE INDET | 1 | <0.000 | 0 | 0 | ID to species possible |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.0551 | HEDISTE DIVERSICOLOR | 3 | 0.0806 | 0 | 0 | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.0027 | POLYDORA CORNUTA | 3 | 0.003 | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | 0.0001 | CAPITOMASTUS MINIMUS | 2 | <0.000 | 0 | 1 | Taxonomic error; 1 lost in processing |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | 0.0131 | THARYX SPECIES A | 9 | 0.0232 | 0 | 0 | |
| 7 | Aphelochaeta marioni (ant only) | 1 | 0.0013 | APHELOCHAETA MARIONI | 1 | 0.0019 | 0 | 0 | |
| 8 | Tubificoides benedii (lrg->sml) | 29 | 0.0147 | TUBIFICOIDES BENEDII | 30 | 0.0184 | 0 | -1 | Mixture, incl.1x Enchytraeidae |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifid) | 24 | 0.0013 | TUBIFICOIDES PSEUDOGASTER AGC | 23 | 0.0141 | 0 | 1 | Mixture, incl.1x Heterochaeta costata; 2 lost in processing |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | | HETEROCHAETA COSTATA | 1 | <0.000 | 0 | 9 | 1 with taxon 9; 8 lost in processing; no biomass checked as specimen on slide |
| 11 | Enchytraeidae (complete) | 3 | 0.0001 | OLIGOCHAETA INDET | 1 | <0.000 | 0 | 2 | Error- not following NMBAQC TDP- id to species required; PL note:'Bundles of 5-6 chaetae, all simple - enchytraeidae?'; 1 with taxon 8; 1 lost in processing |
| 12 | Eusarsiella zostericola (complete, med) | 3 | 0.0001 | OSTRACOD INDET | 4 | <0.000 | 0 | 0 | ID to species possible; 1x dead Podocopida |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.1094 | COROPHIUM VOLUTATOR | 31 | 0.0985 | 0 | -1 | Taxonomic error; incl.1x Corophium multisetosum |
| 14 | Corophium multisetosum (complete, lrg) | 1 | | | | | 0 | 1 | with taxon 13 |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | 0.0001 | MYTILUS EDULIS JUV | 1 | <0.000 | 0 | 0 | |
| 16 | Macoma balthica (med) | 3 | 0.0256 | MACOMA BALTHICA | 3 | 0.0292 | 0 | 0 | |
| 17 | Abra tenuis (med) | 1 | 0.0113 | ABRA TENUIS | 1 | 0.0112 | 0 | 0 | |
| 18 | Dolichopodidae (larva) (lrg,complete) | 1 | 0.0157 | DIPTERA LARVAE | 1 | 0.0153 | 0 | 0 | ID to family possible |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | 0.0082 | GAMMARUS SALINUS | 1 | 0.012 | 0 | 0 | Taxonomic error |
| 20 | Gammaridae (juv) (v. sml) | 1 | 0.0001 | GAMMARIDAE INDET | 1 | <0.000 | 0 | 0 | |
| 21 | | | 0.0003 | CIRRATULIDAE INDET | 1 | 0.0008 | | | no head; Aphelochaeta marioni (tail) |
| TOTAL | | 158 | 0.2624 | TOTAL | 142 | 0.3142 | 0 | 18 | |
| Residue Content | | | | Residue Content | | | Lost in | | |
| Component | Volume/Qty | - | - | Component | Picked | - | In Residue | Processing | |
| -(mud residue <0.5mm) | 175ml | - | - | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | - | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | - | (shell debris <1mm) | - | - | 25ml | n/a | |
| -(leaf matter <1mm) | 2-4 | - | - | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| -(Aphelochaeta marioni (tail) | 2 | 0.0001 | | POLYCHAETA BITS | 1 | 0.0013 | 0 | 0 | 1 tail with taxon 21 |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macrocentric Exercise (MB) Results | | Summary Data | |
|--|--|---------------------------------|-------|
| LabCode: LB1703 | | Diff. In No. Taxa | -1 |
| SampleCode: MB18 | | Diff. In No. Individuals | -35 |
| Exercise Deadline: 26/11/2010 | | Missed Taxa (in residue) | 3 |
| Sample Received: 25/11/2010 | | Missed Individuals (in residue) | 36 |
| Notes: Artificial Sample prepared by Unicamarine | | Taxonomic Errors | 2 |
| 0.5mm sieve mesh | | Count Variance | 1 |
| No biomass data | | Biomass %diff. | - |
| | | Bray-Curtis Similarity index | 85.41 |

| Thomson Unicamarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|--|--------|----------|-------------------------------|--------|---------|-------------------|------------|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in | Lost in | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | Residue | Processing | |
| 1 | Streblospio shrubsolii (med. most anterior only) | 30 | - | Streblospio shrubsolii | 21 | - | 0 | 9 | Mixture, incl. 1xTubificoides pseudogaster agg.; 10 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | - | | | | 0 | 1 | Taxon missing: 1 lost in processing |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | - | Hediste diversicolor | 2 | - | 0 | 1 | 1 with taxon 21 |
| 4 | | | | Neanthes virens | 1 | - | 0 | -1 | Taxonomic error: taxon 3 |
| 5 | Polydora cornuta (ant only, quite big) | 3 | - | Polydora cornuta | 3 | - | 0 | 0 | |
| 6 | Capitella (sml, incomplete) | 3 | - | Capitella capitata agg | 2 | - | 0 | 1 | 1 lost in processing |
| 7 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | - | Tharyx sp A | 8 | - | 0 | 1 | 1 lost in processing |
| 8 | Aphelochaeta marioni (ant only) | 1 | - | Aphelochaeta marioni | 1 | - | 0 | 0 | incl. 2 extra tails |
| 9 | Tubificoides benedii (lrg->sml) | 29 | - | Tubificoides benedii | 27 | - | 0 | 2 | 2 lost in processing |
| 10 | Tubificoides pseudogaster (agg) ([poss. T.cre) swollen ant.,thin post, with long bifid | 24 | - | Tubificoides pseudogaster agg | 13 | - | 0 | 11 | 1 with taxon 1; 10 lost in processing |
| 11 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | - | Heterochaeta costata | 4 | - | 0 | 6 | 6 lost in processing |
| 12 | Enchytraeidae (complete) | 3 | - | | | | 0 | 3 | Taxon missing: 3 lost in processing |
| 13 | Eusarsiella zostericola (complete, med) | 3 | - | OSTRACODA sp | 2 | - | 0 | 1 | ID to species possible; 1 lost in processing |
| 14 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | - | Corophium volutator | 30 | - | 0 | 0 | |
| 15 | Corophium multisetosum (complete, lrg) | 1 | - | Corophium multisetosum | 1 | - | 0 | 0 | |
| 16 | Mytilus edulis (juv) (v.sml) | 1 | - | Mytilidae sp juv | 1 | - | 0 | 0 | ID to species possible |
| 17 | Macoma balthica (med) | 3 | - | Macoma balthica | 3 | - | 0 | 0 | |
| 18 | Abra tenuis (med) | 1 | - | Abra tenuis | 1 | - | 0 | 0 | |
| 19 | Dolichopodidae (larva) (lrg,complete) | 1 | - | Larvae | 1 | - | 0 | 0 | Taxonomic error-no taxon name given |
| 20 | Gammarus zaddachi (lrg, complete) | 1 | - | Gammarus zaddachi | 1 | - | 0 | 0 | |
| 21 | Gammaridae (juv) (v. sml) | 1 | - | | | | 0 | 1 | Taxon missing: 1 lost in processing |
| 22 | | | | Unknown | 1 | - | | | Seed- no need to pick |
| TOTAL | | 158 | 0 | TOTAL | 123 | 0 | 0 | 36 | |
| Residue Content | | | | Residue Content | | | In | Lost in | |
| Component | Volume/Qty | | | Component | Picked | | Residue | Processing | |
| -(mud residue <0.5mm) | 175ml | - | | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | | (shell debris <1mm) | - | - | 25ml | n/a | |
| (leaf matter <1mm) | 2-4 | - | | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| -Aphelochaeta marioni (tail) | 2 | - | | | 2 | | 0 | 0 | |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macroinvertebrate Exercise (MB) Results | | Summary Data | |
|---|--|---------------------------------|-------|
| LabCode: LB1704 | | Diff. In No. Taxa | -5 |
| SampleCode: MB18 | | Diff. In No. Individuals | -72 |
| Exercise Deadline 26/11/2010 | | Missed Taxa (in residue) | 4 |
| Sample Received: 25/11/2010 | | Missed Individuals (in residue) | 72 |
| Notes: Artificial Sample prepared by Unicmarine | | Taxonomic Errors | 1 |
| 0.5mm sieve mesh | | Count Variance | 0 |
| | | Biomass %diff. | 32.72 |
| | | Bray-Curtis Similarity index | 69.67 |

| Thomson Unicmarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|--|--|--------|----------|---------------------------------|--------|---------|-------------------|--------------------|---|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsolii (med, most anterior only) | 30 | 0.0004 | Streblospio Shrubsi | 6 | 0.001 | 0 | 24 | Spelling mistake; 24 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | | | | | 0 | 1 | Taxon missing- 1 lost in processing |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.1408 | Hediste Diversicolor | 3 | 0.205 | 0 | 0 | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.0019 | Polydora Cornuta | 3 | 0.0022 | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | | | | | 0 | 3 | Taxon missing- 3 lost in processing |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | 0.0099 | Tharyx | 9 | 0.0137 | 0 | 0 | ID to species possible |
| 7 | Aphelochaeta marioni (ant only) | 1 | 0.0008 | Aphelochaeta | 1 | 0.0013 | 0 | 0 | ID to species possible |
| 8 | Tubificoides benedii (lrg->sml) | 29 | 0.0099 | Tubificoides Benedii | 22 | 0.0171 | 0 | 7 | 7 lost in processing |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifi) | 24 | 0.0002 | Tubificoides Pseudogaster (agg) | 2 | 0.0003 | 0 | 22 | 22 lost in processing |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | | | | | 0 | 10 | Taxon missing- 10 lost in processing |
| 11 | Enchytraeidae (complete) | 3 | 0.0001 | Enchytraeidae | 1 | 0.0003 | 0 | 2 | plus 1 bit without head; 1 lost in processing |
| 12 | Eusarsiella zostericola (complete, med) | 3 | 0.0001 | Eusarsiella Zostericola | 1 | 0.0002 | 0 | 2 | 2 lost in processing |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.0731 | Corophium Volutator | 31 | 0.1308 | 0 | -1 | Taxonomic error; incl.1x Corophium multisetosum with taxon 13 |
| 14 | Corophium multisetosum (complete, lrg) | 1 | | | | | 0 | 1 | |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | 0.0001 | Mytilus Edulis (juv) | 1 | 0.0002 | 0 | 0 | |
| 16 | Macoma balthica (med) | 3 | 0.0278 | Macoma balthica | 3 | 0.0303 | 0 | 0 | |
| 17 | Abra tenuis (med) | 1 | 0.0069 | Abra tenuis | 1 | 0.0084 | 0 | 0 | |
| 18 | Dolichopodidae (larva) (lrg,complete) | 1 | 0.0135 | Dolichopodidae (larva) | 1 | 0.0128 | 0 | 0 | |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | 0.011 | Gammarus Zaddachi | 1 | 0.0171 | 0 | 0 | |
| 20 | Gammaridae (juv) (v. sml) | 1 | | | | | 0 | 1 | Taxon missing- 1 lost in processing |
| TOTAL | | 158 | 0.2965 | TOTAL | 86 | 0.4407 | 0 | 72 | |
| Residue Content | | | | Residue Content | | | In Residue | Lost in Processing | |
| - Component | Volume/Qty | - | - | Component | Picked | - | | | |
| -(mud residue <0.5mm) | 175ml | - | - | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | - | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | - | (shell debris <1mm) | - | - | 25ml | n/a | |
| (leaf matter <1mm) | 2-4 | - | - | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| - Aphelochaeta marioni (tail) | 2 | - | - | | 1 | - | 0 | 1 | 1 with taxon 7; 1 lost in processing |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macroinvertebrate Exercise (MB) Results | | Summary Data | |
|---|--|---------------------------------|-------|
| LabCode: LB1705 | | Diff. In No. Taxa | -4 |
| SampleCode: MB18 | | Diff. In No. Individuals | -28 |
| Exercise Deadline 26/11/2010 | | Missed Taxa (in residue) | 3 |
| Sample Received 21/12/2010 | | Missed Individuals (in residue) | 29 |
| Notes: Artificial Sample prepared by Unicumarine | | Taxonomic Errors | 4 |
| 0.5mm sieve mesh | | Count Variance | 1 |
| | | Biomass %diff. | 16.23 |
| | | Bray-Curtis Similarity index | 79.17 |

| Thomson Unicumarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|---|--------|----------|-------------------------------|--------|-------------|-------------------|--------------------|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsolii (med, most anterior only) | 30 | 0.0052 | Streblospio shrubsolii | 25 | 0.013 | 0 | 5 | 5 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | 0.0001 | Pygospio elegans | 1 | 0.0001 | 0 | 0 | |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.1145 | Nereis diversicolor | 3 | 0.1171 | 0 | 0 | Name change |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.0033 | Polydora cornuta | 3 | 0.0037 | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | 0.0002 | Capitella capitata | 2 | 0.0001 | 0 | 1 | 1 lost in processing; |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | 0.0126 | Aphelochaeta 'A' | 10 | 0.0229 | 0 | -1 | Taxonomic error; 9xTharyx "species A" and 1xAphelochaeta marioni+ 2 tails with taxon 6 |
| 7 | Aphelochaeta marioni (ant only) | 1 | | | | | 0 | 1 | |
| 8 | Tubificoides benedii (lrg->sml) | 29 | 0.017 | Tubificoides benedii | 25 | 0.0259 | 2 | 2 | 2 lost in processing; 1 on slide |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifid) | 24 | - | Tubificoides pseudogaster | 14 | unavailable | 0 | 10 | No (agg.); on slide; 3 with taxon 10, 1 with taxon 21; 6 lost in processing |
| 10 | | | | Tubificoides sp | 1 | unavailable | 0 | -1 | Taxonomic error |
| 11 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | - | Heterochaeta costata | 5 | unavailable | 2 | 3 | On slide; incl. 3xTubificoides pseudogaster (agg); 6 lost in processing |
| 12 | Enchytraeidae (complete) | 3 | - | Lumbriculus sp | 4 | unavailable | 0 | 0 | Taxonomic error; On slide; miscounted- only 3, 1xbit |
| 13 | Eusarsiella zostericola (complete, med) | 3 | | | | | 0 | 3 | Taxon missing- 3 lost in processing |
| 14 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.1707 | Corophium volutator | 31 | 0.1946 | 0 | -1 | Taxonomic error; incl. 1x Corophium multisetosum with taxon 14 |
| 15 | Corophium multisetosum (complete, lrg) | 1 | | | | | 0 | 1 | |
| 16 | Mytilus edulis (juv) (v.sml) | 1 | | | | | 0 | 1 | Taxon missing- 1 lost in processing |
| 17 | Macoma balthica (med) | 3 | 0.0491 | Macoma balthica | 3 | 0.0523 | 0 | 0 | |
| 18 | Abra tenuis (med) | 1 | 0.0104 | Abra tenuis | 1 | 0.0159 | 0 | 0 | |
| 19 | Dolichopodidae (larva) (lrg,complete) | 1 | 0.0139 | Diptera sp | 1 | 0.015 | 0 | 0 | ID to family possible; PL note:'Fresh water contaminant, possibly dolichopodidae' |
| 20 | Gammarus zaddachi (lrg, complete) | 1 | 0.0199 | Gammarus zaddachi | 1 | 0.0371 | 0 | 0 | |
| 21 | Gammaridae (juv) (v. sml) | 1 | | | | | 1 | 0 | |
| TOTAL | | 158 | 0.4169 | TOTAL | 130 | 0.4977 | 5 | 24 | |
| Residue Content | | | | Residue Content | | | Lost in | | |
| Component | Volume/Qty | - | - | Component | Picked | - | In Residue | Processing | |
| (mud residue <0.5mm) | 175ml | - | - | (mud residue <0.5mm) | - | - | - | n/a | |
| (fine sand residue <0.5mm) | 25ml | - | - | (fine sand residue <0.5mm) | - | - | - | n/a | |
| (shell debris <1mm) | 25ml | - | - | (shell debris <1mm) | - | - | 25ml | n/a | |
| (leaf matter <1mm) | 2-4 | - | - | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| Aphelochaeta marioni (tail) | 2 | - | - | | 2 | - | 0 | 0 | with taxon 6 |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macrobenthic Exercise (MB) Results | | Summary Data | |
|--|---|---------------------------------|-------|
| LabCode: | LB1706 | Diff. In No. Taxa | -1 |
| SampleCode: | MB18 | Diff. In No. Individuals | -19 |
| Exercise Deadline: | 26/11/2010 | Missed Taxa (in residue) | 1 |
| Sample Received: | 03/03/2011 | Missed Individuals (in residue) | 19 |
| Notes: | Artificial Sample Prepared by Unicorarine | Taxonomic Errors | 0 |
| | 0.5mm sieve mesh | Count Variance | 0 |
| | | Biomass %diff. | - |
| | | Bray-Curtis Similarity index | 93.60 |

| Thomson Unicorarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|--|--------|---------|-------------------------------|--------|---------|-------------------|--------------------|---------------------------------------|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsoleii (med, most anterior only) | 30 | - | Streblospio shrubsoleii | 27 | - | 0 | 3 | 3 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | - | | | | 0 | 1 | Taxon missing- 1 lost in processing |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | - | Hediste diversicolor | 3 | - | 0 | 0 | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | - | Polydora cornuta | 3 | - | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | - | Capitella sp | 1 | - | 0 | 2 | 2 lost in processing |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | - | Tharyx sp A | 8 | - | 0 | 1 | 1 lost in processing |
| 7 | Aphelochaeta marioni (ant only) | 1 | - | Aphelochaeta marioni | 1 | - | 0 | 0 | plus 2 tails |
| 8 | Tubificoides benedii (lrg->sml) | 29 | - | Tubificoides benedii | 26 | - | 0 | 3 | 3 lost in processing |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifids) | 24 | - | Tubificoides pseudogaster agg | 18 | - | 0 | 6 | 6 lost in processing |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | - | Heterochaeta costata | 9 | - | 0 | 1 | 1 lost in processing |
| 11 | Enchytraeidae (complete) | 3 | - | Enchytraeidae sp | 1 | - | 0 | 2 | 2 lost in processing |
| 12 | Eusarsiella zostericola (complete, med) | 3 | - | Eusarsiella zostericola | 3 | - | 0 | 0 | |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | - | Corophium volutator | 30 | - | 0 | 0 | |
| 14 | Corophium multisetosum (complete, lrg) | 1 | - | Corophium multisetosum | 1 | - | 0 | 0 | |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | - | Mytilus edulis juv | 1 | - | 0 | 0 | |
| 16 | Macoma balthica (med) | 3 | - | Macoma balthica | 3 | - | 0 | 0 | |
| 17 | Abra tenuis (med) | 1 | - | Abra tenuis | 1 | - | 0 | 0 | |
| 18 | Dolichopodidae (larva) (lrg,complete) | 1 | - | DOLICHOPODIDAE # larvae | 1 | - | 0 | 0 | |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | - | Gammarus zaddachi | 1 | - | 0 | 0 | |
| 20 | Gammaridae (juv) (v. sml) | 1 | - | Gammaridae juv | 1 | - | 0 | 0 | |
| 21 | | - | - | (Nematoda) | (2) | - | n/a | n/a | Ignore for stats- unintentional fauna |
| TOTAL | | 158 | 0 | TOTAL | 139 | 0 | 0 | 19 | |
| Residue Content | | | | Residue Content | | | In Residue | Lost in Processing | |
| - Component | Volume/Qty | - | - | Component | Picked | - | | | |
| -(mud residue <0.5mm) | 175ml | - | - | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | - | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | - | (shell debris <1mm) | - | - | 25ml | n/a | |
| -(leaf matter <1mm) | 2-4 | - | - | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| -Aphelochaeta marioni (tail) | 2 | - | - | | 2 | - | 0 | 0 | |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| NMBAQC Scheme Macroinvertebrate Exercise (MB) Results | | Summary Data | |
|---|--|---------------------------------|-------|
| LabCode: LB1708 | | Diff. In No. Taxa | -1 |
| SampleCode: MB18 | | Diff. In No. Individuals | -20 |
| Exercise Deadline: 26/11/2010 | | Missed Taxa (in residue) | 1 |
| Sample Received: 26/11/2010 | | Missed Individuals (in residue) | 19 |
| Notes: Artificial Sample prepared by Unicmarine | | Taxonomic Errors | 0 |
| 0.5mm sieve mesh | | Count Variance | -1 |
| Some specimen stained | | Biomass %diff. | 43.91 |
| | | Bray-Curtis Similarity index | 93.24 |

| Thomson Unicmarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|--|---|--------|----------|----------------------------------|--------|---------|-------------------|--------------------|--------------------------------------|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsolei (med, most anterior only) | 30 | 0.0043 | Streblospio shrubsolei | 26 | 0.0035 | 0 | 4 | 4 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | 0.0001 | Pygospio elegans | 1 | <0.0001 | 0 | 0 | |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.034 | Hediste diversicolor | 3 | 0.0608 | 0 | 0 | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.002 | Polydora cornuta | 3 | 0.0027 | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | 0.0002 | Capitella spp. com. | 2 | 0.0003 | 0 | 1 | 1 lost in processing |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | 0.0091 | Tharyx "species A" | 9 | 0.0107 | 0 | 0 | |
| 7 | Aphelochaeta marioni (ant only) | 1 | 0.0021 | Aphelochaeta marioni | 1 | 0.003 | 0 | 0 | plus 1 tail |
| 8 | Tubificoides benedii (lrg->sml) | 29 | 0.0113 | Tubificoides benedii | 27 | 0.0088 | 0 | 2 | 2 lost in processing |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifid) | 24 | 0.0033 | Tubificoides pseudogaster (agg.) | 19 | 0.0006 | 0 | 5 | 5 lost in processing |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | 0.0001 | Heterochaeta costata | 4 | 0.0001 | 0 | 6 | 6 lost in processing |
| 11 | Enchytraeidae (complete) | 3 | 0.0003 | Enchytraeidae | 3 | 0.0001 | 0 | 0 | |
| 12 | Eusarsiella zostericola (complete, med) | 3 | 0.0001 | Eusarsiella zostericola | 3 | <0.0001 | 0 | 0 | |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.0807 | Corophium volutator | 29 | 0.199 | 0 | 0 | Miscounted- 30 in vial |
| 14 | Corophium multisetosum (complete, lrg) | 1 | 0.0044 | Corophium multisetosum | 1 | 0.0061 | 0 | 0 | |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | 0.0001 | Mytilus edulis (juv.) | 1 | <0.0001 | 0 | 0 | |
| 16 | Macoma balthica (med) | 3 | 0.025 | Macoma balthica | 3 | 0.031 | 0 | 0 | |
| 17 | Abra tenuis (med) | 1 | 0.0083 | Abra tenuis | 1 | 0.0137 | 0 | 0 | |
| 18 | Dolichopodidae (larva) (lrg,complete) | 1 | 0.0176 | Diptera (larvae) | 1 | 0.0192 | 0 | 0 | ID to family possible |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | 0.008 | Gammarus zaddachi | 1 | 0.0166 | 0 | 0 | |
| 20 | Gammaridae (juv) (v. sml) | 1 | - | | | | 0 | 1 | Taxon missing-1 lost in processing |
| TOTAL | | 158 | 0.211 | TOTAL | 138 | 0.3727 | 0 | 19 | |
| Residue Content | | | | Residue Content | | | Lost in | | Comments |
| Component | Volume/Qty | | | Component | Picked | | In Residue | Processing | |
| -(mud residue <0.5mm) | 175ml | - | | -(mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | | -(fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | | -(shell debris <1mm) | - | - | 25ml | n/a | |
| -(leaf matter <1mm) | 2-4 | - | | -(leaf matter <1mm) | - | - | 2-4 | n/a | |
| -Aphelochaeta marioni (tail) | 2 | - | | | 1 | | 0 | 1 | 1 with taxon 7; 1 lost in processing |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| | | | |
|-------------------|---|---------------------------------|-------|
| LabCode | LB1712 | Summary Data | |
| SampleCode | MB18 | Diff. In No. Taxa | -5 |
| Exercise Deadline | 26/11/2010 | Diff. In No. Individuals | -22 |
| Sample Received: | 29/11/2010 | Missed Taxa (in residue) | 1 |
| Notes: | Artificial Sample prepared by Unicamarine | Missed Individuals (in residue) | 22 |
| | 0.5mm sieve mesh | Taxonomic Errors | 4 |
| | Sample stained | Count Variance | 0 |
| | No biomass data | Biomass %diff. | - |
| | | Bray-Curtis Similarity index | 67.35 |

| Thomson Unicamarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|---|--------|---------|--------------------------------------|--------|---------|-------------------|--------------------|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass | Taxon Name | Number | Biomass | | | |
| 1 | Streblospio shrubsolii (med, most anterior only) | 30 | - | Streblospio shrubsolii | 26 | - | 0 | 4 | 4 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | - | Pygospio elegans | 1 | - | 0 | 0 | |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | - | Hediste diversicolor | 3 | - | 0 | 0 | |
| 4 | Polydora cornuta (ant only, quite big) | 3 | - | Polydora cornuta | 3 | - | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | - | Capitella sp. | 2 | - | 0 | 1 | 1 lost in processing |
| 6 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | 9 | - | Tharyx "type 1" | 10 | - | 0 | -1 | incl.1xAphelochaeta marioni |
| 7 | Aphelochaeta marioni (ant only) | 1 | - | | | | 0 | 1 | with taxon 6 |
| 8 | Tubificoides benedii (lrg->sml) | 29 | - | Tubificoides benedii | 33 | - | 0 | -4 | Taxonomic error; incl.2xEnchytraeidae and 2xHeterochaeta costata |
| 9 | Tubificoides pseudogaster (agg) ([poss. T.cre) swollen ant.,thin post, with long bifi | 24 | - | Tubificoides pseudogaster agg | 18 | - | 0 | 6 | Taxonomic error; incl.1xHeterochaeta costata; 7 lost in processing |
| 10 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | - | | | | 0 | 10 | 2 in taxon 8 and 1 in taxon 9; 7 lost in processing |
| 11 | Enchytraeidae (complete) | 3 | - | | | | 0 | 3 | 2 in taxon 8; 1 lost in processing |
| 12 | Eusarsiella zostericola (complete, med) | 3 | - | Eusarsiella zostericola | 2 | - | 0 | 1 | 1 lost in processing |
| 13 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | - | Corophium arenarium | 31 | - | 0 | -1 | Taxonomic error; 30xCorophium volutator and 1xCorophium multisetosum |
| 14 | Corophium multisetosum (complete, lrg) | 1 | - | | | | 0 | 1 | with taxon 13 |
| 15 | Mytilus edulis (juv) (v.sml) | 1 | - | | | | 0 | 1 | Taxon missing- 1 lost in processing |
| 16 | Macoma balthica (med) | 3 | - | Macoma balthica | 3 | - | 0 | 0 | |
| 17 | Abra tenuis (med) | 1 | - | Abra tenuis | 1 | - | 0 | 0 | |
| 18 | Dolichopodidae (larva) (lrg,complete) | 1 | - | Dolichopodid larvae | 1 | - | 0 | 0 | |
| 19 | Gammarus zaddachi (lrg, complete) | 1 | - | Gammarus zaddachi | 1 | - | 0 | 0 | |
| 20 | Gammaridae (juv) (v. sml) | 1 | - | Allomelita pellucida | 1 | - | 0 | 0 | Taxonomic error |
| | | | | | | | 0 | 0 | |
| | | | | | | | 0 | 22 | |
| | | TOTAL | 158 0 | TOTAL | 136 | 0 | 0 | 22 | |
| Residue Content | | | | Residue Content | | | In Residue | Lost in Processing | |
| Component | Volume/Qty | | | Component | Picked | | | | |
| -(mud residue <0.5mm) | 175ml | - | | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | | (shell debris <1mm) | - | - | 25ml | n/a | |
| -(leaf matter <1mm) | 2-4 | - | | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| -Aphelochaeta marioni (tail) | 2 | - | | | 0 | | 0 | 2 | 2 lost in processing |

*Biomass estimations of Participating Laboratory's vial contents.

NMBAQC Scheme Interim Results

| | | | |
|-------------------|---|---------------------------------|-------|
| LabCode | LB1723 | Summary Data | |
| SampleCode | MB18 | Diff. In No. Taxa | -2 |
| Exercise Deadline | 26/11/2010 | Diff. In No. Individuals | -44 |
| Sample Received: | 23/11/2010 | Missed Taxa (in residue) | 4 |
| Notes: | Artificial Sample prepared by Unicomarine 0.5mm sieve mesh | Missed Individuals (in residue) | 42 |
| | | Taxonomic Errors | 7 |
| | | Count Variance | -2 |
| | | Biomass %diff. | 43.73 |
| | | Bray-Curtis Similarity index | 37.50 |

| Thomson Unicomarine Ltd. Artificial Sample Contents | | | | Participating Laboratory Data | | | Residue Resorting | | Comments |
|---|---|--------|----------|--------------------------------------|--------|------------|-------------------|--------------------|--|
| Faunal Content (heads) | | | | Faunal Content (heads) | | | Missed in Residue | Lost in Processing | |
| Taxon Number | Taxon Name | Number | Biomass* | Taxon Name | Number | Biomass | | ng | |
| 1 | Streblospio shrubsolii (med, most anterior only) | 30 | 0.0028 | Streblospio benedicti | 18 | 0.0065 | 0 | 12 | Treated as synonym; 12 lost in processing |
| 2 | Pygospio elegans (complete) | 1 | 0.0001 | Pygospio elegans | 1 | <0.0001 | 0 | 0 | |
| 3 | Hediste diversicolor (2xmed; 1xbig) | 3 | 0.0801 | Nereis diversicolor | 3 | 0.1513 | 0 | 0 | Name change |
| 4 | Polydora cornuta (ant only, quite big) | 3 | 0.0019 | Polydora cornuta | 3 | 0.0033 | 0 | 0 | |
| 5 | Capitella (sml, incomplete) | 3 | 0.0001 | Capitella capitata | 1 | <0.0001 | 0 | 2 | 2 lost in processing |
| 6 | | 9 | 0.0027 | Aphelochaeta "A" | 1 | 0.0047 | 0 | 8 | Taxonomic error |
| 7 | | | 0.0037 | Aphelochaeta species | 5 | 0.0056 | | -5 | Taxonomic error; incl.1 Aphelochaeta marioni tail |
| 8 | Tharyx "species A" (3xcompl, 6xant.only; med->lrg) | | 0.0002 | Aphelochaeta species juvenile | 2 | 0.0005 | | -2 | Taxonomic error |
| 9 | | | 0.0016 | Aphelochaeta marioni | 1 | 0.0022 | | -1 | Taxonomic error; incl.1 Aphelochaeta marioni tail |
| 10 | Aphelochaeta marioni (ant only) | 1 | 0.0011 | Aphelochaeta "type 1" | 1 | 0.0013 | | 0 | Taxonomic error |
| 11 | Tubificoides benedii (lrg->sml) | 29 | 0.0107 | Oligochaeta species | 41 | 0.0146 | 0 | -14 | Error-not following NMBAQC TDP-id to species required; Miscounted- 43; incl. 24xTubificoides benedii; 3xHeterochaeta costata; 16xTubificoides pseudogaster(agg.); PL note :3 different species; 5 lost in processing |
| 12 | Tubificoides pseudogaster (agg) ([poss. T.cre] swollen ant.,thin post, with long bifi | 24 | - | | | | 0 | 24 | 16 with taxon 11; 8 lost in processing |
| 13 | Heterochaeta costata (med->sml, mostly incomplete) | 10 | - | | | | 0 | 10 | 3 with taxon 11; 7 lost in processing |
| 14 | Enchytraeidae (complete) | 3 | - | | | | 0 | 3 | Taxon missing; 3 lost in processing |
| 15 | Eusarsiella zostericola (complete, med) | 3 | - | | | | 1 | 2 | Taxon missing; 2 lost in processing |
| 16 | Corophium volutator (complete, fem&male mix, med->lrg) | 30 | 0.0517 | Corophium volutator | 18 | 0.0886 | 0 | 12 | |
| 17 | | | 0.0239 | Corophium arenarium | 12 | 0.0425 | | -12 | Taxonomic error |
| 18 | Corophium multisetosum (complete, lrg) | 1 | 0.0026 | Corophium multisetosum | 1 | 0.0039 | 0 | 0 | |
| 19 | Mytilus edulis (juv) (v.sml) | 1 | - | | | | 0 | 1 | Taxon missing; 1 lost in processing |
| 20 | Macoma balthica (med) | 3 | - | Macoma balthica | 3 | No biomass | 0 | 0 | |
| 21 | Abra tenuis (med) | 1 | - | Abra tenuis | 1 | No biomass | 0 | 0 | |
| 22 | Dolichopodidae (larva) (lrg,complete) | 1 | - | Maggot | 1 | No biomass | 0 | 0 | Taxonomic error-no taxon name given |
| 23 | Gammarus zaddachi (lrg, complete) | 1 | 0.0085 | Gammarus zaddachi | 1 | 0.0157 | 0 | 0 | |
| 24 | Gammaridae (juv) (v. sml) | 1 | - | | | | 1 | 0 | |
| TOTAL | | 158 | 0.1917 | TOTAL | 114 | 0.3342 | 2 | 40 | |
| Residue Content | | | | Residue Content | | | Missed in Residue | Lost in Processing | |
| - Component | Volume/Qty | - | - | Component | Picked | - | | ng | |
| -(mud residue <0.5mm) | 175ml | - | - | (mud residue <0.5mm) | - | - | - | n/a | |
| -(fine sand residue <0.5mm) | 25ml | - | - | (fine sand residue <0.5mm) | - | - | - | n/a | |
| -(shell debris <1mm) | 25ml | - | - | (shell debris <1mm) | - | - | 25ml | n/a | |
| -(leaf matter <1mm) | 2-4 | - | - | (leaf matter <1mm) | - | - | 2-4 | n/a | |
| -Aphelochaeta marioni (tail) | 2 | - | - | | 2 | - | 0 | 0 | 1 with taxon 20, 1 with taxon 22 |

*Biomass estimations of Participating Laboratory's vial contents.

Table 1. Results from the analysis of Macrobenthic sample MB18 by the participating laboratories.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
|---------|----------------|-----|----------|------|-----------------------|-----|----------|------|--------------------|-----|------|-------------|------------|-----------|---------|-------------------|
| LabCode | Number of Taxa | | | | Number of Individuals | | | | Not extracted/lost | | | Individuals | Similarity | Taxonomic | TUM TDP | |
| | PL | TUM | Diff (n) | %max | PL | TUM | Diff (n) | %max | New Taxa | Ind | %ind | Count | Error | index | errors | Similarity index* |
| LB1701 | 17 | 20 | -3 | 15.0 | 153 | 158 | -5 | 3.2 | 0 | 5 | 3.2 | 0 | | 84.24 | 7 | 82.32 |
| LB1702 | 20 | 20 | 0 | 0.0 | 142 | 158 | -16 | 10.1 | 0 | 18 | 11.4 | 2 | | 89.33 | 3 | 86.00 |
| LB1703 | 19 | 20 | -1 | 5.0 | 123 | 158 | -35 | 22.2 | 3 | 36 | 22.8 | 1 | | 85.41 | 2 | 83.25 |
| LB1704 | 15 | 20 | -5 | 25.0 | 86 | 158 | -72 | 45.6 | 4 | 72 | 45.6 | 0 | | 69.67 | 1 | 61.48 |
| LB1705 | 16 | 20 | -4 | 20.0 | 130 | 158 | -28 | 17.7 | 3 | 29 | 18.4 | 1 | | 79.17 | 4 | 78.47 |
| LB1706 | 19 | 20 | -1 | 5.0 | 139 | 158 | -19 | 12.0 | 1 | 19 | 12.0 | 0 | | 93.60 | 0 | 93.60 |
| LB1708 | 19 | 20 | -1 | 5.0 | 138 | 158 | -20 | 12.7 | 1 | 19 | 12.0 | -1 | | 93.24 | 0 | 92.57 |
| LB1712 | 15 | 20 | -5 | 25.0 | 136 | 158 | -22 | 13.9 | 1 | 22 | 13.9 | 0 | | 67.35 | 4 | 67.35 |
| LB1723 | 18 | 20 | -2 | 10.0 | 114 | 158 | -44 | 27.8 | 4 | 42 | 26.6 | -2 | | 37.50 | 7 | 37.50 |

Key: PL - participating laboratory.

TUM - Thomson Unicomarine Ltd.

New Taxa = Taxa not extracted from residue.

* Column 16= Similarity index based upon TUM Taxonomic Discrimination Protocol (TDP)

Table 2. Comparison of the efficiency of extraction of fauna by the participating laboratories for the major taxonomic groups present in sample MB18.

| LabCode | | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other | Overall |
|---------|-----------|----------|------------|-------------|-------------|-----------|---------------|----------|-------|---------|
| LB1701 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 0 | 4 | - | 1 | - | 0 | 0 | 5 |
| | %missed | - | 0.0 | 6.1 | - | 2.8 | - | 0.0 | 0.0 | 3.2 |
| LB1702 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 7 | 11 | - | 0 | - | 0 | 0 | 18 |
| | %missed | - | 14.0 | 16.7 | - | 0.0 | - | 0.0 | 0.0 | 11.4 |
| LB1703 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 12 | 22 | - | 2 | - | 0 | 0 | 36 |
| | %missed | - | 24.0 | 33.3 | - | 5.6 | - | 0.0 | 0.0 | 22.8 |
| LB1704 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 28 | 41 | - | 3 | - | 0 | 0 | 72 |
| | %missed | - | 56.0 | 62.1 | - | 8.3 | - | 0.0 | 0.0 | 45.6 |
| LB1705 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 6 | 18 | - | 4 | - | 1 | 0 | 29 |
| | %missed | - | 12.0 | 27.3 | - | 11.1 | - | 20.0 | 0.0 | 18.4 |
| LB1706 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 7 | 12 | - | 0 | - | 0 | 0 | 19 |
| | %missed | - | 14.0 | 18.2 | - | 0.0 | - | 0.0 | 0.0 | 12.0 |
| LB1708 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 5 | 13 | - | 1 | - | 0 | 0 | 19 |
| | %missed | - | 10.0 | 19.7 | - | 2.8 | - | 0.0 | 0.0 | 12.0 |
| LB1712 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 5 | 15 | - | 1 | - | 1 | 0 | 22 |
| | %missed | - | 10.0 | 22.7 | - | 2.8 | - | 20.0 | 0.0 | 13.9 |
| LB1723 | TUM count | - | 50 | 66 | - | 36 | - | 5 | 1 | 158 |
| | PL missed | - | 14 | 23 | - | 4 | - | 1 | 0 | 42 |
| | %missed | - | 28.0 | 34.8 | - | 11.1 | - | 20.0 | 0.0 | 26.6 |

Key: PL - participating laboratory.
TUM - Thomson Unicmarine Ltd.
"-" - No data.

Table 3. Comparison of the taxa lost by the participating laboratories during sieving/extraction process for MB18

| Taxon Name | LB1701 | | | LB1702 | | | LB1703 | | | LB1704 | | | LB1705 | | | LB1706 | | | LB1708 | | | LB1712 | | | LB1723 | | | PL lost | | | | | |
|--|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|-----------|---------|-------|---------|-------|-------|------|----|-----|
| | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | TUM Count | PL lost | %lost | Av % | Min % | Max % | | | |
| <i>Streblospio shrubsolii</i> (med) | 30 | 0 | 0 | 30 | 6 | 20 | 30 | 10 | 33 | 30 | 24 | 80 | 30 | 5 | 17 | 30 | 3 | 10 | 30 | 4 | 13 | 30 | 4 | 13 | 30 | 12 | 40 | 25.2 | 0 | 80 | | | |
| <i>Pygospio elegans</i> (complete) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 1 | 100 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 33.3 | 0 | 100 | | | |
| <i>Hediste diversicolor</i> (2xmed; 1xbig) | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Polydora cornuta</i> (quite big) | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Capitella</i> (sml, incomplete) | 3 | 0 | 0 | 3 | 1 | 33 | 3 | 1 | 33 | 3 | 3 | 100 | 3 | 1 | 33 | 3 | 2 | 67 | 3 | 1 | 33 | 3 | 1 | 33 | 3 | 1 | 33 | 3 | 2 | 67 | 44.4 | 0 | 100 |
| <i>Tharyx</i> "species A" (med->lrg) | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 1 | 11 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 1 | 11 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 2.5 | 0 | 11 |
| <i>Aphelochaeta marioni</i> (ant only) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Tubificoides benedii</i> (lrg->sml) | 29 | 0 | 0 | 29 | 0 | 0 | 29 | 2 | 7 | 29 | 7 | 24 | 29 | 2 | 7 | 29 | 3 | 10 | 29 | 2 | 7 | 29 | 0 | 0 | 29 | 5 | 17 | 8.0 | 0 | 24 | | | |
| <i>Tubificoides pseudogaster</i> (agg) | 24 | 0 | 0 | 24 | 2 | 8 | 24 | 10 | 42 | 24 | 22 | 92 | 24 | 6 | 25 | 24 | 6 | 25 | 24 | 5 | 21 | 24 | 7 | 29 | 24 | 8 | 33 | 30.6 | 0 | 92 | | | |
| <i>Heterochaeta costata</i> (med->sml) | 10 | 4 | 40 | 10 | 8 | 80 | 10 | 6 | 60 | 10 | 10 | 100 | 10 | 6 | 60 | 10 | 1 | 10 | 10 | 6 | 60 | 10 | 7 | 70 | 10 | 7 | 70 | 10 | 7 | 70 | 61.1 | 10 | 100 |
| Enchytraeidae (complete) | 3 | 0 | 0 | 3 | 1 | 33 | 3 | 3 | 100 | 3 | 1 | 33 | 3 | 0 | 0 | 3 | 2 | 67 | 3 | 0 | 0 | 3 | 1 | 33 | 3 | 3 | 100 | 40.7 | 0 | 100 | | | |
| <i>Eusarsiella zostericola</i> (med) | 3 | 1 | 33 | 3 | 0 | 0 | 3 | 1 | 33 | 3 | 2 | 67 | 3 | 3 | 100 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 33 | 3 | 2 | 67 | 37.0 | 0 | 100 | | | |
| <i>Corophium volutator</i> (med->lrg) | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Corophium multisetosum</i> (lrg) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Mytilus edulis</i> (juv) (v.sml) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 0 | 0 | 22.2 | 0 | 100 |
| <i>Macoma balthica</i> (med) | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Abra tenuis</i> (med) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 0 | 0 |
| Dolichopodidae (larva) (lrg) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 0 | 0 |
| <i>Gammarus zaddachi</i> (lrg) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 0 | 0 |
| Gammaridae (juv) (v. sml) | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 1 | 100 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 100 | 1 | 0 | 0 | 1 | 1 | 100 | 44.4 | 0 | 100 | | | |

Key: PL - participating laboratory
TUM - Thomson Unicomarine Ltd.

Table 4. Comparison of the estimates of biomass made by the participating laboratories with those made by Thomson Unicomarine Ltd. for the major taxonomic groups present in sample MB18. Values are in grams (g).

| LabCode | | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other | Overall |
|---------|--------|----------|-----------------|-------------|-------------|-----------|---------------|----------|--------|---------|
| LB1701 | PL | - | 0.1499 | 0.0296 | - | 0.2254 | - | 0.0681 | 0.0125 | 0.4855 |
| | TUM | - | 0.1021 | 0.0231 | - | 0.1445 | - | 0.0685 | 0.008 | 0.3462 |
| | %diff. | - | 31.9 | 22.0 | - | 35.9 | - | -0.6 | 36.0 | 28.7 |
| LB1702 | PL | - | 0.1155 | 0.0325 | - | 0.1105 | - | 0.0404 | 0.0153 | 0.3142 |
| | TUM | - | 0.0758 | 0.0161 | - | 0.1178 | - | 0.037 | 0.0157 | 0.2624 |
| | %diff. | - | 34.4 | 50.5 | - | -6.6 | - | 8.4 | -2.6 | 16.5 |
| LB1703 | PL | - | - | - | - | - | - | - | - | 0 |
| | TUM | - | NO BIOMASS DATA | | | | | | - | 0 |
| | %diff. | - | - | - | - | - | - | - | - | - |
| LB1704 | PL | - | 0.2232 | 0.0177 | - | 0.1481 | - | 0.0389 | 0.0128 | 0.4407 |
| | TUM | - | 0.1538 | 0.0102 | - | 0.0842 | - | 0.0348 | 0.0135 | 0.2965 |
| | %diff. | - | 31.1 | 42.4 | - | 43.1 | - | 10.5 | -5.5 | 32.7 |
| LB1705 | PL | - | 0.1569 | 0.0259 | - | 0.2317 | - | 0.0682 | 0.015 | 0.4977 |
| | TUM | - | 0.1359 | 0.017 | - | 0.1906 | - | 0.0595 | 0.0139 | 0.4169 |
| | %diff. | - | 13.4 | 34.4 | - | 17.7 | - | 12.8 | 7.3 | 16.2 |
| LB1706 | PL | - | - | - | - | - | - | - | - | 0 |
| | TUM | - | NO BIOMASS DATA | | | | | | - | 0 |
| | %diff. | - | - | - | - | - | - | - | - | - |
| LB1708 | PL | - | 0.081 | 0.0096 | - | 0.2217 | - | 0.0447 | 0.0192 | 0.3762 |
| | TUM | - | 0.0518 | 0.015 | - | 0.0932 | - | 0.0334 | 0.0176 | 0.211 |
| | %diff. | - | 36.0 | -56.3 | - | 58.0 | - | 25.3 | 8.3 | 43.9 |
| LB1712 | PL | - | - | - | - | - | - | - | - | 0 |
| | TUM | - | NO BIOMASS DATA | | | | | | - | 0 |
| | %diff. | - | - | - | - | - | - | - | - | - |
| LB1723 | PL | - | 0.1754 | 0.0146 | - | 0.1507 | - | - | - | 0.3407 |
| | TUM | - | 0.0943 | 0.0107 | - | 0.0867 | - | - | - | 0.1917 |
| | %diff. | - | 46.2 | 26.7 | - | 42.5 | - | - | - | 43.7 |

Key: PL - participating laboratory
TUM - Thomson Unicomarine Ltd.
"-" - No data.

Table 5. Variation in faunal content reported for the artificial replicate samples distributed as MB18.

Taxa*

| LabCode | Polychaeta | Oligochaeta | Crustacea | Mollusca | Other | Total taxa |
|-----------------|------------|-------------|-----------|----------|----------|------------|
| TUM data | 7 | 4 | 5 | 3 | 1 | 20 |
| LB1701 | 6 | 4 | 4 | 2 | 1 | 17 |
| LB1702 | 8 | 4 | 4 | 3 | 1 | 20 |
| LB1703 | 7 | 3 | 4 | 3 | 2 | 19 |
| LB1704 | 5 | 3 | 3 | 3 | 1 | 15 |
| LB1705 | 6 | 5 | 2 | 2 | 1 | 16 |
| LB1706 | 6 | 4 | 5 | 3 | 1 | 19 |
| LB1708 | 7 | 4 | 4 | 3 | 1 | 19 |
| LB1712 | 6 | 2 | 4 | 2 | 1 | 15 |
| LB1723 | 10 | 1 | 4 | 2 | 1 | 18 |
| Mean | 7 | 3 | 4 | 3 | 1 | 18 |
| Max | 10 | 5 | 5 | 3 | 2 | 20 |
| Min | 5 | 1 | 2 | 2 | 1 | 15 |

*TUM data = artificial sample circulated

Individuals*

| LabCode | Polychaeta | Oligochaeta | Crustacea | Mollusca | Other | Total Ind. |
|-----------------|------------|-------------|-----------|----------|----------|------------|
| TUM data | 50 | 66 | 36 | 5 | 1 | 158 |
| LB1701 | 50 | 62 | 35 | 5 | 1 | 153 |
| LB1702 | 44 | 55 | 37 | 5 | 1 | 142 |
| LB1703 | 38 | 44 | 34 | 5 | 2 | 123 |
| LB1704 | 22 | 25 | 33 | 5 | 1 | 86 |
| LB1705 | 44 | 49 | 32 | 4 | 1 | 130 |
| LB1706 | 43 | 54 | 36 | 5 | 1 | 139 |
| LB1708 | 45 | 53 | 34 | 5 | 1 | 138 |
| LB1712 | 45 | 51 | 35 | 4 | 1 | 136 |
| LB1723 | 36 | 41 | 32 | 4 | 1 | 114 |
| Mean | 41 | 48 | 34 | 5 | 1 | 129 |
| Max | 50 | 62 | 37 | 5 | 2 | 153 |
| Min | 22 | 25 | 32 | 4 | 1 | 86 |

*TUM data = artificial sample circulated

Table 6. Sample processing options selected for MB18 by participating laboratories.

| | | LB1701 | LB1702 | LB1703 | LB1704 | LB1705 | LB1706 | LB1708 | LB1712 | LB1723 |
|---------------------------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Faunal groups extracted* | Nematodes | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Bryozoans | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Hydroids | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Copepods | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Ostracods | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Anthozoans | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Tunicates | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Foraminifera | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Algae | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Aquatic Insects | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

** Note that all faunal groups are assumed to be extracted when no sample processing details has been submitted*

Figure 1. MB18 data (Untransformed- Raw)

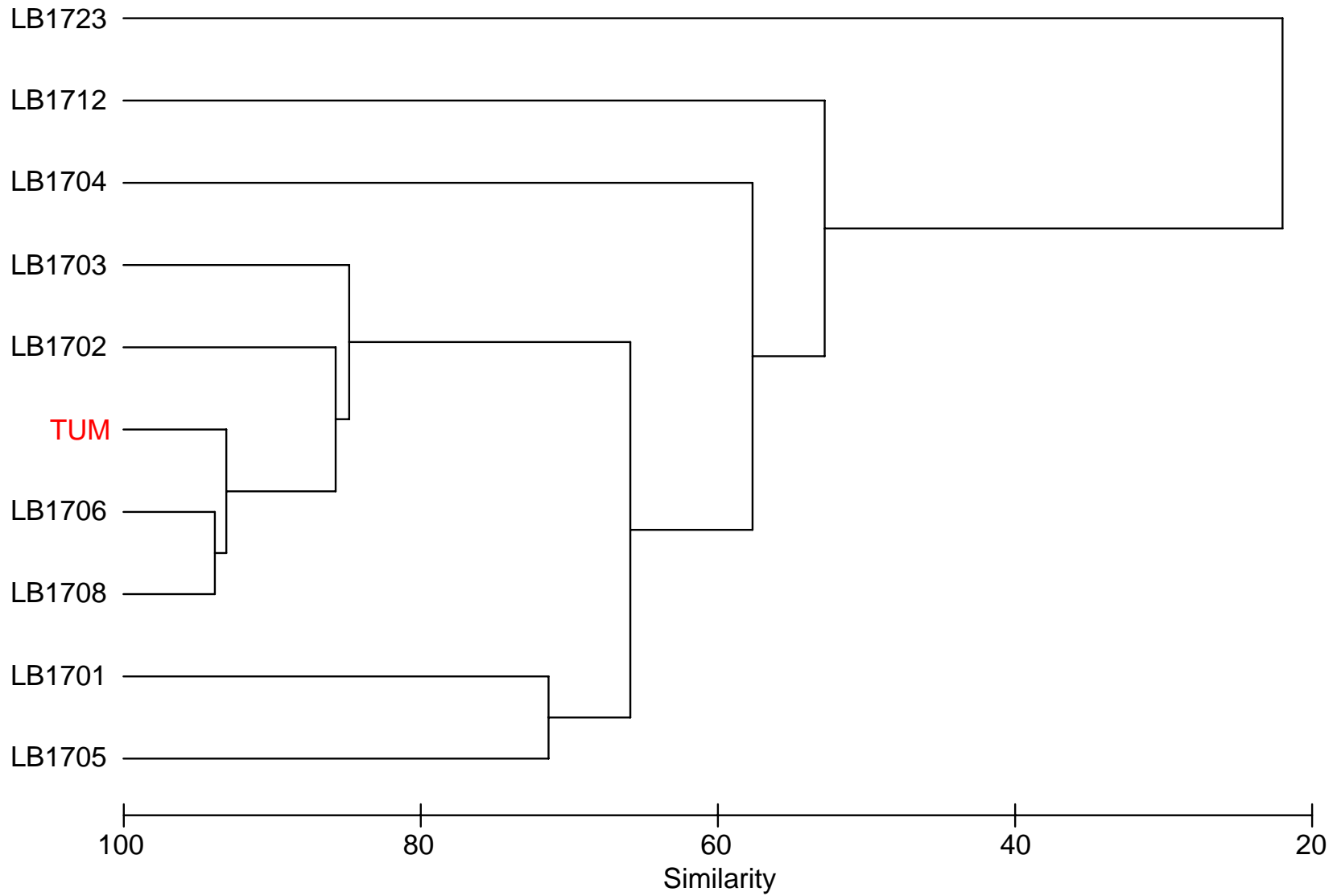
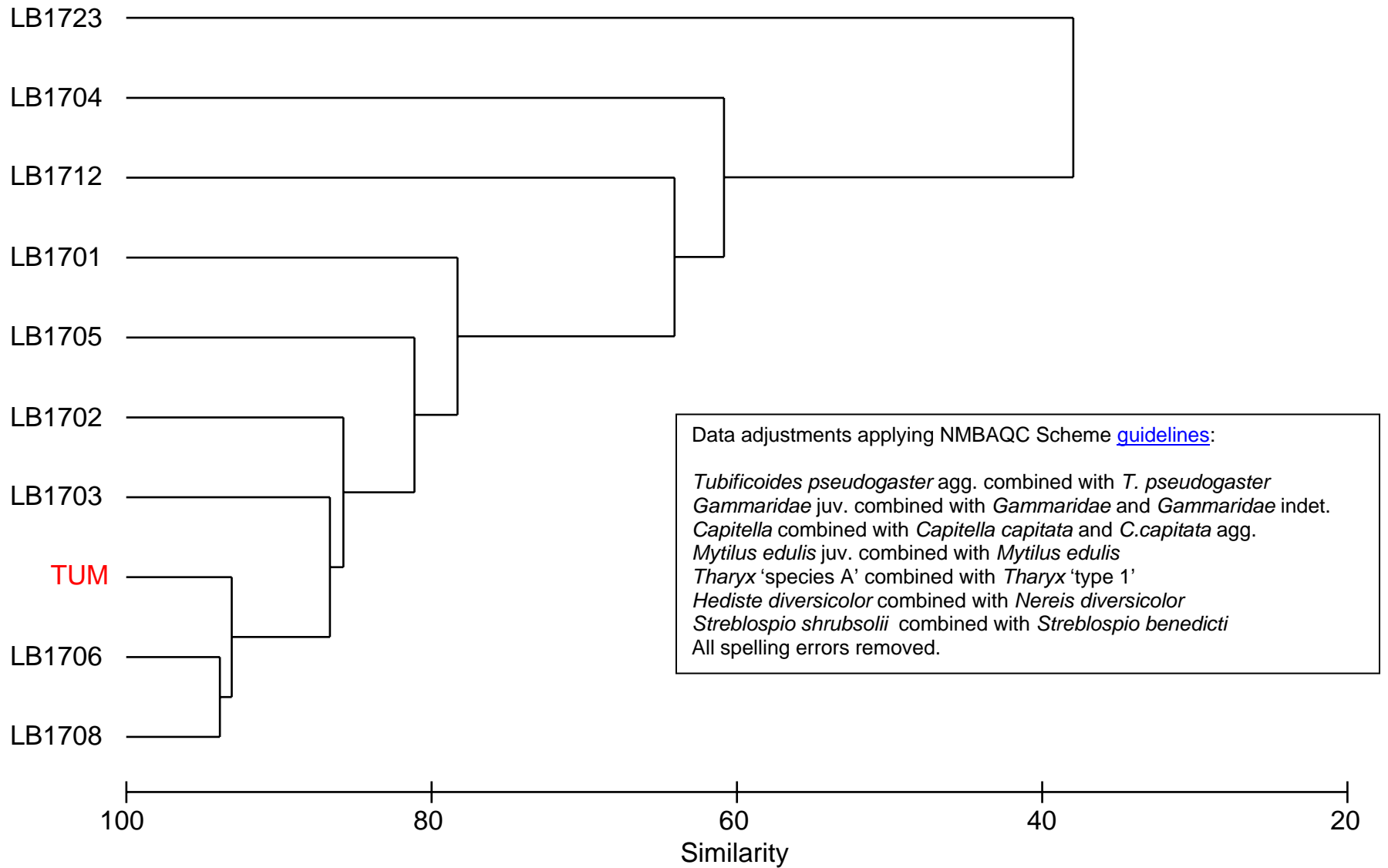


Figure 2. MB18 data (Untransformed- Adjusted).



Apendices

National Marine Biological Analytical Quality Control Scheme

Benthic Invertebrate Component - Macrobenthic sample exercise (MB)

Objective:

- To examine the consistency of extraction and identification of taxa from similar samples

The macrobenthic sample is a training exercise; results are not used to assess the performance of a laboratory.

Protocol:

Each participating laboratory receives a prepared, labelled macrobenthic sample in a sealed pot with minimal alcohol as a temporary preservative. Samples may be either 'natural' (0.1m² grabs) or artificially created uniform samples. 'Natural' samples are collected on the same day and from the same location at anchor. A single unsorted sample is distributed per Scheme year. Participating laboratories are required to sort and extract all biota, identify to the most accurate taxonomic level practicable, usually species, and enumerate according to the Scheme's processing requirements protocol ([PRP](#)) and taxonomic discrimination protocol ([TDP](#)). Biomass (blotted wet-weight) values are required for all taxa.

Reporting compares extraction efficiency, identification accuracy, enumeration accuracy and biomass estimates. Participating laboratory vs. Unicomarine Ltd. data set for each sample are compared using the Bray-Curtis similarity index.

Preparation:

Samples should be sieved (0.5mm) and preserved (if not processed immediately) by the participating laboratory on receipt. Sorted residue and specimens should be returned to Unicomarine Ltd., where natural samples are re-processed.

Timescale:

Please send results, specimens and sample residues to Unicomarine Ltd. by **26th November 2010**.

APPENDIX 3

Summary Overview of Taxonomic Discrimination Protocol (TDP)

Exclusive meiofaunal, freshwater & planktonic groups not shown.

| Major Taxonomic Group/Items | Forms/Subgroups | Extraction* | Preservation | Recording/Identification | | | Biomass (significant fragments always included) | | | Notes |
|-----------------------------|---|-------------------------------------|--------------------|-------------------------------------|-----------------|--------------|---|----------------|-------------------------------------|--|
| | | | | Enumeration/Presence | Criteria | Tax. level** | Weighed | Major group | Tubes/shells incl. | |
| Protozoa | conspicuous only (e.g. <i>Lagotia</i> , <i>Astrorhiza</i>) | In part | Dry or Alcohol | Varies | Complete | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Porifera | | In part | Varies | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | easily detachable | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | small encrusting patches | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | boring (e.g. <i>Cliona</i>) | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Cnidaria | | Varies | Varies | Varies | n/a | Varies | Varies | Cnidaria | <input checked="" type="checkbox"/> | |
| Hydrozoa | erect | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Hydrozoa | stolonial or encrusting | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Octocorallia | erect (e.g. <i>Alcyonium</i>) | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Octocorallia | encrusting (e.g. <i>Sarcodictyon</i>) | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Ceriantharia | e.g. <i>Cerianthus</i> | All | Alcohol | Counted | Mouth | Varies | <input checked="" type="checkbox"/> | Cnidaria | <input checked="" type="checkbox"/> | |
| Zoantharia | e.g. <i>Epizoanthus</i> | All | Dry or Alcohol | Counted (polyps) | Complete | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Actiniaria | inc. Edwardsiidae | All | Alcohol | Counted | Mouth | Varies | <input checked="" type="checkbox"/> | Cnidaria | <input checked="" type="checkbox"/> | |
| Platyhelminthes | | All | Alcohol | Counted | Head | Class | <input checked="" type="checkbox"/> | Others | n/a | Freshwater taxa to genus/species |
| Nemertea | | All | Alcohol | Counted | Head | Phylum | <input checked="" type="checkbox"/> | Others | n/a | Distinctive taxa taken further |
| Nematoda | | All | Alcohol | Counted | Head | Phylum | <input checked="" type="checkbox"/> | Others | n/a | Mainly meiofaunal |
| Priapulida | | All | Alcohol | Counted | Head | Species | <input checked="" type="checkbox"/> | Others | n/a | |
| Entoprocta | | In part | Alcohol | Presence | n/a | Genus | <input checked="" type="checkbox"/> | n/a | n/a | |
| Chaetognatha | | All | Alcohol | Counted | Head | Genus | <input checked="" type="checkbox"/> | Others | n/a | Mainly planktonic; benthic sp. to spp. |
| Sipuncula | | All | Alcohol | Counted | Trunk | Species | <input checked="" type="checkbox"/> | Others | n/a | |
| Echiura | | All | Alcohol | Counted | Trunk | Species | <input checked="" type="checkbox"/> | Others | n/a | |
| Annelida | | All | Alcohol | Counted | Head | Varies | <input checked="" type="checkbox"/> | Varies | Varies | See Oligochaeta TDP |
| Chelicerata | | All | Alcohol | Counted | Head | Varies | <input checked="" type="checkbox"/> | Others | n/a | |
| Crustacea | | Varies | Varies | Counted | Varies | Varies | Varies | Crustacea | n/a | |
| | free living (most) | All | Alcohol | Counted | Head | Varies | <input checked="" type="checkbox"/> | Crustacea | n/a | |
| | attached parasites | All | Alcohol, with host | Counted | Head/Attachment | Varies | <input checked="" type="checkbox"/> | n/a | n/a | Biomassed with host |
| | sessile (barnacles) | Varies | Dry or Alcohol | Counted | Head/Cirri | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Myriapoda | | All | Alcohol | Counted | Head | Class | <input checked="" type="checkbox"/> | Others | n/a | |
| Hexapoda | e.g. insects | All | Alcohol | Counted | Head | Varies | Varies | Others | n/a | |
| Mollusca | | All | Alcohol | Counted | Varies | Varies | <input checked="" type="checkbox"/> | Mollusca | <input checked="" type="checkbox"/> | |
| Brachiopoda | | All | Alcohol | Counted | Lophophore | Species | <input checked="" type="checkbox"/> | Others | <input checked="" type="checkbox"/> | |
| Bryozoa | | In part | Varies | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | erect (e.g. <i>Flustra</i> , <i>Bugula</i>) | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | stolonial (e.g. <i>Nolella</i> , <i>Aetea</i>) | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | encrusting (most) | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Phoronida | | All | Alcohol | Counted | Head | Genus | <input checked="" type="checkbox"/> | Others | <input checked="" type="checkbox"/> | |
| Echinodermata | | All | Alcohol | Counted | Mouth | Varies | <input checked="" type="checkbox"/> | Echinodermata | <input checked="" type="checkbox"/> | |
| Hemichordata | | All | Alcohol | Counted | Head/collar | Class | <input checked="" type="checkbox"/> | Others | n/a | |
| Chordata | | Varies | Varies | Varies | Varies | Varies | Varies | Varies | n/a | |
| | Tunicata solitary | All | Alcohol | Counted | Branchial sac | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Tunicata stolonial (e.g. <i>Perophora</i>) | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Tunicata detachable colonies (e.g. <i>Botryllus</i>) | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Tunicata encrusting (e.g. Didemniidae) | In part | Dry or Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Fish and Cephalochordata - | All | Alcohol | Counted | Head | Varies | <input checked="" type="checkbox"/> | Others or Fish | n/a | Biomass requirements project related |
| Cyanophyta | | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Rhodophycota | | In part | Varies | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | Record only if attached |
| Chromophycota | | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | Record only if attached |
| Chlorophycota | | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | Record only if attached |
| Fungi | | <input checked="" type="checkbox"/> | n/a | <input checked="" type="checkbox"/> | n/a | n/a | <input checked="" type="checkbox"/> | n/a | n/a | |
| Tracheophycota | flowering plants | In part | Alcohol | Presence | n/a | Species | <input checked="" type="checkbox"/> | n/a | n/a | Angiospermae |
| Animalia 'eggs' | | Varies | Alcohol | Varies | Varies | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Eggs egg masses | In part | Alcohol | Presence | n/a | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| | Eggs discrete eggs (e.g. fish) | All | Alcohol | Counted | Complete | Varies | <input checked="" type="checkbox"/> | n/a | n/a | |
| Anthropogenic material | including seeds | <input checked="" type="checkbox"/> | n/a | <input checked="" type="checkbox"/> | n/a | n/a | <input checked="" type="checkbox"/> | n/a | n/a | |

* = some may be counted *in situ* / subsampled if present in high numbers

** = minimum level required (good condition given); there may be some exceptions to be detailed in the fully expanded TDP

APPENDIX 4

Taxonomic Discrimination Protocol (TDP) for Oligochaeta

Some meiofaunal, freshwater & planktonic groups not shown.

| Class | Family | Genus | Extraction* | Preservation | Recorded/Identification | | | Biomass | | | Notes |
|-------------|-------------------|----------------|-------------|--------------|-------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|--------------------|-------|
| | | | | | Enumeration/Presence | Tax. level** | Juv. separated | Weighed | Fragments incl. | Tubes/shells incl. | |
| Oligochaeta | | | All | Alcohol | Counted | Varies | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Naididae | | All | Alcohol | Counted | Varies | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Amphichaeta | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Chaetogaster | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Dero | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Nais | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Paranais | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Stylaria | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Uncinaiis | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Tubificidae | | All | Alcohol | Counted | Varies (Family, except where stated below) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Monopylephorus | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Limnodriloides | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Clitellio | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Heterochaeta | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Limnodrilus | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Tubifex | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Tubificoides | All | Alcohol | Counted | Species (except T.brownae, T.crenacoleus, T.diazi and T.pseudogaster, all as T.pseudogaster agg.) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Potamothrix | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Psammoryctides | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Quistadrilus | All | Alcohol | Counted | Q. multisetosus to Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Branchiura | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Enchytraeidae | | All | Alcohol | Counted | Family (except Grania spp. to genus) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | | Grania | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Branchiobdellidae | | All | Alcohol | Counted | Family | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Aeolosomatidae | | All | Alcohol | Counted | Genus | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Haplotaxidae | | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Lumbriculidae | | All | Alcohol | Counted | Family | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Dorythiidae | | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Glossoscolecidae | | All | Alcohol | Counted | Species | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |
| | Lumbricidae | | All | Alcohol | Counted | Family (except Eiseniella tetraedra to species) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | n/a | |

* = some may be counted *in situ* / subsampled if present in high numbers

** = minimum level required; occasional specimens may be left at higher taxa if damaged, small or with unusual combinations of features