

The National Marine Biological  
Analytical Quality Control Scheme

Macrobenthic Exercise Results – MB19

Jessica Taylor & David Hall

[jessica.taylor@unicomarine.com](mailto:jessica.taylor@unicomarine.com)

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Thomson Unicomarine Ltd.

7 Diamond Centre

Works Road

Letchworth

Hertfordshire

SG6 1LW

[www.unicomarine.com](http://www.unicomarine.com)

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## **EXERCISE DETAILS**

### **Macrobenthos #19**

**Type/Contents – Natural marine sample from southern North Sea; approx. 0.5 litres of shell debris; 1 mm sieve mesh processing.**

**Circulated – 05/09/2011**

**Completion Date – 02/12/2011**

**Number of Participating Laboratories – 9**

**Number of Results Received – 7**

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#### **Appendices**

- Appendix 1 MB19 Instructions for participation.

NMBAQC Scheme Interim Results

|                 |            |                                 |       |
|-----------------|------------|---------------------------------|-------|
| LabCode         | LB1802     | <b>Summary Data</b>             |       |
| SampleCode      | MB19       | Diff. In No. Taxa               | -6    |
| Sample Received | 16/01/2012 | Diff. In No. Individuals        | -11   |
| Notes           | No biomass | Missed Taxa (in residue)        | 5     |
|                 |            | Missed Individuals (in residue) | 8     |
|                 |            | Taxonomic Errors                | 3     |
|                 |            | Count Variance                  | -3    |
|                 |            | Biomass %diff.                  | -     |
|                 |            | Bray-Curtis Similarity index    | 92.65 |

| Taxon Number                             | Participating Laboratory   |            | Thomson Unicmarine Ltd. |                                    | Comments   |          |   |
|--|----------------------------|------------|-------------------------|------------------------------------|------------|----------|---|
|  | Taxon Name                 | Number     | Biomass                 | Taxon Name                         |            | Number   | Biomass                                 |
| 1  | Owenia fusiformis          | 129        | -                       | Owenia fusiformis                  | 127        | -        | Mixture (see below)                     |
| 2  | Sigalion mathildae         | 11         | -                       | Sigalion mathildae                 | 11         | -        |   |
| 3  | Scoloplos armiger          | 6          | -                       | Scoloplos armiger                  | 6          | -        |   |
| 4  | Spiophanes bombyx          | 56         | -                       | Spiophanes bombyx                  | 60         | -        | Mixture (see below)                     |
| 5  | Spio filicornis            | 4          | -                       | Spio filicornis                    | 4          | -        |   |
| 6  | Scolecopsis (bonnieri?)    | 1          | -                       | Scolecopsis bonnieri               | 1          | -        |   |
| 7  | Poecilochaetus serpens     | 2          | -                       | Poecilochaetus serpens             | 2          | -        |   |
| 8  | Nephtys (kersivalensis?)   | 5          | -                       | Nephtys sp. juv.                   | 4          | -        |   |
| 9  | Eteone longa               | 3          | -                       | Eteone longa agg.                  | 3          | -        |   |
| 10                                       | Anatides sp.               | 5          | -                       | <b>Phyllococe rosea</b>            | 5          | -        | Name change                             |
| 11                                       | Eumida sp.                 | 1          | -                       | Eumida bahusiensis                 | 1          | -        |   |
| 12                                       | Lagis koreni               | 1          | -                       | Lagis koreni                       | 1          | -        |   |
| 13                                       | Ampharaete lindstroemi     | 1          | -                       | <b>Ampharete lindstroemi</b>       | 1          | -        | Spelling error                          |
| 14                                       | Euclumene sp.              | 1          | -                       | <b>Clymenura sp.</b>               | 1          | -        | Taxonomic error                         |
| 15                                       | Magelona alleni            | 1          | -                       | Magelona alleni                    | 1          | -        |   |
| 16                                       | Magelona filiformis        | 7          | -                       | Magelona filiformis                | 1          | -        | Taxonomic error (see below)             |
| 17                                       | Glycinde nordmanni         | 1          | -                       | Glycinde nordmanni                 | 1          | -        |   |
| 18                                       | Nemertea sp.               | 8          | -                       | Nemertea                           | 6          | -        |   |
| 19                                       | Tubulanus polymorphus      | 3          | -                       | Nemertea                           | 3          | -        | Repeat taxon; TUM identification policy |
| 20                                       | Tubularia sp.              | P          | -                       | Tubularia sp.                      | P          | -        |   |
| 21                                       | Phoronis sp.               | 4          | -                       | Phoronis sp.                       | 3          | -        |   |
| 22                                       | Fabulina fabula            | 18         | -                       | <b>Angulus fabula</b>              | 18         | -        | Name change                             |
| 23                                       | Thracia sp. juv.           | 2          | -                       | Thracia sp. juv.                   | 2          | -        |   |
| 24                                       | Tellimya ferruginosa       | 1          | -                       | Tellimya ferruginosa               | 1          | -        |   |
| 25                                       | Chamellea striatula        | 1          | -                       | <b>Chamelea striatula</b>          | 1          | -        | Spelling error                          |
| 26                                       | Gari fervensis             | 1          | -                       | Gari fervensis                     | 1          | -        |   |
| 27                                       | Bathyporeia elegans        | 11         | -                       | Bathyporeia elegans                | 4          | -        | Taxonomic error (see below)             |
| 28                                       | Bathyporeia sp.            | 4          | -                       | Bathyporeia sp.                    | 4          | -        |   |
| 29                                       | Siphonocetes kroeyanus     | 8          | -                       | Siphonocetes kroeyanus             | 8          | -        |   |
| 30                                       | Leucothoe incisa           | 1          | -                       | Leucothoe incisa                   | 1          | -        |   |
| 31                                       | Megaluropus agilis         | 1          | -                       | Megaluropus agilis                 | 1          | -        |   |
| 32                                       | Urothoe piseidonis         | 1          | -                       | <b>Urothoe poseidonis</b>          | 1          | -        | Spelling error                          |
| 33                                       | Iphinoe trispinosa         | 2          | -                       | Iphinoe trispinosa                 | 2          | -        |   |
| 34                                       | Diastylis sp. (bradyi?)    | 1          | -                       | Diastylis bradyi                   | 1          | -        |   |
| 35                                       | Liocarcinus sp. juv.       | 1          | -                       | Liocarcinus sp. juv.               | 1          | -        |   |
| 36                                       | Amphiuroidea sp. juv.      | 1          | -                       | Amphiuridae juv.                   | 1          | -        |   |
| 37                                       | Asteroidea sp. juv.        | 1          | -                       | Asteroidea juv.                    | 1          | -        |   |
| 38                                       | Branchiostomma lanceolatus | 1          | -                       | <b>Branchiostoma lanceolatum</b>   | 1          | -        | Spelling error                          |
| 39                                       | Poly Bits                  | -          | -                       | Poly Bits                          | -          | -        | Mixture (see below)                     |
| 40                                       | Emptied tubes              | -          | -                       | Emptied tubes                      | -          | -        | Mixture (see below)                     |
| <u>Specimens from within taxon pots</u>  |                            |            |                         |                                    |            |          |   |
| 1  |                            |            |                         | Spiophanes bombyx                  | 1          | -        |   |
| 4  |                            |            |                         | Spio filicornis                    | 1          | -        |   |
| 16                                       |                            |            |                         | <b>Magelona johnstoni</b>          | 5          | -        | Additional taxon                        |
| 27                                       |                            |            |                         | <b>Bathyporeia guilliamsoniana</b> | 7          | -        | Additional taxon                        |
| 39                                       |                            |            |                         | Owenia fusiformis                  | 2          | -        |   |
| 39                                       |                            |            |                         | Phoronis sp.                       | 1          | -        |   |
| 40                                       |                            |            |                         | Spiophanes bombyx                  | 1          | -        |   |
| <u>Specimens not picked from residue</u> |                            |            |                         |                                    |            |          |   |
|  |                            |            |                         | Owenia fusiformis                  | 1          | -        |   |
|  |                            |            |                         | <b>Nematoda</b>                    | 1          | -        | New taxon                               |
|  |                            |            |                         | Siphonocetes kroeyanus             | 1          | -        |   |
|  |                            |            |                         | <b>Perioculodes longimanus</b>     | 1          | -        | New taxon                               |
|  |                            |            |                         | <b>Acidostoma sp.</b>              | 2          | -        | New taxon                               |
|  |                            |            |                         | <b>Kurtiella bidentata</b>         | 1          | -        | New taxon                               |
|  |                            |            |                         | Thracia sp. juv.                   | 1          | -        |   |
|  |                            |            |                         | <b>Lovenella clausa</b>            | P          | -        | New taxon                               |
|  |                            | <u>306</u> | <u>0</u>                |                                    | <u>317</u> | <u>0</u> |   |

NMBAQC Scheme Interim Results

|                 |            |                                    |
|-----------------|------------|------------------------------------|
| LabCode         | LB1804     | <b>Summary Data</b>                |
| SampleCode      | MB19       |                                    |
| Sample Received | 05/12/2011 |                                    |
| Notes           |            | Diff. In No. Taxa -4               |
|                 |            | Diff. In No. Individuals -8        |
|                 |            | Missed Taxa (in residue) 0         |
|                 |            | Missed Individuals (in residue) 2  |
|                 |            | Taxonomic Errors 9                 |
|                 |            | Count Variance -6                  |
|                 |            | Biomass %diff. 4.27                |
|                 |            | Bray-Curtis Similarity index 89.59 |

| Taxon Number                             | Participating Laboratory   |        | Thomson Unicomarine Ltd. |                                | Comments   |               |  |
|--|----------------------------|--------|--------------------------|--------------------------------|------------|---------------|--|
|  | Taxon Name                 | Number | Biomass                  | Taxon Name                     |            | Number        | Biomass                                  |
| 1  | NEPHTYS HOMBERGII          | 1      | 1.4943                   | Nephtys hombergii              | 1          | 1.3622        |  |
| 2  | PHYLLODOCE indet           | 4      | 0.0039                   | Phyllodoce rosea               | 4          | 0.0022        | Taxonomic error (see below)              |
| 3  | NEPHTYS juv                | 3      | 0.0033                   | Nephtys sp. juv.               | 3          | 0.0022        |  |
| 4  | SPIOPHANES BOMBYX          | 88     | 0.0498                   | Spiophanes bombyx              | 81         | 0.0334        | Mixture (see below)                      |
| 5  | OWENIA FUSIFORMIS          | 59     | 0.1935                   | Owenia fusiformis              | 53         | 0.1689        |  |
| 6  | PECTINARIA KORENI          | 4      | 0.0288                   | <b>Lagis koreni</b>            | 4          | 0.027         | Name change                              |
| 7  | MAGELONA MIRABILIS         | 14     | 0.0455                   | <b>Magelona johnstoni</b>      | 14         | 0.0342        | Taxonomic error                          |
| 8  | POLYCHAETA BITS            | P      | 0.0869                   | Polychaeta frags               | P          | 0.0902        | Mixture (see below)                      |
| 9  | SCOLOPLOS ARMIGER          | 4      | 0.0104                   | Scoloplos armiger              | 4          | 0.0073        |  |
| 10                                       | POECILOCHAETUS SERPENS     | 1      | 0.0002                   | Poecilochaetus serpens         | 1          | 0.0002        |  |
| 11                                       | CRUSTACEAN BITS            | P      | 0.0055                   | Crustacean frags.              | P          | 0.0037        |  |
| 12                                       | CHAETozONE CHRISTIEI       | 2      | 0.0017                   | Chaetozone christiei           | 2          | 0.001         |  |
| 13                                       | SPIO FILICORNIS            | 2      | 0.0006                   | Spio filicornis                | 2          | 0.0005        |  |
| 14                                       | SCOLELEPIS SQUAMATA        | 1      | 0.0021                   | <b>Scolecopsis bonnieri</b>    | 1          | 0.0011        | Taxonomic error                          |
| 15                                       | PHORONIS MUELLERI          | 3      | 0.0014                   | Phoronis sp.                   | 3          | 0.0012        |  |
| 16                                       | AMPHIURA Juv               | 2      | 0.0059                   | <b>Amphipholis squamata</b>    | 2          | 0.0049        | Taxonomic error                          |
| 17                                       | OPHIURIDAE arms            | P      | 0.0017                   | <b>Amphiuridae frags</b>       | P          | 0.0013        | (taxonomic error)                        |
| 18                                       | DECAPODA JUV               | 4      | 0.0089                   | Liocarcinus sp. juv.           | 4          | 0.0064        |  |
| 19                                       | ABRA PRISMATICA            | 1      | 0.0063                   | Abra prismatica                | 1          | 0.0058        |  |
| 20                                       | THRACIA PHASEOLINA         | 7      | 0.0085                   | Thracia sp. juv.               | 7          | 0.0082        |  |
| 21                                       | CIRCOMPHALUS CASINA        | 1      | 0.0011                   | <b>Chamelea striatula juv.</b> | 1          | 0.0011        | Taxonomic error                          |
| 22                                       | SPISULA JUV                | 2      | 0.0015                   | Spisula sp. juv                | 2          | 0.0011        |  |
| 23                                       | POLINICES PULCHELLUS       | 1      | 0.0388                   | <b>Euspira pulchella</b>       | 1          | 0.0388        | Name change                              |
| 24                                       | FABULINA FABULA            | 25     | 0.101                    | <b>Angulus fabula</b>          | 24         | 0.0922        | Taxonomic error (see below); name change |
| 25                                       | EPITONIUM CLATHRUS         | 1      | 0.7735                   | Epitonium clathrus             | 1          | 0.8085        |  |
| 26                                       | TELLIMYA FERRUGINOSA       | 1      | 0.0069                   | Tellimya ferruginosa           | 1          | 0.0075        |  |
| 27                                       | DIASTYLIS BRADYI           | 1      | 0.0033                   | Diastylis bradyi               | 1          | 0.0024        |  |
| 28                                       | CRANGON CRANGON            | 1      | 0.0072                   | Crangon crangon                | 1          | 0.0044        |  |
| 29                                       | UROTHOE POSEIDONIS         | 1      | 0.0024                   | Urothoe poseidonis             | 1          | 0.002         |  |
| 30                                       | BATHYPOREIA                | 2      | 0.0007                   | Bathyporeia sp.                | 2          | 0.0007        |  |
| 31                                       | LEUCOTHOE INCISA           | 2      | 0.0027                   | Leucothoe incisa               | 2          | 0.0025        |  |
| 32                                       | BATHYPOREIA GUILLIAMSONIAN | 5      | 0.0035                   | Bathyporeia guilliamsoniana    | 4          | 0.003         | Taxonomic error (see below)              |
| 33                                       | GAMMARIDAE INDET           | 1      | 0.0002                   | <b>Bathyporeia sp.</b>         | 1          | 0.0002        | Taxonomic error                          |
| 34                                       | MELITA OBTUSATA            | 3      | 0.0025                   | <b>Abludomelita obtusata</b>   | 3          | 0.0027        | Name change                              |
| 35                                       | SIPHONOECETES Spp          | 1      | 0.0001                   | Siphonocetes kroyeranus        | 1          | 0.0001        |  |
| 36                                       | AMPHIPOD BITS              | P      | 0.0042                   | Amphipoda frags.               | P          | 0.004         |  |
| 37                                       | ECHINOCARDIUM CORDATUM     | 1      | 4.418                    | Echinocardium cordatum         | 1          | 4.4104        |  |
| 38                                       | SIGALION MATHILDAE         | 7      | 0.1168                   | Sigalion mathildae             | 7          | 0.1215        |  |
| 39                                       | ACTINIARIA Spp             | 2      | 2.775                    | Actinaria                      | 2          | 2.519         |  |
| 40                                       | TUBULARIA BELLIS           | P      | (0.004)                  | Tubularia sp.                  | P          | -             |  |
| 41                                       | LOVENELLA CLAUSA           | P      | (0.0003)                 | Lovenella clausa               | P          | -             |  |
| 42                                       | LANICE CONCHILEGA          | 1      | 0.0044                   | Lanice conchilega              | 1          | 0.0032        |  |
| 43                                       | MAGELONA ALLENI            | 2      | 0.0055                   | Magelona alleni                | 2          | 0.0043        |  |
| 44                                       | MURICIDAE JUV              | 1      | 0.0009                   | <b>Bela brachystoma</b>        | 1          | 0.0009        | Taxonomic error                          |
| 45                                       | EBALIA CRANCHII            | 1      | 0.0017                   | Ebalia sp. juv.                | 1          | 0.0014        |  |
| <b>Specimens from within taxon pots</b>  |                            |        |                          |                                |            |               |  |
| 2  |                            |        |                          | <b>Eumida sanguinea</b>        | 2          | -             | Additional taxon                         |
| 2  |                            |        |                          | <b>Eteone longa agg.</b>       | 1          | -             | Additional taxon                         |
| 4  |                            |        |                          | Spio filicornis                | 1          | -             |  |
| 8  |                            |        |                          | Spiophanes bombyx              | 9          | -             |  |
| 8  |                            |        |                          | Eumida sanguinea               | 1          | -             |  |
| 8  |                            |        |                          | Owenia fusiformis              | 2          | -             |  |
| 8  |                            |        |                          | <b>Nemertea</b>                | 3          | -             | Additional taxon                         |
| 24                                       |                            |        |                          | Tellimya ferruginosa           | 1          | -             |  |
| 32                                       |                            |        |                          | <b>Bathyporeia elegans</b>     | 1          | -             | Additional taxon                         |
| <b>Specimens not picked from residue</b> |                            |        |                          |                                |            |               |  |
|  |                            |        |                          | Angulus fabula                 | 1          | -             |  |
|  |                            |        |                          | Owenia fusiformis              | 1          | -             |  |
|  |                            |        | <b>263</b>               | <b>10.2311</b>                 |            |               |  |
|  |                            |        |                          |                                | <b>271</b> | <b>9.7938</b> |  |

NMBAQC Scheme Interim Results

|                 |            |                                 |              |
|-----------------|------------|---------------------------------|--------------|
| LabCode         | LB1806     | <b>Summary Data</b>             |              |
| SampleCode      | MB19       | Diff. In No. Taxa               | <b>0</b>     |
| Sample Received | 25/11/2011 | Diff. In No. Individuals        | <b>0</b>     |
| Notes           | No biomass | Missed Taxa (in residue)        | <b>1</b>     |
|                 |            | Missed Individuals (in residue) | <b>1</b>     |
|                 |            | Taxonomic Errors                | <b>1</b>     |
|                 |            | Count Variance                  | <b>1</b>     |
|                 |            | Biomass %diff.                  | <b>-</b>     |
|                 |            | Bray-Curtis Similarity index    | <b>99.06</b> |

| Taxon Number                             | Participating Laboratory |        | Thomson Unicomarine Ltd. |   | Comments  |        |                                 |
|--|--------------------------|--------|--------------------------|---|-----------|--------|---------------------------------|
|  | Taxon Name               | Number | Biomass                  | Taxon Name  |           | Number | Biomass                         |
| 1  | Melita hergensis         | 1      | -                        | <b>Abludomelita obtusata</b>                      | 1         | -      | Taxonomic error                 |
| 2  | Siphonocetes sp.         | 9      | -                        | <b>Siphonocetes kroyeranus</b>                    | 9         | -      | Spelling error                  |
| 3  | Portunidae sp juv        | 3      | -                        | Liocarcinus sp. juv.                              | 3         | -      |                                 |
| 4  | Fabulina fabula          | 17     | -                        | <b>Angulus fabula</b>                             | 17        | -      | Name change                     |
| 5  | Thracia sp juv           | 2      | -                        | Thracia sp. juv.                                  | 2         | -      |                                 |
| 6  | Thracia phaseolina       | 2      | -                        | Thracia sp. juv.                                  | 2         | -      | Combine with taxon 5 for stats. |
| 7  | Euspira pulchella        | 3      | -                        | Euspira pulchella                                 | 3         | -      |                                 |
| 8  | Spisula sp juv           | 2      | -                        | Spisula sp. juv.                                  | 2         | -      |                                 |
| 9  | Solenacea sp indet       | 2      | -                        | Solenidae   | 2         | -      |                                 |
| 10                                       | Bivalve sp indet         | 1      | -                        | Lutreria sp. juv?                                 | 1         | -      | Not Abra                        |
| 11                                       | Spiophanes bombyx        | 85     | -                        | Spiophanes bombyx                                 | <b>84</b> | -      |                                 |
| 12                                       | Owenia fusiformis        | 77     | -                        | Owenia fusiformis                                 | 77        | -      |                                 |
| 13                                       | Lagis koreni             | 9      | -                        | Lagis koreni                                      | 9         | -      |                                 |
| 14                                       | Maldanidae sp juv        | 2      | -                        | Clymenura sp.                                     | 2         | -      |                                 |
| 15                                       | Phoronis sp              | 6      | -                        | Phoronis sp.                                      | 6         | -      |                                 |
| 16                                       | Magelona johnstoni       | 9      | -                        | Magelona johnstoni                                | 9         | -      |                                 |
| 17                                       | Nematoda                 | 1      | -                        | Nematoda  | 1         | -      |                                 |
| 18                                       | Scoloplos armiger        | 5      | -                        | Scoloplos armiger                                 | 5         | -      |                                 |
| 19                                       | Asteroidea sp juv        | 1      | -                        | Asteroidea juv.                                   | 1         | -      |                                 |
| 20                                       | Tubulanus polymorphus    | 4      | -                        | Nemertea  | 4         | -      | TUM id. policy                  |
| 21                                       | Nephtys sp juv           | 2      | -                        | Nephtys sp. juv                                   | 2         | -      |                                 |
| 22                                       | Poecilochaetus serpens   | 1      | -                        | Poecilochaetus serpens                            | 1         | -      |                                 |
| 23                                       | Sigalion mathildae       | 6      | -                        | Sigalion mathildae                                | 6         | -      |                                 |
| 24                                       | n/a                      | -      | -                        | n/a   | -         | -      |                                 |
| 25                                       | Glycinde nordmanni       | 1      | -                        | Glycinde nordmanni                                | 1         | -      |                                 |
| 26                                       | Phyllodoce sp indet      | 4      | -                        | Phyllodoce rosea                                  | 4         | -      |                                 |
| 27                                       | Spisula subtruncata      | 1      | -                        | Spisula subtruncata                               | 1         | -      |                                 |
| 28                                       | n/a                      | -      | -                        | n/a   | -         | -      |                                 |
| 29                                       | Lanice conchilega        | 4      | -                        | Lanice conchilega                                 | 4         | -      |                                 |
| 30                                       | n/a                      | -      | -                        | n/a   | -         | -      |                                 |
| 31                                       | Fragments                | -      | -                        | Fragments   | -         | -      |                                 |
| 32                                       | Hydrozoa sp              | P      | -                        | Tubularia sp.                                     | P         | -      | Mixture (see below)             |
| 33                                       | Mesacmaea mitchelli      | 2      | -                        | Actiniaria  | 2         | -      | TUM id. policy                  |
| 34                                       | Anthozoa sp              | 1      | -                        | Actiniaria  | 1         | -      |                                 |
| 35                                       | Gari sp juv              | 2      | -                        | Gari sp. juv                                      | 2         | -      |                                 |
| <u>Specimens from within taxon pots</u>  |                          |        |                          |   |           |        |                                 |
|  | 32                       |        |                          | <b>Lovenella clausa</b>                           | P         | -      | Additional taxon                |
| <u>Specimens not picked from residue</u> |                          |        |                          |   |           |        |                                 |
|  |                          |        |                          | <b>Kurtiella bidentata</b><br>(Polychaete frags.) | 1<br>(P)  | -<br>- | New taxon                       |
|  |                          | 265    | 0                        |   |           | 265    | 0                               |

NMBAQC Scheme Interim Results

|                 |                             |  |                                 |       |
|-----------------|-----------------------------|--|---------------------------------|-------|
| LabCode         | LB1807                      |  | <b>Summary Data</b>             |       |
| SampleCode      | MB19                        |  | Diff. In No. Taxa               | -1    |
| Sample Received | 02/12/2011                  |  | Diff. In No. Individuals        | -7    |
| Notes           | No electronic data supplied |  | Missed Taxa (in residue)        | 1     |
|                 |                             |  | Missed Individuals (in residue) | 3     |
|                 |                             |  | Taxonomic Errors                | 0     |
|                 |                             |  | Count Variance                  | -4    |
|                 |                             |  | Biomass %diff.                  | -0.86 |
|                 |                             |  | Bray-Curtis Similarity index    | 98.24 |

| Taxon Number                             | Participating Laboratory   |            | Thomson Unicmarine Ltd. |                                    | Comments   |              |                |
|--|----------------------------|------------|-------------------------|------------------------------------|------------|--------------|----------------|
|  | Taxon Name                 | Number     | Biomass                 | Taxon Name                         |            | Number       | Biomass        |
| 1  | Nephtys juv.               | 3          | 0.0036                  | Nephtys sp. juv.                   | 3          | 0.0045       |                |
| 2  | Nephtys assimilis          | 1          | 0.0268                  | Nephtys assimilis                  | 1          | 0.0267       |                |
| 3  | Scoloplos armiger          | 8          | 0.0193                  | Scoloplos armiger                  | 8          | 0.0176       |                |
| 4  | Scololepis bonnieri        | 2          | 0.0088                  | <b>Scololepis bonnieri</b>         | 2          | 0.0067       | Spelling error |
| 5  | Spiophanes bombyx          | 73         | 0.0935                  | Spiophanes bombyx                  | <b>80</b>  | 0.0945       |                |
| 6  | Lagis koreni               | 7          | 0.0574                  | Lagis koreni                       | 7          | 0.0408       |                |
| 7  | Euspira pulchella          | 1          | 0.0366                  | Euspira pulchella                  | 1          | 0.036        |                |
| 8  | Phyllodoce rosea           | 4          | 0.0028                  | Phyllodoce rosea                   | 4          | 0.0028       |                |
| 9  | Eteone longa agg.          | 2          | 0.0007                  | Eteone longa agg.                  | 2          | 0.0008       |                |
| 10                                       | Sigalion mathildae         | 4          | 0.1753                  | Sigalion mathildae                 | <b>5</b>   | 0.156        |                |
| 11                                       | Magelona johnstoni         | 21         | 0.0617                  | Magelona johnstoni                 | 21         | 0.0613       |                |
| 12                                       | Magelona filiformis        | 1          | 0.0008                  | Magelona filiformis                | 1          | 0.0008       |                |
| 13                                       | Magelona alleni            | 2          | 0.0076                  | Magelona alleni                    | 2          | 0.0084       |                |
| 14                                       | Phyllodoce maculata        | 1          | 0.0008                  | Phyllodoce maculata                | 1          | 0.0007       |                |
| 15                                       | Chaetozone christiei       | 1          | 0.0007                  | Chaetozone christiei               | 1          | 0.0007       |                |
| 16                                       | Owenia fusiformis          | 122        | 1.2943                  | Owenia fusiformis                  | 122        | 1.3583       |                |
| 17                                       | Nemertea                   | 13         | 0.0057                  | Nemertea                           | <b>12</b>  | 0.0044       |                |
| 18                                       | Sigalionidae juv.          | 1          | 0.0004                  | Sigalion mathildae                 | 1          | 0.0004       |                |
| 19                                       | Thracioidea juv.           | 1          | 0.0013                  | Thracia sp. juv.                   | 1          | 0.0013       |                |
| 20                                       | Fabulina fabula            | 38         | 0.3727                  | <b>Angulus fabula</b>              | <b>36</b>  | 0.3508       | Name change    |
| 21                                       | Ensis juv.                 | 1          | 0.0073                  | Ensis sp. juv.                     | 1          | 0.0074       |                |
| 22                                       | Thracioidea dam.           | 2          | 0.0138                  | Thracia sp. juv.                   | 2          | 0.0134       |                |
| 23                                       | Pelecypoda dam.            | 2          | 0.0052                  | Pelecypoda                         | <b>1</b>   | 0.0049       |                |
| 24                                       | Spisula juv.               | 1          | 0.0003                  | Spisula sp. juv.                   | 1          | 0.0003       |                |
| 25                                       | Bathyporeia gulliamsoniana | 5          | 0.0063                  | <b>Bathyporeia guilliamsoniana</b> | 5          | 0.0039       | Spelling error |
| 26                                       | Bathyporeia sp.            | 3          | 0.0043                  | Bathyporeia sp.                    | 3          | 0.0042       |                |
| 27                                       | Bathyporeia elegans        | 1          | 0.0006                  | Bathyporeia elegans                | 1          | 0.0006       |                |
| 28                                       | Leucothoe incisa           | 3          | 0.0035                  | Leucothoe incisa                   | 3          | 0.0035       |                |
| 29                                       | Melitidae dam.             | P          | 0.0011                  | Abludomelita obtusata              | P          | 0.0012       |                |
| 30                                       | Megaluropus agilis         | 1          | 0.0001                  | Megaluropus agilis                 | 1          | 0.0001       |                |
| 31                                       | Processa modica            | 1          | 0.0007                  | Processa modica                    | 1          | 0.0007       |                |
| 32                                       | Actinaria                  | 1          | 1.3616                  | <b>Actinaria</b>                   | 1          | 1.3927       | Spelling error |
| 33                                       | Glycinde nordmanni         | 1          | 0.0103                  | Glycinde nordmanni                 | 1          | 0.0112       |                |
| 34                                       | Poecilochaetus serpens     | 1          | 0.001                   | Poecilochaetus serpens             | 1          | 0.001        |                |
| 35                                       | Phoronis                   | 3          | 0.0033                  | Phoronis sp.                       | 3          | 0.0027       |                |
| 36                                       | Spio filicornis            | 1          | 0.0003                  | Spio filicornis                    | 1          | 0.0002       |                |
| 37                                       | Lanice conchelega          | 1          | 0.0003                  | <b>Lanice conchilega</b>           | 1          | 0.0002       | Spelling error |
| 38                                       | Turbonilla dam.            | 1          | 0.0006                  | Turbonilla acuta                   | 1          | 0.0006       |                |
| 39                                       | Ophiuroidea juv.           | 1          | 0.0007                  | Amphipholis squamata               | 1          | 0.0007       |                |
| <u>Specimens from within taxon pots</u>  |                            | -          | -                       | -                                  | -          | -            |                |
| <u>Specimens not picked from residue</u> |                            |            |                         |                                    |            |              |                |
|  |                            |            |                         | <b>Lovenella clausa</b>            | P          | -            | New taxon      |
|  |                            |            |                         | Thracia sp. juv.                   | 1          | -            |                |
|  |                            |            |                         | Angulus fabula                     | 2          | -            |                |
|  |                            | <u>336</u> | <u>3.5921</u>           |                                    | <u>343</u> | <u>3.623</u> |                |

NMBAQC Scheme Interim Results

|                 |            |                                 |       |
|-----------------|------------|---------------------------------|-------|
| LabCode         | LB1808     | <b>Summary Data</b>             |       |
| SampleCode      | MB19       |                                 |       |
| Sample Received | 26/03/2012 |                                 |       |
| Notes           | No biomass | Diff. In No. Taxa               | 0     |
|                 |            | Diff. In No. Individuals        | -3    |
|                 |            | Missed Taxa (in residue)        | 0     |
|                 |            | Missed Individuals (in residue) | 7     |
|                 |            | Taxonomic Errors                | 2     |
|                 |            | Count Variance                  | 4     |
|                 |            | Biomass %diff.                  | -     |
|                 |            | Bray-Curtis Similarity index    | 96.85 |

| Taxon Number                             | Participating Laboratory        |            |          | Thomson Unicomarine Ltd.    |            |          | Comments            |
|--|---------------------------------|------------|----------|-----------------------------|------------|----------|---------------------|
|  | Taxon Name                      | Number     | Biomass  | Taxon Name                  | Number     | Biomass  |                     |
| 1  | Owenia fusiformis               | 45         | -        | Owenia fusiformis           | 44         | -        |                     |
| 2  | Phoronis                        | 11         | -        | Phoronis sp.                | 10         | -        | Mixture (see below) |
| 3  | Lovenella clausa                | P          | -        | Lovenella clausa            | P          | -        |                     |
| 4  | Electra pilosa                  | P          | -        | Electra pilosa              | P          | -        |                     |
| 5  | Leuckatiara octona              | P          | -        | <b>Leuckartiara octona</b>  | P          | -        | Spelling error      |
| 6  | Lagis koreni                    | 2          | -        | Lagis koreni                | 2          | -        |                     |
| 7  | Portunidae                      | 2          | -        | Liocarcinus sp. juv.        | 2          | -        |                     |
| 8  | Pariambus typicus               | 2          | -        | Pariambus typicus           | 2          | -        |                     |
| 9  | AMPHIPODA                       | 5          | -        | Amphipoda                   | 6          | -        |                     |
| 10                                       | Ampeliscidae                    | 1          | -        | Ampelisca brevicornis       | 1          | -        |                     |
| 11                                       | Bathyporeia                     | 1          | -        | Bathyporeia sp.             | 1          | -        |                     |
| 12                                       | Bathyporeia guilliamsoniana     | 7          | -        | Bathyporeia guilliamsoniana | 7          | -        |                     |
| 13                                       | Leucothoe incisa                | 2          | -        | Leucothoe incisa            | 2          | -        |                     |
| 14                                       | ACTINIARIA                      | 2          | -        | Actiniaria                  | 2          | -        |                     |
| 15                                       | Angulus fabula                  | 31         | -        | Angulus fabula              | 31         | -        |                     |
| 16                                       | Amphiura squamata               | 3          | -        | <b>Amphipholis squamata</b> | 3          | -        | Name change         |
| 17                                       | Tubularia                       | P          | -        | Tubularia sp.               | P          | -        |                     |
| 18                                       | Magelona johnstoni              | 25         | -        | Magelona johnstoni          | 25         | -        |                     |
| 19                                       | Spiophanes bombyx               | 82         | -        | Spiophanes bombyx           | 78         | -        |                     |
| 20                                       | Magelona alleni                 | 1          | -        | Magelona alleni             | 1          | -        |                     |
| 21                                       | Mactra stultorum                | 1          | -        | Mactra stultorum            | 1          | -        |                     |
| 22                                       | Spisula subtruncata             | 2          | -        | Spisula subtruncata         | 2          | -        |                     |
| 23                                       | Thracia                         | 2          | -        | Thracia sp. juv.            | 2          | -        |                     |
| 24                                       | Gari                            | 1          | -        | Gari sp. juv.               | 1          | -        |                     |
| 25                                       | Euspira pulchella               | 1          | -        | Euspira pulchella           | 1          | -        |                     |
| 26                                       | Nephtys                         | 4          | -        | Nephtys sp. juv.            | 4          | -        |                     |
| 27                                       | Galathowenia oculata            | 1          | -        | Galathowenia oculata        | 1          | -        |                     |
| 28                                       | Poecilochaetus serpens          | 1          | -        | Poecilochaetus serpens      | 1          | -        |                     |
| 29                                       | Clymenura                       | 1          | -        | Clymenura sp.               | 1          | -        |                     |
| 30                                       | Scoloplos (Scoloplos) armingeri | 3          | -        | <b>Scoloplos armiger</b>    | 3          | -        | Spelling error      |
| 31                                       | NEMERTEA                        | 11         | -        | Nemertea                    | 11         | -        |                     |
| 32                                       | Eteone longa                    | 2          | -        | Eteone longa agg.           | 2          | -        |                     |
| 33                                       | Nephtys assimilis               | 1          | -        | Nephtys assimilis           | 1          | -        |                     |
| 34                                       | Chaetozone christei             | 1          | -        | <b>Chaetozone christiei</b> | 1          | -        | Spelling error      |
| 35                                       | Sigalion squamosus              | 3          | -        | <b>Sigalion mathildae</b>   | 3          | -        | Taxonomic error     |
| 36                                       | Eumida sanguinea                | 1          | -        | Eumida sanguinea            | 1          | -        |                     |
| 37                                       | Phyllodoce                      | 1          | -        | Phyllodoce rosea            | 1          | -        |                     |
| 38                                       | Spio filicornis                 | 2          | -        | Spio filicornis             | 2          | -        |                     |
| 39                                       | Scolecopsis bonnieri            | 1          | -        | Scolecopsis bonnieri        | 1          | -        |                     |
| 40                                       | Scolecopsis tridentata          | 1          | -        | <b>Scolecopsis cantabra</b> | 1          | -        | Taxonomic error     |
| 41                                       | Arctica islandica               | 1          | -        | Arctica islandica juv.      | 1          | -        |                     |
| <u>Specimens from within taxon pots</u>  |                                 |            |          |                             |            |          |                     |
|  | 2                               |            |          | Spiophanes bombyx           | 1          | -        |                     |
| <u>Specimens not picked from residue</u> |                                 |            |          |                             |            |          |                     |
|  |                                 |            |          | Owenia fusiformis           | 4          | -        |                     |
|  |                                 |            |          | Lagis koreni                | 1          | -        |                     |
|  |                                 |            |          | Clymenura sp.               | 1          | -        |                     |
|  |                                 |            |          | Spiophanes bombyx           | 1          | -        |                     |
|  |                                 | <u>264</u> | <u>0</u> |                             | <u>267</u> | <u>0</u> |                     |

NMBAQC Scheme Interim Results

|                 |            |  |
|-----------------|------------|--|
| LabCode         | LB1810     | <b>Summary Data</b>  |
| SampleCode      | MB19       |  |
| Sample Received | 02/11/2011 |  |
| Notes           |            | Diff. In No. Taxa <b>0</b><br>Diff. In No. Individuals <b>-28</b><br>Missed Taxa (in residue) <b>0</b><br>Missed Individuals (in residue) <b>8</b><br>Taxonomic Errors <b>7</b><br>Count Variance <b>-20</b><br>Biomass %diff. <b>31.47</b><br>Bray-Curtis Similarity index <b>91.53</b> |

| Taxon Number                             | Participating Laboratory    |            | Thomson Unicomarine Ltd. |                                    |            | Comments       |  |
|--|-----------------------------|------------|--------------------------|------------------------------------|------------|----------------|--|
|  | Taxon Name                  | Number     | Biomass                  | Taxon Name                         | Number     |                | Biomass  |
| 1  | Sigalion mathildae          | 4          | 0.1268                   | Sigalion mathildae                 | 4          | 0.0705         |  |
| 2  | Spiophanes bombyx           | 48         | 0.0618                   | Spiophanes bombyx                  | 50         | 0.0338         | Mixture (see below)                                |
| 3  | Ampharete sp.               | 1          | 0.0066                   | Ampharete lindstroemi              | 1          | 0.0038         |  |
| 4  | Eteone longa                | 3          | 0.0034                   | Eteone longa agg.                  | 2          | 0.0016         |  |
| 5  | Eteone foliosa              | 1          | 0.0033                   | Eteone foliosa                     | 1          | 0.0017         |  |
| 6  | Scoloplos armiger           | 9          | 0.0279                   | Scoloplos armiger                  | 9          | 0.0194         |  |
| 7  | Chaetozone christei         | 2          | 0.0026                   | <b>Chaetozone christei</b>         | 2          | 0.0013         | Spelling error                                     |
| 8  | Hydrozoa                    | P          | -                        | Tubularia sp.                      | P          | -              | Mixture (see below)                                |
| 9  | Spio armata                 | 3          | 0.003                    | <b>Spio filicornis</b>             | 3          | 0.0022         | Taxonomic error                                    |
| 10                                       | Poecilochaetus serpens      | 1          | 0.0005                   | Poecilochaetus serpens             | 1          | 0.0004         |  |
| 11                                       | Nephtys hombergi            | 1          | 0.0224                   | <b>Nephtys assimilis</b>           | 1          | 0.0174         | Taxonomic error                                    |
| 12                                       | Nephtys sp. Juvenile        | 2          | 0.0029                   | Nephtys sp. juv.                   | 2          | 0.0017         |  |
| 13                                       | Phyllodoce cf. rosea        | 4          | 0.0038                   | Phyllodoce rosea                   | 4          | 0.0023         |  |
| 14                                       | Eumida sp.                  | 1          | 0.0001                   | Eumida bahusiensis                 | 1          | 0.0002         |  |
| 15                                       | Unidentified sp.            | P          | -                        | Tentacles                          | P          | -              |  |
| 16                                       | Iphinoe trispinosa          | 1          | 0.0001                   | Iphinoe trispinosa                 | 1          | 0.0003         |  |
| 17                                       | Megaluropris agilis         | 1          | 0.0001                   | <b>Periocolodes longimanus</b>     | 1          | 0.0001         | Taxonomic error                                    |
| 18                                       | Siphonocetes kroyeranus     | 4          | 0.0025                   | <b>Siphonocetes kroyeranus</b>     | 4          | 0.0016         | Spelling error                                     |
| 19                                       | Bathyporeia guilliamsoniana | 1          | 0.0011                   | Bathyporeia guilliamsoniana        | 1          | 0.0007         |  |
| 20                                       | Bathyporeia tenuipes        | 2          | 0.0009                   | Bathyporeia sp.                    | 2          | 0.0005         |  |
| 21                                       | Bathyporeia elegans         | 7          | 0.0102                   | <b>Bathyporeia guilliamsoniana</b> | 7          | 0.0078         | Taxonomic error; mixture (see below); Repeat taxon |
| 22                                       | Spirobranchus lamarcki      | 1          | 0.0049                   | Spirobranchus lamarcki             | 1          | 0.0047         |  |
| 23                                       | Laevicardium crassum        | 1          | 0.0005                   | Laevicardium crassum               | 1          | 0.0004         |  |
| 24                                       | Cribrilina punctata         | 2          | -                        | -                                  | -          | -              | Dead   |
| 25                                       | Magelona johnstoni          | 57         | 0.4037                   | Magelona johnstoni                 | 57         | 0.2175         |  |
| 26                                       | Magelona cf. mirabilis      | 3          | 0.0153                   | <b>Magelona johnstoni</b>          | 3          | 0.0071         | Taxonomic error; Repeat taxon                      |
| 27                                       | Magelona alleni             | 1          | 0.0033                   | Magelona alleni                    | 1          | 0.0019         |  |
| 28                                       | Magelona filiformis         | 8          | 0.0076                   | Magelona filiformis                | 8          | 0.0039         |  |
| 29                                       | Spio filicornis             | 1          | 0.0001                   | Spio filicornis                    | 1          | 0.0001         |  |
| 30                                       | Euspira nitida              | 1          | 0.0421                   | <b>Euspira pulchella</b>           | 1          | 0.042          | Taxonomic error                                    |
| 31                                       | Chamelea striatula          | 1          | 0.0505                   | Chamelea striatula juv.            | 1          | 0.048          |  |
| 32                                       | Tellina fabula              | 11         | 0.1781                   | <b>Angulus fabula</b>              | 11         | 0.1534         | Name change  |
| 33                                       | Ensis sp.                   | 1          | 0.0146                   | Ensis sp. juv.                     | 1          | 0.0084         |  |
| 34                                       | Mollusca unidentif.         | 2          | 0.0159                   | Thracia sp. juv.                   | 2          | 0.014          |  |
| 35                                       | Autolytus prolifer          | 1          | 0.0001                   | Autolytus sp.                      | 1          | 0.0001         | TUM id. policy                                     |
| 36                                       | -                           | -          | -                        | <b>Bathyporeia sp.</b>             | 1          | -              |  |
| 37                                       | Pectinaria sp.              | 3          | 0.0035                   | Lagis koreni                       | 3          | 0.0014         |  |
| 38                                       | Unidentified polychaeta     | P          | 0.0004                   | Lanice conchilega                  | 1          | 0.0001         |  |
| 39                                       | Owenia fusiformis           | 193        | 0.776                    | Owenia fusiformis                  | 204        | 0.6142         | Mixture (see below)                                |
| 40                                       | Liocarcinus holsatus        | 1          | 0.5179                   | Liocarcinus holsatus               | 1          | 0.4696         |  |
| 41                                       | Amphiura sp.                | 1          | 0.0106                   | Amphiura sp.                       | 1          | 0.0089         |  |
| 42                                       | Leucothoe incisa            | 1          | 0.0021                   | Leucothoe incisa                   | 1          | 0.0017         |  |
| 43                                       | Isopoda sp.                 | 1          | 0.0035                   | Isopoda sp.                        | 1          | 0.0027         |  |
| 44                                       | Amphipoda unidentifed       | 1          | 0.0027                   | Iphimedia sp.                      | 1          | 0.0022         |  |
| 45                                       | Nemertea sp.                | 4          | 0.0196                   | Nemertea                           | 4          | 0.0091         |  |
| 46                                       | Photis longicaudata         | 2          | 0.002                    | <b>Jassa sp.</b>                   | 2          | 0.0012         | Taxonomic error                                    |
| 47                                       | Anthozoa sp.                | 1          | 1.1132                   | Actiniaria                         | 1          | 0.6942         |  |
| 48                                       | Echinocardium cordatum      | 2          | 43.1023                  | Echinocardium cordatum             | 2          | 29.4424        |  |
| <b>Specimens from within taxon pots</b>  |                             |            |                          |                                    |            |                |  |
| 2  |                             |            |                          | Spio filicornis                    | 2          | -              |  |
| 2  |                             |            |                          | Chaetozone christei                | 1          | -              |  |
| 8  |                             |            |                          | <b>Lovenella clausa</b>            | P          | -              | Additional taxon                                   |
| 21                                       |                             |            |                          | <b>Megaluropris agilis</b>         | 1          | -              | Additional taxon                                   |
| 39                                       |                             |            |                          | Spiophanes bombyx                  | 1          | -              |  |
| 39                                       |                             |            |                          | Nemertea                           | 2          | -              |  |
| 39                                       |                             |            |                          | Chaetozone christei                | 1          | -              |  |
| <b>Specimens not picked from residue</b> |                             |            |                          |                                    |            |                |  |
|  |                             |            |                          | Owenia fusiformis                  | 4          | -              |  |
|  |                             |            |                          | Angulus fabula                     | 3          | -              |  |
|  |                             |            |                          | Phoronis sp.                       | 1          | -              |  |
|  |                             |            |                          | (Polychaete frags)                 | (P)        | -              |  |
|  |                             | <b>397</b> | <b>46.5705</b>           |                                    | <b>425</b> | <b>31.9165</b> |  |



NMBAQC Scheme Interim Results

|                 |            |   |
|-----------------|------------|---|
| LabCode         | LB1822     | <b>Summary Data</b>                       |
| SampleCode      | MB19       |   |
| Sample Received | 13/12/2011 |   |
| Notes           |            | Diff. In No. Taxa <b>11</b>               |
|                 |            | Diff. In No. Individuals <b>-49</b>       |
|                 |            | Missed Taxa (in residue) <b>0</b>         |
|                 |            | Missed Individuals (in residue) <b>16</b> |
|                 |            | Taxonomic Errors <b>23</b>                |
|                 |            | Count Variance <b>-33</b>                 |
|                 |            | Biomass %diff. <b>12.67</b>               |
|                 |            | Bray-Curtis Similarity index <b>76.02</b> |

| Participating Laboratory                 |                                 |        |         | Thomson Unicmarine Ltd.         |        |         |                                      | Comments |
|--|---------------------------------|--------|---------|---------------------------------|--------|---------|--------------------------------------|----------|
| Taxon Number                             | Taxon Name                      | Number | Biomass | Taxon Name                      | Number | Biomass |                                      |          |
| 1  | Nematoda                        | 1      | 0.0001  | Nematoda                        | 1      | 0.0001  |                                      |          |
| 2  | Campanularidae colonies         | P      | -       | <b>Tubularia sp.</b>            | P      | -       | Taxonomic error; mixture (see below) |          |
| 3  | Copepoda                        | P      | -       | Copepoda                        | 1      | 0.0004  |                                      |          |
| 4  | Iphinoe trispinosa              | 1      | 0.0019  | Iphinoe trispinosa              | 1      | 0.001   |                                      |          |
| 5  | Ampelisca brevicornis           | 1      | 0.0051  | Ampelisca brevicornis           | 1      | 0.0039  |                                      |          |
| 6  | Megaluropus agilis              | 1      | 0.0011  | Megaluropus agilis              | 1      | 0.0004  |                                      |          |
| 7  | Phthisica marina                | 1      | 0.0019  | Phthisica marina                | 1      | 0.0007  |                                      |          |
| 8  | Pariambus typicus               | 2      | 0.0009  | Pariambus typicus               | 2      | 0.0001  |                                      |          |
| 9  | Leocarcinus holsatus            | 1      | 2.7073  | <b>Liocarcinus holsatus</b>     | 1      | 2.4242  | Spelling error                       |          |
| 10                                       | Fabulina fabula                 | 19     | 0.3987  | <b>Angulus fabula</b>           | 19     | 0.3777  | Name change                          |          |
| 11                                       | Tanaidae (a)                    | 1      | 0.0019  | <b>Siphonocetes kroyeranus</b>  | 1      | 0.0002  | Taxonomic error                      |          |
| 12                                       | Lunatia alderi                  | 4      | 0.1438  | <b>Euspira pulchella</b>        | 4      | 0.1451  | Taxonomic error                      |          |
| 13                                       | Thracea phaseolina              | 3      | 0.0164  | Thracia sp. juv.                | 3      | 0.0147  | Spelling error                       |          |
| 14                                       | Sigalion mathildae              | 4      | 0.1498  | Sigalion mathildae              | 4      | 0.1019  |                                      |          |
| 15                                       | Sigalion squamosus              | 1      | 0.0015  | <b>Sigalion mathildae</b>       | 1      | 0.0006  | Taxonomic error; Repeat taxon        |          |
| 16                                       | Phloe sp.                       | 1      | 0.0023  | Phloeoe baltica                 | 1      | 0.0003  | Spelling error                       |          |
| 17                                       | Nephtys cirrosa                 | 2      | 0.0376  | Nephtys cirrosa                 | 1      | 0.0248  | Taxonomic error (see below)          |          |
| 18                                       | Nephtys caeca                   | 1      | 0.0384  | <b>Nephtys assimilis</b>        | 1      | 0.0255  | Taxonomic error                      |          |
| 19                                       | Nephtys juv.                    | 1      | 0.0024  | Nephtys sp. juv.                | 1      | 0.0004  |                                      |          |
| 20                                       | Magelona mirabilis              | 14     | 0.0369  | <b>Magelona johnstoni</b>       | 14     | 0.0298  | Taxonomic error                      |          |
| 21                                       | Magelona minuta                 | 3      | 0.0016  | <b>Magelona filiformis</b>      | 3      | 0.0006  | Taxonomic error                      |          |
| 22                                       | Magelona wilsoni                | 1      | 0.003   | <b>Magelona alleni</b>          | 1      | 0.0015  | Taxonomic error                      |          |
| 23                                       | Eumida sp.                      | 1      | 0.0018  | Eumida bahusiensis              | 1      | 0.0002  |                                      |          |
| 24                                       | Mystides sp.                    | 3      | 0.0012  | <b>Phylodoce rosea</b>          | 3      | 0.0006  | Taxonomic error                      |          |
| 25                                       | Pectinaria sp.                  | 6      | 0.0603  | Lagis koreni                    | 6      | 0.0327  | Taxonomic error (see below)          |          |
| 26                                       | Oligochaeta                     | 3      | 0.0058  | <b>Nemertea</b>                 | 3      | 0.0046  | Taxonomic error                      |          |
| 27                                       | Scoloplos armiger               | 8      | 0.0371  | Scoloplos armiger               | 7      | 0.0283  | Taxonomic error (see below)          |          |
| 28                                       | Monticellina dorsobranchialis   | 1      | 0.0025  | <b>Chaetozone christiei</b>     | 1      | 0.0006  | Taxonomic error                      |          |
| 29                                       | Cirratulidae                    | 1      | 0.0035  | Chaetozone christiei            | 1      | 0.0014  | Repeat taxon                         |          |
| 30                                       | Scalibregmatidae                | 3      | 0.0008  | <b>Spiophanes bombyx frags</b>  | P      | 0.0002  | Taxonomic error                      |          |
| 31                                       | Phoronis sp.                    | 1      | 0.0005  | Phoronis sp.                    | 1      | 0.0005  |                                      |          |
| 32                                       | Owenia fusiformis               | 113    | 0.671   | Owenia fusiformis               | 114    | 0.6105  | Mixture (see below)                  |          |
| 33                                       | Autolytinae                     | 1      | 0.0007  | Autolytus sp.                   | 1      | 0.0003  |                                      |          |
| 34                                       | Maldanidae (a)                  | 2      | 0.0181  | Clymenura sp.                   | 2      | 0.0106  |                                      |          |
| 35                                       | Maldanidae (b)                  | 1      | 0.0091  | Clymenura sp.                   | P      | 0.0073  | Repeat taxon                         |          |
| 36                                       | Maldanidae (c)                  | 1      | 0.0229  | Clymenura sp.                   | P      | 0.0172  | Repeat taxon                         |          |
| 37                                       | Bathyporeia juv.                | 1      | 0.0009  | Bathyporeia sp.                 | 1      | 0.0003  |                                      |          |
| 38                                       | Bathyporeia sp.                 | 1      | 0.0029  | Bathyporeia sp.                 | 1      | 0.0015  | Repeat taxon                         |          |
| 39                                       | Corophiidae (a)                 | 1      | 0.0017  | Siphonocetes kroyeranus         | 1      | 0.0007  |                                      |          |
| 40                                       | Leucothoe incisa                | 1      | 0.0018  | Leucothoe incisa                | 1      | 0.0005  |                                      |          |
| 41                                       | Leucothoe lilljeborgi           | 1      | 0.0017  | <b>Leucothoe incisa</b>         | 1      | 0.0007  | Taxonomic error; Repeat taxon        |          |
| 42                                       | Urothoe sp.                     | 1      | 0.0031  | Urothoe poseidonis              | 1      | 0.001   |                                      |          |
| 43                                       | Solenidae (no valves)           | 2      | 0.0117  | Solenidae                       | 2      | 0.0068  |                                      |          |
| 44                                       | Gantheidae                      | 1      | 0.0027  | <b>Urothoe poseidonis</b>       | 1      | 0.0017  | Taxonomic error; Repeat taxon        |          |
| 45                                       | Isopoda (a)                     | 1      | 0.0032  | <b>Urothoe poseidonis</b>       | 1      | 0.0015  | Taxonomic error; Repeat taxon        |          |
| 46                                       | Malacoceros vulgaris ?          | 6      | 0.0044  | <b>Spiophanes bombyx</b>        | 6      | 0.0017  | Taxonomic error                      |          |
| 47                                       | Spionidae                       | 77     | 0.0602  | Spiophanes bombyx               | 74     | 0.0363  | Mixture (see below); Repeat taxon    |          |
| 48                                       | Dispia uncinata                 | 1      | 0.0013  | <b>Spio filicornis</b>          | 1      | 0.0004  | Taxonomic error                      |          |
| 49                                       | Malacoceros sp.                 | 8      | 0.0059  | <b>Spiophanes bombyx</b>        | 8      | 0.0035  | Taxonomic error; Repeat taxon        |          |
| 50                                       | Pygospio sp.                    | 1      | 0.0026  | <b>Spiophanes bombyx</b>        | 1      | 0.0014  | Taxonomic error; Repeat taxon        |          |
| 51                                       | Scolecopsis sp.                 | 3      | 0.0036  | Scolecopsis bonnieri            | 2      | 0.0014  | Taxonomic error (see below)          |          |
| 52                                       | Spiophanes bombyx               | 15     | 0.0104  | Spiophanes bombyx               | 15     | 0.0081  | Repeat taxon                         |          |
| 53                                       | Golfingiidae                    | 1      | 0.0018  | Faunal frag                     | P      | 0.0002  |                                      |          |
| 54                                       | Polychaete fragments            | P      | -       | Polychaete fragments            | P      | -       | Mixture (see below)                  |          |
| 55                                       | Amphipod fragments              | P      | -       | Amphipod fragments              | P      | -       |                                      |          |
| 56                                       | Unsorted invertebrate fragments | P      | -       | Unsorted invertebrate fragments | P      | -       |                                      |          |
| <u>Specimens from within taxon pots</u>  |                                 |        |         |                                 |        |         |                                      |          |
| 2  |                                 |        |         | <b>Lovenella clausa</b>         | P      | -       | Additional taxon                     |          |
| 2  |                                 |        |         | Spiophanes bombyx               | 1      | -       |                                      |          |
| 17                                       |                                 |        |         | Nephtys assimilis               | 1      | -       |                                      |          |
| 25                                       |                                 |        |         | <b>Lanice conchilega</b>        | 2      | -       | Additional taxon                     |          |
| 27                                       |                                 |        |         | Spiophanes bombyx               | 1      | -       |                                      |          |
| 32                                       |                                 |        |         | Spiophanes bombyx               | 1      | -       |                                      |          |
| 32                                       |                                 |        |         | Nemertea                        | 1      | -       |                                      |          |
| 47                                       |                                 |        |         | Spio filicornis                 | 1      | -       |                                      |          |
| 51                                       |                                 |        |         | Spio filicornis                 | 1      | -       |                                      |          |
| 54                                       |                                 |        |         | <b>Pocillochaetus serpens</b>   | 2      | -       | Additional taxon                     |          |
| 54                                       |                                 |        |         | Phoronis sp.                    | 1      | -       |                                      |          |
| 54                                       |                                 |        |         | Nemertea                        | 5      | -       |                                      |          |
| 54                                       |                                 |        |         | Nephtys sp. juv.                | 2      | -       |                                      |          |
| 54                                       |                                 |        |         | Spiophanes bombyx               | 23     | -       |                                      |          |
| 55                                       |                                 |        |         | Bathyporeia sp.                 | 1      | -       |                                      |          |
| <u>Specimens not picked from residue</u> |                                 |        |         |                                 |        |         |                                      |          |
|  |                                 |        |         | Spiophanes bombyx               | 6      | -       |                                      |          |
|  |                                 |        |         | Owenia fusiformis               | 5      | -       |                                      |          |
|  |                                 |        |         | Nemertea                        | 1      | -       |                                      |          |
|  |                                 |        |         | Phoronis sp.                    | 1      | -       |                                      |          |
|  |                                 |        |         | Angulus fabula                  | 2      | -       |                                      |          |
|  |                                 |        |         | Thracia sp. juv.                | 1      | -       |                                      |          |
|  |                                 | 330    | 4.5078  |                                 | 379    | 3.9366  |                                      |          |

**Table 1. Results from the analysis of Macrobenthic sample MB19 by the participating laboratories.**

| 1       | 2              | 3   | 4        | 5    | 6                     | 7   | 8        | 9    | 10            | 11  | 12   | 13          | 14         | 15        |
|---------|----------------|-----|----------|------|-----------------------|-----|----------|------|---------------|-----|------|-------------|------------|-----------|
| LabCode | Number of Taxa |     |          |      | Number of Individuals |     |          |      | Not extracted |     |      | Individuals | Similarity | Taxonomic |
|         | PL             | TUM | Diff (n) | %max | PL                    | TUM | Diff (n) | %max | New Taxa      | Ind | %ind | Count Error | index      | errors    |
| LB1802  | 38             | 44  | -6       | 13.6 | 306                   | 317 | -11      | 3.5  | 5             | 8   | 2.5  | -3          | 92.65      | 3         |
| LB1803  | -              | -   | -        | -    | -                     | -   | -        | -    | -             | -   | -    | -           | -          | -         |
| LB1804  | 41             | 45  | -4       | 8.9  | 263                   | 271 | -8       | 3.0  | 0             | 2   | 0.7  | -6          | 89.59      | 9         |
| LB1806  | 31             | 31  | 0        | 0.0  | 265                   | 265 | 0        | 0.0  | 1             | 1   | 0.4  | 1           | 99.06      | 1         |
| LB1807  | 39             | 40  | -1       | 2.5  | 336                   | 343 | -7       | 2.0  | 1             | 3   | 0.9  | -4          | 98.24      | 0         |
| LB1808  | 41             | 41  | 0        | 0.0  | 264                   | 267 | -3       | 1.1  | 0             | 7   | 2.6  | 4           | 96.85      | 2         |
| LB1809  | -              | -   | -        | -    | -                     | -   | -        | -    | -             | -   | -    | -           | -          | -         |
| LB1810  | 46             | 46  | 0        | 0.0  | 397                   | 425 | -28      | 6.6  | 0             | 8   | 1.9  | -20         | 91.53      | 7         |
| LB1822  | 53             | 42  | 11       | 20.8 | 330                   | 379 | -49      | 12.9 | 0             | 16  | 4.2  | -33         | 76.02      | 23        |

Key: PL - participating laboratory.  
TUM - Thomson Unicmarine Ltd.  
"-" - No data. See forthcoming Annual Report, for details.

**Table 2. Comparison of the efficiency of extraction of fauna by the participating laboratories for the major taxonomic groups present in sample MB19.**

| LabCode |           | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other | Overall |
|---------|-----------|----------|------------|-------------|-------------|-----------|---------------|----------|-------|---------|
| LB1802  | TUM count | 9        | 241        | -           | -           | 34        | 2             | 25       | 6     | 317     |
|         | PL missed | 0        | 1          | -           | -           | 4         | 0             | 2        | 1     | 8       |
|         | %missed   | 0.0      | 0.4        | -           | -           | 11.8      | 0.0           | 8.0      | 16.7  | 2.5     |
| LB1803  | TUM count | -        | -          | -           | -           | -         | -             | -        | -     | 0       |
|         | PL missed | -        | -          | -           | -           | -         | -             | -        | -     | 0       |
|         | %missed   | -        | -          | -           | -           | -         | -             | -        | -     | -       |
| LB1804  | TUM count | 3        | 197        | -           | -           | 22        | 3             | 41       | 5     | 271     |
|         | PL missed | 0        | 1          | -           | -           | 0         | 0             | 1        | 0     | 2       |
|         | %missed   | 0.0      | 0.5        | -           | -           | 0.0       | 0.0           | 2.4      | 0.0   | 0.7     |
| LB1806  | TUM count | 4        | 204        | -           | -           | 13        | 1             | 33       | 10    | 265     |
|         | PL missed | 0        | 0          | -           | -           | 0         | 0             | 1        | 0     | 1       |
|         | %missed   | 0.0      | 0.0        | -           | -           | 0.0       | 0.0           | 3.0      | 0.0   | 0.4     |
| LB1807  | TUM count | 12       | 265        | -           | -           | 14        | 1             | 47       | 4     | 343     |
|         | PL missed | 0        | 0          | -           | -           | 0         | 0             | 3        | 0     | 3       |
|         | %missed   | 0.0      | 0.0        | -           | -           | 0.0       | 0.0           | 6.4      | 0.0   | 0.9     |
| LB1808  | TUM count | 11       | 183        | -           | -           | 19        | 3             | 39       | 12    | 267     |
|         | PL missed | 0        | 7          | -           | -           | 0         | 0             | 0        | 0     | 7       |
|         | %missed   | 0.0      | 3.8        | -           | -           | 0.0       | 0.0           | 0.0      | 0.0   | 2.6     |
| LB1809  | TUM count | -        | -          | -           | -           | -         | -             | -        | -     | 0       |
|         | PL missed | -        | -          | -           | -           | -         | -             | -        | -     | 0       |
|         | %missed   | -        | -          | -           | -           | -         | -             | -        | -     | -       |
| LB1810  | TUM count | 6        | 370        | -           | -           | 24        | 3             | 20       | 2     | 425     |
|         | PL missed | 0        | 4          | -           | -           | 0         | 0             | 3        | 1     | 8       |
|         | %missed   | 0.0      | 1.1        | -           | -           | 0.0       | 0.0           | 15.0     | 50.0  | 1.9     |
| LB1822  | TUM count | 10       | 316        | -           | -           | 18        | -             | 31       | 4     | 379     |
|         | PL missed | 1        | 11         | -           | -           | 0         | -             | 3        | 1     | 16      |
|         | %missed   | 10.0     | 3.5        | -           | -           | 0.0       | -             | 9.7      | 25.0  | 4.2     |

Key: PL - participating laboratory.  
TUM - Thomson Unicomarine Ltd.  
"- " - No data. See forthcoming Annual Report, for details.

Table 3. Comparison of the estimates of biomass made by the participating laboratories with those made by Unicmarine Ltd. for the major taxonomic groups present in sample MB19. Values are in grams (g).

| LabCode |        | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other  | Overall  |
|---------|--------|----------|------------|-------------|-------------|-----------|---------------|----------|--------|----------|
| LB1802  | PL     | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | TUM    | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | %diff. | -        | -          | -           | -           | -         | -             | -        | -      | -        |
| LB1803  | PL     | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | TUM    | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | %diff. | -        | -          | -           | -           | -         | -             | -        | -      | -        |
| LB1804  | PL     | -        | 2.0477     | -           | -           | 0.0429    | 4.4256        | 0.9385   | 2.7764 | 10.2311  |
|         | TUM    | -        | 1.8594     | -           | -           | 0.0335    | 4.4166        | 0.9641   | 2.5202 | 9.7938   |
|         | %diff. | -        | 9.2        | -           | -           | 21.9      | 0.2           | -2.7     | 9.2    | 4.274223 |
| LB1806  | PL     | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | TUM    | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | %diff. | -        | -          | -           | -           | -         | -             | -        | -      | -        |
| LB1807  | PL     | 0.0057   | 1.7664     | -           | -           | 0.0166    | 0.0007        | 0.4378   | 1.3649 | 3.5921   |
|         | TUM    | 0.0044   | 1.7936     | -           | -           | 0.0142    | 0.0007        | 0.4147   | 1.3954 | 3.623    |
|         | %diff. | 22.8     | -1.5       | -           | -           | 14.5      | 0.0           | 5.3      | -2.2   | -0.9     |
| LB1808  | PL     | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | TUM    | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | %diff. | -        | -          | -           | -           | -         | -             | -        | -      | -        |
| LB1809  | PL     | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | TUM    | -        | -          | -           | -           | -         | -             | -        | -      | 0        |
|         | %diff. | -        | -          | -           | -           | -         | -             | -        | -      | -        |
| LB1810  | PL     | 0.0196   | 1.48       | -           | -           | 0.5431    | 43.1129       | 0.3017   | 1.1132 | 46.5705  |
|         | TUM    | 0.0091   | 1.0073     | -           | -           | 0.4884    | 29.4513       | 0.2662   | 0.6942 | 31.9165  |
|         | %diff. | 53.6     | 31.9       | -           | -           | 10.1      | 31.7          | 11.8     | 37.6   | 31.5     |
| LB1822  | PL     | 0.0058   | 1.1927     | -           | -           | 2.7381    | -             | 0.5706   | 0.0006 | 4.5078   |
|         | TUM    | 0.0046   | 0.9483     | -           | -           | 2.4388    | -             | 0.5443   | 0.0006 | 3.9366   |
|         | %diff. | 20.7     | 20.5       | -           | -           | 10.9      | -             | 4.6      | 0.0    | 12.7     |

Key: PL - participating laboratory  
TUM - Thomson Unicmarine Ltd.  
"-" - No data. See forthcoming Annual Report, for details.

**Table 4. Variation in faunal content of samples distributed as MB19.**

**Taxa\***

| LabCode | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other | Total taxa |
|---------|----------|------------|-------------|-------------|-----------|---------------|----------|-------|------------|
| LB1802  | 1        | 18         | -           | -           | 12        | 2             | 6        | 5     | 44         |
| LB1803  | -        | -          | -           | -           | -         | -             | -        | -     | -          |
| LB1804  | 1        | 17         | -           | -           | 12        | 2             | 9        | 4     | 45         |
| LB1806  | 1        | 12         | -           | -           | 3         | 1             | 9        | 5     | 31         |
| LB1807  | 1        | 20         | -           | -           | 7         | 1             | 8        | 3     | 40         |
| LB1808  | 1        | 20         | -           | -           | 6         | 1             | 7        | 6     | 41         |
| LB1809  | -        | -          | -           | -           | -         | -             | -        | -     | -          |
| LB1810  | 1        | 22         | -           | -           | 12        | 2             | 6        | 3     | 46         |
| LB1822  | 1        | 19         | -           | -           | 14        | 0             | 4        | 4     | 42         |
| Mean    | 1        | 18         | -           | -           | 9         | 1             | 7        | 4     | 41         |
| Max     | 1        | 22         | -           | -           | 14        | 2             | 9        | 6     | 46         |
| Min     | 1        | 12         | -           | -           | 3         | 0             | 4        | 3     | 31         |

**Individuals\***

| LabCode | Nemertea | Polychaeta | Oligochaeta | Chelicerata | Crustacea | Echinodermata | Mollusca | Other | Total Ind. |
|---------|----------|------------|-------------|-------------|-----------|---------------|----------|-------|------------|
| LB1802  | 9        | 241        | -           | -           | 34        | 2             | 25       | 6     | 317        |
| LB1803  | -        | -          | -           | -           | -         | -             | -        | -     | -          |
| LB1804  | 3        | 197        | -           | -           | 22        | 3             | 41       | 5     | 271        |
| LB1806  | 4        | 204        | -           | -           | 13        | 1             | 33       | 10    | 265        |
| LB1807  | 12       | 265        | -           | -           | 14        | 1             | 47       | 4     | 343        |
| LB1808  | 11       | 183        | -           | -           | 19        | 3             | 39       | 12    | 267        |
| LB1809  | -        | -          | -           | -           | -         | -             | -        | -     | -          |
| LB1810  | 6        | 370        | -           | -           | 24        | 3             | 20       | 2     | 425        |
| LB1822  | 10       | 316        | -           | -           | 18        | 0             | 31       | 4     | 379        |
| Mean    | 8        | 254        | -           | -           | 21        | 2             | 34       | 6     | 324        |
| Max     | 12       | 370        | -           | -           | 34        | 3             | 47       | 12    | 425        |
| Min     | 3        | 183        | -           | -           | 13        | 0             | 20       | 2     | 265        |

\*TUM data used for all faunal groups (includes all faunal groups).

Figure 1: MB19 data from participating laboratories (raw-untransformed)

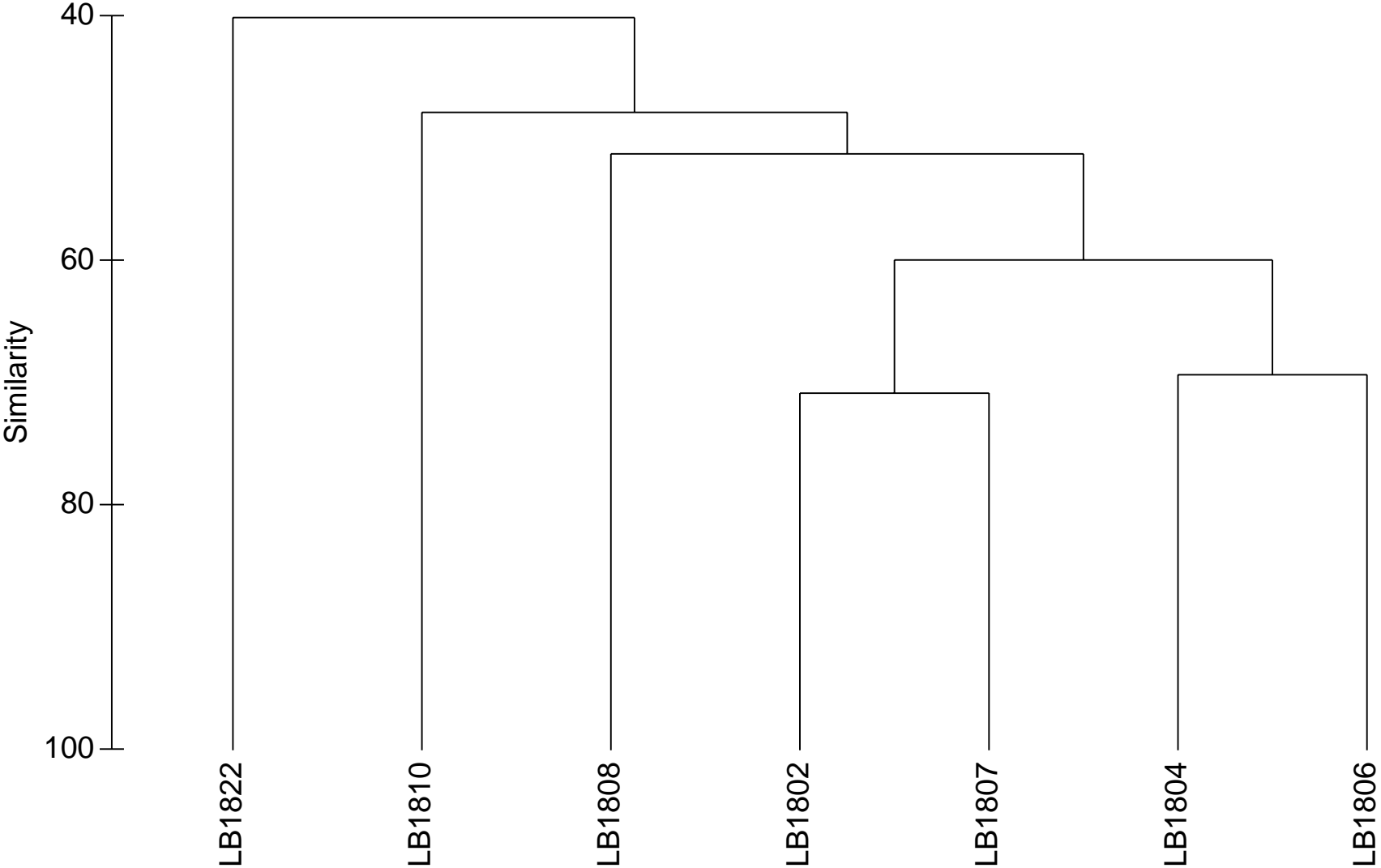
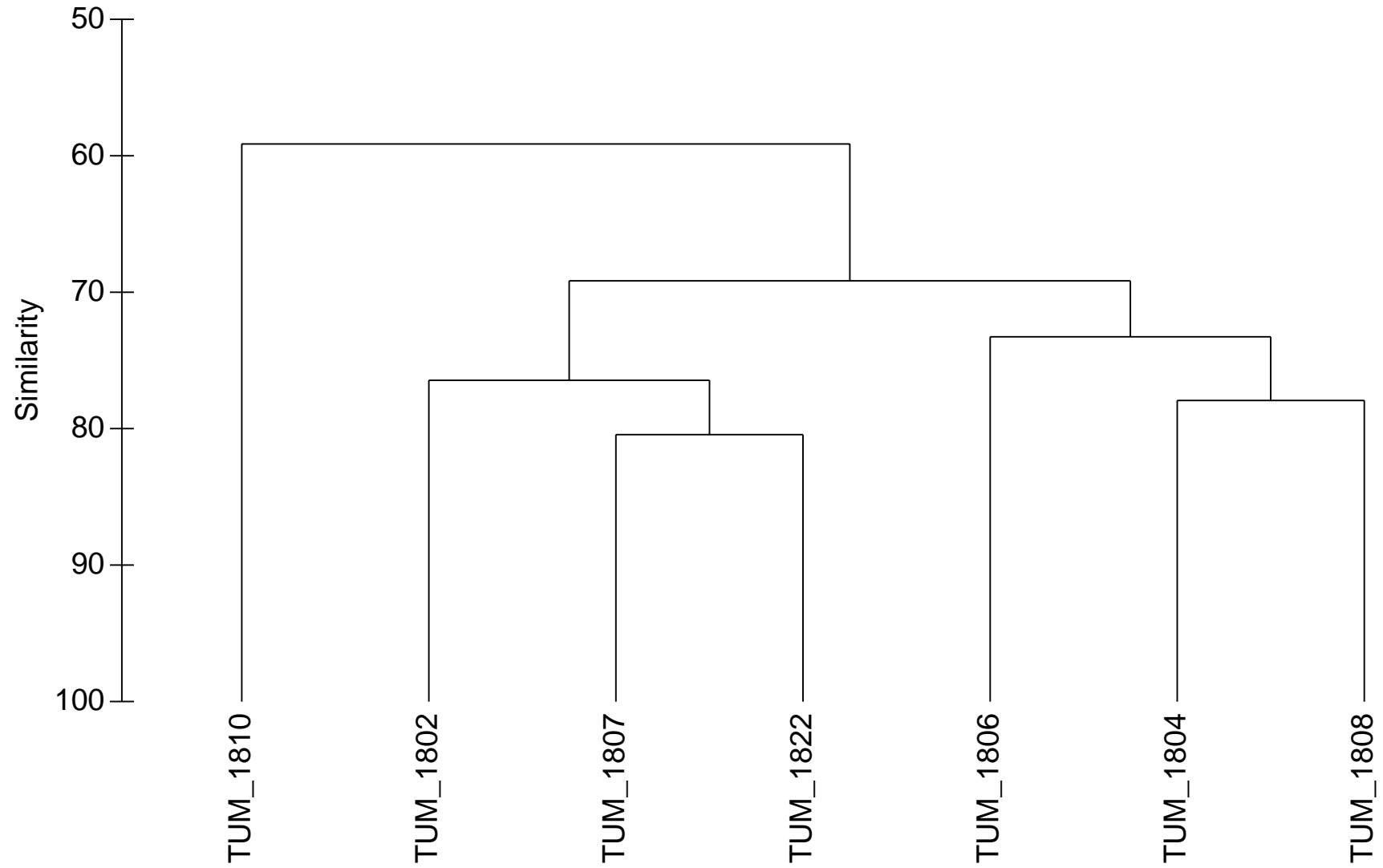


Figure 2: MB19 data reanalysed by Thomson Unicmarine Ltd. (untransformed)



## **Appendices**



## 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' (0.1m<sup>2</sup> 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. Thomson Unicmarine Ltd. data set for each sample are compared using the Bray-Curtis similarity index.

#### Preparation:

Samples should be sieved (1.0 mm) and preserved (if not processed immediately) by the participating laboratory on receipt. Sorted residue and specimens should be returned to Thomson Unicmarine Ltd., where natural samples are re-processed.

#### Timescale:

Please send results, specimens and sample residues to Thomson Unicmarine Ltd. by **2<sup>nd</sup> December 2011**.

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. Didemnidae)                       | 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