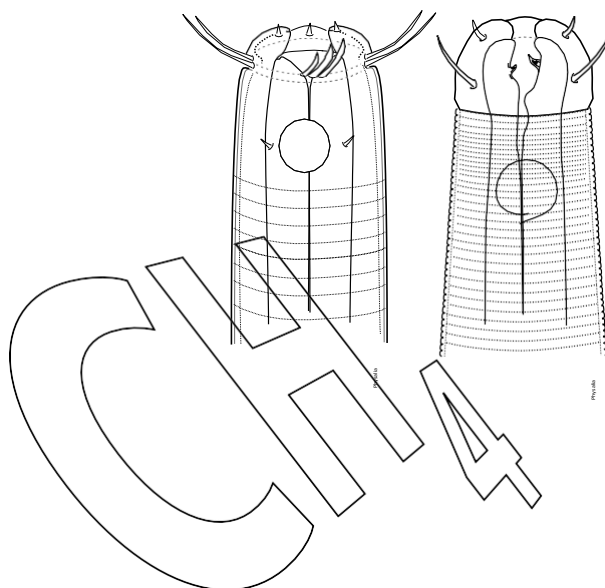


**Taxonomic Analysis of Meiofaunal Nematode  
Samples Collected from Marine Methane Seeps:  
Scanner & Braemar Pockmark cSAC/SCI Sites**



Meiofaunal taxonomic analyses  
undertaken for

Centre for Environment, Fisheries  
and Aquaculture Science

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**Report Version and Date:**

**15 May 2013**

**Version1**

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**Physalia**

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Assessment & ranking of ecologically significant contaminants (ARESC) - Bio-sentinel system monitoring - Biodiversity database development - Cohort analyses - Community geometric mean studies - Contaminated land assessment & monitoring - Ecological risk assessment - Ecotoxicological studies - Effluent component monitoring - Ecological impact predictions for proposed developments - Ecological mitigation studies - Ecological/physico-chemical trend analyses - Fouling & biocide monitoring - Forensic studies - Growth performance stress assessment - Impact assessment & analyses - Incident monitoring & analyses - Indicator species analyses (ISA) - Local indicator of spatial association (LISA) Analyses - Mantel matrix analysis studies - Meiofaunal analyses for the establishment of prevailing environmental conditions - Meiofaunal colonisation unit (MCU) surveys - Monte Carlo permutation test studies - Multivariate data analyses for biological & non-biological data sets - Multivariate Groundwaters Tracking Analyses (MVGTA) - Parasitological Assessments - Parallax corrected spatial determinations - Performance & monitoring index derivation - Photomicroscopy & Photomacrography - Remediation measure performance testing & monitoring - Sediment contaminant assessment plot (SCAP) analyses - Scientific & technical photography - Spatial autocorrelation analyses - Spatial & temporal trend analyses - Spectral analyses of algal/floral assemblages for stress detection & community assessments - Stress & contaminant hotspot analyses - Terrestrial meiofauna analyses (TMA) - Taxonomic distinctness & taxonomic diversity indices analyses - Taxonomic studies - Assessment & ranking of ecologically significant contaminants (ARESC)

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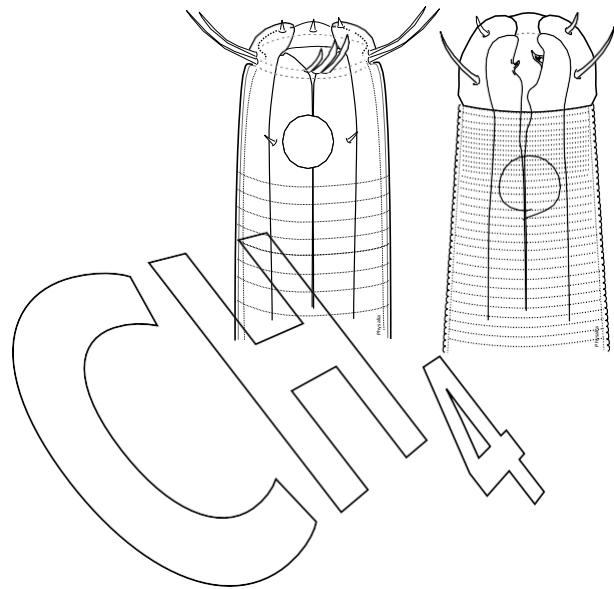
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*All scientific contributors to this report are members of the Institute of Ecology and Environmental Management (IEEM) and have undertaken this study in accordance with the Institute's Professional Code of Conduct. A copy of the code is available on request from either Physalia ([info@physalia.com](mailto:info@physalia.com)) or the Institute's Headquarters at 43 Southgate Street, Winchester, Hampshire, SO9 9EH England*

*Individual scientists and technicians at Physalia are also Members or Fellows of other professional and scientific bodies. These include The International Society for Environmental Forensics, The Royal Statistical Society, The European Federation of Environmental Professionals, The Royal Microscopical Society, The Linnean Society of London, The Zoological Society of London, The Marine Biological Association of the United Kingdom, The European Society of Microscopy, The Association of Applied Biology, The Freshwater Biological Association, The Institute of Biology, The British Ecological Society, The Royal Entomological Society, The International Society for Odonatology, The Estuarine & Brackish Waters Association.....*

Taxonomic Analysis of Meiofaunal Nematode  
Samples Collected from Marine Methane Seeps:  
Scanner & Braemar Pockmark cSAC/SCI Sites



2013

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**Applied Sciences**

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## **1. Introduction**

This short report presents the results and findings of analyses of meiofaunal nematode assemblages present in samples collected from the Scanner and Braemar pockmark SAC<sup>1</sup> and SCI<sup>2</sup> sites in the North Sea off the coast of North East Scotland. The samples were analysed for, and supplied by, CEFAS.

Where appropriate, brief comments are included on the taxonomy of selected groups and species and notes are presented regarding the nematode communities observed.

## **2. Materials and Methods**

### **2.1 Meiofaunal Sample Collection**

Sediment samples supplied were collected from seabed sites within and surrounding the Braemar and Scanner Pockmarks using a 0.1 metre<sup>2</sup> Day grab. These sites are understood to have cSAC/SCI status. Sub-samples were taken by means of a 30 mm diameter corer that was used to collect undisturbed sediments from the top 50 mm of the grab sample. These samples were subsequently preserved in formalin (final concentration ca. 4% formaldehyde).

A total of 28 sediment samples was supplied to Physalia. These comprised 20 samples from the Scanner Pockmark site and 8 samples from Braemar Pockmark site.

### **2.2 Meiofaunal Sample Processing and Examination**

#### ***a - Meiofaunal Sample Separation***

Standard laboratory protocols developed and refined by staff at Physalia over the past 30 years were used for the extraction of the meiofauna. After re-coding of the samples, the volume of sediment in each sample was measured. The samples were then homogenised in approximately 800 ml water. Initial separation was carried out using a modified, multiple Boisseau apparatus to elutriate the microscopic organisms from the bulk of the inorganic matrix. The first ("light") and subsequent ("heavy") meiofaunal fractions were collected on 38 µm mesh sieves immersed in flowing tap water (Flegg and Hooper, 1970).

Pooled meiofauna/silt fractions for each sample were further concentrated by a polymer density separation technique with centrifugation and the meiofauna re-

<sup>1</sup> (c)SAC = (candidate) Special Area of Conservation

<sup>2</sup> SCI = Site of Community Importance

collected onto 38 µm mesh sieves. The density separation technique was repeated and the separation efficiency estimated.

### ***b - Nematoda Sample Preparation and Taxonomy Identification***

Modified nematological techniques based on those of Bühner (1949), Baker (1953) and Cairns and Tarjan (1955) were used to process, handle and examine the remaining meiofauna, (primarily Nematoda - free-living roundworms). Specimens were processed to glycerol using a modified Seinhorst method (Seinhorst, 1959) in Syracuse watch glasses at 40 °C. Taxonomic microscope slides were then prepared for identification and enumeration.

Taxonomic identification of meiofaunal specimens was carried out on prepared microscope slides using Zeiss and Nikon Nomarski DIC (differential interference contrast) compound microscopes. For the nematodes, the first 100 specimens encountered were identified and counted. Remaining animals were then counted enabling total densities of each species in each sample to be calculated and then recorded. These are reported as numbers of individuals per species (OTU<sup>3</sup>) per litre sediment per sample (sampling site)<sup>4</sup>.

In addition to the density of individual species/taxa, the results were expressed as total number of species and total density. Under stressed or sub-optimal conditions, selection results in tolerant species predominating whilst the abundances of more sensitive species decline. To give an indication of this effect, Simpson's Diversity Index was calculated for the species assemblages present in the 28 samples analysed. This index considers both the total number of species/taxa within a sample and the distribution of individuals amongst species/taxa within that sample. In addition, the "dominance" and "co-dominance" values, (i.e. the percentage abundance of the most abundant species and of the two most abundant species, respectively), were calculated to provide further information on selection processes within the benthic nematode communities at each sampling station.

## ***3. Results of Analyses***

The taxonomic species lists for the meiofaunal nematode taxa recorded in the Scanner and Braemar Pockmark samples are presented in Table A1 and A2 (Appendix A), respectively. Tables B1 and B2 (Appendix B) present the

<sup>3</sup> OTU = Observed taxonomic unit - adopted where specimens fail to comply with published species descriptions.

<sup>4</sup> Due to the varying volumes of sediment in each sample the results are presented as numbers of meiofaunal nematodes per species (taxon) per litre rather than numbers of species per area of substrate.

site-by-site results for the nematode taxa and the summary community statistics respectively for the Scanner and Braemar samples.

Additional, non-nematode taxa noted during the analyses of the meiofaunal nematode samples are presented in Tables B3 and B4 C1 (Appendix B).

#### 4. Comments on Taxonomy

##### Species 187 – *Paramesacanthion* species ?*P. tricuspis*

This species was recorded in six Scanner and four Braemar samples. Superficially, these specimens resembled *P. marei*. However, this identification was discredited when specimens of mature males were encountered and examined. Here it was noted that the structures of the male pre-cloacal supplements differed significantly from those described for *P. tricuspis*. Of particular note was the marked straightening of the supplements, whose length approximated to that of the anterior section of the copulatory spicules. The supplements were also angled at ca. 45° to the cuticle. A similar anatomy was indicated for *P. tricuspis* (see Vitiello, 1970). However, this description differed from the original species description produced by Schuurmans Stekhoven (1950).

##### Species 263 – *Actinonema* species

A comparatively large number of specimens belonging to the genus *Actinonema* was recorded in the Scanner samples. Initially thought to all belong to *Actinonema pachydermatum*, this species differed from other *Actinonema* species owing to the “sickle-shaped” spicule of the mature males. Specimens of *Actinonema pachydermatum* were recorded in the samples. These were described in five of the eight Braemar samples.

##### Species 238 – *Prochromadorella attenuata*

Specimens of this nematode recorded in the Braemar samples differed from the standard published description of *Prochromadorella attenuata* in that mature males possessed only three pre-cloacal (cf. seven well-developed supplements present in Gerlach’s original description of *P. attenuata*; Gerlach, 1952). Whether this represents a distinct species or “reductionistic” polymorphism remains uncertain.



Species 226, 196 and 204 – *Cervonema brevicauda*, *C. goubaulti* and *C. jenseni*

Three species within the genus *Cervonema* were recorded. None is currently listed in the standard texts for British marine nematode species (see, for example, Platt and Warwick, 1988).

Species 54, 8 and 191 – *Sabatieria* species (? *S. celtica*), *S. ornata* and *S. punctata*

*Sabatieria* specimens were frequently observed in samples from both Scanner and Braemar. This is consistent with their tolerance of finer-grained (“muddy”) sediments, and ability to tolerate reduced oxygen tensions. However, problems were encountered in distinguishing between the juvenile and female specimens of the taxa listed. If the present data are to be used for statistical analytical purposes, it is recommended that the data for these taxa are either combined or omitted from the analyses.

The *Sabatieria* species tentatively recorded here as *Sabatieria celtica* differed from the published descriptions (Southern 1914 and Platt and Warwick, 1988). This centres on structures of the gubernacula of mature males which were characterised by a pair of straight apophyses (as opposed to curved apophyses in *S. celtica*). The spicules and pre-cloacal supplements of this taxa conformed to that of *S. heipi* that was described from South America (see Chen and Vincx, 2000).

Species 110 – *Leptonemella* species (? *L. aphanothecae*)

*Leptonemella* species are characterised by the frequent presence of epibiont cyanobacteria that colonise and proliferate on the surface of the cuticles of members of this genus. Mature specimens recorded in sample 45A from Braemar possessed characteristic elongate microbes that appeared to be attached to the nematode cuticle at either end, creating a “shredded wheat” appearance. We have recorded similar species in the South China Sea and in the Bass Strait. The common UK waters species, *Leptonemella aphanothecae*, is usually characterised by small round microbes. However, it is uncertain whether the specimens recorded in the present samples were *L. aphanothecae* that had adopted different epiphytic microbes (possibly reflecting the methane seep conditions) or whether the nematodes were separate species of *Leptonemella*.

### Species 134, 241, 171, 50 - Genus *Comesa*

A range of *Comesa* species was recorded in the samples supplied. However, as with *Sabatieria* above, identification to species level based on juveniles and females of this genus can be problematic. Care should be taken when using this group for data analyses.

### Species 179 – *Leptolaimus* species (?*L. ampullaceus*)

This taxon resembled closely the published description of *Leptolaimus ampullaceus* (Platt and Warwick, 1988). However, the tail was markedly thinner and the gubernaculum was paddle-shaped rather than thin and straight. This might therefore represent a distinct and as yet undescribed species.

### Species 184 – *Leptolaimus* species (?*Leptolaimus* var. *papilliger*)

As seen in *Leptolaimus papilliger*, the males of this taxon possess pre-cloacal supplements in both the tubular and cup-shaped forms. The number of each appears to be variable with observations of 0 to 4 tubular supplements and 8 to 11 cups. From our own observations, this appears to be a standard polymorphism. However, the tails of the specimens described here also deviates from that of existing *L. papilliger* descriptions and the tip is notable more elongate than it is clavate.

### Species 262 – *Leptolaimus* species

This taxon comprised only female specimens as they were identifiable by the occurrence of two pre-cloacal supplements in the females, one immediately pre-cloacal and one at the base of the oesophagus. It is possible that this the same species as the physically variable *Leptolaimus* species (184) discussed above. Similar female supplements have been documented for the closely related genus, *Halaphanolaimus* (see Platt and Warwick, 1988).

### Species 219 – *Southerniella* species (?*S. conicauda*)

*Southerniella* is another genus that is not list in the standard text of British marine nematodes (see Warwick *et al.*, 1998). The specimens observed in the Scanner and Braemar samples resembled closely *Southerniella conicauda* although further detailed examination will be required to confirm this. A

related species, *Southerniella nojii* was described by Jensen (1991) from deep sea sites in the Norwegian Sea and was later recorded at methane seep sites in northern Kattegat, Denmark. However, the description provided by Jensen (1991) does not correspond to the specimens observed in the present study.

## 5. Comments on Nematode Communities

A total of 137 discrete (discernible) nematode taxa was recorded during the meiofaunal analyses, with 94 taxa recorded at the Scanner Pockmark sites and 108 at the Braemar Pockmark sites.

The species richness (total taxa identified per site) ranged from 18 in the Scanner sample 64A to 44 at the Braemar samples 44A and 45A. The Braemar samples were characterised by higher species richness values than the Scanner samples (mean values of 42.25 and 26.25, respectively). However, care must be taken when interpreting these figures as the high abundance of a single species in the Scanner samples, namely *Astomonema southwardarum*, may have affected the number of taxa observed in the first 100 specimens. If identification had been extended beyond the first 100 specimens encountered, it is thought highly likely that additional species would have been encountered.

There was a high proportion of species that did not conform to the published descriptions of nematode species recorded from British marine habitats. Some of the more notable of these species are discussed briefly in Section 4 above. In depth taxonomic studies of these species was beyond the remit of the present study. However, any future review of the checklists of British marine free-living nematodes should consider and include species from these areas.

*Astomonema southwardarum* occurred in all of the Scanner Pockmark samples analysed. It was recorded at a maximum density of 14,904 individuals per litre sediment in sample Site 80A. In this case it accounted for 54 % of the total nematode assemblage. This species was originally described from the Scanner area by Austen *et al.* (1993) and is a characteristic species of methane seep habitats. The adults possess degenerate alimentary canals and they appear to derive nutrients from the endosymbiotic, chemoautotrophic bacteria that are contained within their body cavity (see Tchesunov *et al.* (2012)). It should be noted that no specimens of *Astomonema southwardarum* were documented in the Braemar Pockmarks samples.

Another symbiotic relationship was documented in the Braemar sample 45A. A *Leptonemella* species (most probably *L. aphanothecae*) occurred in the samples and was characterised by ectosymbiotic bacteria that adhered to and colonised the cuticle of the adults (see taxonomic comments in Section 4, above). Similar ectosymbiotic bacteria were recorded by Tchesunov *et al.* (2012) associated with another Desmodorid species, *Parabostrichus bathyalis*, at deep sea sites in the North East Atlantic.

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## 6. References

*This report to be cited as:*

Physalia (2013). *Taxonomic Analysis of Meiofaunal Nematode Samples Collected From Marine Methane Seeps - Scanner and Braemar Pockmarks cSAC/SCI Sites*. A factual report prepared for CEFAS by Physalia Ltd, Consultant & Forensic Ecologists, Harpenden.

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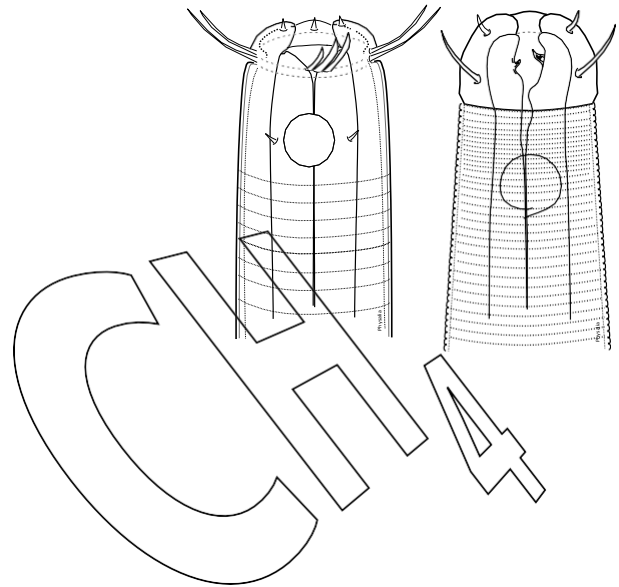
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# Taxonomic Analysis of Meiofaunal Nematode Samples Collected From Marine Methane Seeps - Scanner and Braemar Pockmark cSAC/SCI Sites

## Appendix A

### Taxonomic Species Lists



**Table A1.** Taxonomic list of the meiofaunal nematode taxa recorded in the survey of the Scanner Pockmarks, 2013. Numbers shown are identifier codes unique to each species in each survey region and relate to specimens and/or description in the faunal reference collections held at Nebalia and Physalia. These codes are used in the multivariate (mathematical) analyses of the communities.

## Sub-class Enoplia

### Order Enoplida

#### Sub-order Enoplina

##### Family Anticomidae

181 Anticomimid species

##### Family Phanodermatidae

261 *Crenopharynx marioni*

##### Family Thoracostomopsidae

187 *Paramesacanthion* species (? *P. tricuspis*)

#### Sub-order Trefusiina

##### Family Trefusiidae

39 *Rhabdocoma riemanni*

#### Sub-order Oncholaimina

##### Family Enchelidiidae

214 *Paraeurystomina* species (? *P. flagellicauda*)

201 Enchelidiid species (? *Calyptronema*)

##### Family Oncholaimidae

118 *Viscosia elegans*

193 *Viscosia glabra*

#### Sub-order Ironina

##### Family Oxystominidae

5 *Halalaimus gracilis*

211 *Halalaimus isaitshikovi*

205 *Halalaimus longicaudatus*

206 *Halalaimus* species

100 *Oxystomina asetosa*

10 *Thalassoalaimus tardus*

220 *Wieseria pica*

260 Oxystominid species

## Sub-order Tripyloidina

### Family Tripyloididae

52 *Tripyloides marinus*

## Order Triplonchida

### Sub-order Tobrilina

### Family Rhabdodemaniidae

145 *Rhabdodemia major*

## Class Chromadorea

### Sub-class Chromadoria

### Order Chromadorida; Sub-order Chromadorina

#### Family Chromadoridae

223 *Actinonema pachydermatum*

3 *Chromadora macrolaima*

139 *Chromadora nudicapitata*

227 *Chromadorina* species

109 *Prochromadorella ditlevseni*

83 *Spilophorella paradoxa*

249 Chromadorid species 1

186 Chromadorid species 2

#### Family Cyatholaimidae

183 *Marylinnia complexa*

210 *Pomponema multipapillatum*

#### Family Ethmolaimidae

134 *Comesa cuanensis*

171 *Comesa votadinii*

50 *Comesa warwicki*

259 Ethmolaimid species

#### Family Selachinematidae

225 *Halichoanolaimus dolichurus*

101 *Halichoanolaimus robustidens*



## Order Desmodorida

### Sub-order Desmodorina

#### Family Desmodoridae

248 *Molgolaimus* species

#### Family Microlaimidae

218 Microlaimid species

## Order Desmoscolecida

#### Family Desmoscolecidae

163 *Desmoscolex falcatus*

198 *Quadricoma scanica*

## Order Monhysterida

### Sub-order Monhysterina

#### Family Monhysteridae

4 *Thalassomonhystera venusta*

46 Monhysterid species (? *Diplolaimella*)

#### Family Sphaerolaimidae

188 *Parashaerolaimus paradoxus*

207 *Sphaerolaimus balticus*

28 *Sphaerolaimus gracilis*

199 *Sphaerolaimus* species (? *S. macrocirculus*)

#### Family Xyalidae

212 *Ammotheristus* species

2 *Daptonema normanicum*

27 *Daptonema oxycerca*

203 *Daptonema* species

224 *Daptonema* species

222 *Gnomoxyla* species

169 Xyalid species

175 Xyalid species

178 Xyalid species

192 Xyalid species

209 Xyalid species

### Sub-order Linhomoeina

#### Family Linhomoeidae

172 *Desmolaimus* species

81 *Eleutherolaimus stenosoma*

- 147 *Metalinhomoeus filiformis*
- 11 *Metalinhomoeus longiseta*
- 63 *Terschellingia longicaudata*
- 176 *Terschellingia* species
- 215 *Terschellingia* species
- 180 *Linhomoeid* species
- 182 *Linhomoeid* species
- 195 *Linhomoeid* species
- 216 *Linhomoeid* species

#### Family Siphonolaimidae

- 168 *Astomonema southwardarum*

### Order Araeolaimida

#### Family Axonolaimidae

- 1 *Ascolaimus elongatus*
- 122 *Odontophora longisetosa*

#### Family Comesomatidae

- 226 *Cervonema brevicauda*
- 196 *Cervonema goubaulti*
- 204 *Cervonema jenseni*
- 164 *Dorylaimopsis punctata*
- 194 *Laimella longicaudata*
- 54 *Sabatieria celtica*
- 191 *Sabatieria ornata*
- 8 *Sabatieria punctata*

#### Family Diplopeltidae

- 189 *Campylaimus* species (? *C. gerlachi*)
- 200 *Campylaimus* species
- 246 *Campylaimus* species
- 197 *Diplopeltula* species (? *D. incisa*)
- 213 *Diplopeltula* species (? *D. asetosa*)
- 219 *Southerniella* species

### Order Plectida

#### Family Aegialoalaimidae

- 82 *Cyartonema elegans*
- 177 *Cyartonema germanicum*

#### Family Ceramonematidae

- 190 *Metadasynemella* species (? *M. cassidiensis*)
- 202 *Metadasynemella* species 1
- 208 *Metadasynemella* species 2
- 221 *Pselionema* species

Family Haliplectidae

173 *Haliplectus* species

Family Leptolaimidae

64 *Camacolaimus tardus*

29 *Leptolaimus ampullaceus*

6 *Leptolaimus elegans*

179 *Leptolaimus* species (? *L. ampullaceus*)

184 *Leptolaimus* species (? *L. papilliger*)

262 *Leptolaimus* species

**Table A2.** Taxonomic list of the meiofaunal nematode taxa recorded in the survey of the Braemar Pockmarks, 2013. Numbers shown are identifier codes unique to each species in each survey region and relate to specimens and/or descriptions in the faunal reference collections held at Nebalia and Physalia. These codes are used in the multivariate (mathematical) analyses of the communities.

## Sub-class Enoplia

### Order Enoplida

#### Sub-order Enoplina

##### Family Thoracostomopsidae

- 187 *Paramesacanthion* species (? *P. tricuspis*)  
254 *Paramesacanthion marei*

#### Sub-order Trefusiina

##### Family Trefusiidae

- 39 *Rhabdocoma riemanni*

#### Sub-order Oncholaimina

##### Family Enchelidiidae

- 214 *Paraeurystomina* species (? *P. flagellicauda*)  
201 Enchelidiid species (? *Calyptonema*)  
233 Enchelidiid species (? *Calyptonema*)

##### Family Oncholaimidae

- 89 *Oncholaimus campylocercoides*  
257 *Viscosia abyssorum*  
118 *Viscosia elegans*  
234 *Viscosia langrunensis*

#### Sub-order Ironina

##### Family Oxystominidae

- 5 *Halalaimus gracilis*  
211 *Halalaimus isaitshikovi*  
205 *Halalaimus longicaudatus*  
206 *Halalaimus* species  
100 *Oxystomina asetosa*  
104 *Oxystomina elongata*

## Order Triplonchida

### Sub-order Tobrilina

#### Family Pandolaimidae

251 *Pandolaimus* species

#### Family Rhabdodemaniidae

145 *Rhabdodemia major*

## Class Chromadorea

### Sub-class Chromadoria

#### Order Chromadorida

##### Sub-order Chromadorina

#### Family Chromadoridae

223 *Actinonema pachydermatum*

263 *Actinonema* species

232 *Dichromadora cucullata*

238 *Prochromadorella attenuata*

109 *Prochromadorella ditlevseni*

83 *Spilophorella paradoxa*

249 Chromadorid species 1

186 Chromadorid species 2

#### Family Cyatholaimidae

165 *Paracanthonchus longicaudatus*

230 *Paracanthonchus longus*

129 *Paracyatholaimoides multispiralis*

247 *Paracyatholaimus occultus*

237 *Paralongicyatholaimus minutus*

210 *Pomponema multipapillatum*

#### Family Ethmolaimidae

134 *Comesa cuanensis*

241 *Comesa vitia*

171 *Comesa votadinii*

50 *Comesa warwicki*

259 Ethmolaimid species

#### Family Neotonchidae

229 *Neotonchus* species

## Family Selachinematidae

- 225 *Halichoanolaimus dolichurus*
- 101 *Halichoanolaimus robustidens*
- 242 *Halichoanolaimus* species
- 24 *Richtersia inaequalis*
- 76 *Synonchiella riemanni*

## Order Desmodorida

## Sub-order Desmodorina

## Family Desmodoridae

- 110 *Leptonemella* species (? *L. aphanothecae*)

## Family Microlaimidae

- 245 *Bolbolaimus teutonicus*
- 43 *Calomicrolaimus parahonestus*
- 113 *Microlaimus conothesis*

## Order Desmoscolecida

## Family Desmoscolecidae

- 163 *Desmoscolex falcatus*
- 198 *Quadricoma scanica*

## Order Monhysterida

## Sub-order Monhysterina

## Family Monhysteridae

- 4 *Thalassomonhystera venusta*
- 46 Monhysterid species (? *Diplolaimella*)

## Family Sphaerolaimidae

- 188 *Parashaerolaimus paradoxus*
- 207 *Sphaerolaimus balticus*
- 199 *Sphaerolaimus* species (? *S. macrocirculus*)

## Family Xyalidae

- 95 *Cobbia trefusiaeformis*
- 236 *Coninckia macrospirifera*
- 203 *Daptonema* species
- 224 *Daptonema* species
- 235 *Daptonema* species
- 222 *Gnomoxyla* species
- 42 *Paramonhystera riemanni*
- 169 Xyalid species
- 175 Xyalid species

178	Xyalid species
192	Xyalid species
209	Xyalid species
231	Xyalid species
255	Xyalid species

## Sub-order Linhomoeina

### Family Linhomoeidae

59	<i>Desmolaimus zeelandicus</i>
258	<i>Desmolaimus</i> species
81	<i>Eleutherolaimus stenosoma</i>
147	<i>Metalinhomoeus filiformis</i>
11	<i>Metalinhomoeus longiseta</i>
63	<i>Terschellingia longicaudata</i>
215	<i>Terschellingia</i> species
195	Linhomoeid species
244	Linhomoeid species

## Order Araeolaimida

### Family Axonolaimidae

56	<i>Axonolaimus spinosa</i>
122	<i>Odontophora longisetosa</i>

### Family Comesomatidae

196	<i>Cervonema goubaulti</i>
204	<i>Cervonema jenseni</i>
164	<i>Dorylaimopsis punctata</i>
194	<i>Laimella longicaudata</i>
54	<i>Sabatieria celtica</i>
191	<i>Sabatieria ornata</i>
8	<i>Sabatieria punctata</i>
239	Comesomatid (? <i>Laimella</i> )

### Family Diplopeltidae

189	<i>Campylaimus</i> species (? <i>C. gerlachi</i> )
246	<i>Campylaimus</i> species
197	<i>Diplopeltula</i> species (? <i>D. incisa</i> )
213	<i>Diplopeltula</i> species (? <i>D. asetosa</i> )
253	<i>Diplopeltula</i> species
219	<i>Southerniella</i> species

## Order Plectida

### Family Aegialoalaimidae

71	<i>Aegialoalaimus elegans</i>
252	<i>Southernia</i> species (? <i>S. zosteriae</i> )

Family Ceramonematidae

202 *Metadasynemella* species 1

221 *Pselionema* species

Family Haliplectidae

173 *Haliplectus* species

Family Leptolaimidae

93 *Antimicron* species (?*A. elegans*)

138 *Camacolaimus longicauda*

64 *Camacolaimus tardus*

243 *Leptolaimoides* species

6 *Leptolaimus elegans*

179 *Leptolaimus* species (? *L. ampullaceus*)

184 *Leptolaimus* species (? *L. papilliger*)

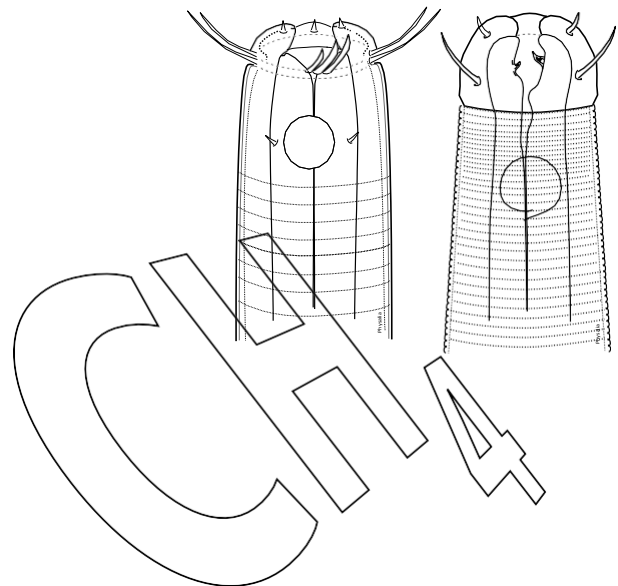
262 *Leptolaimus* species



# Taxonomic Analysis of Meiofaunal Nematode Samples Collected From Marine Methane Seeps - Scanner and Braemar Pockmark cSAC/SCI Sites

## Appendix B

### Site-by-site Results Tables



Nematode sp./Taxa	64A	66A	69A	70A	71A	72A	73A	74A
Family Anticomidae								
181 Anticomid sp.	0	92	0	0	0	88	0	0
Family Phanodermatidae								
261 <i>Crenopharynx marioni</i>	0	0	0	0	0	0	0	0
Family Thoracostomopsidae								
187 <i>Paramesacanthion</i> (? <i>P. tricuspis</i> )	0	92	0	0	44	0	79	129
Family Trefusiidae								
39 <i>Rhabdocoma riemanni</i>	0	0	0	0	0	0	0	0
Family Enchelidiidae								
214 <i>Paraeurystomina scilloniensis</i>	0	0	0	0	0	0	0	0
201 Enchelidiid sp. (? <i>Calyptonema</i> )	0	0	0	0	44	0	0	0
Family Oncholaimidae								
118 <i>Viscosia elegans</i>	0	0	175	0	0	0	0	0
193 <i>Viscosia glabra</i>	0	0	0	142	0	0	0	0
Family Oxystominidae								
5 <i>Halalaimus gracilis</i>	126	184	0	285	44	0	0	0
211 <i>Halalaimus isaitshikovi</i>	0	0	0	0	0	0	79	129
205 <i>Halalaimus longicaudatus</i>	0	0	0	0	44	0	0	129
206 <i>Halalaimus</i> sp.	0	0	0	0	44	0	158	0
100 <i>Oxystomina asetosa</i>	0	0	0	142	0	0	0	0
10 <i>Thalassoalaimus tardus</i>	0	0	0	0	0	0	0	0
220 <i>Wieseria pica</i>	0	0	0	0	0	0	0	0
260 Oxystominid sp.	0	0	175	0	0	0	0	0
Family Tripyloidae								
52 <i>Tripyloides marinus</i>	0	0	0	0	0	0	0	0
Family Rhabdodemaniidae								
145 <i>Rhabdodemia major</i>	0	368	525	0	175	0	1501	129
Family Chromadoridae								
263 <i>Actinonema</i> sp.	0	0	0	0	0	0	0	0
3 <i>Chromadora macrolaima</i>	0	0	0	0	44	0	0	0
139 <i>Chromadora nudicapitata</i>	126	0	0	0	0	0	0	0
227 <i>Chromadorina</i> sp.	0	0	0	0	0	0	0	0
109 <i>Prochromadorella ditlevseni</i>	0	92	0	569	88	0	158	0
83 <i>Spilophorella paradoxa</i>	0	92	175	285	44	88	79	0
249 Chromadorid sp 1	0	92	0	0	0	0	0	0
186 Chromadorid sp. 2	0	0	0	0	0	0	0	129
Family Cyatholaimidae								
183 <i>Marylinnia complexa</i>	0	184	0	0	44	0	0	0
210 <i>Pomponema multipapillatum</i>	0	0	0	0	0	0	158	0
Family Ethmolaimidae								
134 <i>Comesa cuanensis</i>	0	92	0	0	0	0	0	0
171 <i>Comesa votadinii</i>	126	92	0	0	0	0	0	386
50 <i>Comesa warwicki</i>	0	460	0	142	131	352	474	257
259 Ethmolaimid sp.	0	0	525	0	0	0	0	0
Family Selachinematidae								
101 <i>Halichoanolaimus robustidens</i>	0	92	0	0	44	0	79	0
Family Desmodoridae								
248 <i>Molgolaimus</i> sp.	0	184	0	0	0	0	0	0
Family Microlaimidae								
218 Microlaimid sp.	0	0	0	0	0	0	0	0
Family Desmoscolecidae								
163 <i>Desmoscolex falcatus</i>	126	92	175	142	44	0	0	0
198 <i>Quadricoma scanica</i>	0	0	0	142	44	0	0	0

**Table B1i.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment.

Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	64A	66A	69A	70A	71A	72A	73A	74A
Family Monhysteridae								
4 <i>Thalassomonhysteravenusta</i>	0	0	0	0	44	0	0	257
46 Monhysterid sp. (? <i>Diplolaimella</i> )	377	0	0	0	0	0	0	0
Family Sphaerolaimidae								
188 <i>Parashaerolaimus paradoxus</i>	0	0	525	0	44	0	79	129
207 <i>Sphaerolaimus balticus</i>	0	0	0	0	0	0	79	0
28 <i>Sphaerolaimus gracilis</i>	0	0	0	0	0	0	79	0
199 <i>Sphaerolaimus</i> sp. (? <i>S. macrocirculu</i> )	0	0	0	142	0	0	0	129
Family Xyalidae								
212 <i>Ammotheristus</i> sp.	0	0	0	0	0	0	79	0
2 <i>Daptonema normandicum</i>	0	0	0	0	0	0	0	0
27 <i>Daptonema oxycerca</i>	0	0	175	0	88	0	79	0
203 <i>Daptonema</i> sp.	0	0	0	0	44	0	79	0
224 <i>Daptonema</i> sp.	0	0	0	0	0	0	0	0
222 <i>Gnomoxyla</i> sp.	0	0	0	0	0	0	0	0
169 Xyalid sp.	126	368	525	0	44	440	0	129
175 Xyalid sp.	628	0	350	0	0	0	0	0
178 Xyalid sp.	0	368	175	427	88	3344	79	1028
192 Xyalid sp.	0	0	175	427	0	0	0	0
209 Xyalid sp.	0	0	0	0	0	0	79	0
Family Linhomoeidae								
172 <i>Desmolaimus</i> sp.	126	0	0	142	0	88	79	0
81 <i>Eleutherolaimus stenosoma</i>	0	0	0	142	175	352	0	257
147 <i>Metalinhomoeus filiformis</i>	502	827	525	996	394	352	0	386
11 <i>Metalinhomoeus longiseta</i>	0	643	875	0	307	1232	158	900
63 <i>Terschellingia longicaudata</i>	628	184	175	0	307	176	79	257
176 <i>Terschellingia</i> sp.	0	184	0	0	0	0	0	0
215 <i>Terschellingia</i> sp.	0	0	0	0	0	0	0	0
180 Linhomoeid sp.	0	184	0	0	0	0	0	0
182 Linhomoeid sp.	0	92	0	569	0	0	0	0
195 Linhomoeid sp.	0	0	0	142	44	0	0	129
216 Linhomoeid sp.	0	0	0	0	0	0	0	0
Family Siphonolaimidae								
168 <i>Astomonema southwardarum</i>	7407	2574	4201	2703	44	88	711	2957
Family Axonolaimidae								
1 <i>Ascolaimus elongatus</i>	377	0	0	0	0	0	0	0
122 <i>Odontophora longisetosa</i>	0	0	0	0	0	0	158	0
Family Comesomatidae								
226 <i>Cervonema brevicauda</i>	0	0	0	0	0	0	0	0
196 <i>Cervonema goubaulti</i>	0	0	0	142	0	0	0	0
204 <i>Cervonema jenseni</i>	0	0	0	0	44	0	0	0
164 <i>Dorylaimopsis punctata</i>	628	92	1750	427	44	528	474	900
194 <i>Laimella longicaudata</i>	0	0	0	285	0	0	0	0
54 <i>Sabatieria celtica</i>	377	368	700	1138	613	176	237	1028
191 <i>Sabatieria ornata</i>	0	0	875	1565	0	528	79	0
8 <i>Sabatieria punctata</i>	377	460	525	996	613	264	237	1028
Family Diplopeltidae								
189 <i>Campylaimus</i> sp. (? <i>C. gerlachi</i> )	0	0	350	0	44	88	237	386
200 <i>Campylaimus</i> sp.	0	0	0	0	44	0	0	0
246 <i>Campylaimus</i> sp.	0	0	525	0	0	0	0	0
197 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	142	0	0	0	0
213 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0	0	0	0	129
219 <i>Southerniella</i> sp.	0	0	0	0	0	0	0	0

**Table B1ii.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment.

Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	64A	66A	69A	70A	71A	72A	73A	74A
Family Aegialoalaimidae								
82 <i>Cyartonema elegans</i>	0	92	0	142	0	0	0	0
177 <i>Cyartonema germanicum</i>	0	92	175	0	88	88	79	386
Family Ceramonematidae								
190 <i>Metadasynemella</i> sp. (? <i>M. cassidien</i> )	0	0	350	0	0	0	0	0
202 <i>Metadasynemella</i> sp. 1	0	0	0	0	44	0	0	0
208 <i>Metadasynemella</i> sp. 2	0	0	0	0	0	0	79	0
221 <i>Pselionema</i> sp.	0	0	0	0	0	0	0	0
Family Haliplectidae								
173 <i>Haliplectus</i> sp.	126	0	350	285	44	0	158	0
Family Leptolaimidae								
64 <i>Camacolaimus tardus</i>	0	0	175	0	0	0	0	0
6 <i>Leptolaimus elegans</i>	377	368	1575	569	219	440	1185	1028
179 <i>Leptolaimus</i> sp. (? <i>L. ampullaceus</i> )	126	184	1225	996	131	88	474	386
184 <i>Leptolaimus</i> sp. (? <i>L. papilliger</i> )	0	92	0	0	0	0	79	129
262 <i>Leptolaimus</i> sp.	0	0	0	0	0	0	0	0
<b>Total Species</b>	18	31	28	28	37	19	33	27
<b>Total Density</b>	12686	9380	18026	14226	4429	8800	7900	13246
<b>1B/2A</b>	10.0	3.1	5.6	7.0	6.1	15.4	1.4	6.3
<b>Diversity</b>	2.8	9.6	11.0	12.6	14.9	5.5	11.8	11.1
<b>Dominance</b>	58.4	27.4	23.3	19.0	13.8	38.0	19.0	22.3
<b>Co-dominance</b>	63.3	36.3	33.0	30.0	27.7	52.0	34.0	30.1

**Table B1iii.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Community statistics for each sample are also presented, see text for details. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	75A	76A	77A	78A	79A	80A	84A	86A
Family Anticomidae								
181 Anticomid sp.	295	0	0	0	0	0	0	0
Family Phanodermatidae								
261 <i>Crenopharynx marioni</i>	0	147	119	0	0	0	0	0
Family Thoracostomopsidae								
187 <i>Paramesacanthion</i> (? <i>P. tricuspis</i> )	295	0	0	0	0	276	0	0
Family Trefusiidae								
39 <i>Rhabdocoma riemanni</i>	0	0	0	0	67	0	0	0
Family Enchelidiidae								
214 <i>Paraeurystomina scilloniensis</i>	295	0	59	368	0	0	317	0
201 Enchelidiid sp. (? <i>Calyptronema</i> )	0	0	0	0	0	0	0	0
Family Oncholaimidae								
118 <i>Viscosia elegans</i>	886	0	0	0	0	0	0	0
193 <i>Viscosia glabra</i>	0	0	0	0	0	276	158	0
Family Oxystominidae								
5 <i>Halalaimus gracilis</i>	0	0	0	0	0	0	0	0
211 <i>Halalaimus isaitshikovi</i>	0	0	0	0	67	0	0	0
205 <i>Halalaimus longicaudatus</i>	0	587	0	0	0	0	0	0
206 <i>Halalaimus</i> sp.	0	0	119	0	0	0	0	0
100 <i>Oxystomina asetosa</i>	0	0	0	368	67	0	158	0
10 <i>Thalassoalaimus tardus</i>	0	0	0	0	67	0	0	0
220 <i>Wieseria pica</i>	0	0	0	0	0	0	158	0
260 Oxystominid sp.	0	0	0	0	0	0	0	0
Family Tripyloididae								
52 <i>Tripyloides marinus</i>	0	0	0	0	0	0	0	0
Family Rhabdodemaniidae								
145 <i>Rhabdodemanina major</i>	0	1028	119	368	135	276	158	430
Family Chromadoridae								
263 <i>Actinonema</i> sp.	0	0	0	0	0	0	158	0
3 <i>Chromadora macrolaima</i>	0	0	0	0	0	0	0	0
139 <i>Chromadora nudicapitata</i>	0	0	0	0	0	0	0	0
227 <i>Chromadorina</i> sp.	0	0	0	0	0	0	0	0
109 <i>Prochromadorella ditlevseni</i>	0	0	0	0	0	0	0	0
83 <i>Spilophorella paradoxa</i>	0	0	59	736	0	552	634	0
249 Chromadorid sp 1	0	0	0	0	0	0	0	0
186 Chromadorid sp. 2	0	0	59	0	0	0	0	0
Family Cyatholaimidae								
183 <i>Marylinnia complexa</i>	0	0	59	0	67	552	158	0
210 <i>Pomponema multipapillatum</i>	0	0	59	0	67	0	0	215
Family Ethmolaimidae								
134 <i>Comesa cuanensis</i>	295	0	0	0	0	0	0	0
171 <i>Comesa votadinii</i>	0	0	59	0	0	0	0	0
50 <i>Comesa warwicki</i>	886	1321	653	2208	404	552	317	215
259 Ethmolaimid sp.	0	0	0	0	0	0	0	0
Family Selachinematidae								
101 <i>Halichoanolaimus robustidens</i>	0	0	0	0	0	0	0	0
Family Desmodoridae								
248 <i>Molgolaimus</i> sp.	0	0	0	0	0	0	0	0
Family Microlaimidae								
218 Microlaimid sp.	0	0	0	368	0	0	0	0
Family Desmoscolecidae								
163 <i>Desmoscolex falcatus</i>	295	0	0	368	0	0	0	0
198 <i>Quadricoma scanica</i>	0	147	0	368	0	276	158	0

**Table B1iv.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment.

Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	75A	76A	77A	78A	79A	80A	84A	86A
Family Monhysteridae								
4 <i>Thalassomonhysteravenusta</i>	0	0	0	0	0	0	0	0
46 Monhysterid sp. (? <i>Diplolaimella</i> )	0	0	0	0	0	0	0	430
Family Sphaerolaimidae								
188 <i>Parashaerolaimus paradoxus</i>	0	147	0	0	67	0	0	215
207 <i>Sphaerolaimus balticus</i>	0	0	0	0	0	0	0	0
28 <i>Sphaerolaimus gracilis</i>	0	0	0	0	0	276	0	0
199 <i>Sphaerolaimus</i> sp. (? <i>S. macrocirculu</i> )	0	0	59	368	135	0	0	0
Family Xyalidae								
212 <i>Ammotheristus</i> sp.	0	0	0	0	0	0	0	0
2 <i>Daptonema normanicum</i>	0	0	0	0	0	0	158	0
27 <i>Daptonema oxycerca</i>	886	0	178	0	269	0	0	0
203 <i>Daptonema</i> sp.	0	0	0	368	0	0	0	0
224 <i>Daptonema</i> sp.	0	0	0	0	0	0	475	0
222 <i>Gnomoxyla</i> sp.	0	0	0	0	0	0	317	0
169 Xyalid sp.	295	147	0	368	202	276	0	0
175 Xyalid sp.	0	0	59	0	67	552	0	215
178 Xyalid sp.	1477	1028	238	1104	67	552	475	215
192 Xyalid sp.	0	0	0	0	0	0	0	859
209 Xyalid sp.	0	0	0	0	0	0	158	0
Family Linhomoeidae								
172 <i>Desmolaimus</i> sp.	0	0	59	368	67	0	0	0
81 <i>Eleutherolaimus stenosoma</i>	886	147	178	1104	0	1104	0	0
147 <i>Metalinhomoeus filiformis</i>	2067	734	832	736	471	1380	0	430
11 <i>Metalinhomoeus longiseta</i>	1181	294	119	2576	606	276	0	430
63 <i>Terschellingia longicaudata</i>	1181	881	238	368	202	0	0	215
176 <i>Terschellingia</i> sp.	0	0	0	0	0	0	0	0
215 <i>Terschellingia</i> sp.	0	147	0	0	0	0	158	0
180 Linhomoeid sp.	0	0	0	0	0	0	0	0
182 Linhomoeid sp.	295	0	0	0	0	552	0	0
195 Linhomoeid sp.	1181	0	0	368	67	0	317	215
216 Linhomoeid sp.	0	0	59	0	0	0	0	0
Family Siphonolaimidae								
168 <i>Astomonema southwardarum</i>	13290	5873	356	11776	1347	14904	3802	13106
Family Axonolaimidae								
1 <i>Ascolaimus elongatus</i>	0	0	0	0	0	0	0	0
122 <i>Odontophora longisetosa</i>	0	0	178	0	0	0	0	0
Family Comesomatidae								
226 <i>Cervonema brevicauda</i>	0	0	0	0	0	0	0	215
196 <i>Cervonema goubaulti</i>	295	0	0	0	0	0	0	0
204 <i>Cervonema jenseni</i>	0	0	0	0	0	0	0	215
164 <i>Dorylaimopsis punctata</i>	886	294	475	2208	808	1380	317	215
194 <i>Laimella longicaudata</i>	0	0	0	0	0	276	317	859
54 <i>Sabatieria celtica</i>	295	881	416	1104	135	2484	1267	1934
191 <i>Sabatieria ornata</i>	0	0	0	0	0	0	317	0
8 <i>Sabatieria punctata</i>	0	1028	59	1840	202	276	1267	430
Family Diplopeltidae								
189 <i>Campylaimus</i> sp. (? <i>C. gerlachi</i> )	295	0	178	368	135	0	475	0
200 <i>Campylaimus</i> sp.	0	0	0	0	0	0	0	0
246 <i>Campylaimus</i> sp.	0	0	0	0	67	0	0	0
197 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0	0	0	0	0
213 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0	0	0	158	0
219 <i>Southerniella</i> sp.	0	0	0	0	67	0	158	0

**Table B1v.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment.

Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	75A	76A	77A	78A	79A	80A	84A	86A
Family Aegialoalaimidae								
82 <i>Cyartonema elegans</i>	0	0	0	0	0	0	0	0
177 <i>Cyartonema germanicum</i>	295	0	59	368	135	0	158	0
Family Ceramonematidae								
190 <i>Metadasynemella</i> sp. (? <i>M. cassidien</i> )	0	0	0	0	0	0	0	0
202 <i>Metadasynemella</i> sp. 1	0	0	0	368	0	0	0	0
208 <i>Metadasynemella</i> sp. 2	0	0	59	0	0	0	158	0
221 <i>Pselionema</i> sp.	0	0	0	0	0	0	317	0
Family Haliplectidae								
173 <i>Haliplectus</i> sp.	295	0	59	0	0	0	158	0
Family Leptolaimidae								
64 <i>Camacolaimus tardus</i>	0	0	0	0	0	0	0	0
6 <i>Leptolaimus elegans</i>	591	734	356	1840	202	276	158	0
179 <i>Leptolaimus</i> sp. (? <i>L. ampullaceus</i> )	886	294	356	368	404	0	1584	215
184 <i>Leptolaimus</i> sp. (? <i>L. papilliger</i> )	0	0	59	3680	135	276	950	0
262 <i>Leptolaimus</i> sp.	0	0	0	0	0	0	0	0
<b>Total Species</b>	25	19	32	28	30	22	33	21
<b>Total Density</b>	29824	15859	5993	36800	6798	27600	15993	21488
<b>1B/2A</b>	7.3	3.2	2.3	3.0	4.0	4.7	3.9	3.7
<b>Diversity</b>	4.6	5.9	16.0	7.4	12.2	3.2	10.9	2.6
<b>Dominance</b>	44.6	37.0	13.9	32.0	19.8	54.0	23.8	61.0
<b>Co-dominance</b>	51.5	45.4	24.8	42.0	31.7	63.0	33.7	70.0

**Table B1vi.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Community statistics for each sample are also presented, see text for details. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	88A	107A	108A	109A
Family Anticomidae				
181 Anticomid sp.	0	0	0	0
Family Phanodermatidae				
261 <i>Crenopharynx marioni</i>	0	0	0	0
Family Thoracostomopsidae				
187 <i>Paramesacanthion</i> (? <i>P. tricuspis</i> )	0	0	0	0
Family Trefusiidae				
39 <i>Rhabdocoma riemanni</i>	0	0	0	0
Family Enchelidiidae				
214 <i>Paraeurystomina scilloniensis</i>	0	0	0	0
201 Enchelidiid sp. (? <i>Calyptronema</i> )	0	0	0	0
Family Oncholaimidae				
118 <i>Viscosia elegans</i>	0	87	0	0
193 <i>Viscosia glabra</i>	0	0	0	0
Family Oxystominidae				
5 <i>Halalaimus gracilis</i>	0	0	0	0
211 <i>Halalaimus isaitshikovi</i>	0	0	0	0
205 <i>Halalaimus longicaudatus</i>	0	43	210	0
206 <i>Halalaimus</i> sp.	0	0	0	0
100 <i>Oxystomina asetosa</i>	0	0	0	0
10 <i>Thalassoalaimus tardus</i>	0	0	0	0
220 <i>Wieseria pica</i>	0	0	0	0
260 Oxystominid sp.	0	0	0	0
Family Tripyloididae				
52 <i>Tripyloides marinus</i>	0	0	210	0
Family Rhabdodemaniidae				
145 <i>Rhabdodemia major</i>	131	130	629	156
Family Chromadoridae				
263 <i>Actinonema</i> sp.	44	0	0	0
3 <i>Chromadora macrolaima</i>	0	0	0	0
139 <i>Chromadora nudicapitata</i>	0	0	0	0
227 <i>Chromadorina</i> sp.	0	130	210	208
109 <i>Prochromadorella ditlevseni</i>	0	0	0	0
83 <i>Spilophorella paradoxa</i>	44	43	0	0
249 Chromadorid sp 1	0	0	0	0
186 Chromadorid sp. 2	0	0	0	0
Family Cyatholaimidae				
183 <i>Marylinnia complexa</i>	0	130	629	0
210 <i>Pomponema multipapillatum</i>	0	0	0	0
Family Ethmolaimidae				
134 <i>Comesa cuanensis</i>	0	174	839	0
171 <i>Comesa votadinii</i>	0	0	0	52
50 <i>Comesa warwicki</i>	218	694	2727	0
259 Ethmolaimid sp.	0	0	1888	520
Family Selachinematidae				
101 <i>Halichoanolaimus robustidens</i>	0	0	0	52
Family Desmodoridae				
248 <i>Molgolaimus</i> sp.	0	0	0	0
Family Microlaimidae				
218 Microlaimid sp.	0	0	0	0
Family Desmoscolecidae				
163 <i>Desmoscolex falcatus</i>	0	43	0	104
198 <i>Quadricoma scanica</i>	0	0	0	0

**Table B1vii.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Analyses undertaken by Physalia Ltd on behalf of CEFAS.



Nematode sp./Taxa		88A	107A	108A	109A
Family Monhysteridae					
4	<i>Thalassomonhystera venusta</i>	0	43	0	104
46	Monhysterid sp. (? <i>Diplolaimella</i> )	0	0	0	0
Family Sphaerolaimidae					
188	<i>Parashaerolaimus paradoxus</i>	44	0	0	104
207	<i>Sphaerolaimus balticus</i>	0	0	0	0
28	<i>Sphaerolaimus gracilis</i>	0	0	0	52
199	<i>Sphaerolaimus</i> sp. (? <i>S. macrocirculu</i> )	0	0	0	0
Family Xyalidae					
212	<i>Ammotheristus</i> sp.	0	0	0	0
2	<i>Daptonema normandicum</i>	0	0	0	0
27	<i>Daptonema oxycerca</i>	0	174	210	0
203	<i>Daptonema</i> sp.	0	0	0	0
224	<i>Daptonema</i> sp.	0	0	0	0
222	<i>Gnomoxyla</i> sp.	0	0	0	0
169	Xyalid sp.	0	0	0	104
175	Xyalid sp.	44	0	0	0
178	Xyalid sp.	0	347	1678	416
192	Xyalid sp.	44	0	0	0
209	Xyalid sp.	0	0	0	0
Family Linhomoeidae					
172	<i>Desmolaimus</i> sp.	0	0	0	0
81	<i>Eleutherolaimus stenosoma</i>	0	43	0	52
147	<i>Metalinhomoeus filiformis</i>	0	0	0	52
11	<i>Metalinhomoeus longiseta</i>	0	87	0	52
63	<i>Terschellingia longicaudata</i>	0	43	0	0
176	<i>Terschellingia</i> sp.	0	0	0	0
215	<i>Terschellingia</i> sp.	0	43	0	0
180	Linhomoeid sp.	0	0	0	0
182	Linhomoeid sp.	0	0	0	0
195	Linhomoeid sp.	0	43	0	0
216	Linhomoeid sp.	0	0	0	0
Family Siphonolaimidae					
168	<i>Astomonema southwardarum</i>	3050	217	839	364
Family Axonolaimidae					
1	<i>Ascolaimus elongatus</i>	0	0	0	0
122	<i>Odontophora longisetosa</i>	44	0	0	0
Family Comesomatidae					
226	<i>Cervonema brevicauda</i>	44	0	0	0
196	<i>Cervonema goubaulti</i>	0	0	0	0
204	<i>Cervonema jenseni</i>	0	0	0	0
164	<i>Dorylaimopsis punctata</i>	87	477	3985	884
194	<i>Laimella longicaudata</i>	131	217	0	0
54	<i>Sabatieria celtica</i>	0	43	629	52
191	<i>Sabatieria ornata</i>	131	304	420	156
8	<i>Sabatieria punctata</i>	0	174	420	520
Family Diplopeltidae					
189	<i>Campylaimus</i> sp. (? <i>C. gerlachi</i> )	44	87	839	156
200	<i>Campylaimus</i> sp.	0	0	0	0
246	<i>Campylaimus</i> sp.	44	0	0	0
197	<i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0
213	<i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0
219	<i>Southerniella</i> sp.	0	0	0	52

**Table B1viii.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	88A	107A	108A	109A
Family Aegialoalaimidae				
82 <i>Cyartonema elegans</i>	0	0	0	0
177 <i>Cyartonema germanicum</i>	44	43	1678	0
Family Ceramonematidae				
190 <i>Metadasynemella</i> sp. (? <i>M. cassidien</i> )	0	0	0	0
202 <i>Metadasynemella</i> sp. 1	0	43	0	0
208 <i>Metadasynemella</i> sp. 2	0	0	0	0
221 <i>Pselionema</i> sp.	0	0	0	0
Family Haliplectidae				
173 <i>Haliplectus</i> sp.	44	0	0	52
Family Leptolaimidae				
64 <i>Camacolaimus tardus</i>	0	0	0	0
6 <i>Leptolaimus elegans</i>	131	87	1678	416
179 <i>Leptolaimus</i> sp. (? <i>L. ampullaceus</i> )	0	130	839	312
184 <i>Leptolaimus</i> sp. (? <i>L. papilliger</i> )	44	304	420	156
262 <i>Leptolaimus</i> sp.	0	0	0	52
<b>Total Species</b>	19	29	20	26
<b>Total Density</b>	4407	4423	20977	5200
<b>1B/2A</b>	1.1	1.2	0.5	1.8
<b>Diversity</b>	2.1	14.8	11.0	12.8
<b>Dominance</b>	69.2	15.7	19.0	17.0
<b>Co-dominance</b>	74.2	26.5	32.0	27.0

**Table B1ix.** The nematode taxa that were recorded from the sediment samples collected from the Scanner Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Community statistics for each sample are also presented, see text for details. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode Species/Taxa	27A	32A	35A	38A	40A	41A	44A	45A
Family Thoracostomopsidae								
187 <i>Paramesacanthion marei</i>	321	300	0	0	0	0	0	396
254 <i>Paramesacanthion</i> sp.	0	0	0	0	0	0	224	0
Family Trefusiidae								
39 <i>Rhabdocoma riemanni</i>	0	898	0	0	0	0	0	1188
Family Enchelidiidae								
214 <i>Paraeurystomina scilloniensis</i>	0	300	0	0	0	0	0	0
201 Enchelidiid sp. (? Calyptonema)	0	0	0	0	274	0	0	0
233 Enchelidiid sp. (? Calyptonema)	0	300	0	0	0	0	0	0
Family Oncholaimidae								
89 <i>Oncholaimus campylocercoides</i>	0	0	0	0	0	0	0	198
257 <i>Viscosia abyssorum</i>	0	0	0	0	0	0	0	396
118 <i>Viscosia elegans</i>	642	0	0	0	0	0	224	396
234 <i>Viscosia langrunensis</i>	0	300	0	0	0	0	0	0
Family Oxystominidae								
5 <i>Halalaimus gracilis</i>	642	0	0	0	0	0	0	198
211 <i>Halalaimus isaitshikovi</i>	0	1797	355	387	274	238	224	198
205 <i>Halalaimus longicaudatus</i>	0	0	0	0	0	0	224	198
206 <i>Halalaimus</i> sp.	0	0	0	0	0	0	224	0
100 <i>Oxystomina asetosa</i>	321	0	0	0	0	0	0	0
104 <i>Oxystomina elongata</i>	0	0	355	0	0	238	0	0
Family Pandolaimidae								
251 <i>Pandolaimus</i> sp.	0	0	0	0	0	0	224	0
Family Rhabdodemaniidae								
145 <i>Rhabdodemia major</i>	0	2696	710	775	274	1426	1571	792
Family Chromadoridae								
223 <i>Actinonema pachydermatum</i>	642	300	0	0	274	238	0	396
263 <i>Actinonema</i> sp.	0	0	355	0	0	0	0	0
232 <i>Dichromadora cucullata</i>	0	599	355	581	0	0	0	0
238 <i>Prochromadorella attenuata</i>	0	599	0	775	0	238	449	0
109 <i>Prochromadorella ditlevseni</i>	0	300	355	0	0	0	0	0
83 <i>Spilophorella paradoxa</i>	642	0	355	0	0	713	0	198
249 Chromadorid sp. 1	0	0	0	0	274	0	0	0
186 Chromadorid sp. 2	321	0	355	194	1098	0	0	198
Family Cyatholaimidae								
165 <i>Paracanthonchus longicaudatus</i>	0	300	0	0	0	0	224	198
230 <i>Paracanthonchus longus</i>	642	0	0	0	0	0	0	0
129 <i>Paracyatholaimoides multispiralis</i>	321	0	0	0	0	0	224	0
247 <i>Paracyatholaimus occultus</i>	0	0	0	0	274	0	0	0
237 <i>Paralongicyatholaimus minutus</i>	0	300	0	0	274	0	0	0
210 <i>Pomponema multipapillatum</i>	642	0	0	0	549	0	0	0
Family Ethmolaimidae								
134 <i>Comesa cuanensis</i>	1604	0	0	0	0	0	0	0
241 <i>Comesa vitia</i>	0	0	1776	0	823	238	449	0
171 <i>Comesa votadinii</i>	321	0	0	775	0	0	224	0
50 <i>Comesa warwicki</i>	1283	0	0	0	0	0	0	0
259 Ethmolaimid sp.	0	0	3196	581	1098	475	0	0
Family Neotonchidae								
229 <i>Neotonchus</i> sp.	642	0	0	194	0	0	0	0
Family Selachinematidae								
225 <i>Halichoanolaimus dolichurus</i>	0	0	355	194	0	0	0	396
101 <i>Halichoanolaimus robustidens</i>	321	0	0	0	274	238	673	0
242 <i>Halichoanolaimus</i> sp.	0	0	0	194	823	238	898	0

**Table B2i.** The nematode taxa that were recorded from the sediment samples collected from the Braemar Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	27A	32A	35A	38A	40A	41A	44A	45A
24 <i>Richtersia inaequalis</i>	0	0	0	194	0	0	0	0
76 <i>Synonchiella riemanni</i>	0	0	355	0	274	238	0	0
Family Desmodoridae								
110 <i>Leptonemella</i> sp. (? <i>L. aphanothecae</i> )	0	0	0	0	0	0	0	396
Family Microlaimidae								
245 <i>Bolbolaimus teutonicus</i>	0	0	355	194	0	0	0	0
43 <i>Calomicrolaimus parahonestus</i>	321	300	0	0	0	0	0	0
113 <i>Microlaimus conothelis</i>	321	599	0	194	823	238	1122	198
Family Desmoscolecidae								
163 <i>Desmoscolex falcatus</i>	0	599	0	387	274	0	673	0
198 <i>Quadricoma scanica</i>	0	0	0	0	274	713	898	0
Family Monhysteridae								
4 <i>Thalassomonhysteravenusta</i>	1925	4492	4617	581	1922	950	3142	198
46 Monhysterid sp. (? <i>Diplolaimella</i> )	642	300	355	0	0	0	0	0
Family Sphaerolaimidae								
188 <i>Parashaerolaimus paradoxus</i>	0	0	0	0	0	238	0	0
207 <i>Sphaerolaimus balticus</i>	0	599	0	581	823	475	224	198
28 <i>Sphaerolaimus gracilis</i>	0	0	0	0	0	0	0	0
199 <i>Sphaerolaimus</i> sp. (? <i>S. macrocirculu</i> )	0	0	0	387	0	0	0	198
Family Xyalidae								
95 <i>Cobbia trefusiaeformis</i>	0	0	0	0	0	238	0	0
236 <i>Coninckia macrospirifera</i>	0	300	0	0	0	0	0	0
203 <i>Daptonema</i> sp.	0	300	0	387	0	950	0	0
224 <i>Daptonema</i> sp.	0	0	355	194	0	0	224	0
235 <i>Daptonema</i> sp.	0	599	0	0	0	238	224	0
222 <i>Gnomoxyla</i> sp.	321	0	0	968	274	475	224	0
42 <i>Paramonhystera riemanni</i>	0	0	0	0	0	0	0	198
169 Xyalid sp.	642	599	1420	194	0	0	0	198
175 Xyalid sp.	321	599	0	0	0	0	0	0
178 Xyalid sp.	1283	300	355	0	1098	0	224	0
192 Xyalid sp.	0	599	710	194	1098	475	224	594
209 Xyalid sp.	0	0	0	0	0	238	0	198
231 Xyalid sp.	321	898	0	0	0	0	0	0
255 Xyalid sp.	0	0	0	0	0	0	0	594
Family Linhomoeidae								
59 <i>Desmolaimus zeelandicus</i>	0	0	355	0	0	0	0	0
258 <i>Desmolaimus</i> sp.	0	0	0	0	0	0	0	198
81 <i>Eleutherolaimus stenosoma</i>	0	300	0	0	0	238	0	0
147 <i>Metalinhomoeus filiformis</i>	0	0	0	0	1098	0	224	0
11 <i>Metalinhomoeus longiseta</i>	642	300	355	194	549	0	224	198
63 <i>Terschellingia longicaudata</i>	642	0	355	194	274	238	0	198
215 <i>Terschellingia</i> sp.	962	0	710	387	0	0	0	0
195 Linhomoeid sp.	0	0	355	0	0	0	224	0
244 Linhomoeid sp.	0	0	0	194	823	950	0	594
Family Axonolaimidae								
56 <i>Axonolaimus spinosa</i>	0	300	0	0	0	0	0	0
122 <i>Odontophora longisetosa</i>	642	1498	1776	581	274	713	449	396
Family Comesomatidae								
196 <i>Cervonema goubaulti</i>	0	0	0	0	0	238	0	0
204 <i>Cervonema jenseni</i>	321	300	0	1162	549	0	673	396
164 <i>Dorylaimopsis punctata</i>	962	300	1420	194	274	2138	898	1584
194 <i>Laimella longicaudata</i>	321	0	0	194	0	238	224	198
54 <i>Sabatieria celtica</i>	4170	2096	3196	194	1372	0	449	594

**Table B2ii.** The nematode taxa that were recorded from the sediment samples collected from the Braemar Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Nematode sp./Taxa	27A	32A	35A	38A	40A	41A	44A	45A
191 <i>Sabatieria ornata</i>	321	898	0	387	0	950	224	792
8 <i>Sabatieria punctata</i>	321	300	0	194	274	2138	449	396
239 Comesomatid (? <i>Laimella</i> )	0	300	0	387	0	0	0	0
Family Diplopeltidae								
189 <i>Campylaimus</i> sp. (? <i>C. gerlachi</i> )	0	599	1420	0	549	713	449	198
200 <i>Campylaimus</i> sp.	0	0	0	0	0	0	0	0
246 <i>Campylaimus</i> sp.	0	300	355	0	274	238	449	0
197 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0	0	238	0	0
213 <i>Diplopeltula</i> sp. (? <i>D. incisa</i> )	0	0	0	0	0	0	0	396
253 <i>Diplopeltula</i> sp.	0	0	0	0	0	0	449	0
219 <i>Southerniella</i> sp.	321	0	0	0	0	0	0	0
Family Aegialoalaimidae								
71 <i>Aegialoalaimus elegans</i>	0	0	0	0	274	0	0	396
252 <i>Southernia</i> sp. (? <i>S. zosterae</i> )	0	0	0	0	0	0	449	0
Family Ceramonematidae								
202 <i>Metadasynemella</i> sp. 1	0	0	0	0	0	0	0	198
221 <i>Pselionema</i> sp.	0	0	355	0	0	0	0	198
Family Haliplectidae								
173 <i>Haliplectus</i> sp.	962	599	2131	1162	549	475	1122	792
Family Leptolaimidae								
93 <i>Antimicron elegans</i>	0	0	355	0	0	0	224	198
138 <i>Camacolaimus longicauda</i>	321	300	0	0	0	0	0	0
64 <i>Camacolaimus tardus</i>	0	0	0	194	0	475	224	0
243 <i>Leptolaimoides</i> sp.	0	0	0	194	0	0	0	0
6 <i>Leptolaimus elegans</i>	5133	898	2841	3099	3568	2851	898	1980
179 <i>Leptolaimus</i> sp. (? <i>L. ampullaceus</i> )	642	599	2841	968	2196	475	449	1584
184 <i>Leptolaimus</i> sp. (? <i>L. papilliger</i> )	0	0	0	581	1098	713	449	0
262 <i>Leptolaimus</i> sp.	321	0	0	0	0	0	0	0
<b>Total species/taxa</b>	40	43	34	40	38	39	44	44
<b>Total Density</b>	32408	29959	35864	19565	27438	23765	22435	19800
<b>1B/2A</b>	1.1	2.5	1.0	1.1	1.2	2.7	1.3	4.0
<b>Diversity</b>	16.6	19.2	16.3	19.4	20.6	20.1	22.1	24.2
<b>Dominance</b>	15.8	15.0	12.9	15.8	13.0	12.0	14.0	10.0
<b>Co-dominance</b>	28.7	24.0	21.8	21.8	21.0	21.0	21.0	18.0

**Table B2iii.** The nematode taxa that were recorded from the sediment samples collected from the Braemar Pockmark sites, 2013. Nematode densities presented as numbers per litre sediment. Community statistics for each sample are also presented, see text for details. Analyses undertaken by Physalia Ltd on behalf of CEFAS.

Assessment & ranking of ecologically significant contaminants (ARESC) - Bio-sentinel system monitoring - Biodiversity database development - Cohort analyses - Community geometric mean studies - Contaminated land assessment & monitoring - Ecological risk assessment - Ecotoxicological studies - Effluent component monitoring - Ecological impact predictions for proposed developments - Ecological mitigation studies - Ecological/physico-chemical trend analyses - Fouling & biocide monitoring - Forensic studies - Growth performance stress assessment - Impact assessment & analyses - Incident monitoring & analyses - Indicator species analyses (ISA) - Local indicator of spatial association (LISA) Analyses - Mantel matrix analysis studies - Meiofaunal analyses for the establishment of prevailing environmental conditions - Meiofaunal colonisation unit (MCU) surveys - Monte Carlo permutation test studies - Multivariate data analyses for biological & non-biological data sets - Multivariate Groundwaters Tracking Analyses (MVGTA) - Parasitological Assessments - Parallax corrected spatial determinations - Performance & monitoring index derivation - Photomicroscopy & Photomacrography - Remediation measure performance testing & monitoring - Sediment contaminant assessment plot (SCAP) analyses - Scientific & technical photography - Spatial autocorrelation analyses - Spatial & temporal trend analyses - Spectral analyses of algal/floral assemblages for stress

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- Growth performance stress assessment - Impact assessment & analyses - Incident monitoring & analyses - Indicator species analyses (ISA) - Local indicator of spatial association (LISA) Analyses - Mantel matrix analysis studies - Meiofaunal analyses for the establishment of prevailing environmental conditions - Meiofaunal colonisation unit (MCU) surveys - Monte Carlo permutation test studies - Multivariate data analyses for biological & non-biological data sets - Multivariate Groundwaters Tracking Analyses (MVGTA) - Parasitological Assessments - Parallax corrected spatial determinations - Performance & monitoring index derivation - Photomicroscopy & Photomacrography - Remediation measure performance testing & monitoring - Sediment contaminant assessment plot (SCAP) analyses - Scientific & technical photography - Spatial autocorrelation analyses - Spatial & temporal trend analyses - Spectral analyses of algal/floral assemblages for stress detection & community assessments - Stress & contaminant hotspot analyses - Terrestrial meiofauna analyses (TMA) - Taxonomic distinctness & taxonomic diversity indices analyses - Taxonomic studies - Assessment & ranking of ecologically significant contaminants (ARESC)

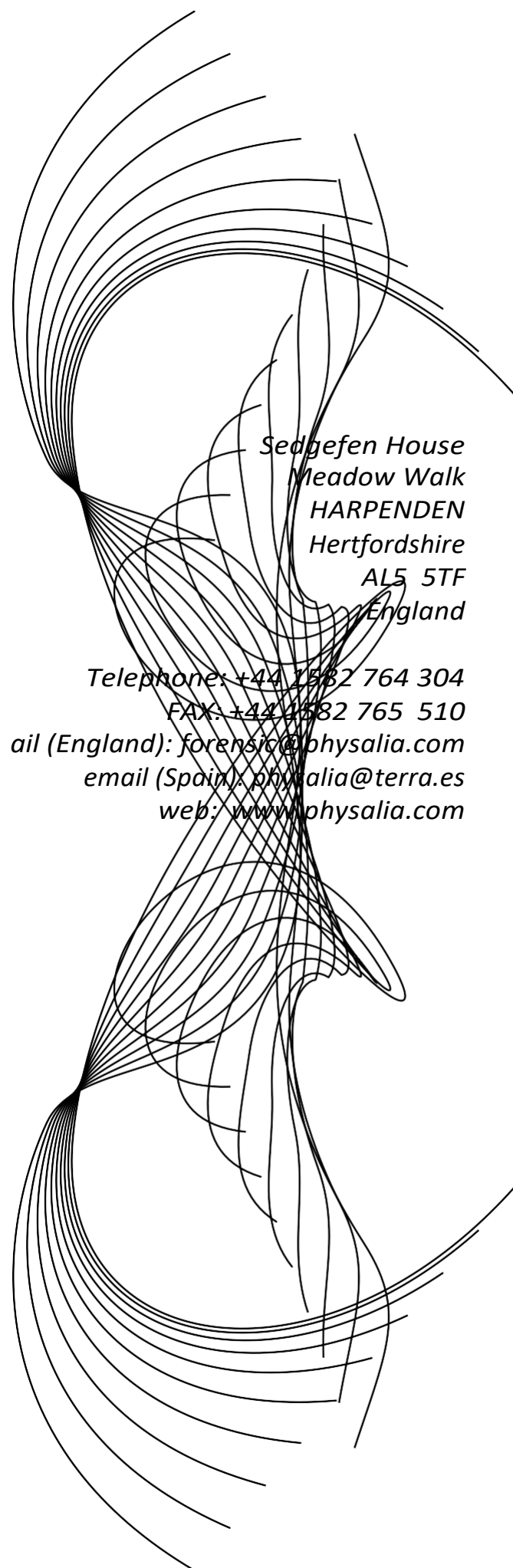
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