Supplementary Material

A multi criteria assessment method for identifying Vulnerable Marine Ecosystems in the North-East Atlantic

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# Supplementary Figures and Tables

**Supplementary Table 1** – Examples of representative taxa for different VME indicators as reported in the ICES VME database and following ICES (2016) revised list of deep-water VMEs and their representative taxa in NEAFC waters.

| **VME Indicator group** |  |
| --- | --- |
| **Representative taxa** | **n** |
| **Anemones** | **1341** |
| Ceriantharia | 353 |
| Cerianthidae | 944 |
| Cerianthus lloydii | 2 |
| Hexacorallia | 34 |
| Pachycerianthus multiplicatus | 8 |
| **Black coral** | **1360** |
| Antipatharia | 376 |
| Antipathella subpinnata | 1 |
| Antipathes | 1 |
| Antipathes dichotoma | 2 |
| Antipathes erinaceus | 1 |
| Antipathes virgata | 4 |
| Antipathidae | 97 |
| Bathypathes | 3 |
| Bathypathes patula | 1 |
| Chrysopathes | 1 |
| Leiopathes | 180 |
| Parantipathes | 124 |
| Parantipathes hirondelle | 8 |
| Stauropathes | 18 |
| Stauropathes arctica | 57 |
| Stauropathes punctata | 1 |
| Stichopathes | 2 |
| Stichopathes dissimilis | 1 |
| Stichopathes flagellum | 1 |
| Stichopathes gravieri | 439 |
| Stichopathes richardi | 1 |
| Tanacetipathes squamosa | 4 |
| Trissopathes | 35 |
| Tylopathes | 2 |
| **Chemosynthetic species (seeps and vents)** | **1** |
| Thyasira scotiae | 1 |
| **Cup coral** | **496** |
| Caryophyllia | 103 |
| Caryophyllia (Caryophyllia) smithii | 112 |
| Caryophylliidae | 38 |
| Desmophyllum | 5 |
| Desmophyllum dianthus | 20 |
| Flabellidae | 29 |
| Flabellum (Ulocyathus) alabastrum | 60 |
| Leptopsammia britannica | 1 |
| Scleractinia | 94 |
| Stephanocyathus | 1 |
| Stephanocyathus (Odontocyathus) nobilis | 10 |
| Stephanocyathus (Stephanocyathus) moseleyanus | 7 |
| Vaughanella | 16 |
| **Gorgonian** | **2005** |
| Acanella | 110 |
| Acanella arbuscula | 99 |
| Acanella eburnea | 10 |
| Acanthogorgia | 20 |
| Acanthogorgia armata | 21 |
| Acanthogorgia granulata | 5 |
| Acanthogorgia hirsuta | 4 |
| Acanthogorgia truncata | 5 |
| Bebryce mollis | 15 |
| Callogorgia | 2 |
| Callogorgia verticillata | 58 |
| Calyptrophora | 3 |
| Calyptrophora japonica | 1 |
| Calyptrophora josephinae | 13 |
| Candidella imbricata | 12 |
| Chelidonisis aurantiaca | 3 |
| Chrysogorgia | 1 |
| Chrysogorgia agassizii | 13 |
| Chrysogorgia elegans | 1 |
| Chrysogorgia flexilis | 1 |
| Chrysogorgia quadruplex | 9 |
| Chrysogorgia squamata | 1 |
| Corallium johnsoni | 1 |
| Corallium niobe | 1 |
| Dentomuricea | 2 |
| Desmophyllum dianthus | 1 |
| Ellisella flagellum | 27 |
| Eunicella dubia | 6 |
| Eunicella modesta | 2 |
| Eunicella verrucosa | 1 |
| Euplexaura pinnata | 1 |
| Gorgonacea | 702 |
| Gorgonella | 5 |
| Hicksonella | 1 |
| Hicksonella expansa | 1 |
| Iciligorgia schrammi | 12 |
| Isididae | 5 |
| Keratoisis | 113 |
| Keratoisis grandis | 1 |
| Keratoisis palmae | 3 |
| Lepidisis | 13 |
| Metallogorgia melanotrichos | 5 |
| Muriceides chamaeleon | 3 |
| Muriceides furcata | 2 |
| Muriceides kükenthali | 4 |
| Muriceides lepida | 3 |
| Muriceides paucituberculata | 15 |
| Narella | 25 |
| Narella bellissima | 17 |
| Narella laxa | 1 |
| Narella regularis | 2 |
| Narella versluysi | 348 |
| Nicella | 5 |
| Nicella granifera | 12 |
| Paracalyptrophora josephinae | 9 |
| Paragorgia | 5 |
| paragorgia arborea | 27 |
| Paragorgia johnsoni | 1 |
| Paragorgiidae | 4 |
| Paramuricea | 17 |
| Paramuricea biscaya | 21 |
| Paramuricea candida | 1 |
| Paramuricea placomus | 2 |
| Placogorgia | 5 |
| Placogorgia coronata | 7 |
| Placogorgia graciosa | 36 |
| Placogorgia intermedia | 2 |
| Placogorgia massiliensis | 1 |
| Placogorgia terceira | 7 |
| Plexauridae | 10 |
| Primnoa | 2 |
| Primnoa resedaeformis | 8 |
| Radicipes | 10 |
| Radicipes challengeri | 8 |
| Radicipes fragilis | 1 |
| Radicipes gracilis | 17 |
| Swiftia | 2 |
| Swiftia borealis | 1 |
| Swiftia dubia | 3 |
| Swiftia miniata | 4 |
| Swiftia pallida | 18 |
| Thouarella | 8 |
| Thouarella (Thouarella) variabilis | 2 |
| Titanideum obscurum | 2 |
| Villogorgia bebrycoides | 5 |
| Viminella flagellum | 12 |
| **Sea-pen** | **2259** |
| Anthoptilum | 315 |
| Anthoptilum grandiflorum | 29 |
| Anthoptilum murrayi | 10 |
| Distichoptilum gracile | 1 |
| Funiculina | 3 |
| Funiculina quadrangularis | 240 |
| Halipteris | 93 |
| Halipteris finmarchica | 24 |
| Kophobelemnon | 394 |
| Kophobelemnon macrospinosum | 7 |
| Kophobelemnon stelliferum | 28 |
| Pennatula | 113 |
| Pennatula aculeata | 56 |
| Pennatula grandis | 37 |
| Pennatula phosphorea | 24 |
| Pennatulacea | 665 |
| Phakellia ventilabrum | 1 |
| Porifera | 1 |
| Protoptilum | 13 |
| Protoptilum carpenteri | 2 |
| Protoptilum thomsoni | 12 |
| Scleroptilum | 1 |
| Scleroptilum grandiflorum | 7 |
| Stylatula elegans | 2 |
| Umbellula | 24 |
| Umbellula durissima | 3 |
| Umbellula encrinus | 8 |
| Umbellula huxleyi | 85 |
| Umbellula lindahli | 24 |
| Umbellula monocephalus | 7 |
| Umbellula pallida | 4 |
| Umbellula thomsoni | 8 |
| Virgularia | 3 |
| Virgularia gracilis | 1 |
| Virgularia mirabilis | 14 |
| **Soft coral** | **718** |
| Alcyonacea | 301 |
| Alcyoniina | 1 |
| Alcyonium | 2 |
| Alcyonium haddoni | 1 |
| Anthomastus | 64 |
| Anthothela | 3 |
| Anthothela grandiflora | 7 |
| Bellonella bocagei | 1 |
| Capnella | 32 |
| Clavularia arctica | 1 |
| Clavularia armata | 1 |
| Clavularia elongata | 1 |
| Clavularia marioni | 1 |
| Duva | 4 |
| Duva florida | 212 |
| Eunephthya | 20 |
| Gersemia | 10 |
| Incrustatus comauensis | 3 |
| Nephtheidae | 50 |
| Sarcodictyon roseum | 1 |
| Schizophytum echinatum | 1 |
| Telesto rigida | 1 |
| **Sponge** | **3311** |
| **Generic sponge** | **3013** |
| Antho | 2 |
| Antho (Antho) dichotoma | 33 |
| Aphrocallistes | 41 |
| Aphrocallistes beatrix | 35 |
| Aplysilla | 2 |
| Asconema | 2 |
| Axinella | 9 |
| Axinella infundibuliformis | 73 |
| Axinella polypoides | 3 |
| Axinellidae | 66 |
| Biemna variantia | 2 |
| Cladorhiza | 7 |
| Demospongiae | 4 |
| Dendroceratida | 2 |
| Euplectella | 17 |
| Forcepia (Forcepia) thielei | 8 |
| Haliclona | 36 |
| Hamacantha (Vomerula) carteri | 4 |
| Heteroscleromorpha | 9 |
| Hexactinellida | 9 |
| Hexadella | 7 |
| Histodermella | 8 |
| Homaxinella | 12 |
| Hyalonema | 12 |
| Hymedesmia | 2 |
| Iophon piceum | 17 |
| Lyssacinosida | 1 |
| Mycale (Mycale) lingua | 4 |
| Pachastrellidae | 8 |
| Phakellia | 64 |
| Phakellia robusta | 9 |
| Phakellia ventilabrum | 212 |
| Poecilosclerida | 10 |
| Porifera | 2039 |
| Quasillina brevis | 6 |
| Radiella | 6 |
| Reniera tubulosa | 1 |
| Spongionella pulchella | 2 |
| Stelletta | 3 |
| Stylocordyla | 9 |
| Stylocordyla borealis | 3 |
| Suberites | 13 |
| Suberites ficus | 7 |
| Suberites pagurorum | 190 |
| Sycon | 4 |
| **Large Sponge** | **298** |
| Chonelasma | 13 |
| Craniella | 14 |
| Craniella cranium | 14 |
| Craniella zetlandica | 3 |
| Geodia | 130 |
| Geodia atlantica | 9 |
| Geodia barrette | 8 |
| Geodia macandrewii | 4 |
| Geodia megastrella | 1 |
| Geodia phlegraei | 3 |
| Pheronema | 8 |
| Pheronema carpenter | 12 |
| Polymastia | 13 |
| Polymastia hemisphaerica | 7 |
| Stryphnus | 3 |
| Stryphnus ponderosus | 4 |
| Tentorium semisuberites | 4 |
| Tetilla | 22 |
| Thenea | 19 |
| Thenea levis | 7 |
| **Stony coral** | **3439** |
| Desmophyllum dianthus | 3 |
| Enallopsammia rostrate | 11 |
| Lophelia pertusa | 1457 |
| Madrepora oculata | 188 |
| Scleractinia | 1696 |
| Solenosmilia variabilis | 84 |
| **Stylasterids** | **26** |
| Hydrozoa | 7 |
| Pliobothrus symmetricus | 3 |
| Stylaster erubescens | 5 |
| Stylaster norvegicus | 2 |
| Stylasteridae | 9 |

**References**

ICES. (2016). Report of the Workshop on the Vulnerable Marine Systems Database (WKVME), 10–11 December 2015, Peterborough, UK. ICES CM 2015/ACOM: 62, 36 pp.