

Respiration in marine pelagic copepods: a global-bathymetric model

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Appendix 1. Copepodid stage/sex (M: male; F: female), respiration rate, body mass (dry mass [DM], N or C), experimental (= habitat) temperature, depth of occurrence and ambient oxygen concentration (full saturation = 1.00) of copepods. Source of data: 1–157, Ikeda et al. (2006) (a datum of *Euaugaptilus parabullifer* C6F from 2500 m was omitted as an outlier); 158–188, T. Ikeda (unpubl.); 189–231, Ikeda et al. (2001); 232, Ikeda et al. (2004) (S3 data); 233–253, F. Sano & T. Ikeda (unpubl.)

| Data no. | Copepod | Stage | Depth of occurrence (m) | Expt. temp. (°C) | Oxygen saturation | Respiration rate ($\mu\text{l O}_2 \text{ ind.}^{-1} \text{ h}^{-1}$) | DM (mg) | N (mg) | C (mg) |
|----------|-----------------------------------|-------|-------------------------|------------------|-------------------|---|---------|--------|--------|
| 1 | <i>Pachyptilus pacificus</i> | C6F | 750 | 3 | 0.13 | 0.463 | 2.065 | 0.129 | 0.892 |
| 2 | <i>Lucicutia bicornuta</i> | C6M | 750 | 3 | 0.13 | 0.121 | 0.625 | 0.050 | 0.253 |
| 3 | <i>Lucicutia grandis</i> | C5F | 750 | 3 | 0.13 | 0.113 | 0.429 | 0.032 | 0.188 |
| 4 | <i>Metridia asymmetrica</i> | C6F | 750 | 3 | 0.13 | 0.175 | 0.457 | 0.033 | 0.242 |
| 5 | <i>Metridia curticauda</i> | C6F | 750 | 3 | 0.13 | 0.141 | 0.484 | 0.034 | 0.270 |
| 6 | <i>Metridia okhotensis</i> | C6F | 750 | 3 | 0.13 | 0.292 | 0.713 | 0.050 | 0.429 |
| 7 | <i>Pleuromamma scutullata</i> | C6M | 750 | 3 | 0.13 | 0.316 | 0.564 | 0.067 | 0.251 |
| 8 | | C6F | 750 | 3 | 0.13 | 0.276 | 0.429 | 0.031 | 0.218 |
| 9 | <i>Pleuromamma xiphias</i> | C6F | 750 | 3 | 0.13 | 0.472 | 0.563 | 0.067 | 0.240 |
| 10 | <i>Candacia columbiae</i> | C6M | 750 | 3 | 0.13 | 0.231 | 0.435 | 0.05 | 0.179 |
| 11 | <i>Aetideopsis rostrata</i> | C5M | 750 | 3 | 0.13 | 0.397 | 0.762 | 0.08 | 0.335 |
| 12 | <i>Chiridius pacificus</i> | C6F | 750 | 3 | 0.13 | 0.420 | 0.692 | 0.08 | 0.316 |
| 13 | <i>Chirundina streetsi</i> | C6F | 750 | 3 | 0.13 | 0.787 | 1.237 | 0.158 | 0.538 |
| 14 | <i>Euchirella brevis</i> | C6F | 750 | 3 | 0.13 | 0.510 | 0.952 | 0.084 | 0.506 |
| 15 | <i>Euchirella galeata</i> | C6F | 750 | 3 | 0.13 | 1.139 | 2.459 | 0.28 | 1.126 |
| 16 | <i>Euchirella messinensis</i> | C6F | 750 | 3 | 0.13 | 1.020 | 1.917 | 0.215 | 0.863 |
| 17 | <i>Euchirella rostrata</i> | C6F | 750 | 3 | 0.13 | 0.558 | 0.930 | 0.086 | 0.455 |
| 18 | <i>Euchirella truncata</i> | C4M | 750 | 3 | 0.13 | 0.086 | 0.517 | 0.054 | 0.241 |
| 19 | <i>Gaidius brevispinus</i> | C6F | 750 | 3 | 0.13 | 0.432 | 0.914 | 0.077 | 0.439 |
| 20 | | C6F | 750 | 3 | 0.13 | 0.362 | 0.949 | 0.104 | 0.419 |
| 21 | <i>Gaidius robustus</i> | C4F | 750 | 3 | 0.13 | 0.228 | 0.381 | 0.041 | 0.180 |
| 22 | <i>Gaidius tenuispinus</i> | C5F | 750 | 3 | 0.13 | 0.770 | 1.238 | 0.117 | 0.624 |
| 23 | | C6F | 750 | 3 | 0.13 | 0.251 | 0.436 | 0.053 | 0.197 |
| 24 | <i>Gaidius variabilis</i> | C5M | 750 | 3 | 0.13 | 0.237 | 0.488 | 0.051 | 0.223 |
| 25 | | C5F | 750 | 3 | 0.13 | 0.225 | 0.323 | 0.034 | 0.130 |
| 26 | | C6F | 750 | 3 | 0.13 | 0.295 | 0.509 | 0.055 | 0.243 |
| 27 | <i>Pseudochirella pacifica</i> | C5M | 750 | 3 | 0.13 | 0.488 | 0.700 | 0.071 | 0.296 |
| 28 | <i>Pseudochirella spinifera</i> | C5M | 750 | 3 | 0.13 | 0.583 | 1.592 | 0.125 | 0.923 |
| 29 | | C5M | 750 | 3 | 0.13 | 0.632 | 1.275 | 0.109 | 0.687 |
| 30 | <i>Undeuchaeta plumosa</i> | C6F | 750 | 3 | 0.13 | 1.273 | 3.332 | 0.322 | 1.696 |
| 31 | <i>Paraeuchaeta barbata</i> | C6F | 750 | 3 | 0.13 | 0.703 | 3.862 | 0.246 | 2.394 |
| 32 | <i>Paraeuchaeta birostrata</i> | C5M | 750 | 3 | 0.13 | 0.366 | 1.351 | 0.095 | 0.762 |
| 33 | | C5F | 750 | 3 | 0.13 | 0.448 | 1.793 | 0.131 | 1.038 |
| 34 | | C6F | 750 | 3 | 0.13 | 0.796 | 4.852 | 0.363 | 2.834 |
| 35 | <i>Paraeuchaeta brevisrostris</i> | C6F | 750 | 3 | 0.13 | 1.009 | 4.969 | 0.357 | 2.877 |
| 36 | <i>Paraeuchaeta elongata</i> | C4M | 750 | 3 | 0.13 | 0.176 | 0.714 | 0.052 | 0.407 |
| 37 | | C4F | 750 | 3 | 0.13 | 0.244 | 0.939 | 0.066 | 0.550 |
| 38 | | C5M | 750 | 3 | 0.13 | 0.314 | 1.122 | 0.079 | 0.660 |
| 39 | | C5M | 750 | 3 | 0.13 | 0.261 | 1.245 | 0.096 | 0.684 |

Appendix 1 (continued)

| Data no. | Copepod | Stage | Depth of occurrence (m) | Expt. temp. (°C) | Oxygen saturation | Respiration rate ($\mu\text{l O}_2 \text{ ind.}^{-1} \text{ h}^{-1}$) | Body mass | | |
|----------|------------------------------------|-------|-------------------------|------------------|-------------------|---|-----------|--------|--------|
| | | | | | | | DM (mg) | N (mg) | C (mg) |
| 40 | | C5F | 750 | 3 | 0.13 | 0.286 | 1.192 | 0.083 | 0.653 |
| 41 | | C5F | 750 | 3 | 0.13 | 0.550 | 2.380 | 0.174 | 1.383 |
| 42 | | C6F | 750 | 3 | 0.13 | 0.846 | 5.715 | 0.384 | 3.412 |
| 43 | | C6F | 750 | 3 | 0.13 | 1.030 | 1.943 | 0.185 | 0.999 |
| 44 | <i>Paraeuchaeta modesta</i> | C6F | 750 | 3 | 0.13 | 1.080 | 3.867 | 0.287 | 2.27 |
| 45 | <i>Paraeuchaeta orientalis</i> | C6F | 750 | 3 | 0.13 | 1.617 | 8.557 | 0.529 | 4.723 |
| 46 | <i>Paraeuchaeta pseudotumidula</i> | C6M | 750 | 3 | 0.13 | 0.540 | 2.272 | 0.171 | 1.331 |
| 47 | | C6F | 750 | 3 | 0.13 | 0.796 | 2.585 | 0.173 | 1.543 |
| 48 | <i>Paraeuchaeta rubra</i> | C5M | 750 | 3 | 0.13 | 0.491 | 1.902 | 0.1316 | 1.143 |
| 49 | | C6F | 750 | 3 | 0.13 | 0.580 | 3.498 | 0.2728 | 1.959 |
| 50 | <i>Amallothrix valida</i> | C5M | 750 | 3 | 0.13 | 0.281 | 0.684 | 0.0548 | 0.384 |
| 51 | | C6F | 750 | 3 | 0.13 | 0.562 | 0.872 | 0.0942 | 0.416 |
| 52 | <i>Mixtocalanus robustus</i> | C6F | 750 | 3 | 0.13 | 0.774 | 1.008 | 0.1119 | 0.475 |
| 53 | <i>Scaphocalanus medius</i> | C6F | 750 | 3 | 0.13 | 0.411 | 1.062 | 0.0787 | 0.609 |
| 54 | <i>Spinocalanus stellatus</i> | C6F | 750 | 3 | 0.13 | 0.503 | 0.818 | 0.0592 | 0.356 |
| 55 | <i>Pachyptilus pacificus</i> | C6F | 1500 | 2 | 0.20 | 0.157 | 2.410 | 0.1824 | 1.125 |
| 56 | <i>Lucicutia bicornuta</i> | C6F | 1500 | 2 | 0.20 | 0.247 | 1.017 | 0.0755 | 0.537 |
| 57 | <i>Lucicutia grandis</i> | C6M | 1500 | 2 | 0.20 | 0.408 | 2.192 | 0.1903 | 1.19 |
| 58 | <i>Lucicutia pacifica</i> | C6F | 1500 | 2 | 0.20 | 0.268 | 1.810 | 0.1314 | 0.853 |
| 59 | | C6F | 1500 | 2 | 0.20 | 0.451 | 1.634 | 0.1186 | 0.77 |
| 60 | <i>Metridia asymmetrica</i> | C6F | 1500 | 2 | 0.20 | 0.046 | 0.360 | 0.0271 | 0.188 |
| 61 | | C6F | 1500 | 2 | 0.20 | 0.077 | 0.344 | 0.0249 | 0.162 |
| 62 | <i>Metridia curticauda</i> | C6F | 1500 | 2 | 0.20 | 0.066 | 0.990 | 0.0729 | 0.471 |
| 63 | <i>Metridia ornata</i> | C6F | 1500 | 2 | 0.20 | 0.241 | 2.900 | 0.2320 | 1.465 |
| 64 | <i>Aetideopsis rostrata</i> | C5M | 1500 | 2 | 0.20 | 0.420 | 1.840 | 0.1060 | 0.96 |
| 65 | | C5F | 1500 | 2 | 0.20 | 0.122 | 0.707 | 0.0578 | 0.369 |
| 66 | <i>Bradyidius pacificus</i> | C5M | 1500 | 2 | 0.20 | 0.225 | 0.890 | 0.0779 | 0.451 |
| 67 | <i>Euchirella rostrata</i> | C6F | 1500 | 2 | 0.20 | 0.242 | 0.804 | 0.0900 | 0.356 |
| 68 | | C6F | 1500 | 2 | 0.20 | 0.511 | 0.820 | 0.1025 | 0.344 |
| 69 | <i>Gaidius brevispinus</i> | C6F | 1500 | 2 | 0.20 | 0.270 | 0.971 | 0.0990 | 0.425 |
| 70 | <i>Gaidius variabilis</i> | C6F | 1500 | 2 | 0.20 | 0.187 | 0.672 | 0.0672 | 0.296 |
| 71 | | C6F | 1500 | 2 | 0.20 | 0.300 | 0.935 | 0.1000 | 0.43 |
| 72 | <i>Pseudochirella pacifica</i> | C5M | 1500 | 2 | 0.20 | 0.430 | 0.554 | 0.0514 | 0.294 |
| 73 | | C5F | 1500 | 2 | 0.20 | 0.513 | 1.945 | 0.1502 | 1.05 |
| 74 | | C5F | 1500 | 2 | 0.20 | 0.600 | 1.637 | 0.1445 | 0.925 |
| 75 | <i>Pseudochirella polyspina</i> | C6F | 1500 | 2 | 0.20 | 0.850 | 2.525 | 0.2626 | 1.167 |
| 76 | | C6F | 1500 | 2 | 0.20 | 0.645 | 3.057 | 0.2910 | 1.623 |
| 77 | <i>Pseudochirella spinifera</i> | C5F | 1500 | 2 | 0.20 | 0.422 | 1.790 | 0.1475 | 0.977 |
| 78 | | C6M | 1500 | 2 | 0.20 | 0.176 | 1.200 | 0.1081 | 0.64 |
| 79 | | C6M | 1500 | 2 | 0.20 | 0.290 | 1.363 | 0.1022 | 0.837 |
| 80 | <i>Undeuchaeta major</i> | C6F | 1500 | 2 | 0.20 | 0.834 | 3.350 | 0.2710 | 1.745 |
| 81 | | C6F | 1500 | 2 | 0.20 | 0.706 | 2.477 | 0.2576 | 1.241 |
| 82 | <i>Undeuchaeta plumosa</i> | C6F | 1500 | 2 | 0.20 | 1.128 | 2.820 | 0.2752 | 1.449 |
| 83 | <i>Paraeuchaeta birostrata</i> | C5M | 1500 | 2 | 0.20 | 0.340 | 3.527 | 0.2793 | 2.155 |
| 84 | | C6M | 1500 | 2 | 0.20 | 0.600 | 2.472 | 0.1869 | 1.523 |
| 85 | | C6M | 1500 | 2 | 0.20 | 0.350 | 2.455 | 0.1846 | 1.488 |
| 86 | | C6F | 1500 | 2 | 0.20 | 0.490 | 4.217 | 0.2986 | 2.387 |
| 87 | | C6F | 1500 | 2 | 0.20 | 0.812 | 4.460 | 0.3403 | 2.649 |
| 88 | <i>Paraeuchaeta brevirostris</i> | C6F | 1500 | 2 | 0.20 | 0.668 | 4.808 | 0.3649 | 2.866 |
| 89 | <i>Paraeuchaeta elongata</i> | C5M | 1500 | 2 | 0.20 | 0.445 | 2.152 | 0.1730 | 1.259 |
| 90 | | C5F | 1500 | 2 | 0.20 | 0.740 | 2.130 | 0.1879 | 1.125 |
| 91 | <i>Paraeuchaeta pseudotumidula</i> | C6F | 1500 | 2 | 0.20 | 0.634 | 2.977 | 0.2152 | 1.712 |
| 92 | <i>Paraeuchaeta rubra</i> | C5M | 1500 | 2 | 0.20 | 0.250 | 2.098 | 0.1569 | 1.276 |
| 93 | | C5F | 1500 | 2 | 0.20 | 0.390 | 1.904 | 0.1700 | 1.144 |
| 94 | | C6M | 1500 | 2 | 0.20 | 0.238 | 1.650 | 0.1241 | 1.096 |
| 95 | | C6F | 1500 | 2 | 0.20 | 0.660 | 4.625 | 0.2930 | 2.636 |
| 96 | <i>Cornucalanus indicus</i> | C5F | 1500 | 2 | 0.20 | 0.962 | 3.550 | 0.2989 | 1.818 |
| 97 | | C6F | 1500 | 2 | 0.20 | 1.017 | 6.919 | 0.5494 | 3.812 |
| 98 | <i>Onchocalanus magnus</i> | C5F | 1500 | 2 | 0.20 | 0.983 | 6.596 | 0.4789 | 3.971 |
| 99 | | C6F | 1500 | 2 | 0.20 | 1.131 | 5.770 | 0.4206 | 2.827 |
| 100 | <i>Amallothrix inornata</i> | C6M | 1500 | 2 | 0.20 | 0.166 | 0.524 | 0.0422 | 0.291 |
| 101 | | C5M | 1500 | 2 | 0.20 | 0.363 | 0.912 | 0.0658 | 0.553 |
| 102 | | C6F | 1500 | 2 | 0.20 | 0.210 | 0.946 | 0.0759 | 0.522 |

Appendix 1 (continued)

| Data no. | Copepod | Stage | Depth of occurrence (m) | Expt. temp. (°C) | Oxygen saturation | Respiration rate ($\mu\text{l O}_2 \text{ ind.}^{-1} \text{ h}^{-1}$) | Body mass | | |
|----------|------------------------------------|-------|-------------------------|------------------|-------------------|---|-----------|--------|--------|
| | | | | | | | DM (mg) | N (mg) | C (mg) |
| 103 | <i>Amalothrix paravalida</i> | C6F | 1500 | 2 | 0.20 | 0.260 | 0.664 | 0.0473 | 0.369 |
| 104 | <i>Amalothrix valida</i> | C5F | 1500 | 2 | 0.20 | 0.287 | 1 | 0.0748 | 0.568 |
| 105 | | C6F | 1500 | 2 | 0.20 | 0.316 | 1.094 | 0.0788 | 0.66 |
| 106 | <i>Lophothrix frontalis</i> | C6F | 1500 | 2 | 0.20 | 0.922 | 3.19 | 0.3031 | 1.451 |
| 107 | | C6F | 1500 | 2 | 0.20 | 0.607 | 1.416 | 0.1284 | 0.797 |
| 108 | <i>Scaphocalanus magnus</i> | C6F | 1500 | 2 | 0.20 | 0.440 | 1.166 | 0.1159 | 0.596 |
| 109 | <i>Scaphocalanus medius</i> | C6F | 1500 | 2 | 0.20 | 0.263 | 1.115 | 0.0798 | 0.682 |
| 110 | <i>Scottocalanus securifrons</i> | C6F | 1500 | 2 | 0.20 | 0.537 | 1.452 | 0.1626 | 0.716 |
| 111 | <i>Bathycalanus bradyi</i> | C6F | 1500 | 2 | 0.20 | 4.170 | 34.49 | 2.3798 | 21.798 |
| 112 | <i>Euaugaptilus pseudaffinis</i> | C6F | 2500 | 1.5 | 0.32 | 0.202 | 1.681 | 0.1273 | 0.884 |
| 113 | <i>Pachyptilus pacificus</i> | C6F | 2500 | 1.5 | 0.32 | 0.136 | 2.724 | 0.1882 | 1.22 |
| 114 | <i>Heterostylites major</i> | C6F | 2500 | 1.5 | 0.32 | 0.162 | 0.528 | 0.0495 | 0.228 |
| 115 | <i>Lucicutia ellipsoidalis</i> | C6F | 2500 | 1.5 | 0.32 | 0.271 | 0.777 | 0.049 | 0.412 |
| 116 | <i>Lucicutia grandis</i> | C6M | 2500 | 1.5 | 0.32 | 0.157 | 1.528 | 0.0935 | 0.877 |
| 117 | | C6F | 2500 | 1.5 | 0.32 | 0.238 | 1.398 | 0.0931 | 0.717 |
| 118 | <i>Lucicutia longifurca</i> | C5 | 2500 | 1.5 | 0.32 | 0.122 | 1.189 | 0.0949 | 0.6 |
| 119 | | C6M | 2500 | 1.5 | 0.32 | 0.291 | 1.534 | 0.0923 | 0.913 |
| 120 | <i>Lucicutia pacifica</i> | C6F | 2500 | 1.5 | 0.32 | 0.271 | 1.705 | 0.1320 | 0.856 |
| 121 | <i>Metridia asymmetrica</i> | C6F | 2500 | 1.5 | 0.32 | 0.083 | 0.425 | 0.0317 | 0.23 |
| 122 | | C6F | 2500 | 1.5 | 0.32 | 0.138 | 0.453 | 0.0369 | 0.25 |
| 123 | <i>Metridia ornata</i> | C5F | 2500 | 1.5 | 0.32 | 0.400 | 1.906 | 0.1620 | 0.93 |
| 124 | | C6M | 2500 | 1.5 | 0.32 | 0.226 | 0.868 | 0.0717 | 0.422 |
| 125 | | C6M | 2500 | 1.5 | 0.32 | 0.191 | 0.818 | 0.0627 | 0.402 |
| 126 | | C6F | 2500 | 1.5 | 0.32 | 0.276 | 1.267 | 0.1022 | 0.646 |
| 127 | <i>Gaetanus paracurvicornis</i> | C6F | 2500 | 1.5 | 0.32 | 0.222 | 0.735 | 0.0694 | 0.343 |
| 128 | <i>Gaidius robustus</i> | C5M | 2500 | 1.5 | 0.32 | 0.251 | 0.708 | 0.0678 | 0.301 |
| 129 | | C5M | 2500 | 1.5 | 0.32 | 0.785 | 3.444 | 0.2094 | 2.17 |
| 130 | | C5M | 2500 | 1.5 | 0.32 | 0.346 | 1.261 | 0.1042 | 0.463 |
| 131 | | C6F | 2500 | 1.5 | 0.32 | 1.322 | 7.030 | 0.6721 | 3.494 |
| 132 | <i>Gaidius variabilis</i> | C5F | 2500 | 1.5 | 0.32 | 0.258 | 0.835 | 0.0852 | 0.416 |
| 133 | | C6F | 2500 | 1.5 | 0.32 | 0.155 | 1.316 | 0.1017 | 0.738 |
| 134 | <i>Pseudochirella pacifica</i> | C5 | 2500 | 1.5 | 0.32 | 1.495 | 4.074 | 0.3312 | 2.151 |
| 135 | | C6F | 2500 | 1.5 | 0.32 | 1 | 2.772 | 0.3105 | 1.239 |
| 136 | <i>Pseudochirella polyspina</i> | C5F | 2500 | 1.5 | 0.32 | 0.156 | 1.085 | 0.0697 | 0.589 |
| 137 | | C6F | 2500 | 1.5 | 0.32 | 0.890 | 2.688 | 0.2556 | 1.333 |
| 138 | | C6F | 2500 | 1.5 | 0.32 | 1.762 | 4.146 | 0.4519 | 2.019 |
| 139 | | C6F | 2500 | 1.5 | 0.32 | 0.922 | 2.533 | 0.2609 | 1.251 |
| 140 | <i>Pseudochirella spinifera</i> | C5M | 2500 | 1.5 | 0.32 | 0.935 | 3.639 | 0.2351 | 2.202 |
| 141 | <i>Undeuchaeta major</i> | C5F | 2500 | 1.5 | 0.32 | 0.082 | 0.445 | 0.0454 | 0.21 |
| 142 | <i>Paraeuchaeta birostrata</i> | C6M | 2500 | 1.5 | 0.32 | 0.556 | 2.155 | 0.1476 | 1.297 |
| 143 | | C6F | 2500 | 1.5 | 0.32 | 1.787 | 8.892 | 0.7745 | 4.917 |
| 144 | <i>Paraeuchaeta pseudotumidula</i> | C6F | 2500 | 1.5 | 0.32 | 0.310 | 1.157 | 0.0899 | 0.702 |
| 145 | <i>Paraeuchaeta rubra</i> | C5M | 2500 | 1.5 | 0.32 | 0.269 | 2.640 | 0.1753 | 1.632 |
| 146 | | C5F | 2500 | 1.5 | 0.32 | 0.264 | 2.125 | 0.1494 | 1.245 |
| 147 | | C6F | 2500 | 1.5 | 0.32 | 0.839 | 4.638 | 0.3386 | 2.843 |
| 148 | <i>Xanthocalanus kurilensis</i> | C6F | 2500 | 1.5 | 0.32 | 0.109 | 1.041 | 0.0937 | 0.579 |
| 149 | <i>Amalothrix inornata</i> | C6F | 2500 | 1.5 | 0.32 | 0.433 | 0.803 | 0.0835 | 0.391 |
| 150 | | C6F | 2500 | 1.5 | 0.32 | 0.369 | 1.029 | 0.107 | 0.546 |
| 151 | <i>Scaphocalanus affinis</i> | C5F | 2500 | 1.5 | 0.32 | 0.503 | 2.577 | 0.1425 | 1.649 |
| 152 | | C6F | 2500 | 1.5 | 0.32 | 0.373 | 1.524 | 0.1372 | 0.823 |
| 153 | <i>Scolecithricella sp.</i> | C6F | 2500 | 1.5 | 0.32 | 0.135 | 0.447 | 0.0384 | 0.229 |
| 154 | <i>Scottocalanus securifrons</i> | C6F | 2500 | 1.5 | 0.32 | 1.162 | 5.640 | 0.4856 | 3.141 |
| 155 | <i>Bathycalanus bradyi</i> | C6F | 2500 | 1.5 | 0.32 | 1.259 | 16.78 | 1.1947 | 9.934 |
| 156 | | C6F | 2500 | 1.5 | 0.32 | 1.052 | 10.52 | 0.9152 | 4.9865 |
| 157 | <i>Spinocalanus magnus</i> | C6F | 2500 | 1.5 | 0.32 | 0.232 | 0.868 | 0.0606 | 0.5199 |
| 158 | <i>Aetideopsis rostrata</i> | C6F | 4000 | 1.5 | 0.45 | 0.35 | 0.975 | 0.0713 | 0.4602 |
| 159 | <i>Amalothrix inornata</i> | C5M | 4000 | 1.5 | 0.45 | 0.20 | 0.471 | 0.0310 | 0.241 |
| 160 | | C6F | 4000 | 1.5 | 0.45 | 0.22 | 0.581 | 0.0390 | 0.288 |
| 161 | <i>Batheuchaeta lamellata</i> | C5M | 4000 | 1.5 | 0.45 | 0.13 | 0.647 | 0.0421 | 0.3856 |
| 162 | | C6F | 4000 | 1.5 | 0.45 | 0.31 | 1.317 | 0.1037 | 0.6873 |
| 163 | | C6M | 4000 | 1.5 | 0.45 | 0.38 | 0.765 | 0.0564 | 0.427 |
| 164 | <i>Bathycalanus bradyi</i> | C3 | 4000 | 1.5 | 0.45 | 0.76 | 1.200 | 0.1230 | 0.5563 |
| 165 | | C5 | 4000 | 1.5 | 0.45 | 2.14 | 8.686 | 0.5446 | 5.0952 |

Appendix 1 (continued)

| Data no. | Copepod | Stage | Depth of occurrence (m) | Expt. temp. (°C) | Oxygen saturation | Respiration rate ($\mu\text{l O}_2 \text{ ind.}^{-1} \text{ h}^{-1}$) | Body mass | | |
|----------|---------------------------------|-------|-------------------------|------------------|-------------------|---|-----------|--------|--------|
| | | | | | | | DM (mg) | N (mg) | C (mg) |
| 166 | <i>Benthomisophria palliata</i> | C6M | 4000 | 1.5 | 0.45 | 0.12 | 0.530 | 0.0351 | 0.1972 |
| 167 | <i>Chiridiella abyssalis</i> | C6F | 4000 | 1.5 | 0.45 | 0.17 | 0.806 | 0.0542 | 0.4267 |
| 168 | <i>Chiridiella pacifica</i> | C6F | 4000 | 1.5 | 0.45 | 0.30 | 1.198 | 0.0757 | 0.4732 |
| 169 | <i>Gaetanus paracurvicornis</i> | C6F | 4000 | 1.5 | 0.45 | 0.26 | 0.685 | 0.0572 | 0.3171 |
| 170 | <i>Gaidius pungens</i> | C6F | 4000 | 1.5 | 0.45 | 0.30 | 0.641 | 0.0458 | 0.3365 |
| 171 | <i>Gaidius robustus</i> | C6F | 4000 | 1.5 | 0.45 | 1.23 | 8.478 | 0.7393 | 4.5273 |
| 172 | <i>Metridia ornata</i> | C5M | 4000 | 1.5 | 0.45 | 0.18 | 0.330 | 0.0237 | 0.1158 |
| 173 | | C6F | 4000 | 1.5 | 0.45 | 0.32 | 1.666 | 0.1445 | 0.7233 |
| 174 | | C6M | 4000 | 1.5 | 0.45 | 0.35 | 0.936 | 0.0823 | 0.3965 |
| 175 | <i>Mixtocalanus robustus</i> | C6F | 4000 | 1.5 | 0.45 | 0.39 | 1.060 | 0.0799 | 0.572 |
| 176 | <i>Onchocalanus magnus</i> | C5F | 4000 | 1.5 | 0.45 | 0.62 | 2.014 | 0.1110 | 1.236 |
| 177 | | C6F | 4000 | 1.5 | 0.45 | 0.82 | 1.470 | 0.1391 | 0.7575 |
| 178 | <i>Paraeuchaeta rubra</i> | C4F | 4000 | 1.5 | 0.45 | 0.18 | 0.492 | 0.0329 | 0.254 |
| 179 | <i>Pseudochirella pacifica</i> | C5M | 4000 | 1.5 | 0.45 | 0.37 | 0.948 | 0.0540 | 0.561 |
| 180 | <i>Pseudochirella polypina</i> | C6F | 4000 | 1.5 | 0.45 | 0.41 | 2.230 | 0.1561 | 1.1878 |
| 181 | <i>Scaphocalanus magnus</i> | C6F | 4000 | 1.5 | 0.45 | 0.51 | 1.350 | 0.1292 | 0.6761 |
| 182 | <i>Spinocalanus magnus</i> | C6F | 4000 | 1.5 | 0.45 | 0.24 | 0.358 | 0.0290 | 0.1622 |
| 183 | <i>Undeuchaeta incisa</i> | C5M | 4000 | 1.5 | 0.45 | 0.53 | 2.843 | 0.1746 | 1.7172 |
| 184 | <i>Undeuchaeta major</i> | C6F | 4000 | 1.5 | 0.45 | 0.49 | 1.183 | 0.1355 | 0.5406 |
| 185 | <i>Undeuchaeta plumosa</i> | C5F | 4000 | 1.5 | 0.45 | 0.16 | 0.475 | 0.0418 | 0.2166 |
| 186 | | C6F | 4000 | 1.5 | 0.45 | 0.31 | 1.378 | 0.0908 | 0.7882 |
| 187 | <i>Valdiviella imperfecta</i> | C5F | 4000 | 1.5 | 0.45 | 0.25 | 0.894 | 0.0655 | 0.4946 |
| 188 | <i>Xanthocalanus kurilensis</i> | C6F | 4000 | 1.5 | 0.45 | 0.18 | 0.660 | 0.0479 | 0.3565 |
| 189 | <i>Calanus propinquus</i> | | 2 | -1 | 1.00 | 1.1789 | 1.0425 | 0.1301 | 0.455 |
| 190 | <i>Metridia gerlachei</i> | | 2 | -1.4 | 1.00 | 0.3195 | 0.2654 | 0.0304 | 0.12 |
| 191 | <i>Calanoides acutus</i> | C5 | 2 | -0.2 | 1.00 | 0.2108 | 0.3936 | 0.0335 | 0.1934 |
| 192 | <i>Calanoides acutus</i> | C4.5 | 2 | -0.6 | 1.00 | 0.1625 | 0.2660 | 0.0212 | 0.1208 |
| 193 | <i>Calanus finmarchicus</i> | C6F | 2 | 0.1 | 1.00 | 0.3279 | 0.3865 | 0.0295 | 0.2146 |
| 194 | <i>Calanus glacialis</i> | C6F | 21.2 | 1.9 | 1.00 | 0.6158 | 0.4736 | 0.0503 | 0.2227 |
| 195 | <i>Calanus hyperboreus</i> | C6F | 50 | 1.3 | 1.00 | 1.4850 | 3.9500 | 0.2825 | 2.3375 |
| 196 | <i>Calanus hyperboreus</i> | C5 | 50 | 0.9 | 1.00 | 1.0277 | 1.9430 | 0.1438 | 1.117 |
| 197 | <i>Calanus hyperboreus</i> | C5 | 50 | -0.3 | 1.00 | 1.0540 | 2.6770 | 0.1800 | 1.634 |
| 198 | <i>Metridia longa</i> | C6F | 50 | 0.1 | 1.00 | 0.4058 | 0.3530 | 0.0370 | 0.1675 |
| 199 | <i>Rhincalanus gigas</i> | | 50 | -1.7 | 1.00 | 0.4370 | 1.0800 | 0.1063 | 0.5033 |
| 200 | <i>Neocalanus cristatus</i> | C5 | 2 | 6.3 | 1.00 | 1.6700 | 1.5873 | 0.1333 | 0.7905 |
| 201 | <i>Neocalanus plumchrus</i> | C4 | 2 | 5.6 | 1.00 | 0.2800 | 0.2633 | 0.0208 | 0.148 |
| 202 | <i>Neocalanus plumchrus</i> | C5 | 2 | 7.3 | 1.00 | 0.6800 | 0.7852 | 0.0628 | 0.4523 |
| 203 | <i>Eucalanus bungii</i> | | 2 | 6 | 1.00 | 0.7950 | 1.0100 | 0.0990 | 0.404 |
| 204 | <i>Pseudocalanus elongatus</i> | | 2 | 8.6 | 1.00 | 0.0397 | 0.0116 | 0.0014 | 0.0053 |
| 205 | <i>Metridia pacifica</i> | | 2 | 8.2 | 1.00 | 0.3822 | 0.1476 | 0.0164 | 0.0654 |
| 206 | <i>Acartia longiremis</i> | | 2 | 9.6 | 1.00 | 0.0280 | 0.0081 | 0.001 | 0.0035 |
| 207 | <i>Tortanus discaudatus</i> | | 2 | 7 | 1.00 | 0.1200 | 0.0569 | 0.0064 | 0.025 |
| 208 | <i>Metridia pacifica</i> | | 2 | 13 | 1.00 | 0.2737 | 0.094 | 0.0113 | 0.0433 |
| 209 | <i>Mesocalanus tenuicornis</i> | | 2 | 15.8 | 1.00 | 0.2200 | 0.0313 | 0.0038 | 0.0123 |
| 210 | <i>Paracalanus parvus</i> | | 2 | 13.9 | 1.00 | 0.0310 | 0.0038 | 0.0005 | 0.0016 |
| 211 | <i>Centropages abdominalis</i> | | 2 | 15.9 | 1.00 | 0.0855 | 0.0167 | 0.0020 | 0.0067 |
| 212 | <i>Pseudodiaptomus marinus</i> | | 2 | 14.3 | 1.00 | 0.0563 | 0.0142 | 0.0017 | 0.0057 |
| 213 | <i>Neocalanus plumchrus</i> | | 2 | 15.1 | 1.00 | 0.5550 | 0.294 | 0.0262 | 0.1353 |
| 214 | <i>Acartia clausi</i> | | 2 | 14.8 | 1.00 | 0.0305 | 0.0085 | 0.0011 | 0.0035 |
| 215 | <i>Neocalanus gracilis</i> | | 2 | 19.7 | 1.00 | 1.6400 | 0.5000 | 0.0510 | 0.2335 |
| 216 | <i>Centropages brachiatus</i> | | 2 | 17.3 | 1.00 | 0.1150 | 0.0198 | 0.0020 | 0.0083 |
| 217 | <i>Acartia tonsa</i> | | 2 | 22 | 1.00 | 0.0564 | 0.0072 | 0.0007 | 0.003 |
| 218 | <i>Undinula vulgaris</i> | | 2 | 23.5 | 1.00 | 0.9663 | 0.1854 | 0.0178 | 0.0771 |
| 219 | <i>Euchaeta marina</i> | | 2 | 24 | 1.00 | 1.3375 | 0.2905 | 0.0280 | 0.1209 |
| 220 | <i>Acartia pacifica</i> | | 2 | 26 | 1.00 | 0.0464 | 0.0078 | 0.0008 | 0.0032 |
| 221 | <i>Calanopia elliptica</i> | | 2 | 26 | 1.00 | 0.2803 | 0.0563 | 0.0054 | 0.0234 |
| 222 | <i>Tortanus gracilis</i> | | 2 | 26 | 1.00 | 0.1433 | 0.0235 | 0.0023 | 0.0098 |
| 223 | <i>Eucalanus subcrassus</i> | | 2 | 24 | 1.00 | 0.6550 | 0.1037 | 0.0100 | 0.0431 |
| 224 | <i>Labidocera acuta</i> | | 2 | 24 | 1.00 | 1.8900 | 0.2334 | 0.0224 | 0.0971 |
| 225 | <i>Acartia australis</i> | | 2 | 25 | 1.00 | 0.0553 | 0.0091 | 0.0009 | 0.0038 |
| 226 | <i>Nannocalanus minor</i> | | 2 | 26.9 | 1.00 | 0.2100 | 0.0401 | 0.0045 | 0.017 |
| 227 | <i>Undinula vulgaris</i> | | 2 | 27.6 | 1.00 | 1.3989 | 0.1673 | 0.0181 | 0.0698 |
| 228 | <i>Eucalanus attenuatus</i> | | 2 | 27.4 | 1.00 | 0.9050 | 0.1374 | 0.0128 | 0.0541 |

Appendix 1 (continued)

| Data no. | Copepod | Stage | Depth of occurrence (m) | Expt. temp. (°C) | Oxygen saturation | Respiration rate ($\mu\text{l O}_2 \text{ ind.}^{-1} \text{ h}^{-1}$) | DM (mg) | Body mass N (mg) | Body mass C (mg) |
|----------|--------------------------------|-------|-------------------------|------------------|-------------------|---|---------|------------------|------------------|
| 229 | <i>Labidocera acuta</i> | | 2 | 28.5 | 1.00 | 2.0700 | 0.2315 | 0.0283 | 0.0998 |
| 230 | <i>Labidocera nerii</i> | | 2 | 26.4 | 1.00 | 1.5150 | 0.2210 | 0.0270 | 0.0953 |
| 231 | <i>Pontella danae</i> | | 2 | 26.4 | 1.00 | 3.4300 | 0.7000 | 0.0840 | 0.2996 |
| 232 | <i>Neocalanus cristatus</i> | C5 | 25 | 5 | 1.00 | 1 | 1.7200 | 0.1651 | 0.6760 |
| 233 | <i>Calanus marshallae</i> | C5 | 15 | 8 | 1.00 | 0.3829 | 0.4211 | 0.0356 | 0.2390 |
| 234 | <i>Neocalanus plumchrus</i> | C5 | 75 | 5.8 | 1.00 | 0.2510 | 0.2440 | 0.0187 | 0.1113 |
| 235 | | C5 | 15 | 8 | 1.00 | 0.6478 | 0.9278 | 0.0696 | 0.5511 |
| 236 | <i>Mesocalanus tenuicornis</i> | C6F | 15 | 22 | 1.00 | 0.5993 | 0.2650 | 0.0281 | 0.1226 |
| 237 | <i>Metridia pacifica</i> | C6F | 135 | 4.7 | 1.00 | 0.3975 | 0.2032 | 0.0245 | 0.0946 |
| 238 | | C6F | 75 | 5.8 | 1.00 | 0.2775 | 0.1830 | 0.0215 | 0.0824 |
| 239 | <i>Pleuromamma scutullata</i> | C6F | 75 | 6 | 1.00 | 0.4335 | 0.3223 | 0.0352 | 0.1464 |
| 240 | | C6F | 75 | 5.8 | 1.00 | 0.4230 | 0.4025 | 0.0432 | 0.1962 |
| 241 | | C6F | 100 | 3 | 1.00 | 0.3360 | 0.3588 | 0.0358 | 0.1799 |
| 242 | <i>Pleuromamma abdominalis</i> | C6F | 100 | 13.6 | 1.00 | 0.6835 | 0.3585 | 0.0427 | 0.1545 |
| 243 | <i>Pleuromamma xiphias</i> | C6F | 100 | 12 | 1.00 | 0.5488 | 0.3873 | 0.0445 | 0.1599 |
| 244 | <i>Gaetanus simplex</i> | C6F | 75 | 6 | 1.00 | 0.3635 | 0.4508 | 0.0524 | 0.2176 |
| 245 | | C6F | 100 | 3 | 1.00 | 0.2723 | 0.4343 | 0.0477 | 0.2295 |
| 246 | <i>Euchaeta marina</i> | C6F | 100 | 11.3 | 1.00 | 0.6028 | 0.4150 | 0.0440 | 0.2050 |
| 247 | | C6F | 15 | 20.2 | 1.00 | 0.7430 | 0.1800 | 0.0196 | 0.0862 |
| 248 | | C6F | 100 | 20 | 1.00 | 0.9085 | 0.2300 | 0.0281 | 0.104 |
| 249 | | C6F | 100 | 16 | 1.00 | 0.9036 | 0.3350 | 0.0409 | 0.1514 |
| 250 | <i>Candacia bipinnata</i> | C6F | 100 | 11.3 | 1.00 | 0.7088 | 0.3325 | 0.0371 | 0.1438 |
| 251 | | C6F | 15 | 20.2 | 1.00 | 0.4763 | 0.1017 | 0.0117 | 0.0444 |
| 252 | | C6F | 100 | 13 | 1.00 | 0.4041 | 0.1636 | 0.0193 | 0.07 |
| 253 | <i>Candacia columbiae</i> | C6F | 100 | 4.7 | 1.00 | 0.7603 | 0.5589 | 0.0660 | 0.2541 |

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