**Supplementary Materials**

**Table S.1.** Mean proportion (%) of each of the 43 dominant fatty acids found in the six animal species, two macroalgal species, and two environmental components (see Table 1 for species list) sampled inside (I) or outside (O) of the South site (see Figure 1A). Each component’s highest FA proportion is bolded. Asterisks (\*) denote fatty acids that altogether contribute to at least 70% similarity in each food web component (Table B.1). FA are listed in ascending order of retention time from the 30-m long ZB wax+ (Phenomenex) GC column in the Varian Galaxie Chromatography Data System (see section 2.6 for details).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ***A. rubens***  **(I; N=3)** | ***H. arctica***  **(I; N=3)** | ***Nereis* spp.**  **(I; N=3)** | ***O. aculeata***  **(I; N=3)** | ***S. droebachiensis***  **(I; N=2)** | ***Tonicella* spp.**  **(I; N=3)** | ***L. digitata***  **(O; N=2)** | ***L. glaciale***  **(I)** | **Seawater**  **(O; N=3)** | **Sediment**  **(I; N=3)** |
| **FA** | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) |
| 14:0 | 0.6 (0.2) | 4.3 (1.1)\* | 1.2 (0.4) | 6.5 (1.3)\* | 3.2 (1.2) | 3.6 (0.4)\* | 5.2 (0.5) | N/A | 0.9 (0.4) | 1.7 (0.8) |
| TMTD† | 0.1 (0) | 0.4 (0.3) | 0 (0) | 0 (0) | 0.1 (0) | 1.2 (0.1) | 0 (0) | N/A | 0.2 (0.1) | 0 (0) |
| *i*15:0 | 0.1 (0.1) | 0.4 (0.1) | 0.1 (0) | 0.1 (0) | 0.2 (0.1) | 0.3 (0) | 0.4 (0.1) | N/A | 0.1 (0.1) | 1.4 (0.4) |
| *ai*15:0 | 0.1 (0.1) | 0.2 (0.2) | 0.1 (0) | 0.1 (0) | 0.2 (0.1) | 0.2 (0) | 0 (0) | N/A | 0 (0.1) | 2.5 (0.4) |
| 15:0 | 0.3 (0) | 0.4 (0.1) | 0.8 (0.1) | 0.2 (0) | 0.4 (0.1) | 0.8 (0.1) | 0.2 (0) | N/A | 0.1 (0.1) | 0.8 (0.1) |
| *i*16:0 | 0.3 (0) | 0.2 (0.2) | 0.1 (0) | 0 (0) | 0.1 (0) | 0.2 (0) | 0 (0) | N/A | 0 (0) | 0.4 (0.4) |
| *ai*16:0 | 0.2 (0.1) | 0.1 (0.1) | 0.3 (0.1) | 0 (0) | 0.1 (0.2) | 0.3 (0.4) | 0 (0.1) | N/A | 0 (0) | 1.1 (0.9) |
| 16:0 | 4.2 (1.6) | 16.5 (1.1)\* | 11.1 (0.6)\* | 15.5 (14.2)\* | 8.8 (0.5)\* | 10.9 (0.8)\* | **17.5 (1.2)\*** | N/A | 21.7 (2.8)\* | 14.6 (0.4)\* |
| 16:1ω11 | 0 (0) | 0.2 (0.1) | 0.1 (0.1) | 0.1 (0.1) | 0.3 (0.2) | 0.1 (0) | 0.8 (0.3) | N/A | 0.1 (0) | 3.1 (1.7) |
| 16:1ω9 | 0.1 (0.1) | 0.3 (0.1) | 0.1 (0.1) | 0.1 (0) | 0.3 (0.1) | 0.3 (0) | 0 (0) | N/A | 0 (0) | 0.9 (0.6) |
| 16:1ω7 | 1.8 (0.5) | 12.7 (0.9)\* | 3.4 (1.0) | 5.9 (0.9\*) | 4.1 (1.6)\* | 8.1 (0.4)\* | 2.4 (0) | N/A | 1.2 (0.2) | **20.6 (1.0)\*** |
| 16:1ω5 | 0.1 (0.1) | 0.6 (0) | 0.3 (0) | 0.1 (0) | 0.4 (0.1) | 0.2 (0) | 0.1 (0) | N/A | 0 (0) | 1.4 (0.1) |
| *i*17:0 | 0.3 (0.1) | 0.8 (0.4) | 0.3 (0) | 0.3 (0.1) | 0.4 (0) | 0.2 (0) | 1.7 (0.1) | N/A | 0.2 (0.1) | 0.8 (0.2) |
| *ai*17:0 | 0.3 (0.2) | 0.5 (0.3) | 0.3 (0) | 0.3 (0.1) | 0.4 (0.1) | 0.6 (0.1) | 0.3 (0) | N/A | 0 (0) | 1.2 (0.4) |
| 16:2ω4 | 0.1 (0.1) | 0.8 (0.1) | 0.1 (0) | 0.8 (0.2) | 0.9 (0.5) | 0.8 (0.1) | 0.2 (0) | N/A | 0 (0) | 1.0 (0.1) |
| 17:0 | 0.5 (0.1) | 0.4 (0.1) | 1.4 (0.2) | 0.1 (0.1) | 0.1 (0) | 0.4 (0.1) | 0.1 (0) | N/A | 0.1 (0.1) | 0.6 (0.1) |
| 16:3ω4 | 0 (0) | 0.2 (0.1) | 0 (0) | 1.0 (0.6) | 0.7 (0.5) | 0.8 (0.3) | 0 (0) | N/A | 0 (0) | 2.5 (0.2)\* |

**Table S.1. (continued):**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | ***A. rubens***  **(I; N=3)** | ***H. arctica***  **(I;N=3)** | ***Nereis* spp.**  **(I; N=3)** | ***O. aculeata***  **(I; N=3)** | ***S. droebachiensis***  **(I; N=2)** | ***Tonicella* spp.**  **(I; N=3)** | ***L. digitata***  **(O; N=2)** | ***L. glaciale***  **(I)** | **Seawater**  **(O; N=3)** | **Sediment**  **(I; N=3)** | |
| **FA** | |  | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | % (±SD) | |
| 17:1 | |  | 9.2 (6.3)\* | 1.2 (0.2) | 1.0 (0.5) | 1.1 (1.0) | 1.1 (0.5) | 0.6 (0.6) | 0.7 (0) | N/A | 0 (0) | 1.0 (0.2) | |
| 16:4ω3 | |  | 1.4 (2.3) | 0.1 (0.1) | 3.1 (0.6) | 0 (0) | 0.8 (1.2) | 1.4 (0.5) | 0 (0) | N/A | 0 (0.1) | 0.3 (0.4) | |
| 16:4ω1 | |  | 0 (0.1) | 0.4 (0.3) | 0.1 (0.1) | 4.4 (2.0) | 1.0 (0.4) | 0.7 (0.1) | 0.2 (0) | N/A | 0.7 (0.2) | 2.3 (2.7) | |
| 18:0 | |  | 5.9 (0.8)\* | 2.7 (0) | 4.1 (0.4)\* | 4.0 (0.6) | 2.7 (0.2) | 3.0 (0.8) | 0.7 (0.1) | N/A | 18.2 (2.5)\* | 3.5 (3.1) | |
| 18:1ω11 | |  | 0.1 (0.1) | 0.6 (0.4) | 5.3 (0.2)\* | 1.8 (0.2) | 0.5 (0) | 0.2 (0.1) | 0 (0) | N/A | 0 (0) | 0 (0.1) | |
| 18:1ω9 | |  | 0.5 (0.5) | 1.7 (1.0) | 2.2 (0.6) | 0.9 (0.1) | 1.3 (0.4) | 9.0 (1.2)\* | 13.0 (0.2)\* | N/A | **32.9 (12.1)\*** | 5.3 (1.6)\* | |
| 18:1ω7 | |  | 2.6 (1.5) | 7.0 (1.4)\* | 6.3 (0.3)\* | 6.6 (0.9)\* | 3.5 (0.2)\* | 6.8 (0.4)\* | 0.1 (0.1) | N/A | 2.0 (1.8) | 9.0 (0.6)\* | |
| 18:2ω6 (LA) | |  | 0.1 (0.1) | 1.9 (0.3) | 1.3 (0.2) | 2.6 (0.5) | 2.2 (1.6) | 0.3 (0) | 9.1 (0.2)\* | N/A | 5.3 (2.0) | 1.3 (0.5) | |
| 18:2ω4 | |  | 0 (0) | 0.7 (0.1) | 0.2 (0) | 0.5 (0.1) | 0.3 (0.1) | 0.5 (0.4) | 0 (0) | N/A | 0 (0) | 0 (0.1) | |
| 18:3ω6 (GLA) | |  | 0.6 (0.6) | 0.2 (0.1) | 0 (0) | 0.4 (0.1) | 0.4 (0.0) | 0.4 (0.2) | 0.6 (0) | N/A | 0 (0) | 0.3 (0.2) | |
| 18:3ω3 (ALA) | |  | 0 (0) | 0.8 (0) | 0.8 (0.2) | 0.5 (0.1) | 1.2 (0.2) | 0.5 (0.1) | 7.5 (0) | N/A | 0 (0) | 1.1 (0.3) | |
| 18:4ω3 (OTA) | |  | 0.3 (0.6) | 4.5 (1.8) | 0.5 (0.2) | 5.1 (1.8)\* | 3.8 (1.1)\* | 1.3 (0.2) | 8.0 (0.4)\* | N/A | 0.4 (0.4) | 1.3 (0.5) | |
| 19:3 | |  | 0 (0) | 0 (0) | 2.6 (0.6) | 0 (0) | 0 (0) | 0 (0) | 0.1 (0.1) | N/A | 0 (0) | 0 (0) | |
| 20:0 | |  | 0 (0) | 0 (0.1) | 0 (0) | 0.4 (0.2) | 1.1 (0.4) | 0 (0) | 0 (0) | N/A | 0.3 (0.3) | 0.4 (0.1) | |
| 20:1ω11 | |  | 3.3 (5.7) | 0.6 (0.1) | 1.6 (0.2) | 5.2 (0.9)\* | 0 (0) | 1.0 (0.6) | 0 (0) | N/A | 0 (0) | 0.4 (0.2) | |
| 20:1ω9 | |  | 4.8 (0.4) | 0.8 (0.1) | 0.8 (0.3) | 0.1 (0.1) | 1.9 (0.2) | 1.2 (1.1) | 0 (0) | N/A | 0.7 (0.6) | 0.1 (0.1) | |
| 20:1ω7 | |  | 0.7 (1.2) | 1.6 (1.4) | 0.5 (0.1) | 1.4 (0.3) | 1.5 (0) | 0.1 (0.1) | 0 (0) | N/A | 0 (0) | 0.1 (0.1) | |
| 20:2ω6 | |  | 1.8 (0.3) | 1.5 (0.4) | 1.8 (0.4) | 0.3 (0.3) | 3.1 (0.3)\* | 1.5 (0) | 0.7 (0) | N/A | 0 (0) | 1.2 (0.2) | |
| 20:4ω6 (ARA) | |  | 19.8 (6.3)\* | 0.6 (0.6) | 3.2 (1.6) | 0.9 (0.1) | 14.5 (2.5)\* | 4.9 (4.2) | 0.1 (0.1) | N/A | 0 (0) | 3.7 (0.4)\* | |
| 20:3ω3 | |  | 0.3 (0.3) | 0.1 (0) | 1.0 (0.6) | 0.1 (0.1) | 2.1 (1.3) | 0.2 (0.2) | 0.6 (0) | N/A | 0 (0) | 0 (0) | |
| 20:4ω3 | |  | 0.1 (0.2) | 0.7 (0.1) | 0.3 (0.1) | 0.4 (0.1) | 1.8 (1.5) | 0.8 (0.1) | 13.5 (0.8)\* | N/A | 0 (0) | 0 (0) | |
| 20:5ω3 (EPA) | |  | **31.6 (1.6)\*** | **19.3 (3.5)\*** | **29.3 (4.4)\*** | **26.8 (5.5)\*** | **24.8 (2.3)\*** | **21.8 (0.5)\*** | 0 (0) | N/A | 1.2 (0.5) | 7.8 (0.9)\* | |
| 21:5ω3 | |  | 0.1 (0.1) | 1.5 (0.3) | 0 (0) | 0.8 (0.1) | 0.3 (0.2) | 0.5 (0) | 0 (0) | N/A | 0 (0) | 0 (0) | |
| 22:4ω6 | |  | 0.1 (0.1) | 1.0 (0.7) | 4.8 (1.9)\* | 0 (0) | 0.2 (0) | 2.8 (0.3) | 0 (0) | N/A | 0 (0) | 0 (0) | |
| 22:5ω3 (DPA) | |  | 0.1 (0.2) | 1.5 (0.6) | 4.8 (1.3)\* | 0.3 (0.2) | 0.3 (0.1) | 4.7 (0.3)\* | 0 (0) | N/A | 0 (0) | 0.9 (1.0) | |
| 22:6ω3 (DHA) | |  | 5.3 (2.9) | 8.9 (1.0)\* | 1.0 (0.3) | 0.6 (0.1) | 1.5 (0.6) | 0.6 (0) | 0 (0) | N/A | 1.0 (0.2) | 1.4 (0.6) | |
| **Total** | |  | **97.8** | **98.5** | **93.7** | **98.7** | **92.7** | **93.9** | **83.7** | **N/A** | **87.5** | **96.1** | |
|  | †Trimethyltridecanoic acid | | | | | | | | | | | |

Chart

Description automatically generated with medium confidence

**Figure S.1.** Agglomerative hierarchical clustering (based on Euclidian distance) of bulk stable carbon (δ13C) and nitrogen (δ15N) isotope ratios in the six animal species, two macroalgal species, and two environmental components (see Table 1 for species list) sampled in the South site (see Figure 1A). *Nereis* spp. was not included because of insufficient tissues for quantification in the N analysis.