# Supplementary Material

**Fatty acid content of four salmonid fish consumed by indigenous peoples from the Yamal-Nenets Autonomous Okrug (northwestern Siberia, Russia)**

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**Table S1.** Analysis of similarity (ANOSIM): pair-wise comparisons of fatty acid content in fish species in the Gyda River, Russian Arctic.

| Group | Group | R-Statistic | P-level |
|---|---|---|---|
| *Coregonus autumnalis* (adult) | *Coregonus autumnalis* (juvenile) | 1 | 0.001 |
| *Coregonus autumnalis* (adult) | *Salvelinus alpinus* | 1 | 0.001 |
| *Coregonus autumnalis* (adult) | *Coregonus muksun* | 0.506 | 0.002 |
| *Coregonus autumnalis* (adilt) | *Coregonus sardinella* | 1 | 0.001 |
| *Coregonus autumnalis* (juvenile) | *Salvelinus alpinus* | 1 | 0.001 |
| *Coregonus autumnalis* (juvenile) | *Coregonus muksun* | 0.603 | 0.001 |
| *Coregonus autumnalis* (juvenile) | *Coregonus sardinella* | 1 | 0.001 |
| *Salvelinus alpinus* | *Coregonus muksun* | 0.868 | 0.001 |
| *Salvelinus alpinus* | *Coregonus sardinella* | 1 | 0.001 |
| *Coregonus muksun* | *Coregonus sardinella* | 0.471 | 0.001 |

**Table S2.** SIMPER results of fatty acid profile data in fish species in the Gyda Peninsula, Russian Arctic. Pair-wise SIMPER tests between fish species. Fatty acids are ranked from the most to the least significant driver of the total dissimilarity, Contib% indicates contributions to the total dissimilarity.

| **CAA** | **CAJ** | **CAA** | **SA** | **CAJ** | **SA** | **CAA** | **CS** | **CAJ** | **CS** |
|---|---|---|---|---|---|---|---|---|---|
| Av. Diss = 26.65 | | Av. Diss = 12.69 | | Av. Diss = 32.17 | | Av. Diss = 14.40 | | Av. Diss = 14.94 | |
| FA | Contrib% | FA | Contrib% | FA | Contrib% | FA | Contrib% | FA | Contrib% |
| C16:1C | 13.12 | C18:1n9 | 11.21 | C18:1n9 | 15.05 | C18:1n9 | 12.56 | C16:1C | 13.37 |
| C18:1n9 | 12.79 | C18:0 | 10.2 | C16:1C | 10.24 | C16:1C | 10.97 | C18:1n9 | 10.75 |
| C14:0 | 8 | C22:6n3 | 9.69 | C16:0 | 9.54 | C14:0 | 7.33 | C20:5n3 | 8.12 |
| C20:5n3 | 7.39 | C16:0 | 8.49 | C22:6n3 | 6.64 | C18:3n3 | 7.29 | C14:0 | 7.36 |
| C16:0 | 7.23 | C22:5n3 | 7.34 | C18:0 | 6 | C16:0 | 6.32 | C16:0 | 7.1 |
| C18:3n3 | 6.93 | C20:5n3 | 7.06 | C14:0 | 5.37 | C20:5n3 | 5.74 | C22:6n3 | 6.38 |
| C18:2n6 | 5.36 | C22:5n6 | 4.56 | C22:5n3 | 5.11 | C18:2n6 | 5.44 | C18:3n3 | 5.2 |
| C20:1 | 3.66 | C16:1t | 4.05 | C18:2n6 | 4.34 | C18:3n6 | 3.83 | C18:2n6 | 4.27 |
| C20:4n6 | 3.06 | C22:4n6 | 3.83 | C18:3n3 | 3.91 | C20:1 | 3.72 | C18:3n6 | 4.07 |
| C22:6n3 | 2.63 | C18:3n3 | 2.72 | C22:5n6 | 3.33 | C20:4n6 | 3.18 | C18:0 | 3.05 |
| C20:2n6 | 2.31 | C24:1 | 2.59 | C20:1 | 3.29 | C16:1t | 2.88 | C20:1 | 2.91 |
| C16:1t | 2.24 | C17:1 | 2.07 | C20:4n6 | 2.91 | C22:5n3 | 2.18 | C20:4n6 | 2.37 |
| C22:5n3 | 2.09 | C22:0 | 2.03 | C22:4n6 | 2.76 | C20:2n6 | 2.02 | C20:2n6 | 2.26 |
| C20:3n3 | 1.96 | C20:3n3 | 1.65 | C24:1 | 2.4 | C20:3n3 | 2.01 | C22:0 | 1.89 |
| C17:1 | 1.61 | C22:2n6 | 1.62 | C20:3n3 | 2.28 | C17:1 | 1.87 | C22:5n3 | 1.62 |
| C24:1 | 1.52 | C20:3n6 | 1.49 | C20:5n3 | 2.17 | C15:0 | 1.62 | C22:5n6 | 1.58 |
| C22:0 | 1.51 | C14:0 | 1.38 | C20:2n6 | 1.71 | C20:3n6 | 1.5 | C24:1 | 1.55 |
| C22:5n6 | 1.5 | C18:2n6t | 1.37 | C20:3n6 | 1.62 | C17:0 | 1.49 | C20:3n3 | 1.55 |
| **SA** | **CS** | **CAA** | **CM** | **CAJ** | **CM** | **SA** | **CM** | **CS** | **CM** |
| Av. Diss = 21.19 | | Av. Diss = 15.80 | | Av. Diss = 17.38 | | Av. Diss = 17.32 | | Av. Diss = 11.94 | |
| FA | Contrib% | FA | Contrib% | FA | Contrib% | FA | Contrib% | FA | Contrib% |
| C18:1n9C | 15.14 | C18:3n3 | 10.82 | C18:1n9c | 13.76 | C18:1n9c | 14.68 | C18:1n9c | 10.46 |
| C16:0 | 9.47 | C16:1c | 8.97 | C16:1c | 12.37 | C22:6n3 | 10.48 | C22:5n3 | 10.31 |
| C16:1C | 7.23 | C20:5n3 | 8.32 | C22:5n3 | 9.35 | C16:0 | 9.29 | C16:1c | 7.04 |
| C18:0 | 6.69 | C18:1n9c | 7.21 | C14:0 | 8.87 | C16:1C | 7.8 | C22:6n3 | 6.07 |
| C22:5n3 | 6.19 | C18:2n6c | 6.99 | C16:0 | 8.76 | C18:3n3 | 6.58 | C14:0 | 6.05 |
| C22:6n3 | 5.91 | C22:5n3 | 5.22 | C18:0 | 4.48 | C18:0 | 6.57 | C18:3n3 | 5.89 |
| C14:0 | 3.93 | C18:3n6 | 4.31 | C24:1 | 3.9 | C18:2n6c | 6.14 | C16:0 | 5.41 |
| C18:2n6C | 3.77 | C14:0 | 4.27 | C18:3n6 | 3.77 | C22:5n6 | 4.45 | C20:5n3 | 4.42 |
| C22:5n6 | 3.76 | C22:6n3 | 3.49 | C20:1 | 3.74 | C20:3n3 | 3.84 | C24:1 | 3.36 |
| C18:3n3 | 3.46 | C20:2n6 | 3.47 | C20:5n3 | 3.34 | C20:4n6 | 3.22 | C20:1 | 3.03 |
| C22:4n6 | 3.38 | C16:1t | 3.42 | C22:4n6 | 2.93 | C18:3n6 | 2.96 | C22:4n6 | 2.93 |
| C20:1 | 3.01 | C16:0 | 3.18 | C22:6n3 | 2.53 | C20:2n6 | 2.75 | C18:2n6c | 2.86 |
| C20:4n6 | 2.78 | C20:3n3 | 3.14 | C22:1 | 2.28 | C20:1 | 2.67 | C18:0 | 2.52 |
| C24:1 | 2.5 | C20:4n6 | 2.76 | C17:0 | 2.24 | C22:4n6 | 2.4 | C20:2n6 | 2.33 |
| C20:3n3 | 2.33 | C20:1 | 2.24 | C20:4n6 | 2.13 | C14:0 | 2.35 | C17:0 | 2.02 |
| C18:3n6 | 2.14 | C22:0 | 2.23 | C15:0 | 1.73 | C22:2n6 | 1.69 | C22:0 | 1.93 |
| C20:3n6 | 1.91 | C17:1 | 2.17 | C20:3n6 | 1.65 | C22:5n3 | 1.59 | C20:3n3 | 1.87 |
| C22:2n6 | 1.73 | C18:0 | 1.85 | C22:5n6 | 1.4 | C20:3n6 | 1.47 | C20:4n6 | 1.84 |

Note: CAA – *Coregonus autumnalis* (adult specimens), CAJ – *Coregonus autumnalis* (juvenile specimens), SA – *Salvelinus alpinus*, CM – *Coregonus muksun*, CS – *Coregonus sardinella*

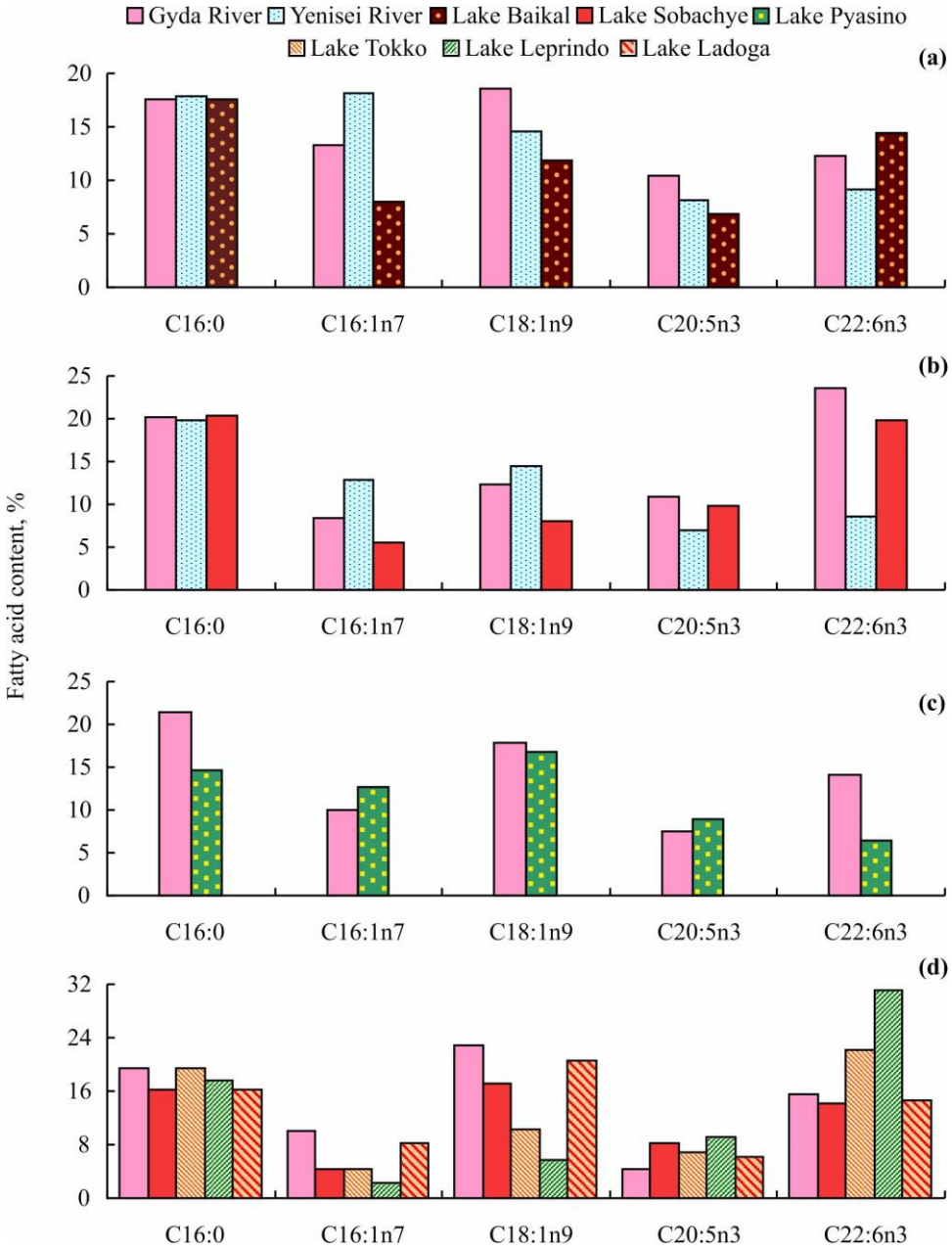


**Figure S1.** Spatial variations in fatty acid profiles (%) of salmonid fish from different habitats. **(a)** – Arctic cisco *Coregonus autumnalis* (adult), **(b)** – least cisco *Coregonus sardinella*, **(c)** – muksun *Coregonus muksun*, **(d)** – Arctic charr *Salvelinus alpinus*. Sources: Gyda River (Arctic, Siberia) – present study; Yenisei River (sub-Arctic, Siberia) – Gladyshev et al. (2017); Lake Baikal (temperate zone, Siberia) – Nikiforova et al. (2020); Lake Sobachye (sub-Arctic, Siberia), least cisco – Gladyshev et al. (2017), Arctic charr – Gladyshev et al. (2022); Lake Pyasino (Arctic, Siberia) – Sushchik et al. (2020); Lake Tokko, Lake Leprindo (temperate zone, Siberia), Lake Ladoga (subarctic zone, Karelia) – Gladyshev et al. (2022).

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