|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Supplementary Table S2:** Nucleotide diversity in sample groups, of Atlantic and Pacific herring, based on individual samples. | | | | |
| **Population** | ***π* (%)** | **SD (%)** | ***n*** |
| Balsfjord | 0,36 | 0,30 | 4 |
| White Sea | 0,30 | 0,26 | 20 |
| Vancouver | 0,28 | 0,25 | 6 |
| Atlantic (spring) | 0,26 | 0,26 | 17 |

**Supplementary Table S3.** Ancestry coefficients of 79 individuals estimated with the program sNMF assuming that the number of ancestral populations is K = 3. Balsfjord samples are indicated in italics. Q1 is the proportion of Atlantic ancestry, Q2 is Pacific ancestry and Q3 is Arctic ancestry.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q1** | **Q2** | **Q3** | **Region** | **Ind** |
| 0.99 | 1.43E-02 | 1.00E-04 | Baltic Sea | BF16 |
| 0.99 | 1.04E-02 | 1.00E-04 | Baltic Sea | BF18 |
| 0.99 | 1.44E-02 | 1.00E-04 | Baltic Sea | BF19 |
| 0.98 | 1.52E-02 | 1.00E-04 | Baltic Sea | BF21 |
| 0.99 | 1.40E-02 | 1.00E-04 | Baltic Sea | BM14 |
| 0.99 | 1.12E-02 | 1.00E-04 | Baltic Sea | BM15 |
| 0.99 | 1.12E-02 | 1.00E-04 | Baltic Sea | BM16 |
| 0.99 | 1.29E-02 | 1.00E-04 | Baltic Sea | BM19 |
| 0.99 | 1.00E-04 | 5.06E-03 | Baltic Sea | Fehmarn3 |
| 1.00 | 1.00E-04 | 3.67E-03 | Baltic Sea | Fehmarn44 |
| 0.99 | 1.00E-04 | 8.23E-03 | Baltic Sea | Fehmarn6 |
| 0.99 | 6.50E-03 | 2.06E-03 | Baltic Sea | Gavle100 |
| 0.99 | 1.25E-02 | 1.00E-04 | Baltic Sea | Gavle54 |
| 0.99 | 5.96E-03 | 4.81E-03 | Baltic Sea | Gavle98 |
| 0.99 | 1.00E-04 | 1.01E-02 | Atlantic | AAL1 |
| 0.99 | 1.40E-02 | 1.00E-04 | Atlantic | AAL2 |
| 0.99 | 1.00E-04 | 1.01E-02 | Atlantic | AAL3 |
| 0.99 | 1.02E-02 | 1.00E-04 | Atlantic | AF29 |
| 0.98 | 1.61E-02 | 1.00E-04 | Atlantic | AF30 |
| 0.98 | 1.66E-02 | 1.00E-04 | Atlantic | AF31 |
| 0.99 | 1.10E-02 | 2.49E-03 | Atlantic | AF8 |
| 0.98 | 1.81E-02 | 1.00E-04 | Atlantic | AK1 |
| 0.98 | 1.57E-02 | 1.00E-04 | Atlantic | AK2 |
| 0.98 | 1.59E-02 | 1.00E-04 | Atlantic | AK3 |
| 0.98 | 4.43E-03 | 1.12E-02 | Atlantic | AM27 |
| 0.99 | 8.28E-03 | 1.00E-04 | Atlantic | AM29 |
| 0.98 | 1.56E-02 | 5.70E-04 | Atlantic | AM33 |
| 0.99 | 1.19E-02 | 1.00E-04 | Atlantic | AM8 |
| 0.99 | 2.88E-03 | 1.04E-02 | Atlantic | F3L312 |
| 0.99 | 6.83E-03 | 6.06E-03 | Atlantic | F3L337 |
| 0.98 | 1.00E-04 | 1.64E-02 | Atlantic | F4TH327 |
| 0.99 | 1.00E-04 | 7.77E-03 | Atlantic | F4TH337 |
| 0.98 | 1.73E-02 | 1.00E-04 | Atlantic | F4XQgb402 |
| 0.98 | 4.47E-03 | 1.13E-02 | Atlantic | F4XQgb408 |
| 0.99 | 1.00E-04 | 5.43E-03 | Atlantic | NSSH33 |
| 0.99 | 8.77E-03 | 1.00E-04 | Atlantic | NSSH34 |
| 0.99 | 8.31E-03 | 1.15E-03 | Atlantic | NSSH36 |
| 0.99 | 1.00E-04 | 9.80E-03 | Atlantic | NorthSea13 |
| 0.99 | 1.42E-02 | 1.00E-04 | Atlantic | NorthSea19 |
| 0.99 | 1.00E-04 | 5.55E-03 | Atlantic | NorthSea34 |
| 0.99 | 1.00E-04 | 1.46E-02 | Atlantic | S3Ps246 |
| 0.99 | 1.02E-02 | 1.00E-04 | Atlantic | S3Ps259 |
| 0.99 | 7.58E-04 | 1.31E-02 | Atlantic | S4TH231 |
| 0.99 | 1.00E-04 | 1.14E-02 | Atlantic | S4TH244 |
| 0.99 | 1.84E-03 | 8.81E-03 | Atlantic | S4TM205 |
| 0.99 | 1.00E-04 | 1.17E-02 | Atlantic | S4TM211 |
| 0.98 | 1.63E-02 | 1.00E-04 | Atlantic | Z12 |
| 0.99 | 1.00E-04 | 8.28E-03 | Atlantic | Z14 |
| 0.99 | 1.00E-04 | 7.18E-03 | Atlantic | Z4 |
| 1.00E-04 | 0.49 | 0.51 | Sea of Japan | HWS11 |
| 1.00E-04 | 0.57 | 0.43 | Sea of Japan | HWS12 |
| 1.00E-04 | 0.51 | 0.49 | Sea of Japan | HWS13 |
| 1.00E-04 | 0.53 | 0.47 | Sea of Japan | HWS14 |
| 1.00E-04 | 0.34 | 0.66 | Pechora Sea | HWS21 |
| 3.45E-03 | 0.33 | 0.66 | Pechora Sea | HWS22 |
| 1.00E-04 | 0.31 | 0.69 | Pechora Sea | HWS23 |
| 1.00E-04 | 0.12 | 0.88 | Pechora Sea | HWS24 |
| 1.00E-04 | 1.00E-04 | 1.00 | White Sea | HWS31 |
| 1.00E-04 | 1.00E-04 | 1.00 | White Sea | HWS32 |
| 1.00E-04 | 1.00E-04 | 1.00 | White Sea | HWS33 |
| 1.00E-04 | 1.55E-02 | 0.98 | White Sea | HWS34 |
| 1.00E-04 | 0.13 | 0.87 | Kandalaksha Bay (S) | HWS41 |
| 1.50E-03 | 0.26 | 0.73 | Kandalaksha Bay (S) | HWS42 |
| 5.01E-03 | 0.27 | 0.72 | Kandalaksha Bay (S) | HWS43 |
| 6.21E-03 | 0.27 | 0.72 | Kandalaksha Bay (S) | HWS44 |
| 1.00E-04 | 1.00E-04 | 1.00 | Kandalaksha Bay (U) | HWS51 |
| 1.00E-04 | 1.00E-04 | 1.00 | Kandalaksha Bay (U) | HWS52 |
| 1.00E-04 | 1.00E-04 | 1.00 | Kandalaksha Bay (U) | HWS53 |
| 1.00E-04 | 1.00E-04 | 1.00 | Kandalaksha Bay (U) | HWS54 |
| 0.24 | 0.14 | 0.62 | Balsfjord | HWS61 |
| 0.23 | 0.13 | 0.65 | Balsfjord | HWS62 |
| 0.23 | 0.13 | 0.64 | Balsfjord | HWS63 |
| 0.22 | 0.14 | 0.64 | Balsfjord | HWS64 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific16 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific30 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific35 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific3 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific44 |
| 1.00E-04 | 1.00 | 1.00E-04 | Pacific (Vancouver) | Pacific5 |

**Supplementary Table S4.** Regions with overlapping introgressions in all eight haploid genomes from Balsfjord.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chr** | **Start** | **End** | **Width** | **Type** |
| chr4 | 19020001 | 19080000 | 60000 | Atlantic |
| chr4 | 30120001 | 30140000 | 20000 | Atlantic |
| chr6 | 14100001 | 14320000 | 220000 | Atlantic |
| chr8 | 3800001 | 3820000 | 20000 | Atlantic |
| chr8 | 6900001 | 6940000 | 40000 | Atlantic |
| chr13 | 720001 | 780000 | 60000 | Atlantic |
| chr17 | 14660001 | 14700000 | 40000 | Atlantic |
| chr18 | 12560001 | 12580000 | 20000 | Atlantic |
| chr19 | 12800001 | 12820000 | 20000 | Atlantic |
| chr21 | 4760001 | 4780000 | 20000 | Atlantic |
| chr21 | 13660001 | 13680000 | 20000 | Atlantic |
| chr21 | 13740001 | 13800000 | 60000 | Atlantic |
| chr23 | 4720001 | 4740000 | 20000 | Atlantic |
| chr1 | 14300001 | 14320000 | 20000 | Pacific |
| chr1 | 17400001 | 17460000 | 60000 | Pacific |
| chr1 | 33000001 | 33020000 | 20000 | Pacific |
| chr3 | 15600001 | 15640000 | 40000 | Pacific |
| chr3 | 15820001 | 15840000 | 20000 | Pacific |
| chr3 | 19220001 | 19260000 | 40000 | Pacific |
| chr3 | 19420001 | 19440000 | 20000 | Pacific |
| chr4 | 18040001 | 18060000 | 20000 | Pacific |
| chr4 | 18300001 | 18320000 | 20000 | Pacific |
| chr6 | 26600001 | 26620000 | 20000 | Pacific |
| chr7 | 10500001 | 10540000 | 40000 | Pacific |
| chr7 | 25800001 | 25820000 | 20000 | Pacific |
| chr8 | 9960001 | 9980000 | 20000 | Pacific |
| chr8 | 19340001 | 19360000 | 20000 | Pacific |
| chr8 | 19600001 | 19620000 | 20000 | Pacific |
| chr10 | 16320001 | 16340000 | 20000 | Pacific |
| chr10 | 19180001 | 19220000 | 40000 | Pacific |
| chr12 | 9220001 | 9280000 | 60000 | Pacific |
| chr12 | 23460001 | 23480000 | 20000 | Pacific |
| chr15 | 6120001 | 6140000 | 20000 | Pacific |
| chr15 | 7980001 | 8000000 | 20000 | Pacific |
| chr15 | 8060001 | 8080000 | 20000 | Pacific |
| chr18 | 20180001 | 20200000 | 20000 | Pacific |