# SUPPLEMENTARY INFORMATION

## Late Holocene freshening of the Baltic Sea derived from high-resolution strontium isotope analyses of mollusk shells

Anders Widerlund[a,*] and Per S Andersson[b]

[a]Division of Geosciences, Luleå University of Technology,
SE-971 87 Luleå, Sweden

[b]Laboratory for Isotope Geology, Swedish Museum of Natural History,
Box 50007, SE-104 05 Stockholm, Sweden

## TABLE DR1. RADIOCARBON AND STRONTIUM ISOTOPE DATA FOR SUBFOSSIL MOLLUSK SHELLS AND CALCULATED PALEOSALINITIES ($SALINITY_{Sr}$) FOR THE BALTIC SUBBASINS LISTED ACCORDING TO DECREASING AGE WITHIN EACH SUBBASIN

Bothnian Bay

| Locality Coordinates* | Altitude (m a.s.l.) | Shell species | Sample No. | $^{14}C$ lab. No. | $\delta^{13}C$ (‰ PDB) | $^{14}C$ age† (BP) | Cal. $^{14}C$ age§ (cal BP) | $^{87}Sr/^{86}Sr$# | $\varepsilon_{Sr}$** | $Salinity_{Sr}$†† (‰) |
|---|---|---|---|---|---|---|---|---|---|---|
| Kamlunge<br>N 65°59'55.4''/E 22°49'42.7'' | 68 | *Mytilus edulis* | 06–11 | Ua–33372 | -0.6 | 6165±45 | 6410 (6595) 6770 | 0.7093494±110 | 2.72±0.16 | 6.29 (6.60) 6.94 |
| Skäftberget<br>N 65°33'38.2''/E 21°56'19.9'' | 65 | *Mytilus edulis* | 07–11 D | Ua–35393 | -0.6 | 6140±40 | 6395 (6565) 6735 | 0.7093016±110 | 2.04±0.16 | 7.82 (8.29) 8.83 |
| Falkberget<br>N 65°55'17.1''/E 22°52'42.7'' | 26 | *Mytilus edulis* | 04–16 | Ua–23343 | -0.7 | 6130±50 | 6375 (6555) 6740 | 0.709326±18 | 2.64±0.26 | 6.26 (6.76) 7.35 |
| Ormberget<br>N 65°35'25.9''/E 21°47'40.2'' | 46 | *Mytilus edulis* | 07–10 | Ua–35392 | 0.1 | 6045±60 | 6280 (6465) 6650 | 0.7092972±110 | 1.98±0.16 | 7.99 (8.49) 9.05 |
| Timmerberget<br>N 65°46'05.1''/E 21°58'25.0'' | 75 | *Mytilus edulis* | 06–18 A | Ua–33380 | -0.7 | 6035±40 | 6290 (6450) 6620 | 0.7093370±110 | 2.54±0.16 | 6.63 (6.97) 7.35 |
| Högberget<br>N 65°17'32.3''/E 21°19'04.4'' | 65 | *Mytilus edulis* | 04–15 B | Ua–23342 | -0.1 | 5990±50 | 6255 (6400) 6600 | 0.709302±18 | 2.30±0.26 | 6.94 (7.56) 8.29 |
| Tranuträsk<br>N 65°28'19.2''/E 21°28'21.3'' | 61 | *Mytilus edulis* | 03–14 B<br>03–14 B§§ | Ua–22514 | -2.8 | 5380±45 | 5590 (5745) 5895 | 0.709300±18<br>0.709298±18 | 2.27±0.26<br>2.24±0.26 | 7.00 (7.63) 8.38<br>7.07 (7.71) 8.47 |
| N Middagsberget<br>N 65°45'29.3''/E 22°17'19.1'' | 17 | *Mytilus edulis* | 07–05 | Ua–35387 | -0.5 | 5200±40 | 5385 (5550) 5720 | 0.7092609±110 | 1.47±0.16 | 9.82 (10.6) 11.5 |
| Sandnäsberget<br>N 65°30'11.3''/E 21°50'30.6'' | 57 | *Mytilus edulis* | 07–09 | Ua–35391 | 1.0 | 5120±35 | 5305 (5475) 5595 | 0.7092930±110 | 1.92±0.16 | 8.17 (8.69) 9.28 |
| Öberget<br>N 65°32'33.9''/E 21°52'22.7'' | 50 | *Mytilus edulis* | 06-19 | Ua–33382 | -0.6 | 4810±45 | 4870 (5090) 5280 | 0.7092985±110 | 2.00±0.16 | 7.94 (8.43) 8.98 |
| Åkroken<br>N 65°52'26.2''/E 22°56'40.1'' | 37 | *Mytilus edulis* | 03–15<br>03–15§§ | Ua–22515 | -1.6 | 4685±45 | 4770 (4920) 5205 | 0.709322±18<br>0.709323±18 | 2.58±0.26<br>2.59±0.26 | 6.37 (6.88) 7.49<br>6.34 (6.85) 7.45 |
| Pitholmsheden<br>N 65°16'27.3''/E21°32'30.6'' | 20 | *Mytilus edulis* | 09–15 B | Ua–38997 | -1.2 | 4465±35 | 4445 (4640) 4810 | 0.7092741±110 | 1.65±0.16 | 9.07 (9.71) 10.5 |
| Gruvmyran E<br>N 65°49'39.8''/E 22°55'11.7'' | 35 | *Mytilus edulis* | 06–09 | Ua–33371 | -0.6 | 4390±35 | 4370 (4540) 4780 | 0.7093101±110 | 2.16±0.16 | 7.49 (7.93) 8.42 |
| Gruvmyran W<br>N 65°49'39.2''/E 22°54'47.0'' | 32 | *Mytilus edulis* | 07–17 | Ua–35399 | -0.8 | 4305±50 | 4175 (4420) 4650 | 0.7092886±110 | 1.86±0.16 | 8.36 (8.91) 9.53 |
| Sellingsundet<br>N 65°38'04.4''/E 22°06'26.0'' | 6 | *Mytilus edulis* | 03–16 A<br>03–16 A§§ | Ua–22516 | -2.1 | 4060±45 | 3865 (4085) 4315 | 0.709278±18<br>0.709266±18 | 1.96±0.26<br>1.79±0.26 | 7.78 (8.56) 9.50<br>8.28 (9.16) 10.3 |
| Storträsket<br>N 65°50'07.3''/E 22°51'44.8'' | 22 | *Mytilus edulis* | 06–10 | Ua–33379 | -0.3 | 3945±35 | 3725 (3930) 4130 | 0.7093003±110 | 2.02±0.16 | 7.87 (8.35) 8.89 |
| Vallberget<br>N 65°22'09.1''/E 21°25'58.4'' | 6 | *Mytilus edulis* | 03–13<br>03–13§§ | Ua–22513 | -1.5 | 3890±45 | 3650 (3855) 4070 | 0.709330±18<br>0.709282±18 | 2.69±0.26<br>2.02±0.26 | 6.16 (6.65) 7.21<br>7.63 (8.37) 9.27 |
| Stora Huvön | 1 | *Mytilus edulis* | 04–24 B | Ua–23344 | 0.6 | 3815±50 | 3550 (3755) 3970 | 0.709275±18 | 1.92±0.26 | 7.90 (8.70) 9.67 |

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|---|---|---|---|---|---|---|---|---|---|---|
| N 65°40'56.3''/E 22°52'58.6'' | | | | | | | | | | |
| Stora Huvön<br>N 65°40'56.3''/E 22°52'58.6'' | 1 | *Mytilus edulis* | 04–24 A.1 | Ua–36149 | -1.5 | 3550±50 | 3250 (3435) 3630 | 0.7092621±110 | 1.48±0.16 | 9.75 (10.5) 11.4 |
| Stora Huvön<br>N 65°40'56.3''/E 22°52'58.6'' | 1 | *Mytilus edulis* | 04–24 A.2 | Ua–36150 | 0.7 | 3370±45 | 3005 (3225) 3400 | 0.7092573±110 | 1.42±0.16 | 10.0 (10.8) 11.8 |
| Stora Huvön<br>N 65°40'56.3''/E 22°52'58.6'' | 1 | *Macoma balthica* | 04–24 C | Ua–23345 | -1.2 | 3355±45 | 2985 (3205) 3380 | 0.709401±18 | 3.69±0.26 | 4.79 (5.08) 5.41 |
| Stora Huvön<br>N 65°40'56.3''/E 22°52'58.6'' | 1 | *Macoma balthica* | 04–24 C.1 | Ua–36151 | -0.7 | 3135±35 | 2745 (2915) 3110 | 0.7092522±110 | 1.35±0.16 | 10.3 (11.2) 12.3 |
| Stora Huvön<br>N 65°40'56.3''/E 22°52'58.6'' | 1 | *Macoma balthica* | 04–24 C.2 | Ua–36152 | -2.8 | 3060±45 | 2695 (2835) 3030 | 0.7092662±110 | 1.54±0.16 | 9.51 (10.2) 11.1 |

Bothnian Sea

| Locality<br>Coordinates* | Altitude<br>(m a.s.l.) | Shell species | Sample No. | $^{14}C$<br>lab. No. | $\delta^{13}C$<br>(‰ PDB) | $^{14}C$ age†<br>(BP) | Cal. $^{14}C$ age§<br>(cal BP) | $^{87}Sr/^{86}Sr$# | $\varepsilon_{Sr}$** | $Salinity_{Sr}$†<br>(‰) |
|---|---|---|---|---|---|---|---|---|---|---|
| Stormoberget<br>N 62°59'09.6''/E 18°27'53.6'' | 87 | *Mytilus edulis* | 06–14 | Ua–33377 | -1.3 | 6295±50 | 6550 (6750) 6945 | 0.7093571±110 | 2.82±0.16 | 6.64 (6.95) 7.29 |
| Stormyrberget<br>N 62°53'36.4''/E 18°22'39.4'' | 75 | *Mytilus edulis* | 06–17 | Ua–33378 | -0.5 | 6075±50 | 6305 (6495) 6665 | 0.7093044±110 | 2.08±0.16 | 8.34 (8.83) 9.38 |
| Kavelbrotjärnen<br>N 62°31'49.6''/E 17°46'48.7'' | 83 | *Mytilus edulis* | 07–07 A | Ua–35389 | -0.5 | 6030±40 | 6290 (6445) 6615 | 0.7093040±110 | 2.08±0.16 | 8.36 (8.85) 9.40 |
| Härnösand<br>N 62°37'48.9''/E 17°59'01.8'' | 76 | *Mytilus edulis* | 07–06 A | Ua–35388 | 1.0 | 5860±35 | 6115 (6275) 6425 | 0.7093066±110 | 2.11±0.16 | 8.26 (8.73) 9.27 |
| Överdal<br>N 62°42'00.1''/E 17°53'33.1'' | 75 | *Cerastoderma* sp. | 08–01 | Ua–37001 | 1.8 | 5790±60 | 5985 (6195) 6375 | 0.7095000±110 | 4.84±0.16 | 4.25 (4.38) 4.52 |
| Rävelviken<br>N 62°56'24.7''/E 18°28'29.7'' | 1 | *Mytilus edulis* | 03–04 B##<br>03–04 B##<br>03–04 B## | Ua–23712<br>Ua–23712<br>Ua–23712 | 1.4<br>1.4<br>1.4 | 5700±50<br>5700±50<br>5700±50 | 5925 (6100) 6265<br>5925 (6100) 6265<br>5925 (6100) 6265 | 0.709308±18<br>0.709301±18<br>0.709300±18 | 2.38±0.26<br>2.28±0.26<br>2.27±0.26 | 7.34 (7.96) 8.68<br>7.57 (8.22) 9.00<br>7.60 (8.26) 9.05 |
| Kullmyrberget<br>N 62°49'28.9''/E 18°15'35.7'' | 30 | *Mytilus edulis* | 06–12 C | Ua–33373 | -0.4 | 5400±45 | 5595 (5765) 5910 | 0.7092825±110 | 1.77±0.16 | 9.33 (9.94) 10.7 |
| Norr-Vårdkasberget<br>N 63°03'20.0''/E 18°39'45.2'' | 63 | *Mytilus edulis* | 06–05 | Ua–33375 | 0.5 | 5375±45 | 5585 (5740) 5890 | 0.7092926±110 | 1.91±0.16 | 8.85 (9.40) 10.1 |
| Edsättertjärnen<br>N 62°55'03.2''/E 18°22'45.6'' | 41 | *Mytilus edulis* | 06–15 | Ua–33369 | 0.1 | 5070±40 | 5280 (5420) 5575 | 0.7092806±110 | 1.75±0.16 | 9.43 (10.1) 10.8 |
| Kvarnsjön<br>N 63°01'52.3''/E 18°39'53.0'' | 22 | *Mytilus edulis* | 06–04 A##<br>06–04 A## | Ua–33374<br>Ua–33374 | 0.0<br>0.0 | 4920±40<br>4920±40 | 5010 (5230) 5440<br>5010 (5230) 5440 | 0.7092438±110<br>0.7092581±110 | 1.23±0.16<br>1.43±0.16 | 11.7 (12.8) 14.0<br>10.7 (11.6) 12.6 |
| Flaggberget<br>N 62°51'04.4''/E 18°21'34.4'' | 40 | *Mytilus edulis* | 06–16 B | Ua–33370 | 1.1 | 4665±35 | 4690 (4895) 5120 | 0.7092602±110 | 1.46±0.16 | 10.6 (11.4) 12.4 |
| Rävsön | 54 | *Mytilus edulis* | 04–09 A | Ua–23341 | -0.5 | 4650±50 | 4630 (4880) 5120 | 0.709278±18 | 1.96±0.26 | 8.42 (9.24) 10.3 |

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|---|---|---|---|---|---|---|---|---|---|---|
| N 62°55'51.1''/E 18°27'28.8'' | | | | | | | | | | |
| Grönsvik<br>N 62°47'59.9''/E 18°11'33.9'' | 49 | *Mytilus edulis* | 07–08 B | Ua–35390 | -0.7 | 4640±35 | 4640 (4865) 5050 | 0.7092611±110 | 1.47±0.16 | 10.5 (11.3) 12.3 |
| Ulvöhamn<br>N 63°01'28.4''/E 18°38'33.8'' | 39 | *Mytilus edulis* | 06–07 | Ua–33381 | -1.1 | 4520±35 | 4505 (4705) 4855 | 0.7092688±110 | 1.58±0.16 | 10.0 (10.8) 11.7 |
| Bysjön<br>N 63°01'41.6''/E 18°38'51.4'' | 29 | *Mytilus edulis* | 06–03 A | Ua–33368 | -0.5 | 4190±35 | 4065 (4265) 4450 | 0.7092855±110 | 1.81±0.16 | 9.18 (9.78) 10.5 |
| Skagshamn<br>N 63°12'56.3''/E 19°01'11.2'' | 20 | *Mytilus edulis* | 06–08 | Ua–33376 | 0.2 | 3655±40 | 3375 (3555) 3745 | 0.7092795±110 | 1.73±0.16 | 9.49 (10.1) 10.9 |
| Arsmyrberget<br>N 62°51'33.7''/E 18°22'47.0'' | 35 | *Mytilus edulis* | 06–13 A | Ua–33367 | 0.1 | 3525±35 | 3240 (3410) 3580 | 0.7092724±110 | 1.63±0.16 | 9.87 (10.6) 11.4 |

Baltic Proper

| Locality<br>Coordinates* | Altitude<br>(m a.s.l.) | Shell species | Sample No. | $^{14}C$<br>lab. No. | $\delta^{13}C$<br>(‰ PDB) | $^{14}C$ age†<br>(BP) | Cal. $^{14}C$ age§<br>(cal BP) | $^{87}Sr/^{86}Sr$# | $\varepsilon_{Sr}$** | $Salinity_{Sr}$††<br>(‰) |
|---|---|---|---|---|---|---|---|---|---|---|
| Partsi<br>N 58°56'40.4''/E 22°50'58.8'' | 9 | *Anculus fluviatilis* | 08–13.1 | N.D.*** | N.D.*** | N.D.*** | N.D.*** | 0.7170677±110 | 111.6±0.2 | N.D.*** |
| Partsi<br>N 58°56'40.4''/E 22°50'58.8'' | 9 | *Anculus fluviatilis* | 08–13.2 | N.D.*** | N.D.*** | N.D.*** | N.D.*** | 0.7169753±110 | 110.3±0.2 | N.D.*** |
| Sakla<br>N 58°57'16.0''/E 22°51'02.7'' | 16 | *Cerastoderma* sp. | 08–14 | Ua–37009 | 1.7 | 6615±50 | 6935 (7130) 7295 | 0.7093916±110 | 3.31±0.16 | 5.55 (5.79) 6.05 |
| Myran<br>N 59°18'20.2''/E 17°42'22.0'' | 22 | *Mytilus edulis* | 08–03 B | Ua–37004 | -0.8 | 6235±90 | 6415 (6680) 6935 | 0.7092818±110 | 1.76±0.16 | 9.06 (9.67) 10.4 |
| Söderby<br>N 59°12'09.4''/E 17°46'55.8'' | 30 | *Mytilus edulis* | 08–06 C | Ua–37006 | 1.2 | 5165±50 | 5315 (5515) 5665 | 0.7092853±110 | 1.81±0.16 | 8.88 (9.48) 10.2 |
| Korsnäs<br>N 59°09'09.8''/E 17°48'10.0'' | 21 | *Cerastoderma* sp. | 08–07 | Ua–37007 | 1.6 | 5125±45 | 5300 (5480) 5610 | 0.7093877±110 | 3.26±0.16 | 5.63 (5.88) 6.14 |
| Söderby<br>N 59°12'09.4''/E 17°46'55.8'' | 30 | *Cerastoderma* sp. | 08–06 A | Ua–37005 | 2.0 | 5055±45 | 5255 (5405) 5575 | 0.7095606±110 | 5.69±0.16 | 3.39 (3.49) 3.59 |
| Stäk<br>N 58°44'21.6''/E 17°07'55.7'' | 15 | *Macoma balthica* | 07–15 B | Ua–35397 | 0.4 | 4930±35 | 5030 (5250) 5440 | 0.7093532±110 | 2.77±0.16 | 6.44 (6.75) 7.10 |
| Yxlö<br>N 58°57'09.9''/E 18°01'16.8'' | 6 | *Mytilus edulis* | 08–09 A | Ua–37008 | 0.4 | 4800±45 | 4860 (5075) 5270 | 0.7092627±110 | 1.49±0.16 | 10.1 (10.9) 11.8 |
| Kvädö W<br>N 58°04'13.6''/E 16°46'35.9'' | 4 | *Mytilus edulis* | 05–01 A | Ua–24535 | 3.0 | 4635±45 | 4610 (4855) 5060 | 0.709282±18 | 2.02±0.26 | 7.95 (8.73) 9.68 |
| Myran<br>N 59°18'20.2''/E 17°42'22.0'' | 22 | *Cerastoderma* sp. | 08–03 A | Ua–37003 | 1.9 | 4550±45 | 4520 (4735) 4920 | 0.7094951±110 | 4.77±0.16 | 4.01 (4.14) 4.28 |
| Luckebol<br>N 58°47'43.2''/E 17°26'48.0'' | 9 | *Mytilus edulis* | 07–16 | Ua–35398 | -0.3 | 4350±40 | 4270 (4485) 4715 | 0.7092462±110 | 1.26±0.16 | 11.3 (12.2) 13.4 |

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|---|---|---|---|---|---|---|---|---|---|---|
| Studsvik<br>N 58°45'28.8''/E 17°23'10.2'' | 8 | *Mytilus edulis* | 07–14 A | Ua–35396 | 3.1 | 4310±35 | 4215 (4430) 4640 | 0.7092455±110 | 1.25±0.16 | 11.3 (12.3) 13.5 |
| Hästnäs<br>N 58°54'46.1''/E 17°45'40.4'' | 9 | *Mytilus edulis* | 07–03 B | Ua–35385 | 1.7 | 4215±40 | 4090 (4300) 4495 | 0.7093113±110 | 2.18±0.16 | 7.76 (8.22) 8.73 |
| Herrhamra<br>N 58°48'48.0''/E 17°49'25.2'' | 12 | *Mytilus edulis* | 07–01 A<br>07–01 A[§§] | Ua–36153 | -1.1 | 4160±45 | 3990 (4225) 4420 | 0.7092608±110<br>0.7092569±110 | 1.47±0.16<br>1.41±0.16 | 10.2 (11.1) 12.0<br>10.5 (11.4) 12.4 |
| Djursvik<br>N 58°40'34.1''/E 17°00'02.8'' | 5 | *Mytilus edulis* | 07–13 A | Ua–35395 | 1.1 | 4140±40 | 3985 (4200) 4400 | 0.7092779±110 | 1.71±0.16 | 9.26 (9.90) 10.7 |
| Eklötsmaren<br>N 58°54'06.3''/E 17°46'21.9'' | 5 | *Mytilus edulis* | 07–04 | Ua–35386 | -0.4 | 4110±35 | 3960 (4155) 4375 | 0.7092682±110 | 1.57±0.16 | 9.80 (10.5) 11.4 |
| Oxelösund<br>N 58°40'15.4''/E 17°05'05.0'' | 4 | *Mytilus edulis* | 07–12 | Ua–35394 | 0.3 | 4095±35 | 3930 (4135) 4355 | 0.7092373±110 | 1.14±0.16 | 12.0 (13.1) 14.4 |
| Kaderna<br>N 58°48'20.3''/E 22°31'03.7'' | 12 | *Cerastoderma* sp. | 08–16 A | Ua–37011 | 0.6 | 3625±40 | 3350 (3520) 3695 | 0.7092931±110 | 1.92±0.16 | 8.52 (9.06) 9.68 |
| Kaderna<br>N 58°48'17.0''/E 22°31'02.3'' | 10 | *Cerastoderma* sp. | 08–17 A | Ua–37012 | 0.9 | 3550±40 | 3265 (3435) 3615 | 0.7094061±110 | 3.52±0.16 | 5.27 (5.49) 5.73 |
| Vanajõe<br>N 58°53'07.1''/E 22°25'53.7'' | 3 | *Cerastoderma* sp. | 08–23 | Ua–37017 | 0.1 | 3550±40 | 3265 (3435) 3615 | 0.7092592±110 | 1.44±0.16 | 10.3 (11.2) 12.1 |
| Vanajõe<br>N 58°53'07.6''/E 22°26'03.9'' | 7 | *Cerastoderma* sp. | 08–22 B | Ua–37016 | 0.9 | 3500±40 | 3205 (3380) 3560 | 0.7093016±110 | 2.04±0.16 | 8.15 (8.65) 9.21 |
| Vanajõe<br>N 58°53'07.6''/E 22°26'03.9'' | 8 | *Cerastoderma* sp. | 08–22 A | Ua–37015 | 1.0 | 3385±40 | 3040 (3245) 3415 | 0.7092508±110 | 1.33±0.16 | 10.9 (11.8) 12.9 |
| Muda<br>N 58°46'20.9''/E 22°38'00.3'' | 10 | *Cerastoderma* sp. | 08–15 B | Ua–37010 | 1.5 | 3340±40 | 2975 (3190) 3360 | 0.7092742±110 | 1.66±0.16 | 9.46 (10.1) 10.9 |
| Viiri<br>N 58°42'23.6''/E 22°33'05.5'' | 10 | *Cerastoderma* sp. | 08–19 A | Ua–37014 | 1.1 | 3265±40 | 2885 (3090) 3295 | 0.7092587±110 | 1.44±0.16 | 10.4 (11.2) 12.2 |
| Kvädö N<br>N 58°04'30.0''/E 16°47'28.2'' | 6 | *Macoma balthica* | 05–02 B | Ua–24536 | 0.0 | 3000±45 | 2575 (2775) 2965 | 0.709499±18 | 5.08±0.26 | 3.72 (3.90) 4.10 |

*Coordinates according to World Geodetic System (WGS) 84.
†Conventional $^{14}C$ age ±1σ.
§Reservoir-corrected, calibrated $^{14}C$ age range (2σ). Reservoir age: 368±60 years (Olsson, 1980). Calibration performed with CALIB v5.0.1 (Stuiver and Reimer, 1993). Ages in parentheses are the intercept on the calibration curve.
#The reported error represents the external precision (2 SD) in the $^{87}Sr/^{86}Sr$ determination for the NBS 987 standard (±0.000018 for Finnigan® MAT 261 or ±0.0000110 for Thermo–Finnigan® Triton).
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$$\varepsilon_{Sr} = \left[\left(\frac{^{87}Sr/^{86}Sr_{Sample}}{^{87}Sr/^{86}Sr_{Seawater}}\right) - 1\right] \times 10^4$$

††Salinity range with end points obtained with the $\varepsilon_{Sr}$±2 SD range. $Salinity_{Sr}$ values in parentheses are the $\varepsilon_{Sr}$ intercept on the $Salinity_{Sr}$ curve (Widerlund and Andersson, 2006).
§§Duplicate sample (separate shell fragment, no $^{14}C$ dating performed).
##$^{87}Sr/^{86}Sr$ replicates of the same shell fragment (separate sub-samples).
***No data.

**TABLE DR 2. POWDER X-RAY DIFFRACTION (XRD) DATA FOR MODERN AND SUBFOSSIL SHELLS OF *Macoma balthica* AND *Cerastoderma* sp**

| Sample No. | Age (cal BP) | Aragonite (wt.%) | Calcite (wt.%) | Quartz (wt.%) |
|---|---|---|---|---|
| *Macoma balthica* | | | | |
| Modern shells | | | | |
| 04–03C | | 99.5±0.2 | | |
| 04–08 | | 99.5±0.2 | | |
| 04–11A | | 99.5±0.2 | | |
| Subfossil shells | | | | |
| 04–24C | 2835–3755 | 94.7±0.8 | 5.3±0.8 | |
| 08–09 B | ~5075 | 100 | | |
| 08–14.1 | ~7130 | 100 | | |
| 08–22 A.1 | ~3245 | 99.0 | | 1.0 |
| *Cerastoderma* sp. | | | | |
| Modern shells | | | | |
| 04–05A | | 98.4±0.4 | 1.2±0.4 | 0.4 |
| 04–12C | | 99.3±0.3 | 0.5 | 0.2 |
| 04–19B | | 97.7±0.4 | 1.9±0.4 | 0.4 |
| Subfossil shells | | | | |
| 08–01 | 5985 (6195) 6375 | 99.4 | 0.3 | 0.3 |
| 08–07 | 5300 (5480) 5610 | 100 | | |
| 08–14.2 | 6935 (7130) 7295 | 100 | | |
| 08–22 A.2 | 3040 (3245) 3415 | 100 | | |

*Note:* XRD data are refined according to the Rietveld method.

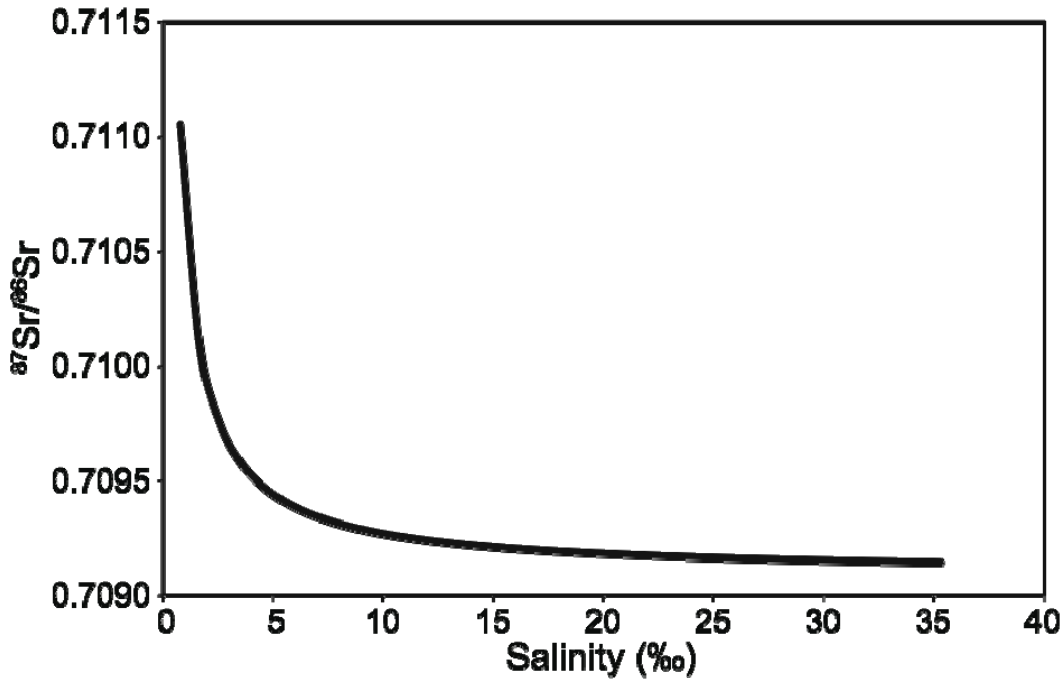


**Figure DR1.** Two-component strontium isotope mixing curve ($^{87}Sr/^{86}Sr$ plotted vs salinity), with $^{87}Sr/^{86}Sr$ ratios for the average river water composition in the Bothnian Sea and deep water from the North Sea as end-members. Mixing curves with river-water end-members for the Botnian Bay and the Baltic Proper are practically identical.

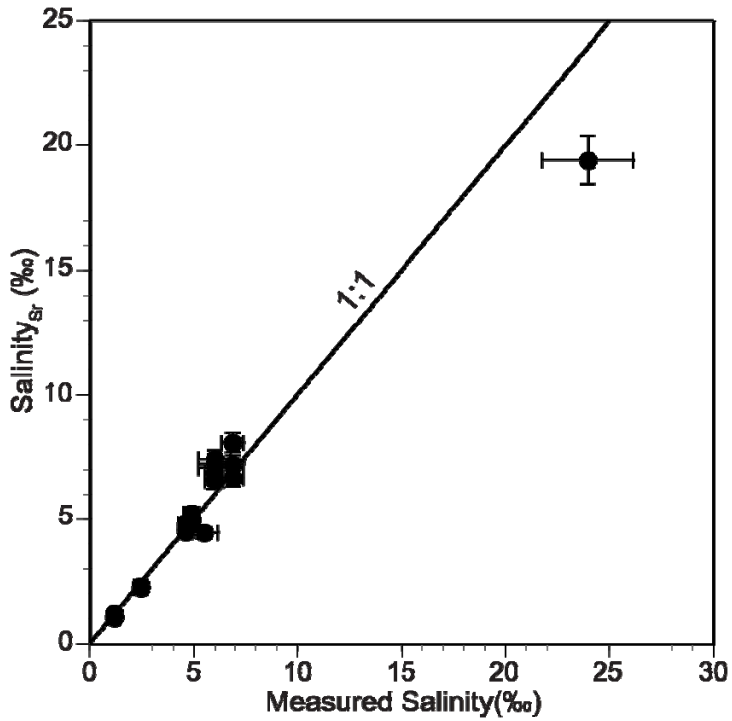


**Figure DR2**. Proxy Salinity$_{Sr}$ from modern shells plotted vs. measured surface water salinity. The average absolute error defined as $(1/n)\sum|\text{Salinity}_{Sr} - \text{Salinity}_{measured}|$ is ±0.7 ‰ (n = 23). Error bars show the method precision for Salinity$_{Sr}$ (±5 %) and 95 % confidence intervals for measured salinity.