

# ICES WGBAST REPORT 2016

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## Report of the Baltic Salmon and Trout Assessment Working Group (WGBAST)

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Klaipeda, Lithuania



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Table 4.2.1.1. Estimates of wild smolt production (\*1000) in Baltic salmon rivers updated with 2015 data. The estimates are based either on the river model (most of the AU 1–3 rivers) or other methods considered appropriate by experts of these rivers (all AU 4–6 rivers). For rivers in AU 1–4, median values and the associated 90% probability intervals (PI) are presented. For most of the other rivers no measure of uncertainty is available, but for some rivers + SE are presented. In earlier years, when full assessment was carried out, these time-series from AU 1–4 rivers were used as input in the full life-history model (see Stock Annex).

|                         |                  | Wild smolt production (thousand) |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          |           |          |           |           |           |           |           |           | Method of estimation |           |           |           |      |      |  |
|-------------------------|------------------|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------|-----------|-----------|-----------|------|------|--|
|                         |                  | 1987                             | 1988    | 1989    | 1990    | 1991    | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999     | 2000     | 2001     | 2002     | 2003     | 2004     | 2005     | 2006     | 2007      | 2008     | 2009      | 2010      | 2011      | 2012      | 2013      | 2014      | 2015                 | 2016      | 2017      | 2018      |      |      |  |
| Assessment unit 1       |                  |                                  |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          |           |          |           |           |           |           |           |           |                      |           |           |           |      |      |  |
| 1                       | Tornionjoki      | 69                               | 82      | 74      | 80      | 87      | 93      | 130     | 212     | 141     | 105     | 103     | 125     | 209      | 614      | 862      | 648      | 621      | 668      | 664      | 724      | 756       | 1108     | 1260      | 1396      | 1575      | 1647      | 1600      | 1403      | 1434                 | 1651      | 2344      | 2501      | 1,2  |      |  |
|                         | 90% PI           | 43-111                           | 54-123  | 47-115  | 56-114  | 62-121  | 62-137  | 92-178  | 150-301 | 95-211  | 75-143  | 71-145  | 92-170  | 160-267  | 485-768  | 698-1078 | 547-764  | 504-781  | 540-837  | 542-804  | 573-931  | 598-945   | 897-1390 | 1038-1525 | 1158-1690 | 1320-1902 | 1371-1994 | 1298-1993 | 1150-1715 | 1182-1760            | 1362-2000 | 1845-3122 | 1578-4358 |      |      |  |
| 2                       | Simojoki         | 2                                | 2       | 9       | 10      | 8       | 12      | 11      | 10      | 2       | 2       | 3       | 7       | 12       | 38       | 51       | 48       | 44       | 33       | 26       | 33       | 34        | 37       | 22        | 34        | 39        | 32        | 37        | 41        | 35                   | 29        | 36        | 26        | 1,2  |      |  |
|                         | 90% PI           | 1-3                              | 1-3     | 5-15    | 6-16    | 4-12    | 7-19    | 6-16    | 6-17    | 1-3     | 0-2     | 1-4     | 4-12    | 7-17     | 26-56    | 37-69    | 35-66    | 32-62    | 23-45    | 18-34    | 24-46    | 25-43     | 26-51    | 15-30     | 25-46     | 32-47     | 22-43     | 32-43     | 32-52     | 22-51                | 18-44     | 20-66     | 10-77     |      |      |  |
| 3                       | Kaikkälven       | 227                              | 139     | 118     | 93      | 163     | 137     | 216     | 135     | 130     | 118     | 82      | 136     | 310      | 424      | 448      | 430      | 359      | 474      | 690      | 612      | 860       | 630      | 778       | 692       | 735       | 913       | 808       | 903       | 840                  | 885       | 1304      | 1405      | 1    |      |  |
|                         | 90% PI           | 65-870                           | 41-502  | 36-379  | 31-258  | 49-500  | 43-347  | 73-608  | 44-382  | 44-364  | 38-345  | 28-225  | 46-376  | 84-1066  | 150-1157 | 163-1188 | 157-1137 | 131-945  | 166-1302 | 234-1983 | 225-1615 | 311-2298  | 323-1643 | 286-2050  | 256-1618  | 271-1917  | 327-2502  | 298-2092  | 334-2354  | 312-2210             | 327-2310  | 442-4065  | 260-3016  |      |      |  |
| 4                       | Räneälven        | 37                               | 25      | 24      | 13      | 12      | 11      | 9       | 9       | 3       | 3       | 4       | 9       | 16       | 26       | 30       | 25       | 18       | 25       | 40       | 36       | 45        | 50       | 43        | 54        | 65        | 56        | 54        | 55        | 61                   | 72        | 92        | 91        | 1    |      |  |
|                         | 90% PI           | 4-284                            | 3-479   | 2-169   | 1-104   | 1-181   | 1-168   | 1-142   | 1-136   | 0-15    | 0-11    | 0-13    | 2-26    | 4-49     | 8-75     | 9-84     | 7-73     | 5-52     | 7-72     | 12-114   | 11-111   | 15-121    | 17-138   | 14-121    | 19-144    | 23-179    | 19-155    | 18-148    | 20-145    | 22-163               | 26-193    | 32-262    | 24-340    |      |      |  |
| Total assessment unit 1 |                  | 372                              | 272     | 247     | 209     | 283     | 256     | 375     | 380     | 286     | 232     | 197     | 284     | 554      | 1120     | 1416     | 1163     | 1063     | 1220     | 1435     | 1434     | 1718      | 1859     | 2132      | 2209      | 2454      | 2687      | 2542      | 2436      | 2410                 | 2679      | 3892      | 3761      |      |      |  |
|                         | 90% PI           | 168-1125                         | 142-701 | 134-570 | 128-415 | 155-638 | 155-492 | 220-774 | 252-645 | 177-527 | 140-460 | 127-345 | 180-528 | 313-1318 | 791-1870 | 953-2190 | 356-1887 | 781-1667 | 161-2069 | 43-2746  | 179-2467 | 1118-3182 | 363-2913 | 554-3434  | 668-3378  | 866-3690  | 990-4320  | 384-3894  | 767-3934  | 770-3834             | 992-4166  | 753-6735  | 666-6630  |      |      |  |
| Assessment unit 2       |                  |                                  |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          |           |          |           |           |           |           |           |           |                      |           |           |           |      |      |  |
| 5                       | Riteälven        | 1                                | 1       | 1       | 1       | 1       | 1       | 1       | 3       | 3       | 6       | 6       | 5       | 6        | 21       | 13       | 8        | 10       | 9        | 22       | 33       | 28        | 22       | 18        | 13        | 13        | 22        | 23        | 14        | 24                   | 29        |           | 5         |      |      |  |
|                         | 90% PI           | 0-4                              | 0-5     | 0-2     | 0-2     | 0-2     | 0-2     | 0-2     | 1-6     | 1-6     | 3-10    | 3-12    | 2-9     | 3-11     | 11-39    | 7-25     | 4-14     | 5-19     | 4-16     | 14-23    | 18-60    | 18-43     | 14-34    | 9-36      | 6-25      | 6-25      | 13-33     | 12-46     | 7-29      | 12-48                | 15-59     |           |           |      |      |  |
| 6                       | Äbyälven         | 3                                | 4       | 3       | 2       | 3       | 4       | 7       | 10      | 4       | 4       | 6       | 8       | 6        | 10       | 15       | 11       | 7        | 7        | 5        | 4        | 12        | 20       | 16        | 12        | 15        | 18        | 22        | 23        | 21                   | 25        | 28        | 18        | 1    |      |  |
|                         | 90% PI           | 0-16                             | 0-14    | 0-10    | 0-9     | 0-14    | 0-15    | 0-30    | 1-234   | 0-15    | 0-14    | 1-21    | 1-24    | 1-19     | 2-35     | 4-44     | 3-34     | 1-22     | 1-22     | 1-18     | 0-15     | 1-340     | 6-57     | 4-45      | 3-36      | 4-42      | 5-50      | 6-62      | 7-64      | 6-58                 | 7-71      | 8-80      | 4-67      |      |      |  |
| 7                       | Byskeälven       | 26                               | 21      | 18      | 15      | 18      | 20      | 47      | 29      | 30      | 27      | 27      | 47      | 67       | 90       | 102      | 84       | 74       | 72       | 99       | 114      | 152       | 128      | 116       | 121       | 135       | 150       | 129       | 156       | 133                  | 177       | 212       | 152       | 1    |      |  |
|                         | 90% PI           | 6-96                             | 5-68    | 4-59    | 4-44    | 4-58    | 5-57    | 14-142  | 8-85    | 9-84    | 8-75    | 8-76    | 14-141  | 21-195   | 31-241   | 36-270   | 29-223   | 26-192   | 25-195   | 33-282   | 42-294   | 54-412    | 47-329   | 43-302    | 43-321    | 47-363    | 54-396    | 47-333    | 56-410    | 49-343               | 63-479    | 75-598    | 43-479    |      |      |  |
|                         | Kägeälven        |                                  |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          |           | 16       | 15        | 9         | 8         | 7         | 10        | 16        | 18                   | 24        | 26        | 19        | 1    |      |  |
|                         | 90% PI           |                                  |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          | 3-54      | 3-52     | 1-36      | 1-29      | 1-27      | 2-35      | 3-58      | 4-62      | 6-81                 | 6-90      | 3-81      |           |      |      |  |
| 8                       | Rickleån         | 1.9                              | 0.9     | 0.7     | 0.3     | 0.2     | 0.1     | 0.1     | 0.1     | 0.2     | 0.2     | 0.2     | 0.3     | 0.3      | 0.4      | 0.7      | 0.8      | 1.0      | 0.8      | 0.8      | 0.4      | 0.9       | 0.6      | 0.6       | 0.5       | 1.0       | 1.0       | 1.0       | 2.2       | 0.8                  | 1.1       | 1.6       | 1.7       | 1,2  |      |  |
|                         | 90% PI           | 0-18                             | 0-9     | 0-6     | 0-4     | 0-2     | 0-2     | 0-1     | 0-1     | 0-2     | 0-2     | 0-2     | 0-2     | 0-2      | 0-3      | 0-5      | 0-6      | 0-6      | 0-5      | 0-5      | 0-3      | 0-5       | 0-4      | 0-4       | 0-4       | 0-6       | 0-5       | 1-2       | 0-4       | 0-6                  | 0-9       | 0-12      |           |      |      |  |
| 9                       | Sävarån          | 2.1                              | 1.5     | 1.2     | 0.9     | 1.0     | 1.1     | 0.8     | 0.5     | 0.6     | 0.5     | 0.5     | 1.3     | 1.1      | 1.5      | 1.6      | 1.7      | 2.0      | 2.3      | 3.0      | 3.2      | 4.5       | 2.7      | 2.4       | 2.2       | 3.4       | 4.2       | 5.3       | 6.2       | 7.9                  | 11.6      | 10.5      | 1,2       |      |      |  |
|                         | 90% PI           | 0-13                             | 0-9     | 0-7     | 0-4     | 0-4     | 0-4     | 0-3     | 0-2     | 0-2     | 0-2     | 0-2     | 0-4     | 0-4      | 0-5      | 0-5      | 0-6      | 0-6      | 0-6      | 0-6      | 0-3      | 2-4       | 3-5      | 1-4       | 1-3       | 1-3       | 1-8       | 2-6       | 2-12      | 2-14                 | 3-17      | 5-26      | 3-26      |      |      |  |
| 10                      | Urne/Vindelälven | 61                               | 46      | 44      | 51      | 52      | 41      | 31      | 30      | 23      | 12      | 14      | 18      | 65       | 203      | 203      | 164      | 186      | 113      | 187      | 186      | 174       | 148      | 162       | 161       | 189       | 277       | 248       | 162       | 241                  | 257       | 381       | 300       | 1,2  |      |  |
|                         | 90% PI           | 19-191                           | 12-187  | 12-147  | 13-198  | 18-157  | 12-126  | 9-100   | 9-77    | 8-55    | 3-32    | 4-35    | 5-40    | 21-183   | 89-435   | 70-456   | 80-338   | 85-402   | 49-227   | 97-337   | 90-347   | 91-302    | 84-262   | 94-268    | 120-215   | 154-232   | 206-367   | 188-330   | 137-191   | 136-416              | 137-442   | 213-661   | 124-591   |      |      |  |
| 11                      | Öreälven         | 2.8                              | 1.3     | 0.8     | 0.4     | 0.3     | 0.4     | 0.4     | 0.2     | 0.2     | 0.2     | 0.2     | 0.8     | 0.9      | 1.3      | 1.6      | 1.6      | 2.4      | 3.7      | 3.3      | 3.5      | 5.1       | 4.2      | 3.6       | 3.2       | 4.4       | 4.1       | 5.3       | 5.7       | 5.0                  | 6.9       | 8.5       | 6.8       | 1    |      |  |
|                         | 90% PI           | 0-26                             | 0-13    | 0-9     | 0-5     | 0-4     | 0-4     | 0-4     | 0-3     | 0-3     | 0-3     | 0-4     | 0-7     | 0-7      | 0-9      | 0-10     | 0-12     | 0-15     | 0-20     | 0-18     | 0-18     | 0-24      | 0-21     | 0-18      | 0-17      | 0-23      | 0-21      | 0-26      | 0-27      | 0-25                 | 1-32      | 1-44      | 0-41      |      |      |  |
| 12                      | Lögdeälven       | 2.4                              | 1.4     | 1.2     | 1.1     | 0.9     | 1.1     | 2.0     | 1.5     | 1.2     | 1.9     | 1.5     | 3.2     | 4.0      | 4.8      | 6.7      | 6.0      | 4.9      | 5.5      | 7.0      | 9.1      | 10.2      | 9.1      | 7.5       | 8.0       | 7.7       | 8.1       | 9.3       | 7.1       | 9.9                  | 12.7      | 13.8      | 12.1      | 1    |      |  |
|                         | 90% PI           | 0-14                             | 0-8     | 0-6     | 0-5     | 0-4     | 0-5     | 0-8     | 0-7     | 0-6     | 0-8     | 0-7     | 0-13    | 0-15     | 0-17     | 1-22     | 1-21     | 0-18     | 1-20     | 1-24     | 2-30     | 2-32      | 3-30     | 3-25      | 1-26      | 1-25      | 1-26      | 1-25      | 1-26      | 2-30                 | 1-24      | 2-33      | 3-41      | 3-46 | 2-49 |  |
| Total assessment unit 2 |                  | 133                              | 100     | 90      | 89      | 96      | 85      | 109     | 87      | 74      | 57      | 65      | 97      | 179      | 377      | 414      | 334      | 339      | 333      | 254      | 370      | 396       | 445      | 390       | 378       | 369       | 414       | 542       | 504       | 426                  | 503       | 581       | 801       |      |      |  |
|                         | 90% PI           | 61-317                           | 43-280  | 39-220  | 37-265  | 44-227  | 39-193  | 51-244  | 42-175  | 36-146  | 26-117  | 30-129  | 45-204  | 84-377   | 201-690  | 211-778  | 186-600  | 133-630  | 135-447  | 212-635  | 218-674  | 250-766   | 225-657  | 225-622   | 244-604   | 289-671   | 383-826   | 351-749   | 284-720   | 306-821              | 144-1000  | 181-1349  |           |      |      |  |
| Assessment unit 3       |                  |                                  |         |         |         |         |         |         |         |         |         |         |         |          |          |          |          |          |          |          |          |           |          |           |           |           |           |           |           |                      |           |           |           |      |      |  |
| 13                      | Ljungan          | 1.1                              | 0.9     | 0.8     | 1.2     | 1.5     | 0.9     | 1.2     | 0.8     | 0.4     | 0.6     | 1.1     | 1.1     | 1.8      | 2.2      | 2.1      | 1.8      | 1.1      | 1.1      | 1.0      | 0.8      | 2.0       | 1.2      | 1.0       | 1.6       | 1.0       | 0.9       | 1.0       | 1.6       | 0.8                  | 3.1       | 6.6       | 3.9       | 1    |      |  |
|                         | 90% PI           | 0-10                             | 0-8     | 0-6     | 0-7     | 0-8     | 0-6     | 0-7     | 0-6     | 0-4     | 0-4     | 0-7     | 0-6     | 0-10     | 0-11     | 0-10     | 0-9      | 0-6      | 0-6      | 0-5      | 0-4      | 0-11      | 0-7      | 0-6       | 0-10      | 0-8       | 0-8       | 0-8       | 0-8       | 0-11                 | 0-6       | 0-16      | 0-31      | 0-21 |      |  |
| Total assessment unit 3 |                  | 1.1                              | 0.9     | 0.8     | 1.2     | 1.5     | 0.9     | 1.2     | 0.8     | 0.4     | 0.6     | 1.1     | 1.1     | 1.8      | 2.2      | 2.1      | 1.8      | 1.1      | 1.1      | 1.0      | 0.8      | 2.0       | 1.2      | 1.0       | 1.6       | 1.0       | 0.9       | 1.0       | 1.6       | 0.8                  | 3.1       | 6.6       | 3.9       |      |      |  |
|                         | 90% PI           | 0-10                             | 0-8     | 0-6     | 0-7     | 0-8     | 0-6     | 0-7     | 0-6     | 0-4     | 0-4     | 0-7     | 0-6     | 0-10     | 0-11     | 0-10     | 0-9      | 0-6      | 0-6      | 0-5      | 0-4      | 0-11      | 0-7      | 0-6       | 0-10      | 0-8       | 0-8       | 0-8       | 0-8       | 0-11                 | 0-6       | 0-16      | 0-31      | 0-21 |      |  |