

|      |      |      |      |      |      |      |      |      |      |       |      |       |       |
|------|------|------|------|------|------|------|------|------|------|-------|------|-------|-------|
| 2014 | 0.79 | 1.2  | 1.73 | 2.34 | 3.28 | 4.21 | 5.49 | 6.98 | 8.67 | 11.42 | 12.8 | 14.18 | 15.55 |
| 2015 | 0.78 | 1.09 | 1.55 | 2.18 | 3.14 | 4.46 | 5.61 | 6.62 | 7.34 | 11.42 | 12.8 | 14.18 | 15.55 |
| 2016 | 0.78 | 1.14 | 1.66 | 2.26 | 3.25 | 4.5  | 5.98 | 7.31 | 8.54 | 11.42 | 12.8 | 14.18 | 15.55 |
| 2017 | 0.71 | 1.15 | 1.66 | 2.32 | 3.32 | 4.67 | 6.13 | 7.15 | 8.14 | 11.42 | 12.8 | 14.18 | 15.55 |

Table 3.9. Northeast Arctic COD. Stock weights at age (kg)

SAM, Thu Apr 19 15:28:56 2018

| Year_age | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10     | 11     | 12     | 13     | 14     | +gp    |
|----------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| 1946     | 0.35  | 0.59  | 1.11  | 1.69  | 2.37  | 3.17  | 3.98  | 5.05   | 5.92   | 7.2    | 8.146  | 8.133  | 9.253  |
| 1947     | 0.32  | 0.56  | 0.95  | 1.5   | 2.14  | 2.92  | 3.65  | 4.56   | 5.84   | 7.42   | 8.848  | 8.789  | 9.998  |
| 1948     | 0.34  | 0.53  | 1.26  | 1.93  | 2.46  | 3.36  | 4.22  | 5.31   | 5.92   | 7.09   | 8.43   | 8.181  | 9.433  |
| 1949     | 0.37  | 0.67  | 1.11  | 1.66  | 2.5   | 3.23  | 4.07  | 5.27   | 5.99   | 7.08   | 8.218  | 8.259  | 8.701  |
| 1950     | 0.39  | 0.64  | 1.29  | 1.7   | 2.36  | 3.48  | 4.52  | 5.62   | 6.4    | 7.96   | 8.891  | 9.07   | 10.271 |
| 1951     | 0.4   | 0.83  | 1.39  | 1.88  | 2.54  | 3.46  | 4.88  | 5.2    | 7.14   | 8.22   | 9.389  | 9.502  | 9.517  |
| 1952     | 0.44  | 0.8   | 1.33  | 1.92  | 2.64  | 3.71  | 5.06  | 6.05   | 7.42   | 8.43   | 10.185 | 10.134 | 10.563 |
| 1953     | 0.4   | 0.76  | 1.28  | 1.93  | 2.81  | 3.72  | 5.06  | 6.34   | 7.4    | 8.67   | 10.238 | 11.409 | 11.926 |
| 1954     | 0.44  | 0.77  | 1.26  | 1.97  | 3.03  | 4.33  | 5.4   | 6.75   | 7.79   | 10.67  | 9.68   | 9.557  | 11.106 |
| 1955     | 0.32  | 0.57  | 1.13  | 1.73  | 2.75  | 3.94  | 4.9   | 7.04   | 7.2    | 8.78   | 10.077 | 11.023 | 12.105 |
| 1956     | 0.33  | 0.58  | 1.07  | 1.83  | 2.89  | 4.25  | 5.55  | 7.28   | 8      | 8.35   | 9.944  | 10.248 | 11.564 |
| 1957     | 0.33  | 0.59  | 1.02  | 1.82  | 2.89  | 4.28  | 5.49  | 7.51   | 8.24   | 9.25   | 10.605 | 10.825 | 12.075 |
| 1958     | 0.34  | 0.52  | 0.95  | 1.92  | 2.94  | 4.21  | 5.61  | 7.35   | 8.67   | 9.58   | 11.631 | 11     | 13.832 |
| 1959     | 0.35  | 0.72  | 1.47  | 2.68  | 3.59  | 4.32  | 5.45  | 6.44   | 7.17   | 8.63   | 11.621 | 11.95  | 13     |
| 1960     | 0.34  | 0.51  | 1.09  | 2.13  | 3.38  | 4.87  | 6.12  | 8.49   | 7.79   | 8.3    | 11.422 | 11.719 | 13.424 |
| 1961     | 0.31  | 0.55  | 1.05  | 2.2   | 3.23  | 5.11  | 6.15  | 8.15   | 8.68   | 9.6    | 11.952 | 13.181 | 13.422 |
| 1962     | 0.32  | 0.55  | 0.93  | 1.7   | 3.03  | 5.03  | 6.55  | 7.7    | 9.27   | 10.56  | 12.717 | 13.482 | 14.44  |
| 1963     | 0.32  | 0.61  | 0.96  | 1.73  | 3.04  | 4.96  | 6.44  | 7.91   | 9.62   | 11.31  | 12.737 | 13.193 | 14.287 |
| 1964     | 0.33  | 0.55  | 0.95  | 1.86  | 3.25  | 4.97  | 6.41  | 8.07   | 9.34   | 10.16  | 12.886 | 13.251 | 14     |
| 1965     | 0.38  | 0.68  | 1.03  | 1.49  | 2.41  | 3.52  | 5.73  | 7.54   | 8.47   | 11.17  | 13.722 | 13.465 | 14.118 |
| 1966     | 0.44  | 0.74  | 1.18  | 1.78  | 2.46  | 3.82  | 5.36  | 7.27   | 8.63   | 10.66  | 14.148 | 14     | 15     |
| 1967     | 0.29  | 0.81  | 1.35  | 2.04  | 2.81  | 3.48  | 4.89  | 7.11   | 9.03   | 10.59  | 13.829 | 14.146 | 16.756 |
| 1968     | 0.33  | 0.7   | 1.48  | 2.12  | 3.14  | 4.21  | 5.27  | 6.65   | 9.01   | 9.66   | 14.848 | 16.3   | 17     |
| 1969     | 0.44  | 0.79  | 1.23  | 2.03  | 2.9   | 3.81  | 5.02  | 6.43   | 8.33   | 10.71  | 14.211 | 15     | 17     |
| 1970     | 0.37  | 0.91  | 1.34  | 2     | 3     | 4.15  | 5.59  | 7.6    | 8.97   | 10.99  | 14.074 | 14.611 | 16     |
| 1971     | 0.45  | 0.88  | 1.38  | 2.16  | 3.07  | 4.22  | 5.81  | 7.13   | 8.62   | 10.83  | 12.945 | 14.25  | 15.973 |
| 1972     | 0.38  | 0.77  | 1.43  | 2.12  | 3.23  | 4.38  | 5.83  | 7.62   | 9.52   | 12.09  | 13.673 | 13.852 | 16     |
| 1973     | 0.38  | 0.91  | 1.54  | 2.26  | 3.29  | 4.61  | 6.57  | 8.37   | 10.54  | 11.62  | 13.904 | 14     | 15.841 |
| 1974     | 0.32  | 0.66  | 1.17  | 2.22  | 3.21  | 4.39  | 5.52  | 7.86   | 9.82   | 11.41  | 13.242 | 13.704 | 14.291 |
| 1975     | 0.41  | 0.64  | 1.11  | 1.9   | 2.95  | 4.37  | 5.74  | 8.77   | 9.92   | 11.81  | 13.107 | 14     | 14.293 |
| 1976     | 0.35  | 0.73  | 1.19  | 2.01  | 2.76  | 4.22  | 5.88  | 9.3    | 10.28  | 11.86  | 13.544 | 14.311 | 14.284 |
| 1977     | 0.49  | 0.9   | 1.43  | 2.05  | 3.3   | 4.56  | 6.46  | 8.63   | 9.93   | 10.9   | 13.668 | 14.255 | 14.906 |
| 1978     | 0.49  | 0.81  | 1.45  | 2.15  | 3.04  | 4.46  | 6.54  | 7.98   | 10.15  | 10.85  | 13.177 | 14     | 15     |
| 1979     | 0.35  | 0.7   | 1.24  | 2.14  | 3.15  | 4.29  | 6.58  | 8.61   | 9.22   | 10.89  | 14.344 | 14.5   | 15.315 |
| 1980     | 0.27  | 0.56  | 1.02  | 1.72  | 3.02  | 4.2   | 5.84  | 7.26   | 8.84   | 9.28   | 14.448 | 15     | 15.5   |
| 1981     | 0.49  | 0.98  | 1.44  | 2.09  | 2.98  | 4.85  | 6.57  | 9.16   | 10.82  | 10.77  | 13.932 | 15     | 16     |
| 1982     | 0.37  | 0.66  | 1.35  | 1.99  | 2.93  | 4.24  | 6.46  | 8.51   | 12.24  | 10.78  | 14.041 | 15     | 16     |
| 1983     | 0.37  | 0.92  | 1.6   | 2.44  | 3.82  | 4.76  | 6.17  | 7.7    | 9.25   | 12.621 | 14.544 | 16.466 | 18.388 |
| 1984     | 0.42  | 1.16  | 1.81  | 2.79  | 3.78  | 4.57  | 6.17  | 7.7    | 9.25   | 12.621 | 14.544 | 16.466 | 18.388 |
| 1985     | 0.413 | 0.875 | 1.603 | 2.81  | 4.059 | 5.833 | 7.685 | 10.117 | 14.29  | 12.621 | 14.544 | 16.466 | 18.388 |
| 1986     | 0.311 | 0.88  | 1.47  | 2.467 | 3.915 | 5.81  | 6.58  | 6.833  | 11.004 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1987     | 0.211 | 0.498 | 1.254 | 2.047 | 3.431 | 5.137 | 6.523 | 9.3    | 13.15  | 12.621 | 14.544 | 16.466 | 18.388 |
| 1988     | 0.212 | 0.404 | 0.79  | 1.903 | 2.977 | 4.392 | 7.812 | 12.112 | 13.107 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1989     | 0.299 | 0.52  | 0.868 | 1.477 | 2.686 | 4.628 | 7.048 | 9.98   | 9.25   | 12.621 | 14.544 | 16.466 | 18.388 |
| 1990     | 0.398 | 0.705 | 1.182 | 1.719 | 2.458 | 3.565 | 4.71  | 7.801  | 8.956  | 12.621 | 14.544 | 16.466 | 18.388 |
| 1991     | 0.518 | 1.136 | 1.743 | 2.428 | 3.214 | 4.538 | 6.88  | 10.719 | 9.445  | 12.621 | 14.544 | 16.466 | 18.388 |
| 1992     | 0.44  | 0.931 | 1.812 | 2.716 | 3.895 | 5.176 | 6.774 | 9.598  | 12.427 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1993     | 0.344 | 1.172 | 1.82  | 2.823 | 4.031 | 5.497 | 6.765 | 8.571  | 10.847 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1994     | 0.235 | 0.753 | 1.42  | 2.413 | 3.825 | 5.416 | 6.631 | 7.63   | 8.112  | 12.621 | 14.544 | 16.466 | 18.388 |
| 1995     | 0.201 | 0.485 | 1.14  | 2.118 | 3.47  | 4.938 | 7.16  | 9.119  | 10.101 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1996     | 0.195 | 0.487 | 0.971 | 2.054 | 3.527 | 5.503 | 7.767 | 10.159 | 10.669 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1997     | 0.202 | 0.521 | 1.079 | 1.878 | 3.369 | 5.263 | 8.927 | 12.154 | 11.204 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1998     | 0.217 | 0.533 | 1.161 | 1.939 | 2.945 | 4.574 | 7.423 | 10.367 | 11.738 | 12.621 | 14.544 | 16.466 | 18.388 |
| 1999     | 0.203 | 0.52  | 1.174 | 2.031 | 3.034 | 4.464 | 6.482 | 10.269 | 10.882 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2000     | 0.194 | 0.465 | 1.208 | 1.972 | 3.048 | 4.096 | 5.724 | 7.457  | 9.582  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2001     | 0.285 | 0.522 | 1.196 | 2.239 | 3.313 | 5.118 | 6.376 | 9.241  | 11.322 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2002     | 0.251 | 0.605 | 1.189 | 2.138 | 3.333 | 4.766 | 6.859 | 9.333  | 10.186 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2003     | 0.23  | 0.537 | 1.31  | 2.009 | 3.241 | 4.971 | 6.739 | 8.706  | 15.026 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2004     | 0.25  | 0.546 | 1.087 | 2.035 | 2.921 | 4.384 | 6.254 | 8.543  | 9.735  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2005     | 0.231 | 0.624 | 1.118 | 1.932 | 3.046 | 3.955 | 5.811 | 8.289  | 13.44  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2006     | 0.256 | 0.602 | 1.201 | 2.009 | 3.114 | 4.427 | 6.03  | 8.037  | 9.928  | 12.621 | 14.544 | 16.466 | 18.388 |

|      |       |       |       |       |       |       |       |       |        |        |        |        |        |
|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 2007 | 0.262 | 0.699 | 1.341 | 2.121 | 3.167 | 4.64  | 6.495 | 9.123 | 11.78  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2008 | 0.286 | 0.734 | 1.37  | 2.367 | 3.29  | 4.82  | 6.548 | 8.483 | 8.902  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2009 | 0.26  | 0.641 | 1.343 | 2.36  | 3.763 | 5.111 | 6.554 | 9.098 | 9.432  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2010 | 0.257 | 0.589 | 1.183 | 2.052 | 3.181 | 4.8   | 6.759 | 7.859 | 10.008 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2011 | 0.224 | 0.589 | 1.088 | 1.915 | 2.776 | 4.319 | 6.495 | 8.489 | 10.016 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2012 | 0.21  | 0.561 | 1.108 | 1.76  | 2.775 | 4.056 | 6.117 | 8.718 | 11.676 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2013 | 0.256 | 0.589 | 1.151 | 2.019 | 2.857 | 4.049 | 5.631 | 8.146 | 10.378 | 12.621 | 14.544 | 16.466 | 18.388 |
| 2014 | 0.22  | 0.588 | 1.146 | 1.827 | 2.835 | 3.828 | 5.142 | 6.953 | 9.015  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2015 | 0.231 | 0.546 | 1.165 | 1.938 | 2.853 | 3.946 | 5.258 | 6.821 | 8.957  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2016 | 0.229 | 0.53  | 1.037 | 1.805 | 2.712 | 3.964 | 5.537 | 7.073 | 8.648  | 12.621 | 14.544 | 16.466 | 18.388 |
| 2017 | 0.261 | 0.649 | 1.168 | 1.966 | 2.93  | 4.627 | 5.966 | 7.279 | 9.3    | 12.621 | 14.544 | 16.466 | 18.388 |
| 2018 | 0.277 | 0.631 | 1.21  | 1.943 | 2.742 | 4.041 | 5.701 | 7.485 | 9.406  | 12.621 | 14.544 | 16.466 | 18.388 |

Table 3.10. Northeast Arctic COD. Basis for maturity ogives (percent) used in the assessment. Norwegian and Russian data.

|        |                   |     |      |      |      |      |      |      |
|--------|-------------------|-----|------|------|------|------|------|------|
| Norway |                   |     |      |      |      |      |      |      |
|        | Percentage mature |     |      |      |      |      |      |      |
|        | Age               |     |      |      |      |      |      |      |
| Year   | 3                 | 4   | 5    | 6    | 7    | 8    | 9    | 10   |
| 1982   | 0                 | 5   | 10   | 34   | 65   | 82   | 92   | 100  |
| 1983   | 5                 | 8   | 10   | 30   | 73   | 88   | 97   | 100  |
| Russia |                   |     |      |      |      |      |      |      |
|        | Percentage mature |     |      |      |      |      |      |      |
|        | Age               |     |      |      |      |      |      |      |
| Year   | 3                 | 4   | 5    | 6    | 7    | 8    | 9    | 10   |
| 1984   | 0                 | 5   | 18   | 31   | 56   | 90   | 99   | 100  |
| 1985   | 0                 | 1   | 10   | 33   | 59   | 85   | 92   | 100  |
| 1986   | 0                 | 2   | 9    | 19   | 56   | 76   | 89   | 100  |
| 1987   | 0                 | 1   | 9    | 23   | 27   | 61   | 81   | 80   |
| 1988   | 0                 | 1   | 3    | 25   | 53   | 79   | 100  | 100  |
| 1989   | 0                 | 0   | 2    | 15   | 39   | 59   | 83   | 100  |
| 1990   | 0                 | 2   | 6    | 20   | 47   | 62   | 81   | 95   |
| 1991   | 0                 | 3   | 1    | 23   | 66   | 82   | 96   | 100  |
| 1992   | 0                 | 1   | 8    | 31   | 73   | 92   | 95   | 100  |
| 1993   | 0                 | 3   | 7    | 21   | 56   | 89   | 95   | 99   |
| 1994   | 0                 | 1   | 8    | 30   | 55   | 84   | 95   | 98   |
| 1995   | 0                 | 0   | 4    | 23   | 61   | 75   | 94   | 97   |
| 1996   | 0                 | 0   | 1    | 22   | 56   | 82   | 95   | 100  |
| 1997   | 0                 | 0   | 1    | 10   | 48   | 73   | 90   | 100  |
| 1998   | 0                 | 0   | 2    | 15   | 47   | 87   | 97   | 96   |
| 1999   | 0                 | 0.2 | 1.3  | 9.9  | 38.4 | 74.9 | 94   | 100  |
| 2000   | 0                 | 0   | 6    | 19.2 | 51.4 | 84   | 95.5 | 100  |
| 2001   | 0.1               | 0.1 | 3.9  | 27.9 | 62.3 | 89.4 | 96.3 | 100  |
| 2002   | 0.1               | 1.9 | 10.9 | 34.4 | 68.1 | 82.8 | 97.6 | 100  |
| 2003   | 0.2               | 0   | 11   | 29.2 | 65.9 | 89.6 | 95.1 | 100  |
| 2004   | 0                 | 0.7 | 8    | 33.8 | 63.3 | 83.4 | 96.4 | 96.4 |
| 2005   | 0                 | 0.6 | 4.6  | 24.2 | 61.5 | 84.9 | 95.3 | 98.1 |
| 2006   | 0                 | 0   | 6.1  | 29.6 | 59.6 | 89.5 | 96.4 | 100  |
| 2007   | 0                 | 0.4 | 5.7  | 20.8 | 60.4 | 83.5 | 96   | 100  |
| 2008   | 0                 | 0.5 | 4    | 24.6 | 48.3 | 84.4 | 94.7 | 98.7 |
| 2009   | 0                 | 0   | 6    | 28   | 66   | 85   | 97   | 100  |
| 2010   | 0                 | 0.2 | 1.5  | 22.8 | 47   | 77.4 | 90.2 | 95.5 |
| 2011   | 0                 | 0   | 2.2  | 20.7 | 50.4 | 73.7 | 90.6 | 95.6 |
| 2012   | 0.2               | 0   | 1.5  | 10.8 | 43.9 | 76.1 | 90.8 | 96.4 |
| 2013   | 0                 | 0   | 0.6  | 10.6 | 41.8 | 70.6 | 89.8 | 96.9 |
| 2014   | 0                 | 0   | 1.9  | 14.1 | 45.9 | 76   | 92   | 97.5 |
| 2015   | 0                 | 0.2 | 0.2  | 7.9  | 27   | 60.8 | 83.4 | 93.7 |
| 2016   | 0                 | 0   | 0.2  | 5.2  | 22.4 | 44.1 | 74.8 | 92.5 |
| 2017*  | 0                 | 0   | 0.8  | 6.3  | 20.8 | 51.6 | 80.4 | 98.6 |
| 2018   | 0                 | 0.5 | 2.5  | 23.6 | 53.9 | 79.4 | 92.5 | 96.0 |

\*Not used in inputs (instead ratios presented in WD 10, 2017 used for further calculations)

| Norway | Percentage mature |
|--------|-------------------|
| 1990   | 100               |
| 1991   | 100               |
| 1992   | 100               |
| 1993   | 100               |
| 1994   | 100               |
| 1995   | 100               |
| 1996   | 100               |
| 1997   | 100               |
| 1998   | 100               |
| 1999   | 100               |
| 2000   | 100               |
| 2001   | 100               |
| 2002   | 100               |
| 2003   | 100               |
| 2004   | 100               |
| 2005   | 100               |
| 2006   | 100               |
| 2007   | 100               |
| 2008   | 100               |
| 2009   | 100               |
| 2010   | 100               |
| 2011   | 100               |
| 2012   | 100               |
| 2013   | 100               |
| 2014   | 100               |
| 2015   | 100               |
| 2016   | 100               |
| 2017   | 100               |
| 2018   | 100               |
| 2019   | 100               |
| 2020   | 100               |
| 2021   | 100               |
| 2022   | 100               |
| 2023   | 100               |
| 2024   | 100               |
| 2025   | 100               |
| 2026   | 100               |
| 2027   | 100               |
| 2028   | 100               |
| 2029   | 100               |
| 2030   | 100               |
| 2031   | 100               |
| 2032   | 100               |
| 2033   | 100               |
| 2034   | 100               |
| 2035   | 100               |
| 2036   | 100               |
| 2037   | 100               |
| 2038   | 100               |
| 2039   | 100               |
| 2040   | 100               |
| 2041   | 100               |
| 2042   | 100               |
| 2043   | 100               |
| 2044   | 100               |
| 2045   | 100               |
| 2046   | 100               |
| 2047   | 100               |
| 2048   | 100               |
| 2049   | 100               |
| 2050   | 100               |
| 2051   | 100               |
| 2052   | 100               |
| 2053   | 100               |
| 2054   | 100               |
| 2055   | 100               |
| 2056   | 100               |
| 2057   | 100               |
| 2058   | 100               |
| 2059   | 100               |
| 2060   | 100               |
| 2061   | 100               |
| 2062   | 100               |
| 2063   | 100               |
| 2064   | 100               |
| 2065   | 100               |
| 2066   | 100               |
| 2067   | 100               |
| 2068   | 100               |
| 2069   | 100               |
| 2070   | 100               |
| 2071   | 100               |
| 2072   | 100               |
| 2073   | 100               |
| 2074   | 100               |
| 2075   | 100               |
| 2076   | 100               |
| 2077   | 100               |
| 2078   | 100               |
| 2079   | 100               |
| 2080   | 100               |
| 2081   | 100               |
| 2082   | 100               |
| 2083   | 100               |
| 2084   | 100               |
| 2085   | 100               |
| 2086   | 100               |
| 2087   | 100               |
| 2088   | 100               |
| 2089   | 100               |
| 2090   | 100               |
| 2091   | 100               |
| 2092   | 100               |
| 2093   | 100               |
| 2094   | 100               |
| 2095   | 100               |
| 2096   | 100               |
| 2097   | 100               |
| 2098   | 100               |
| 2099   | 100               |
| 2100   | 100               |