**Stock: Haddock in Sub-area IV (North Sea) and Division IIIa (Skagerrak - Kattegat)**

**Assessment Quality Control Diagram 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Average F(2-6,u) | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | |
|  | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
| 1989 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 | 1.05 | 0.95 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 1.05 | 0.91 | 0.98 |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 1.03 | 0.91 | 1.10 | 1.23 |  |  |  |  |  |  |  |  |  |  |
| 1993 | 0.99 | 0.87 | 0.99 | 0.92 | 1.31 |  |  |  |  |  |  |  |  |  |
| 1994 | 1.06 | 0.97 | 0.86 | 0.81 | 1.07 | 1.02 |  |  |  |  |  |  |  |  |
| 1995 | 1.05 | 0.96 | 0.84 | 0.78 | 1.00 | 0.87 | 0.89 |  |  |  |  |  |  |  |
| 1996 | 1.02 | 0.86 | 0.99 | 0.85 | 0.99 | 0.92 | 0.91 | 0.74 |  |  |  |  |  |  |
| 1997 | 1.02 | 0.86 | 0.98 | 0.84 | 0.96 | 0.87 | 0.83 | 0.63 | 0.66 |  |  |  |  |  |
| 1998 | 1.02 | 0.86 | 0.98 | 0.84 | 0.97 | 0.89 | 0.87 | 0.69 | 0.79 | 0.63 |  |  |  |  |
| 1999 | 1.02 | 0.86 | 0.99 | 0.84 | 0.97 | 0.90 | 0.90 | 0.75 | 0.95 | 0.76 | 0.67 |  |  |  |
| 2000 | 1.01 | 0.86 | 0.98 | 0.84 | 0.97 | 0.90 | 0.90 | 0.75 | 0.96 | 0.75 | 0.70 | 0.78 |  |  |
| 2001 | 1.01 | 0.86 | 0.98 | 0.84 | 0.98 | 0.91 | 0.91 | 0.76 | 0.98 | 0.81 | 0.81 | 1.06 | 0.92 |  |
| 2002 | 1.01 | 0.86 | 0.98 | 0.84 | 0.97 | 0.90 | 0.91 | 0.76 | 0.98 | 0.81 | 0.82 | 1.13 | 1.22 | 0.83 |

**Remarks:** Laurec/Shepherd tuning used 1989-1992, XSA used in 1993. Assessments from 1996 onwards combine North Sea and IIIa, all previous figures are North Sea only

**Stock: Haddock in Sub-area IV (North Sea) and Division IIIa (Skagerrak - Kattegat)**

**Assessment Quality Control Diagram 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Recruitment (age 0) Unit: millions | | | | | | | | | | | | | | |
| Date of assessment | Year class | | | | | | | | | | | | | |
|  | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |  |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 | 1280 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 7879 | 32729 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 8351 | 33509 | 66763 |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 7927 | 25254 | 45919 | 83110 | 17559 |  |  |  |  |  |  |  |  |  |
| 1994 | 8141 | 27283 | 28631 | 51411 | 11813 | 45005 |  |  |  |  |  |  |  |  |
| 1995 | 8220 | 28190 | 2795 | 40711 | 12504 | 78532 | 17128 |  |  |  |  |  |  |  |
| 1996 | 8633 | 28322 | 27775 | 43030 | 12543 | 56957 | 16404 | 21739 |  |  |  |  |  |  |
| 1997 | 8733 | 28458 | 27875 | 42733 | 13084 | 58376 | 13896 | 17162 | 15483 |  |  |  |  |  |
| 1998 | 8709 | 28243 | 27738 | 41907 | 12946 | 54511 | 13058 | 22543 | 18516 | 8476 |  |  |  |  |
| 1999 | 8708 | 28155 | 27403 | 40941 | 12885 | 54413 | 12629 | 22808 | 13540 | 8433 | 67846 |  |  |  |
| 2000 | 8707 | 28144 | 27450 | 40680 | 12843 | 54325 | 14170 | 21891 | 13661 | 8741 | 73176 | 25829 |  |  |
| 2001 | 8706 | 28141 | 27425 | 40612 | 12698 | 53550 | 12878 | 21022 | 12126 | 8824 | 93773 | 20564 | 24872\* |  |
| 2002 | 8707 | 28141 | 27424 | 40616 | 12720 | 53185 | 12517 | 20665 | 11933 | 9409 | 110671 | 21334 | 1448 |  |

**Remarks:** Assessments from 1996 onwards combine North Sea and IIIa, all previous figures are North Sea only. \* GM mean 1963-1998

**Stock: Haddock in Sub-area IV (North Sea) and Division IIIa (Skagerrak - Kattegat)**

**Assessment Quality Control Diagram 3**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spawning stock biomass ('000 t) | | | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | | | |
|  | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| 1989 | 117 | 79 | 72 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 | 122 | 86 | 81 | 150 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 122 | 76 | 64 | 99 | 122 |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 119 | 71 | 55 | 105 | 201 | 235 |  |  |  |  |  |  |  |  |  |  |
| 1993 | 125 | 77 | 58 | 89 | 165 | 248 | 177 |  |  |  |  |  |  |  |  |  |
| 1994 | 121 | 68 | 61 | 99 | 130 | 194 | 158 | 163 |  |  |  |  |  |  |  |  |
| 1995 | 122 | 69 | 62 | 103 | 133 | 158 | 178 | 230 | 239 |  |  |  |  |  |  |  |
| 1996 | 129 | 81 | 63 | 101 | 135 | 160 | 162 | 233 | 243 | 210 |  |  |  |  |  |  |
| 1997 | 129 | 81 | 63 | 102 | 137 | 162 | 165 | 208 | 257 | 206 | 178 |  |  |  |  |  |
| 1998 | 129 | 81 | 63 | 101 | 135 | 158 | 158 | 193 | 211 | 213 | 171 | 136 |  |  |  |  |
| 1999 | 129 | 81 | 63 | 101 | 133 | 154 | 150 | 183 | 197 | 170 | 150 | 121 | 193 |  |  |  |
| 2000 | 129 | 81 | 63 | 101 | 133 | 153 | 149 | 181 | 198 | 173 | 133 | 111 | 111 | 185 |  |  |
| 2001 | 129 | 81 | 63 | 101 | 133 | 153 | 148 | 178 | 190 | 160 | 115 | 87 | 215 | 224 | 171 |  |
| 2002 | 129 | 81 | 63 | 101 | 133 | 153 | 149 | 178 | 188 | 156 | 110 | 84 | 211 |  |  |  |

Forecast. As revised by ACFM. Assessments from 1996 onwards combine North Sea and IIIa, all previous figures are North Sea only

**Remarks:** 1993 onwards XSA used, 1989-1992 Laurec/Shepherd tuning used