**Stock: Cod in Divisions VIIe-k**

**Assessment Quality Control Diagram 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Average F(2-5,u) | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | |
|  | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 0.80 | 0.92 | 0.97 | 0.96 |  |  |  |  |  |  |  |  |  |  |
| 1993 | 0.78 | 0.94 | 1.00 | 1.05 | 1.02 |  |  |  |  |  |  |  |  |  |
| 1994 | 0.78 | 0.91 | 0.99 | 0.99 | 0.89 | 0.93 |  |  |  |  |  |  |  |  |
| 1995 | 0.69 | 0.91 | 1.00 | 1.01 | 0.89 | 0.92 | 0.94 |  |  |  |  |  |  |  |
| 1996 | 0.68 | 0.92 | 1.00 | 1.00 | 0.88 | 0.87 | 0.86 | 0.86 |  |  |  |  |  |  |
| 1997 | 0.64 | 0.89 | 0.97 | 1.02 | 0.90 | 0.82 | 0.81 | 0.73 | 0.75 |  |  |  |  |  |
| 1998 | 0.65 | 0.90 | 0.98 | 1.04 | 0.92 | 0.84 | 0.85 | 0.78 | 0.91 | 0.80 |  |  |  |  |
| 1999 | 0.65 | 0.88 | 0.97 | 1.02 | 0.90 | 0.82 | 0.81 | 0.75 | 0.88 | 0.79 | 0.78 |  |  |  |
| 2000 | 0.63 | 0.89 | 0.98 | 1.03 | 0.90 | 0.82 | 0.81 | 0.74 | 0.89 | 0.84 | 0.91 | 0.98 |  |  |
| 2001 | 0.62 | 0.89 | 0.98 | 1.03 | 0.90 | 0.83 | 0.81 | 0.74 | 0.89 | 0.85 | 0.95 | 1.07 | 0.98 |  |
| 2002 | 0.62 | 0.89 | 0.98 | 1.03 | 0.90 | 0.82 | 0.81 | 0.74 | 0.88 | 0.84 | 0.94 | 1.05 | 0.94 | 1.05 |

**Remarks:** 1992 Working group assessment in Divisions VIIfg, used Laurec/Shepherd with 0.3 shrinkage. 1993 Working group used XSA, 0.5 shrinkage, age 1 as recruits, constant q at 5 and +. 1994 Working group data include VIIh also. 1995 Working group used no age treated as recruits, tuning used quarterly fleets. 1996 Working group include Division VIIe. 1997 Working group included Divisions VIIjk but with a shorter series (1988-1996), 1971-1987 time series of SSB and recruitment from a longer series since 1971 in VIIfgh scaled for consistency and used for predictions. 1998 Working group assessment in Divisions VIIe-k, series 1988-97, using the same scaling procedure. 1999 Working group used landings of VIIfgh scaled for consistency with VIIe-k and assessed using a long series 1971-1998 in Divisions VIIe-k, maturity ogive revised.WG2001:revision of catch w at age, stock w at age, numbers at age in series 1971-1980.

**Stock: Cod in Divisions VIIe-k**

**Assessment Quality Control Diagram 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Recruitment (age 1 ) Unit: '000s | | | | | | | | | | | | | | |
| Date of assessment | Year class | | | | | | | | | | | | | |
|  | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 5.6 | 1.7 | 2.7 |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 5.6 | 1.7 | 1.9 | 4.4 |  |  |  |  |  |  |  |  |  |  |
| 1994 | 6.3 | 2.0 | 2.2 | 5.5 | 5.3 | 2.4 |  |  |  |  |  |  |  |  |
| 1995 | 6.0 | 2.1 | 2.3 | 5.6 | 5.8 | 1.3 | 2.5 |  |  |  |  |  |  |  |
| 1996 | 7.8 | 2.3 | 2.5 | 6.4 | 6.4 | 1.5 | 7.8 | 2.9 |  |  |  |  |  |  |
| 1997 | 8.6 | 2.6 | 2.9 | 7.3 | 7.2 | 2.1 | 9.3 | 6.0 | 3.3 |  |  |  |  |  |
| 1998 | 8.6 | 2.7 | 2.9 | 7.3 | 7.0 | 2.2 | 9.1 | 6.3 | 5.4 | 3.4 |  |  |  |  |
| 1999 | 8.6 | 2.6 | 2.9 | 7.3 | 7.1 | 2.2 | 9.0 | 6.3 | 4.9 | 6.5 | 3.4 |  |  |  |
| 2000 | 8.6 | 2.6 | 2.9 | 7.3 | 7.1 | 2.2 | 9.0 | 6.1 | 4.8 | 6.4 | 3.3 | 3.4 |  |  |
| 2001 | 8.6 | 2.6 | 2.9 | 7.3 | 7.1 | 2.2 | 9.0 | 6.1 | 4.7 | 6.1 | 3.6 | 1.8 | 6.7 |  |
| 2002 | 8.6 | 2.6 | 2.9 | 7.3 | 7.1 | 2.2 | 9.0 | 6.1 | 4.7 | 6.2 | 3.7 | 1.5 | 6.9 | 4.9 |

GM recruitment assumed. Year classes 2001,2002,2003 = 3.280

**Stock: Cod in Divisions VIIe-k**

**Assessment Quality Control Diagram 3**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spawning stock biomass (tonnes) | | | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | | | |
|  | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 13.2 | 9.8 | 5.0 | 4.6 | 6.0 | 4.4 |  |  |  |  |  |  |  |  |  |  |
| 1993 | 12.6 | 9.1 | 4.5 | 3.2 | 4.3 | 4.3 | 3.6 |  |  |  |  |  |  |  |  |  |
| 1994 | 19.6 | 14.0 | 7.0 | 5.1 | 8.2 | 9.7 | 5.8 | 5.2 |  |  |  |  |  |  |  |  |
| 1995 | 19.1 | 13.8 | 7.2 | 5.3 | 8.5 | 10.7 | 6.0 | 5.6 | 5.0 |  |  |  |  |  |  |  |
| 1996 | 22.1 | 15.8 | 8.0 | 5.8 | 9.3 | 12.1 | 7.8 | 11.8 | 11.0 | 8.7 |  |  |  |  |  |  |
| 1997 | 24.3 | 18.3 | 9.5 | 6.6 | 10.2 | 13.7 | 9.7 | 15.0 | 15.6 | 13.8 | 11.3 |  |  |  |  |  |
| 1998 | 24.1 | 18.1 | 9.4 | 6.5 | 10.0 | 13.2 | 9.1 | 14.0 | 13.3 | 12.8 | 14.3 | 11.0 |  |  |  |  |
| 1999 | 24.7 | 17.9 | 10.2 | 8.6 | 11.8 | 13.0 | 11.9 | 15.1 | 13.8 | 12.9 | 13.4 | 11.5 | 9.8 |  |  |  |
| 2000 | 24.8 | 17.8 | 10.0 | 8.5 | 11.8 | 13.1 | 12.0 | 15.0 | 13.3 | 11.8 | 11.1 | 7.8 | 6.3 | 6.3 |  |  |
| 2001 | 24.8 | 17.8 | 10.0 | 8.5 | 11.8 | 13.1 | 12.0 | 15.0 | 13.3 | 11.6 | 10.6 | 6.9 | 6.4 | 7.9 | 6.6 |  |
| 2002 | 24.8 | 17.8 | 10.0 | 8.6 | 11.8 | 13.1 | 12.0 | 15.1 | 13.3 | 11.7 | 10.9 | 7.3 | 6.5 | 7.7 | 7.0 | 5.8 |

Forecast *Status quo*.

**Remarks:** 1992-93: Divisions VIIfg

1994-95: Divisions VIIfgh

1996: Divisions VIIe,f,g,h

since 1997: Divisions VII e-k

New maturity ogive used in assessments since 1999