Stock: Herring in Sub-division 31, Bothnian Bay

**Assessment Quality Control Diagram 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Average F(3-7,u) | | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | | |
|  | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
| 1990 | 0.10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 0.05 | 0.06 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 0.11 | 0.11 | 0.08 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 0.05 | 0.06 | 0.05 | 0.05 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | 0.02 | 0.03 | 0.02 | 0.02 | 0.03 |  |  |  |  |  |  |  |  |  |  |
| 1995 | 0.05 | 0.06 | 0.05 | 0.05 | 0.08 | 0.04 |  |  |  |  |  |  |  |  |  |
| 1996 | 0.06 | 0.07 | 0.06 | 0.06 | 0.10 | 0.06 | 0.04 |  |  |  |  |  |  |  |  |
| 1997 | 0.10 | 0.12 | 0.10 | 0.10 | 0.16 | 0.10 | 0.08 | 0.08 |  |  |  |  |  |  |  |
| 1998 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1999\* | 0.23 | 0.30 | 0.27 | 0.34 | 0.48 | 0.31 | 0.28 | 0.25 | 0.20 | 0.18 |  |  |  |  |  |
| 2000 | 0.24 | 0.31 | 0.28 | 0.37 | 0.58 | 0.44 | 0.46 | 0.52 | 0.46 | 0.64 | 0.41 |  |  |  |  |
| 2001 | 0.25 | 0.33 | 0.28 | 0.34 | 0.57 | 0.44 | 0.48 | 0.52 | 0.50 | 0.62 | 0.60 | 0.28 |  |  |  |
| 2002 | 0.25 | 0.33 | 0.28 | 0.34 | 0.57 | 0.44 | 0.48 | 0.52 | 0.52 | 0.66 | 0.70 | 0.32 | 0.23 |  |  |
| 2003 | 0.19 | 0.25 | 0.22 | 0.29 | 0.49 | 0.39 | 0.44 | 0.49 | 0.42 | 0.59 | 0.53 | 0.26 | 0.23 | 0.21 |  |
| 2004\*\* | 0.17 | 0.23 | 0.21 | 0.30 | 0.47 | 0.36 | 0.40 | 0.46 | 0.46 | 0.55 | 0.49 | 0.24 | 0.22 | 0.19 | 0.23 |

**Remarks: \* F(3–7)**

\*\* 9+ group**Stock: Herring in Sub-division 31, Bothnian Bay**

**Assessment Quality Control Diagram 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Recruitment (age 1) Unit: billions | | | | | | | | | | | | | | | |
| Date of assessment | Year class | | | | | | | | | | | | | | |
|  | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| 1990 | 0.6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 2.3 | 1.6 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 2.8 | 0.9 | 0.3 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 2.8 | 1.3 | 0.6 | 0.09 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | 4.2 | 2.5 | 1.4 | 1.8 | 2.3 |  |  |  |  |  |  |  |  |  |  |
| 1995 | 2.3 | 1.2 | 0.7 | 1.0 | 1.0 | 1.0 |  |  |  |  |  |  |  |  |  |
| 1996 | 0.3 | 2.0 | 1.1 | 0.5 | 0.9 | 1.2 | 0.8 |  |  |  |  |  |  |  |  |
| 1997 | 0.2 | 1.6 | 0.8 | 0.3 | 0.6 | 0.8 | 0.3 | 1.6 |  |  |  |  |  |  |  |
| 1998 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1999 | 0.9 | 0.5 | 0.2 | 0.3 | 0.4 | 0.2 | 0.9 | 0.7 | 0.3 | 0.3 |  |  |  |  |  |
| 2000 | 0.45 | 0.20 | 0.29 | 0.29 | 0.16 | 0.70 | 0.52 | 0.44 | 0.14 | 0.06 | 0.09 |  |  |  |  |
| 2001 | 0.09 | 0.87 | 0.39 | 0.17 | 0.26 | 0.25 | 0.14 | 0.61 | 0.40 | 0.28 | 0.17 | 0.17 |  |  |  |
| 2002 | 0.09 | 0.87 | 0.39 | 0.17 | 0.26 | 0.25 | 0.14 | 0.54 | 0.37 | 0.25 | 0.18 | 0.11 | 0.66 |  |  |
| 2003 | 0.10 | 0.88 | 0.39 | 0.17 | 0.26 | 0.25 | 0.15 | 0.57 | 0.37 | 0.24 | 0.15 | 0.11 | 1.01 | 0.18 |  |
| 2004 | 0.10 | 0.90 | 0.40 | 0.17 | 0.26 | 0.25 | 0.15 | 0.58 | 0.38 | 0.24 | 0.14 | 0.14 | 0.93 | 0.19 | 0.60 |

**Remarks:**

**Stock: Herring in Sub-division 31, Bothnian Bay**

**Assessment Quality Control Diagram 3**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spawning stock biomass ('000 t) | | | | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | | | | |
|  | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| 1990 | 38 | 44 | 49 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 100 | 132 | 136 | 131 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 72 | 88 | 111 | 112 | 110 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 91 | 106 | 99 | 126 | 130 | 132 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | 212 | 251 | 211 | 249 | 283 | 302 | 314 |  |  |  |  |  |  |  |  |  |  |
| 1995 | 91 | 111 | 95 | 109 | 107 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1996 | 73 | 90 | 78 | 90 | 84 | 87 | 109 | 169 | 178 |  |  |  |  |  |  |  |  |
| 1997 | 44 | 56 | 51 | 58 | 52 | 55 | 58 | 77 | 92 | 104 |  |  |  |  |  |  |  |
| 1998 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1999 | 21 | 25 | 22 | 21 | 18 | 16 | 21 | 24 | 33 |  |  |  |  |  |  |  |  |
| 2000 | 20 | 23 | 20 | 17 | 13 | 10 | 12 | 13 | 18 | 14 |  |  |  |  |  |  |  |
| 2001 | 19 | 22 | 19 | 18 | 13 | 10 | 12 | 12 | 14 | 12 | 11 |  |  |  |  |  |  |
| 2002 | 19 | 22 | 20 | 18 | 13 | 10 | 11 | 11 | 12 | 10 | 9 | 12 |  |  |  |  |  |
| 2003 | 25 | 28 | 23 | 19 | 14 | 11 | 12 | 12 | 13 | 11 | 9 | 14 | 19 |  |  |  |  |
| 2004 | 27 | 30 | 24 | 20 | 14 | 11 | 13 | 12 | 13 | 11 | 10 | 15 | 19 | 20 | 23 | 22 | 21 |

Forecast. *Status quo* catch.No predictions made in 1995.

**Remarks:**