**Stock: Herring in Sub-division 30, Bothnian Sea**

**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 | 0.15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 0.10 | 0.08 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 0.16 | 0.13 | 0.16 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 0.18 | 0.14 | 0.14 | 0.16 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | 0.13 | 0.10 | 0.09 | 0.12 | 0.11 |  |  |  |  |  |  |  |  |  |  |
| 1995 | 0.12 | 0.03 | 0.08 | 0.10 | 0.10 | 0.11 |  |  |  |  |  |  |  |  |  |
| 1996 | 0.11 | 0.08 | 0.07 | 0.10 | 0.10 | 0.12 | 0.12 |  |  |  |  |  |  |  |  |
| 1997 | 0.15 | 0.11 | 0.10 | 0.13 | 0.14 | 0.19 | 0.22 | 0.23 |  |  |  |  |  |  |  |
| 1998 | 0.07 | 0.06 | 0.07 | 0.10 | 0.11 | 0.15 | 0.17 | 0.19 | 0.28 |  |  |  |  |  |  |
| 1999 | 0.14 | 0.11 | 0.10 | 0.13 | 0.13 | 0.18 | 0.21 | 0.22 | 0.30 | 0.27 |  |  |  |  |  |
| 2000 | 0.18 | 0.17 | 0.14 | 0.16 | 0.13 | 0.20 | 0.23 | 0.21 | 0.29 | 0.28 | 0.34 |  |  |  |  |
| 2001 | 0.18 | 0.17 | 0.13 | 0.15 | 0.13 | 0.19 | 0.21 | 0.19 | 0.24 | 0.22 | 0.29 | 0.30 |  |  |  |
| 2002 | 0.12 | 0.11 | 0.11 | 0.14 | 0.13 | 0.19 | 0.23 | 0.21 | 0.29 | 0.24 | 0.28 | 0.25 | 0.24 |  |  |
| 2003 | 0.12 | 0.11 | 0.09 | 0.13 | 0.12 | 0.18 | 0.21 | 0.20 | 0.27 | 0.22 | 0.25 | 0.22 | 0.20 | 0.20 |  |
| 2004 | 0.11 | 0.10 | 0.09 | 0.13 | 0.11 | 0.17 | 0.21 | 0.19 | 0.26 | 0.21 | 0.24 | 0.22 | 0.19 | 0.19 | 0.17 |

**Remarks:**

**Stock: Herring in Sub-division 30, Bothnian Sea**

**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 | | 4.3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | | 7.5 | 5.3 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | | 4.0 | 3.1 | 2.0 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | | 4.8 | 5.4 | 3.1 | 3.1 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | | 6.0 | 6.8 | 3.9 | 6.0 | 8.7 |  |  |  |  |  |  |  |  |  |  |
| 1995 | | 7.0 | 7.6 | 4.5 | 6.1 | 8.8 | 3.9 |  |  |  |  |  |  |  |  |  |
| 1996 | | 1.6 | 6.8 | 7.7 | 4.6 | 6.2 | 7.5 | 3.8 |  |  |  |  |  |  |  |  |
| 1997 | | 1.3 | 5.4 | 5.7 | 3.2 | 4.0 | 4.7 | 2.5 | 3.3 |  |  |  |  |  |  |  |
| 1998 | | 6.7 | 6.8 | 3.9 | 4.9 | 4.8 | 2.7 | 3.5 | 2.9 | 3.6 |  |  |  |  |  |  |
| 1999 | | 4.5 | 5.1 | 3.0 | 3.7 | 3.9 | 2.4 | 3.0 | 2.7 | 1.8 | 3.6 |  |  |  |  |  |
| 2000 | | 5.5 | 6.0 | 4.1 | 4.5 | 5.2 | 3.3 | 4.2 | 3.7 | 2.6 | 7.0 | 4.2 |  |  |  |  |
| 2001 | | 5.7 | 6.2 | 4.5 | 5.2 | 5.5 | 3.6 | 4.7 | 3.9 | 3.5 | 6.1 | 2.6 | 4.7 |  |  |  |
| 2002 | | 5.8 | 6.1 | 3.7 | 4.6 | 5.4 | 3.9 | 4.7 | 3.8 | 3.5 | 6.9 | 3.0 | 5.4 | 5.0 |  |  |
| 2003 | | 6.0 | 6.3 | 3.9 | 4.8 | 5.6 | 4.1 | 5.4 | 3.9 | 3.8 | 6.9 | 3.1 | 5.1 | 3.1 | 5.3 |  |
| 2004 | | 6.1 | 6.4 | 3.9 | 4.9 | 5.7 | 4.2 | 5.5 | 4.2 | 3.6 | 6.9 | 3.5 | 4.6 | 4.6 | 5.7 | 5.4 |

**Remarks:**

**Stock: Herring in Sub-division 30, Bothnian Sea**

**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 | 155 | 169 | 174 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1991 | 375 | 452 | 497 | 512 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1992 | 196 | 186 | 240 | 229 | 222 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1993 | 175 | 204 | 217 | 215 | 211 | 195 |  |  |  |  |  |  |  |  |  |  |  |
| 1994 | 236 | 284 | 296 | 286 | 387 | 420 | 407 |  |  |  |  |  |  |  |  |  |  |
| 1995 | 274 | 331 | 347 | 343 | 450 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1996 | 421 | 474 | 505 | 540 | 557 | 515 | 403 | 394 | 446 |  |  |  |  |  |  |  |  |
| 1997 | 216 | 246 | 258 | 247 | 279 | 239 | 229 | 208 | 197 | 229 |  |  |  |  |  |  |  |
| 1998 | 464 | 437 | 325 | 344 | 366 | 330 | 292 | 205 |  |  |  |  |  |  |  |  |  |
| 1999 | 311 | 347 | 377 | 397 | 386 | 342 | 320 | 273 | 272 | 190 | 183 | 179 |  |  |  |  |  |
| 2000 | 214 | 253 | 272 | 272 | 324 | 275 | 279 | 225 | 197 | 186 | 205 | 198 | 183 |  |  |  |  |
| 2001 | 219 | 260 | 286 | 294 | 353 | 305 | 315 | 260 | 237 | 226 | 213 | 223 |  |  |  |  |  |
| 2002 | 275 | 298 | 300 | 286 | 330 | 288 | 298 | 244 | 228 | 226 | 249 | 235 | 258 |  |  |  |  |
| 2003 | 286 | 313 | 318 | 303 | 350 | 307 | 323 | 269 | 255 | 253 | 277 | 256 | 261 | 238 |  |  |  |
| 2004 | 293 | 320 | 325 | 310 | 358 | 314 | 331 | 276 | 263 | 260 | 286 | 263 | 275 | 314 | 303 | 311 | 360 |

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

**Remarks:**