Stock: Southern horse mackerel

**Assessment Quality Control Diagram 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Average F(1-11,u) | | | | | | | | | | | | | | | |
| Date of assessment | Year | | | | | | | | | | | | | | |
|  | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1992 | 0.17 | 0.25 | 0.32 | 0.35 |  |  |  |  |  |  |  |  |  |  |  | |
| 1993 | 0.14 | 0.16 | 0.14 | 0.12 | 0.16 |  |  |  |  |  |  |  |  |  |  | |
| 1994 | 0.27 | 0.31 | 0.25 | 0.21 | 0.23 | 0.24 |  |  |  |  |  |  |  |  |  | |
| 1995 | 0.29 | 0.32 | 0.26 | 0.23 | 0.26 | 0.28 | 0.22 |  |  |  |  |  |  |  |  | |
| 1996 | 0.27 | 0.31 | 0.24 | 0.21 | 0.24 | 0.25 | 0.19 | 0.19 |  |  |  |  |  |  |  | |
| 1997 | 0.23 | 0.24 | 0.19 | 0.17 | 0.19 | 0.20 | 0.16 | 0.19 | 0.15 |  |  |  |  |  |  | |
| 1998 | 0.22 | 0.23 | 0.17 | 0.16 | 0.19 | 0.20 | 0.16 | 0.18 | 0.14 | 0.215 |  |  |  |  |  | |
| 1999 | 0.23 | 0.25 | 0.19 | 0.17 | 0.20 | 0.22 | 0.16 | 0.18 | 0.13 | 0.20 | 0.20 |  |  |  |  | |
| 2000 | 0.25 | 0.27 | 0.21 | 0.19 | 0.22 | 0.23 | 0.17 | 0.17 | 0.12 | 0.17 | 0.20 | 0.17 |  |  |  | |
| 2001 | 0.24 | 0.26 | 0.20 | 0.18 | 0.22 | 0.23 | 0.18 | 0.17 | 0.12 | 0.18 | 0.20 | 0.19 | 0.18 |  |  | |
| 2002 | 0.23 | 0.25 | 0.19 | 0.17 | 0.21 | 0.23 | 0.18 | 0.19 | 0.15 | 0.20 | 0.22 | 0.20 | 0.20 | 0.19 |  | |
| 2003 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

In 1991 the horse mackerel age reading was revised.

Average F(2-6,u).

Average F(1-11,u).

There is no assessment in 2003

**Remarks:** In year 2002 the tunning fleets used in the assessment have been modified

**Stock: Southern horse mackerel**

**Assessment Quality Control Diagram 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Recruitment (age 0) Unit: millions | | | | | | | | | | | | | | | |
| Date of assessment | Year class | | | | | | | | | | | | | | |
|  | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1992 | 820 | 605 | 697 | 194 |  |  |  |  |  |  |  |  |  |  |  | |
| 1993 | 1261 | 850 | 1177 | 729 | 1134 |  |  |  |  |  |  |  |  |  |  | |
| 1994 | 1130 | 945 | 974 | 806 | 3943 | 1280 |  |  |  |  |  |  |  |  |  | |
| 1995 | 1319 | 1098 | 973 | 689 | 2772 | 1600 | 1729 |  |  |  |  |  |  |  |  | |
| 1996 | 1415 | 1101 | 1058 | 846 | 2324 | 1489 | 1654 | 982 |  |  |  |  |  |  |  | |
| 1997 | 1415 | 1008 | 1152 | 1080 | 2543 | 1801 | 1245 | 517 | 472 |  |  |  |  |  |  | |
| 1998 | 1466 | 1002 | 1248 | 1035 | 2005 | 1603 | 1245 | 644 | 558 | 1420 |  |  |  |  |  | |
| 1999 | 1401 | 955 | 1155 | 886 | 1865 | 1814 | 1310 | 812 | 732 | 1523 | 1308 |  |  |  |  | |
| 2000 | 1413 | 966 | 1153 | 926 | 1825 | 1710 | 1375 | 1267 | 1167 | 1311 | 669 | 826 |  |  |  | |
| 2001 | 1419 | 956 | 1140 | 902 | 1747 | 1602 | 1344 | 1437 | 1255 | 1262 | 779 | 491 | 784 |  |  | |
| 2002 | 1348 | 913 | 1085 | 883 | 1642 | 1434 | 1226 | 1316 | 1136 | 1295 | 873 | 595 | 683 | 788 |  | |
| 2003 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

In 1991 the horse mackerel age reading was revised.

**Remarks:** IN year 2002 the tunning fleets used in the assessment have been modified

**Stock: Southern horse mackerel**

**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 | 2005 | |
| 1989 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1990 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1991 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 1992 | 193 | 188 | 154 | 120 | 92 | 69 |  |  |  |  |  |  |  |  |  |  |  | |
| 1993 | 365 | 380 | 348 | 334 | 319 | 289 | 267 |  |  |  |  |  |  |  |  |  |  | |
| 1994 | 196 | 202 | 201 | 190 | 178 | 184 | 206 | 209 |  |  |  |  |  |  |  |  |  | |
| 1995 | 181 | 191 | 196 | 192 | 181 | 159 | 190 | 206 | 218 |  |  |  |  |  |  |  |  | |
| 1996 | 191 | 203 | 211 | 208 | 200 | 172 | 209 | 224 | 235 | 236 |  |  |  |  |  |  |  | |
| 1997 | 209 | 222 | 226 | 220 | 209 | 196 | 238 | 265 | 273 | 264 | 256 |  |  |  |  |  |  | |
| 1998 | 219 | 235 | 240 | 234 | 223 | 199 | 227 | 244 | 255 | 256 | 245 | 235 |  |  |  |  |  | |
| 1999 | 213 | 229 | 233 | 225 | 212 | 179 | 207 | 229 | 246 | 267 | 271 | 258 | 246 |  |  |  |  | |
| 2000 | 194 | 208 | 213 | 207 | 198 | 177 | 205 | 229 | 252 | 289 | 247 | 241 | 229 | 216 |  |  |  | |
| 2001 | 202 | 222 | 227 | 215 | 207 | 174 | 198 | 221 | 238 | 279 | 238 | 247 | 221 | 203 | 189 |  |  | |
| 2002 | 209 | 228 | 227 | 213 | 198 | 165 | 176 | 186 | 200 | 229 | 195 | 200 | 175 | 164 | 152 | 147 |  | |
| 2003 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

Forecast.

In 1991 the horse mackerel age reading was revised.

**Remarks:** In year 2002 the tunning fleets used in the assessment have been modified